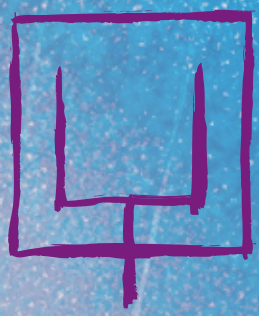

2021

Foreign Direct Investment
in Latin America and the Caribbean

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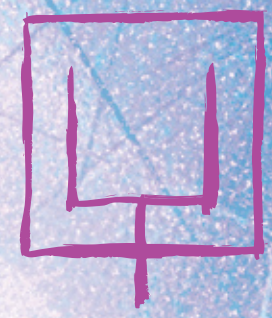

2021

Foreign Direct Investment
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UNITED NATIONS

ECLAC

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The 2021 version of *Foreign Direct Investment in Latin America and the Caribbean* is the most recent edition of an annual series produced by the Unit on Investment and Corporate Strategies of the Division of Production, Productivity and Management of the Economic Commission for Latin America and the Caribbean (ECLAC). This year's edition was prepared by Leandro Cabello, Álvaro Calderón, Mathilde Closset, Filipe Da Silva, Marco Dini, Valeria Jordán, Georgina Núñez, Cecilia Plottier, Edwin Fernando Rojas and Nunzia Saporito, under the coordination of Giovanni Stumpo. The databases were prepared by Leandro Cabello.

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Explanatory notes:
- Three dots (...) indicate that data are not available or are not separately reported.
- A dash (-) indicates that the amount is nil or negligible.
- A full stop (.) is used to indicate decimals.
- The word "dollars" refers to United States dollars, unless otherwise specified.
- A slash (/) between years (e.g. 2013/2014) indicates a 12-month period falling between the two years.
- Individual figures and percentages in tables may not always add up to the corresponding total because of rounding.

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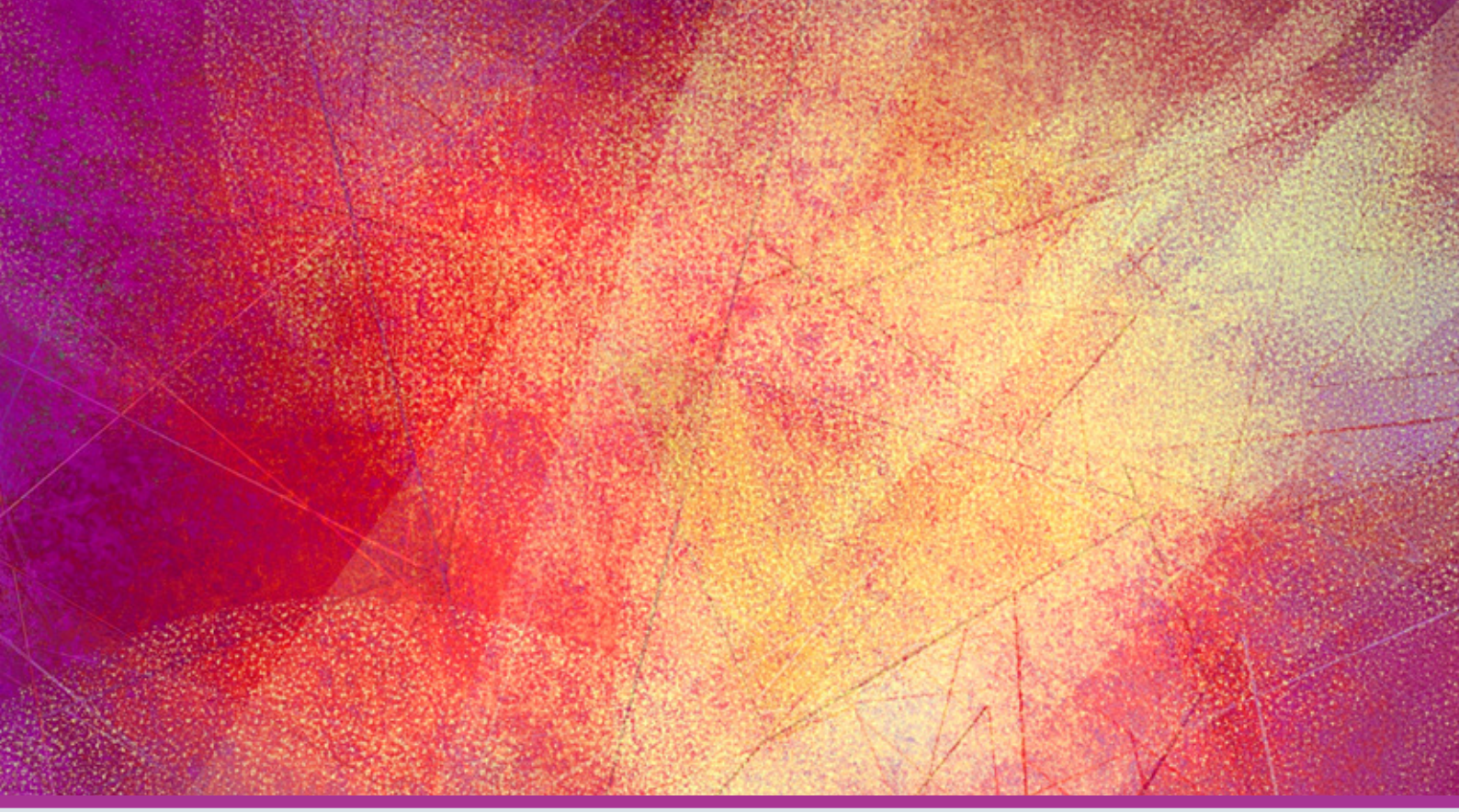


Executive summary

A. Overview of foreign direct investment in the region

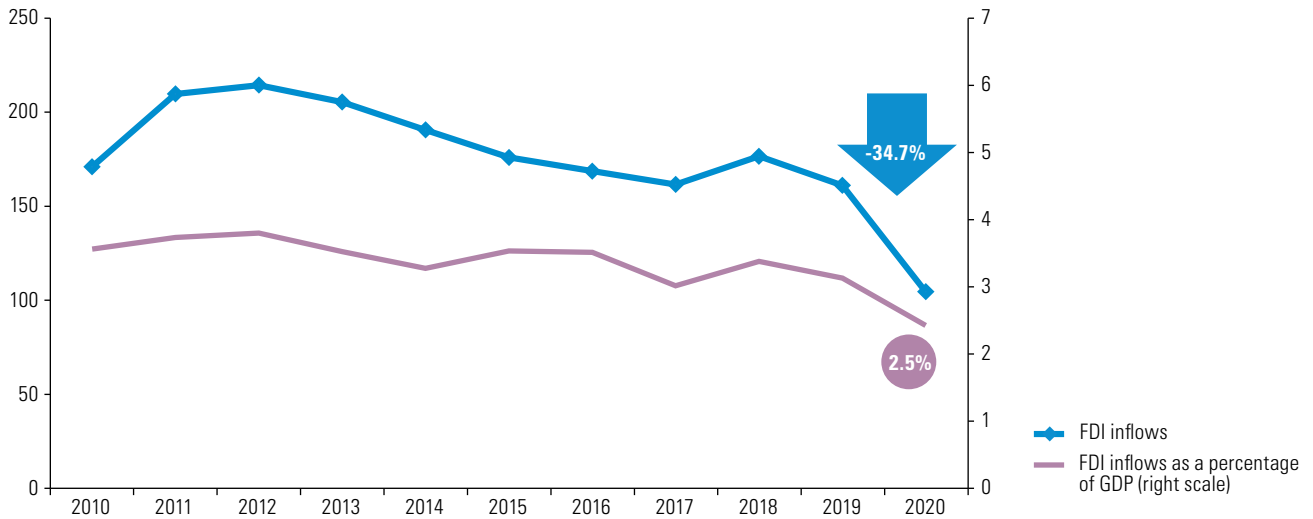
B. Chinese investment in a changing world: repercussions for the region

C. Investment strategies in the digital age

A. Overview of foreign direct investment in the region

In 2020 the coronavirus disease pandemic (COVID-19) weighed heavily on the investments of transnational corporations. Foreign direct investment (FDI) inflows into Latin America and the Caribbean amounted to US$ 105.480 billion, some US$ 56 billion less than in 2019. Thus, the lowest value in the last decade was recorded in 2020, and the year-on-year decline is comparable only to that of 2009, when inflows fell by 37.1% as a result of the global financial crisis. Moreover, the effect of the pandemic on FDI was more severe than its effect on GDP, reflected in the FDI share of GDP that stood at a mere 2.5% in 2020, down from an average of 3.5% in the 2010s (see figure 1).

Figure 1
Latin America and the Caribbean: foreign direct investment (FDI) inflows, 2010–2020
(Billions of dollars and percentages of GDP)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures and estimates as of 27 July 2021.
Note: Information according to International Monetary Fund (IMF), *Balance of Payments and International Investment Position Manual: Sixth Edition (BPM6)*, Washington, D.C., 2009 except in the cases of Bahamas, Barbados, Bolivarian Republic of Venezuela, Guyana, Haiti, Paraguay and Peru. No information has been available for the Bolivarian Republic of Venezuela since 2019. No information is available for 2020 for Haiti.

This trend was generalized in the region, with only five countries receiving more foreign capital in 2020 than in 2019. These countries were the Bahamas and Barbados in the Caribbean, Ecuador and Paraguay in South America, and Mexico. The sharp fall in FDI inflows to Brazil (-35.4%) and the increase in Mexico (6.6%) brought the share of both countries as a destination for FDI closer than at any time in recent years (42% in the case of Brazil and 30% in the case of Mexico). In Central America, FDI inflows declined in all countries. The most notable case in this subregion was Panama: after a decade in which investment increased steadily, in 2020 it registered negative capital inflows in all components of FDI, with negative inflows in intercompany loans accounting for the largest share of the total figure. Inflows in the Caribbean decreased less than the regional average (-25.5%).

The hardest hit investments were those aimed at the natural resources sector, which fell by 47.9% compared to 2019, and those aimed at manufacturing (down by 37.8%). The drop in investment in services was less steep (-11.0%). Almost half of FDI inflows in 2020 went to services and the weight of manufacturing fell to 37%, below the average for the last decade (39%).

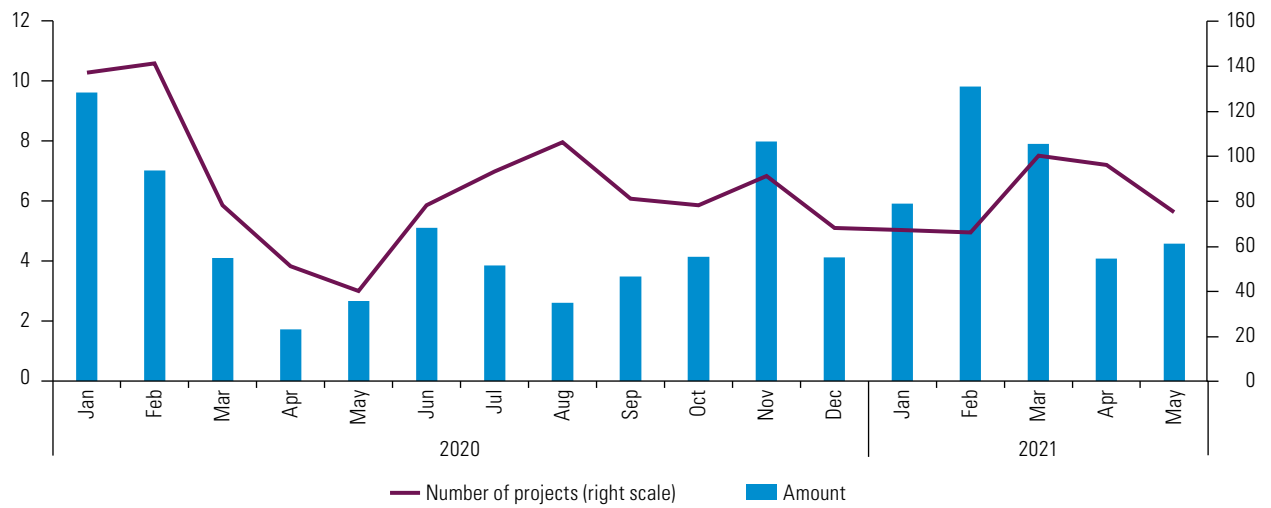
In 2020, foreign companies showed less interest in acquiring or investing in existing companies and in announcing new investments. Cross-border mergers and acquisitions, already down in 2019, fell by 21% in value terms to a total of about US$ 26 billion, which was slightly higher than the figure recorded in 2009 in the wake of the global financial crisis. The number of deals has been trending down since 2015, with the year-on-year drop in 2020 bringing the number to its lowest level since 2005.

In addition to exacerbating the downward trend in cross-border mergers and acquisitions, the crisis caused by the pandemic had a significant impact on announcements of new investments. In 2020, announced projects slumped to levels seen in the mid-2000s, both in terms of the number of announcements (-45% year-on-year) and investment amounts, which were about half those recorded in 2019, with a total of around US$ 56 billion. This is the first time that a global crisis has affected the number of project announcements in the region. Following the 2008 global financial crisis, FDI inflows and cross-border mergers and acquisitions fell in 2009 and recovered rapidly the following year. At the time, there was no decline in the number of project announcements and while amounts dropped by 13%, the values remained very high (above US$ 100 billion). The 2020 crisis, however, had a different impact on the business outlook of transnationals. Project announcements fell to levels not seen in more than 10 years, with the lowest number of announcements since 2007.

After the crisis in 2020, the global FDI landscape in 2021 remains fairly complex. Forecasts by the United Nations Conference on Trade and Development (UNCTAD) indicate that an increase of between 10% and 15% is to be expected this year. This would leave global FDI 25% below the 2019 level of US$ 1.5 trillion, possibly recovering by 2022. However, the magnitude and characteristics of the recovery, both in 2021 and 2022, will depend on the pace of the global economic recovery, the possibility of pandemic relapses and the impact on FDI of the economic stimulus programmes implemented by countries, along with the strategies of transnational corporations in the efforts towards greater resilience of their business models and global supply chains.

In Latin America and the Caribbean, FDI project announcements reflected a recovery between September 2020 and February 2021. However, from February 2021 until May 2021, announcements reflect a further decline in the value of projects (see figure 2).

Figure 2
Latin America and the Caribbean: announced foreign direct investment projects, 2020 and January-May 2021
(Billions of dollars and number of projects)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Financial Times, fDi Markets [online database] https://www.fdimarkets.com/.

In addition to the above-mentioned elements, the estimates of the Economic Commission for Latin America and the Caribbean (ECLAC) indicate GDP growth of 5.2% for 2021. This means that the region will not recover the GDP level of 2019 in 2021. In such a scenario, it is difficult to expect FDI inflows into the region to increase by more than 5%.

Latin America and the Caribbean face significant challenges. The economic recovery is likely to be partial and, in parallel, because of better commodity prices and increased demand, some countries are expected to focus on reprimarizing as an option for growth. This means a return to an economic model that has not been able to guarantee a sustained increase in GDP and productivity over time.

Given this situation, a profound transformation process is necessary. Public policies are needed to address the pandemic and to connect the emergency to a transformative recovery with equity and sustainability. To this end, ECLAC has identified eight sectors for the big push for sustainability: the transition to renewable energy, sustainable electromobility in cities, the inclusive digital revolution, the health manufacturing industry, the bioeconomy, the care economy, the circular economy and sustainable tourism.

At present, the challenge is greater given the characteristics and magnitude of the crisis, and FDI must be channelled towards activities that generate greater productivity, innovation and technology and contribute to the development of the eight sectors mentioned. To that end, the countries of the region will need to implement plans to reactivate and transform production. At the same time, both governments and the private sector must use their capacities to ensure that the policy of attracting foreign capital is also incorporated into industrial policy as an instrument for the transformation of the productive structure.

B. Chinese investment in a changing world: repercussions for the region

In a world still in crisis on account of the pandemic, China has continued to make progress towards consolidating its position as a global economic power. Over the course of this forty-year-long process of economic growth and international expansion, China has been able to impose, in part because of its scale, its own terms and conditions on economic opening and has not had to abide strictly to the conditions prevailing in international relations. One example of this is the way in which it has used FDI to close the technology gap.

China is one of the world's leading recipients of FDI, but the conditions it imposed on transnational investments were such that they allowed for technological spillovers and local capacity-building. At the same time, outward FDI from China —including Hong Kong (Special Administrative Region (SAR) of China)— has been growing steadily, rising from 5.5% of total global outward FDI stock in 2000 to 11% in 2020. This has made the country the third largest source of FDI in the world after the European Union and the United States.

Chinese companies have used different types of investment depending on the destination region and sector. Greenfield investments have allowed the penetration of new markets in sectors where Chinese companies have established capacities. For example, the Belt and Road Initiative, which focuses on infrastructure development and targets mainly Eurasia —and, to a lesser extent, Africa— explains the preponderance of project announcements in those areas. Mergers and acquisitions, on the one hand, have ensured the supply of natural resources and, on the other, have secured access

to cutting-edge technologies in core economies. Europe and North America have been the main destinations of this type of investment. As a destination for Chinese investment, Latin America and the Caribbean reflected a similar share in both types of investment. Between 2005 and 2020, the region accounted for 8.9% of the total amount of mergers and acquisitions by companies from China and Hong Kong (SAR) and 8.1% of the amount of project announcements.

For Latin America and the Caribbean, meanwhile, the relative importance of China has been greater, mainly in terms of mergers and acquisitions. According to official balance-of-payments statistics for the countries of the region, a period of great dynamism began in 2010, when FDI inflows from China rose to more than US$ 1 billion per year and reached a peak of close to US$ 3 billion in 2011. With this rate of growth, China accounted for 1.6% of the region's total FDI inflows in 2018, but that share was still low compared to traditional sources such as the European Union (50%) or the United States (22%). However, official balance-of-payments statistics record only the capital entering directly from China, so they underestimate the presence of Chinese companies in the region. The use of complementary data sources indicates a greater share for Chinese companies.

China was among the main investors in Latin America and the Caribbean in terms of cross-border mergers and acquisitions: in 2020 it was the country whose deals accounted for the largest amount. The share of Chinese companies in the region's total amount of mergers and acquisitions rose from 1.7% between 2005 and 2009 to 16.3% between 2015 and 2019. Among project announcements, in contrast, the weight of Chinese companies in the total amount has been more stable and the maximum was reached between 2015 and 2019, with a share of 6.4%. With regard to the sectors targeted by Chinese investments, it is possible to distinguish two phases. The first phase of Chinese investment in the region, which lasted from the start of the century until early 2010, was characterized by investments in hydrocarbons, metal mining, agriculture and fisheries. In the second phase, from 2010 onward, a gradual process of diversification began, with Chinese companies embarking on investments in electricity, the construction of transport infrastructure (mainly ports) and, to a lesser extent, manufacturing, the financial sector and information and communications technologies. China's investment in the telecommunications and high-tech sectors has increased in recent years, reflecting the country's digital expansion strategy and the growing global importance of its digital companies. Although Chinese FDI in these sectors in the region is limited, the presence of Chinese technology companies as suppliers has increased in Latin America and the Caribbean through contracts in the digital infrastructure sector, in areas such as 5G technology and submarine cables, and also in the quest to create smart cities.

Certain characteristics of China's progress towards becoming a world power differentiate it from other leading countries. These include the strong presence of State-owned enterprises, which accounted for 82% of the total value of mergers and acquisitions by Chinese companies in Latin America and the Caribbean between 2005 and 2020. In addition to FDI, construction contracts and infrastructure projects are another important component of Chinese companies' internationalization drive. Infrastructure projects under different forms of contracts have particularly been used in the framework of the Belt and Road Initiative, and they represent a growing form of participation by Chinese companies and technologies in the region, amounting to roughly US$ 77 billion between 2005 and 2019. In many cases, China also provides the region's governments with financing to carry out these projects. Thus, between 2005 and 2020, Latin America and the Caribbean registered some 99 loans for a total amount of some US$ 137 billion.

The growth in Chinese investment in the region was shaped by the country's strategic internationalization decisions. The change that has taken place in the pattern of Chinese investments in Latin America and the Caribbean over the past 10 years does not coincide with the country's process of technological sophistication or the evolution of its companies in the world, as these investments remain concentrated in a small number of activities, mainly mining, energy and transport infrastructure.

Latin America and the Caribbean's recovery process from the COVID-19 pandemic is an opportunity to embark on a new stage in economic relations with China and to develop policies that ensure that China's investments contribute to building productive capacities in the recipient countries, establishing links with local suppliers, generating employment and promoting sustainable development. Moreover, with regard to relations between China and Latin America and the Caribbean, there is a need to promote greater regional cooperation to give the countries of the region more leeway in defining their investment and trade policies.

C. Investment strategies in the digital age

The digital revolution is giving rise to a new age characterized by the transformation of consumption, business and production models by the adoption and combined integration of advanced digital technologies, namely fifth-generation (5G) mobile networks, the Internet of Things (IoT), cloud computing, artificial intelligence, big data analytics and robotics, among others. The current situation is one of transition from a hyperconnected society to a world which is digitized in the economic and social dimensions and where the organizational, production and governance methods of the traditional economy coexist with the business, production and governance models arising from the new technological paradigm and adopt their innovations. This is beginning to result in the consolidation of a new, digitally interwoven system in which models from the two spheres are integrated and interact, giving rise to more complex ecosystems that are currently in the throes of organizational, institutional and regulatory transformation.

In order to interpret and analyse the progress of the digital transformation, ECLAC proposes a conceptual model structured in three dimensions. The first of these is the connected economy, characterized by the deployment of broadband networks and the mass use of the Internet. The second is the digital economy, understood as that part of economic production derived mainly from business models centring on the supply of digital goods and services, which has accelerated sharply with the more widespread use of digital platforms as business models. Finally, the digitized economy refers to the incorporation of digital technologies (and, in particular, artificial intelligence solutions) into the production, organization and consumption models of the economy as a whole, especially in traditional industries. These dimensions of digital development are constantly evolving in a process that is both synergistic, with advances in one area driving progress in another, and systemic, in that the activities of society, the productive apparatus and the State alike are being transformed.

This process is generating structural changes in the global economy. The initial strong growth of sectors linked to the connected economy resulted in a revolution in communications and the generation of information and knowledge, prompting the unprecedented development of the digital economy. Digitally enabled innovations are radically changing the value proposition of the goods and services on offer from a variety of industries, with a disruptive effect on the economy as a whole, and accelerating the incorporation of digital technologies in traditional industries. In the last decade, the digital ecosystem, which encompasses the connected and digital

economy dimensions, has experienced dramatic growth. Between 2010 and 2021, the digital technology industry increased its share of the market value of the world's 5,000 largest companies from 14% to 28%. Over the same period, the share of the digital economy increased from 3% to 15%, while the connected economy experienced more modest growth, from 11% to 13%. However, although telecommunications operators are no longer as important as they used to be, they remain crucial for the roll-out of digital infrastructure, especially in the case of the new 5G networks.

Latin America and the Caribbean reflect the same trend, albeit with less dynamism. Operators are reworking their business strategies, focusing on their strongest activities and on higher value added business segments with a view to taking advantage of opportunities that may open up through future investments, particularly in 5G technology, among other motives. Between 2019 and 2025, US$ 99 billion is projected to be invested in the development of network infrastructure. Currently, over 50% of total connections in the region are 4G, while 5G coverage could reach around 10% by 2025. Amid this backdrop, digital companies in the region have become much more important. One example of this dynamic has been the dramatic increase in the market value of the Argentine e-commerce company Mercado Libre, which is the region's second-largest company by market value. This has led to an upsurge of investment in digital sectors —both the connected economy and the digital economy—, particularly in terms of mergers and acquisitions. However, a striking new feature of the digital economy in the region is the growing importance of venture capital investment. In fact, because of the relative immaturity of the Latin American digital sector, investment in digital economy companies is increasingly coming through venture capital. Finally, the digitization of the economy has advanced at a slower pace in the region. While mature technology is widespread, when consideration is given to more complex technologies the picture changes dramatically and significant gaps are evident, especially in rural areas and smaller enterprises.

Moreover, the digitization of the economy requires a review of the existing regulatory and institutional frameworks. This need has been highlighted by the rise of digital platforms and new business models based on the management of large amounts of information and cross-border data movements. The increasing datafication of the economy, in which digital platforms play a central role, is influencing the behaviour of the vast majority of companies. In this context, the impact of the platform model is more complex to assess when the pillars of competition are directly affected.

Large technology companies can exert control over market dynamics, especially through mergers and acquisitions. In this scenario, the value of data and pricing strategies in data marketplaces pose significant challenges. An integral part of the value of data relates to their protection and privacy, a factor that may become a significant barrier to entry for new companies seeking to participate in the sector. Lastly, business models in the digital economy pose significant challenges to countries' tax policy. This has made it necessary to adapt traditional tax arrangements and to launch what are still incipient initiatives for the creation of ad hoc forms of digital taxation, the presence of which has increased in countries of the region.

CHAPTER

I

Overview of foreign direct investment in the region

A. Foreign direct investment slides back to 2005 levels amid the COVID-19 crisis

Against the backdrop of the international crisis caused by the coronavirus disease (COVID-19) pandemic, global foreign direct investment (FDI) flows plummeted (-35%), falling even more sharply than in 2009 (-17%). Global flows had rebounded to US$ 1.5 trillion in 2019, but fell on account of the effects of the crisis to about US$ 1 trillion in 2020, the lowest level since 2005 (see table I.1).

Table I.1
Global FDI inflows, rate of change and distribution by region, 2008–2020
(Billions of dollars and percentages)

	Investment flows (billions of dollars)						Variation (percentages)					Distribution of investment flows (percentages of the total)					
	2008–2015[a]	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020b	2008–2015[a]	2016	2017	2018	2019	2020
World total	1 514	2 065	1 647	1 437	1 530	999	2	–20	–13	7	–35	100	100	100	100	100	100
Developed economies	811	1345	894	708	749	312	6	–33	–21	6	–58	54	65	54	49	49	31
European Union	363	362	301	347	380	103	–39	–17	15	9	–73	24	18	18	24	25	10
United States	243	459	295	223	261	156	–2	–36	–24	17	–40	16	22	18	16	17	16
Transition economies	70	67	50	37	58	24	96	–24	–28	58	–58	5	3	3	3	4	2
Developing economies[c]	632	654	702	692	723	663	–10	7	–1	4	-8	42	32	43	48	47	66
Latin America and the Caribbean	177	169	162	177	162	105	-4	-4	9	-9	-35	11	8	10	12	11	11
Africa	54	46	40	45	47	40	–20	–13	13	4	-16	4	2	2	3	3	4
Developing countries in Asia	415	471	505	496	516	535	-8	7	–2	4	4	27	23	31	35	34	54

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations Conference on Trade and Development (UNCTAD), *World Investment Report 2021*, Geneva, 2020; and official figures and estimates for Latin America and the Caribbean.

[a] Simple average.

[b] The calculation of the change in 2020 excludes countries for which no 2019 data are available.

[c] The figure is not equal to the total for the subregions or groups, since the figures for Latin America and the Caribbean are not taken from UNCTAD.

The effect of the crisis on FDI flows has varied considerably between countries and regions of the world. In developed economies, FDI inflows have more than halved (-58%), falling to their lowest levels since 1998. The fall was steepest in Europe (-80%) and the European Union (-73%): with the exception of Luxembourg, all major recipients registered sharp declines, as is the case of Germany (-34%), France (-47%) and Ireland (-59%), while the Netherlands (-336%) and Italy (-102%) saw negative inflows. This trend reflects financial flows between companies and corporate restructuring processes.

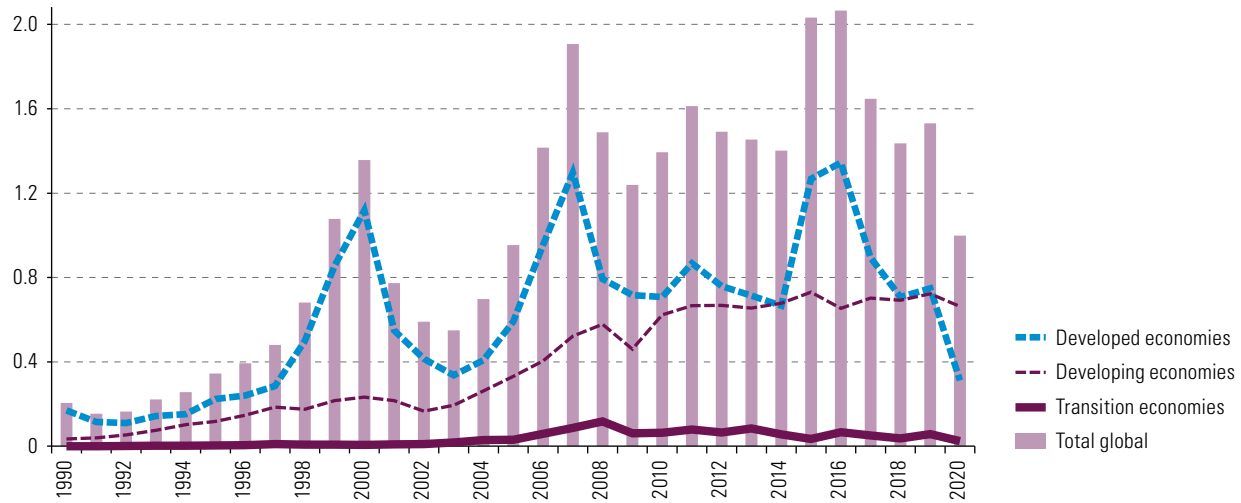
Similarly, Canada saw a 50% drop in FDI flows, while in the United States they fell by 40% owing primarily to the decline in reinvested earnings.

FDI inflows also tumbled in transition economies (-58%), with the main recipient, the Russian Federation, registering a 70% decline.

FDI flows in developing countries have fallen less sharply (-8%), however, primarily on account of FDI inflows to some developing economies in Asia. While FDI inflows to Africa and Latin America and the Caribbean declined by 16% and 41% respectively, they increased in China (6%), Hong Kong Special Administrative Region (SAR) of China (62%) and India (27%) (see figures I.1 and I.2).

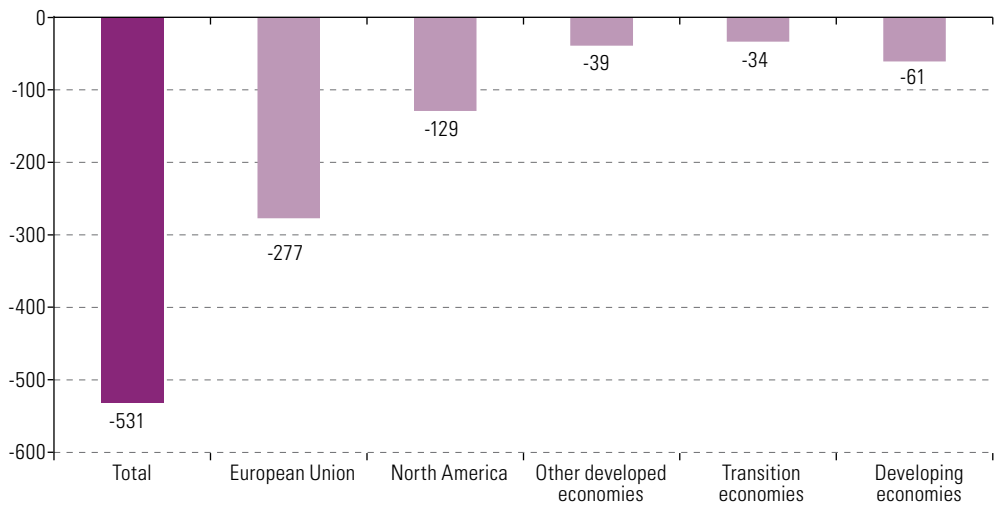
In 2020, developing economies thus received 66% of global FDI flows, more than twice that received by developed economies, which accounted for 31% of total global flows compared to 49% the previous year.

Figure I.1
Global foreign direct investment flows by group of economies, 1990–2020
(Trillions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations Conference on Trade and Development (UNCTAD), *World Investment Report 2021*, Geneva, 2021.

Figure I.2
Selected regions and groupings: changes in FDI inflows in selected countries and regions, 2019–2020
(Billions of dollars)

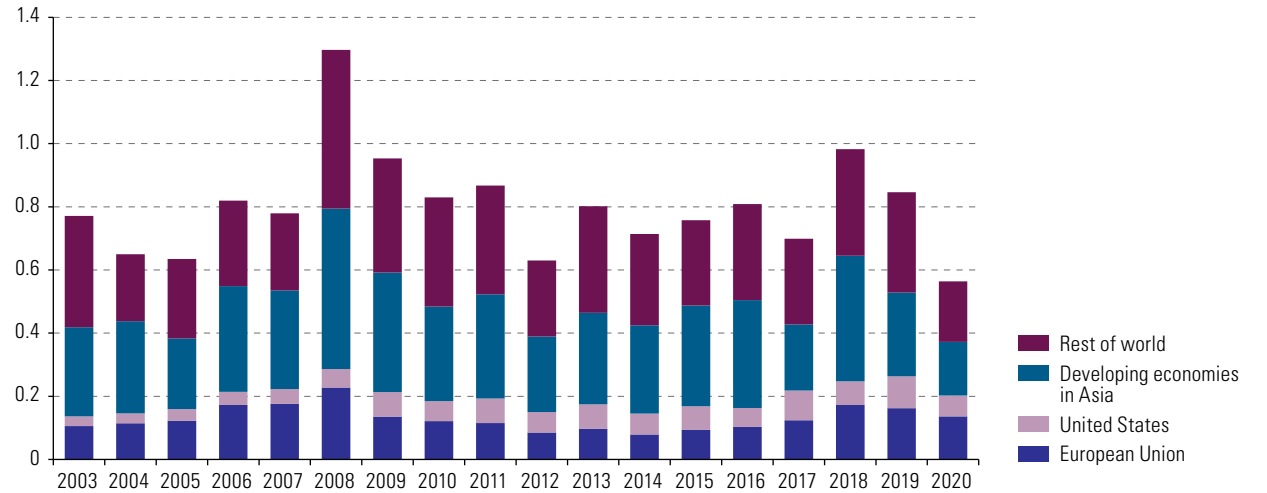


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations Conference on Trade and Development (UNCTAD), *World Investment Report 2021*, Geneva, 2021.

The total value of investment project announcements, which had fallen by 14% in 2019, plummeted by 33% in 2020 to US$ 564 billion, the lowest value since 2003. This value fell much more sharply in developing economies (-44%). China and Hong Kong Special Administrative Region (SAR) of China saw the value decline by 48% and 51% respectively. While it also fell in India (-19%), this was below the average. In Latin America and the Caribbean and in Africa, however, the values halved.

Meanwhile, smaller reductions were seen in developed economies (-16%), and particularly in Europe (-13%). The geographical distribution of investment projects has therefore changed, with projects in developed economies receiving than half of the value (51% of the total) for the first time (see figure I.3).

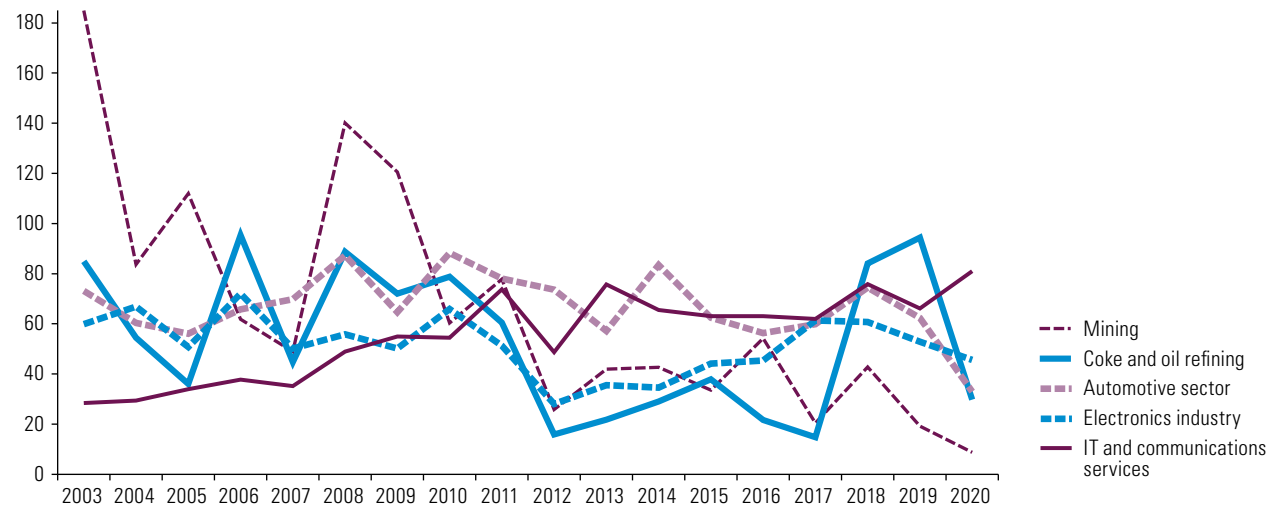
Figure I.3
Global FDI project announcements, by destination region or country, 2003–2020
(Trillions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations Conference on Trade and Development (UNCTAD), *World Investment Report 2021*, Geneva, 2021.

Among the different sectors, the decline has been sharpest in primary activities (-47%). This is mainly due to the sharp fall in the value of investment projects announced in extractive activities (-54%), while agriculture projects increased by 10%. Announced investments in mining and hydrocarbons totalled US$ 8.772 billion, the lowest value in the last 20 years, which represented only 1.6% of the total value of investment projects. This percentage is well below the levels reached in previous years, especially during the commodity super cycle; in 2003, it accounted for 24% of total value (see figure I.4).

Figure I.4
Global FDI project announcements, selected sectors, 2003–2020
(Billions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations Conference on Trade and Development (UNCTAD), *World Investment Report 2021*, Geneva, 2021.

The value of projects announced in manufacturing fell by 41%, the sectors with the greatest declines being coke and oil refining (-69%), non-metallic minerals (-66%),[1] paper and cardboard (-52%), textile and clothing (-52%) and the automotive industry (-47%),

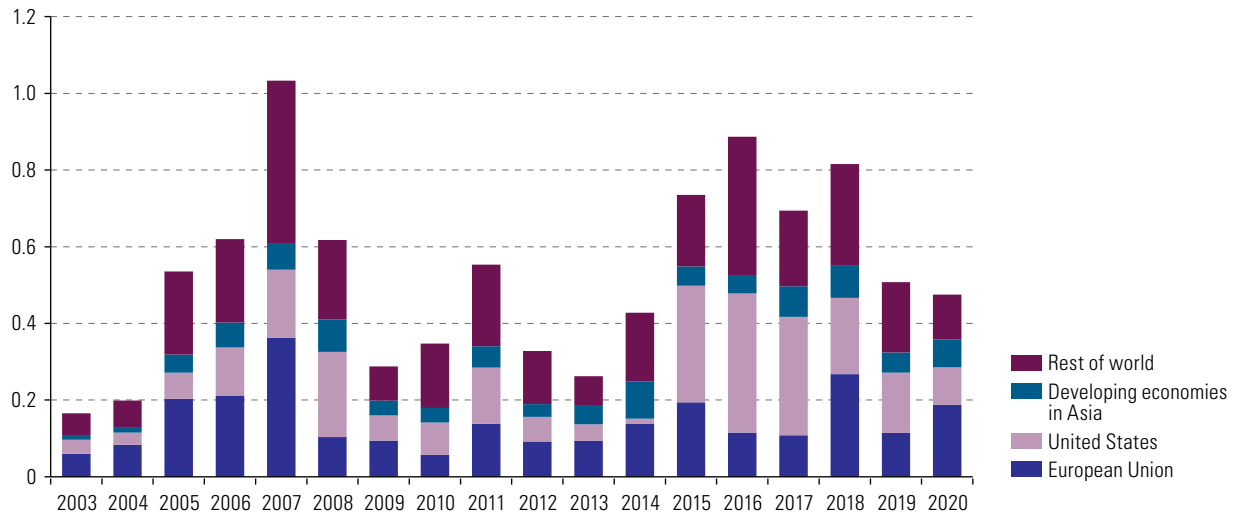
[1] This category includes building materials such as glass, ceramics, bricks and cement.

which sank to its lowest value in the last 20 years. At the same time, the electronics industry registered a much smaller decline (-14%), while the sole manufacturing sector in which announced project values increased was the pharmaceutical industry (1.7%).

In services, the value of announced investment projects fell below the average (-25%), but with significant sectoral differences. For example, entertainment services and real estate saw an 85% drop. Similarly, the value of projects in the hotel sector and construction fell by 67% and 47% respectively. These negative results contrast with those registered in information technology (IT) and telecommunications services, where the value of investment projects rose by 22% to reach the highest share ever recorded for this sector (14% of total value).

The value of cross-border mergers and acquisitions, which had fallen significantly in 2019, declined further in 2020 and amounted to US$ 475 billion (see figure I.5). The drop was, however, considerably less pronounced (-6%) than that seen in the previous year and in overall trends in FDI inflows alike. In developed economies, the decline in cross-border mergers and acquisitions was also above the global average, despite a significant increase in these transactions in the European Union (64%). This is largely attributable to the unification of Unilever UK and Unilever Netherlands, a corporate restructuring transaction valued at US$ 81 billion.

Figure I.5
Net cross-border mergers and acquisitions, by destination region or country, 2003–2020
(Trillions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations Conference on Trade and Development (UNCTAD), *World Investment Report 2021*, Geneva, 2021.

Note: Data for net cross-border mergers and acquisitions used by UNCTAD refer to the sales value of companies in the recipient economy to foreign companies, minus the sales value of foreign subsidiaries in the recipient economy.

In developing economies, the value of these operations rose by 2.4%, although it remains well below that of developed economies (see figure I.6), with significant differences across regions and countries. The value of cross-border mergers and acquisitions shot up by 97% in China and by 83% in India, while it fell drastically in Africa (-43%) and Latin America and the Caribbean (-21%).

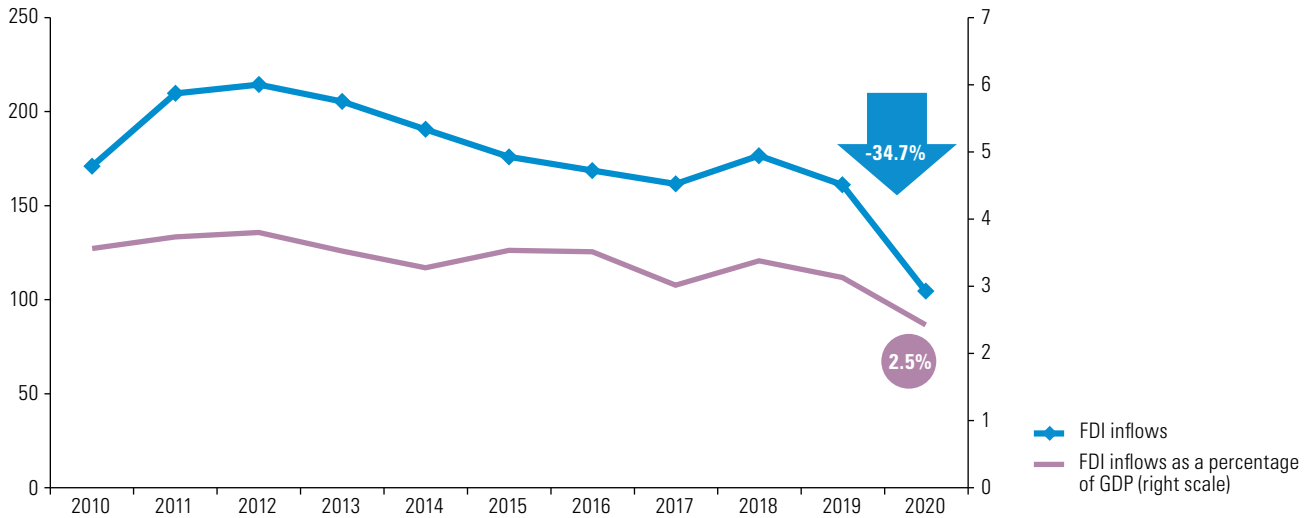
IT and telecommunications services and the pharmaceutical industry accounted for the most cross-border mergers and acquisitions. In the first case, the value of mergers and acquisitions surged by 226%; in the second case, although the value dropped by 43%, returning to 2018 levels, the number of operations rose by 13% to 211, the highest number ever recorded in a single year. This would suggest that transnationals have shifted their strategy from conducting large acquisitions towards a series of more targeted, smaller operations as well as specific collaboration projects, an example being the agreement between the United States company Pfizer and the German company BioNTech regarding the development of a COVID-19 vaccine.

B. The pandemic weighed heavily on FDI

1. FDI inflows fell by 34.7% in 2020

Transnational capital movements were hard hit by the pandemic and, as mentioned in section A, the region was one of the most affected in the world. FDI inflows into Latin America and the Caribbean amounted to US$ 105.480 billion in 2020, some US$ 56 billion less than in 2019 (see figure I.6). This marks a second consecutive year of decline, at a time when investment inflows have been stagnant since the second half of the 2010s. The lowest value in the last decade was recorded in 2020, and the year-on-year decline is comparable only to that of 2009, when inflows fell by 37.1% as a result of the international financial crisis. Moreover, the effect of the pandemic on FDI was more severe than its effect on GDP, reflected in the FDI share of GDP that stood at a mere 2.5% in 2020, down from an average of 3.5% in the 2010s.

Figure I.6
Latin America and the Caribbean: foreign direct investment (FDI) inflows, 2010–2020
(Billions of dollars and percentages of GDP)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures and estimates as of 27 July 2021.
Note: Information according to International Monetary Fund (IMF), *Balance of Payments and International Investment Position Manual: Sixth Edition (BPM6)*, Washington, D.C., 2009 except in the cases of Bahamas, Barbados, Guyana, Haiti, Paraguay, Peru and Venezuela (Bolivarian Republic of). No information has been available for the Bolivarian Republic of Venezuela since 2019. No information is available for 2020 for Haiti.

This trend was generalized in the region, with only five countries receiving more foreign capital in 2020 —which was heavily impacted by the pandemic— than in 2019. These countries were the Bahamas and Barbados in the Caribbean, Ecuador and Paraguay in South America, and Mexico, the second largest recipient in the region after Brazil (see table I.2). The sharp fall in FDI inflows to Brazil (-35.4%) and the increase in Mexico (6.6%) brought the share of both countries as a destination for FDI closer than at any time in recent years (42% in the case of Brazil and 30% in the case of Mexico). In Central America, FDI inflows declined in all countries. The most notable case in this subregion was Panama: after a decade in which investment increased steadily, in 2020 it registered negative capital inflows in all components of FDI, with negative inflows in intercompany loans accounting for the largest share of the total figure.[2] Inflows in the Caribbean decreased less than the regional average (-25.5%).

[2] Negative values were seen in equity inflows, reinvested earnings and intercompany loans in the sixth edition of the *Balance of Payments and International Investment Position Manual*, which was used for this report. According to data from the fifth edition of the *Manual*, intercompany loans posted positive values, offsetting the other components. Thus, when measured on the basis of MBP5, Panama's FDI also fell sharply in 2020, but remained positive.

Table I.2

Latin America and the Caribbean: foreign direct investment (FDI) inflows, by recipient country and subregion, 2005–2020

(Millions of dollars)

Country	2005–2009[a]	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Absolute difference 2020–2019[b]	Relative difference 2020–2019[b] *(Percentages)*
South America	**68 302**	**129 761**	**171 492**	**182 615**	**139 669**	**141 334**	**123 042**	**112 535**	**111 712**	**120 949**	**113 380**	**67 565**	**-45 815**	**-40.4**
Argentina	6 204	11 333	10 840	15 324	9 822	5 065	11 759	3 260	11 517	11 717	6 663	4 019	-2 644	-39.7
Bolivia (Plurinational State of)	259	643	859	1 060	1 750	657	555	335	712	302	-217	-1 097	-881	-406.6
Brazil	32 331	82 390	102 427	92 568	75 211	87 714	64 738	74 295	68 885	78 163	69 174	44 661	-25 513	-35.4
Chile	12 170	16 020	25 565	31 368	22 210	23 558	20 879	12 329	6 128	7 760	12 587	8 528	-4 059	-32.2
Colombia	8 894	6 430	14 647	15 040	16 210	16 169	11 724	13 848	13 837	11 535	14 313	8 100	-6 214	-43.4
Ecuador	465	166	646	567	727	772	1 323	756	625	1 388	974	1 190	216	22.1
Paraguay	137	462	581	697	245	412	308	425	576	458	522	568	46	8.8
Peru	4 978	8 455	7 682	13 622	9 826	3 930	8 314	6 739	6 860	6 967	8 055	982	-7 074	-87.8
Uruguay	1 461	2 289	2 504	6 394	987	4 085	2 673	-520	2 640	1 773	1 307	614	-693	-53.0
Venezuela (Bolivarian Republic of)	1 403	1 574	5 740	5 973	2 680	-1 028	769	1 068	-68	886	…	…	…	…
Mexico	**25 742**	**30 477**	**23 835**	**18 207**	**50 791**	**28 631**	**35 789**	**38 861**	**33 122**	**37 676**	**29 424**	**31 365**	**1 941**	**6.6**
Central America	**5 796**	**6 161**	**9 254**	**9 246**	**10 841**	**12 231**	**11 924**	**11 864**	**10 897**	**12 526**	**11 671**	**1 237**	**-10 434**	**-89.4**
Costa Rica	1 584	1 907	2 733	2 696	3 205	3 242	2 956	2 620	2 925	3 015	2 719	2 103	-616	-22.7
El Salvador	662	-226	218	466	179	306	396	348	889	826	636	201	-435	-68.4
Guatemala	621	658	1 219	1 270	1 479	1 442	1 231	1 174	1 130	981	975	915	-60	-6.1
Honduras	742	969	1 014	1 059	1 069	1 704	1 317	1 147	941	1 380	947	224	-723	-76.3
Nicaragua	394	490	936	776	965	1 077	967	989	1 035	838	503	182	-321	-63.8
Panama	1 792	2 363	3 132	2 980	3 943	4 459	5 058	5 585	3 977	5 487	5 891	-2 388	-8 280	-140.5
The Caribbean[b]	**6 598**	**5 129**	**5 372**	**4 576**	**4 403**	**8 773**	**5 676**	**5 948**	**6 406**	**5 861**	**7 189**	**5 312**	**-1 822**	**-25.5**
Antigua and Barbuda	237	101	68	138	101	46	114	97	155	205	96	22	-74	-76.8
Bahamas	1 265	1 097	1 409	1 034	1 590	3 551	713	1 260	901	947	611	897	286	46.8
Barbados	416	446	456	527	118	592	418	269	206	242	215	262	47	21.7
Belize	131	97	95	189	95	153	65	44	24	118	94	76	-18	-18.9
Dominica	45	43	35	59	25	12	7	42	22	77	59	25	-34	-57.6
Dominican Republic	1 782	2 024	2 277	3 142	1 991	2 209	2 205	2 407	3 571	2 535	3 021	2 554	-467	-15.4
Grenada	117	64	45	34	114	107	156	110	156	176	215	146	-69	-32.1
Guyana	135	198	247	294	214	255	122	58	212	1 119	1 712	1 044	-669	-39.1
Haiti	69	186	114	174	159	94	104	93	385	105	55	…	…	…
Jamaica	882	228	218	413	545	582	925	928	889	775	665	325	-340	-51.1
Saint Kitts and Nevis	136	119	112	110	139	157	128	121	48	34	64	47	-17	-26.3
Saint Lucia	183	127	100	78	95	65	152	162	49	57	30	15	-16	-51.1
Saint Vincent and the Grenadines	108	97	86	115	160	124	124	80	163	42	82	73	-9	-11.1
Suriname	-141	-248	70	174	188	164	267	300	96	131	84	1	-83	-99.0
Trinidad and Tobago	1 232	549	41	-1 904	-1 130	661	177	-24	-471	-700	184	-175	-359	-195.2
Total[b]	**106 437**	**171 528**	**209 953**	**214 644**	**205 704**	**190 969**	**176 430**	**169 207**	**162 137**	**177 012**	**161 664**	**105 480**	**-56 130**	**-34.7**

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of International Monetary Fund (IMF), *Balance of Payments and International Investment Position Manual: Sixth Edition (BPM6)*, Washington, D.C., 2009; and official figures and estimates as of 27 July 2021.

Note: Information according to International Monetary Fund (IMF), *Balance of Payments and International Investment Position Manual: Sixth Edition (BPM6)*, Washington, D.C., 2009 except in the cases of Bahamas, Barbados, Guyana, Haiti, Paraguay, Peru and Venezuela (Bolivarian Republic of).

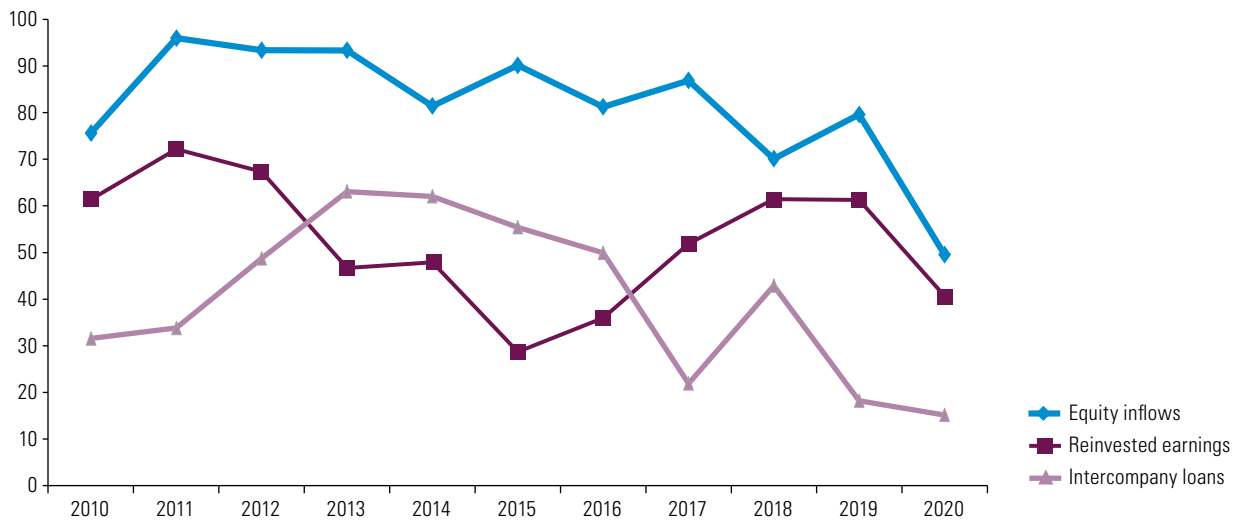
[a] Simple averages. Owing to methodological changes, data prior to 2010 are not directly comparable with those for 2010 and beyond.

[b] In calculating the absolute and relative differences, those countries for which no 2020 data are available are excluded from 2019.

In a year that saw the region's economies hit hard, with an estimated 6.8% contraction in GDP for 2020, a social panorama marked by serious health crises, a service sector clearly weakened by the closure of activities and a manufacturing industry that has been stagnant or in decline in recent years, the concurrent downtrend in FDI makes it unlikely to be a factor of change in the recovery. Investment by transnationals has declined at a time when the region needs investment to move towards a sustainable recovery, and where foreign investment could prove beneficial. Globally, investor perception captured in the Kearney Foreign Direct Investment Confidence Index (2021) shows a clear predisposition for developed countries, with Brazil —the only country in the region to appear among the 25 countries listed— moving down in the ranking.

The impact of the pandemic was felt in all components of FDI (see figure I.7). Equity inflows, on a clear downtrend over the decade, fell 37.6% to their lowest value in 2020. Despite this, they remained the main component of FDI (47% of the total). Trends in equity inflows suggest that companies' interest in building capacity or expanding their presence in the region has weakened over the decade, and the outbreak of the pandemic has accentuated the decline. The second steepest drop was in reinvested earnings, reflecting to some extent the confidence of companies in the region. Inflows from reinvested earnings in 2020 were down 33.6% year-on-year. The drop in loans between subsidiaries and parent companies was less steep (-16.8%), accounting for 14% of total inflows.

Figure I.7
Latin America and the Caribbean: foreign direct investment (FDI) inflows, by component, 2010–2020
(Billions of dollars)

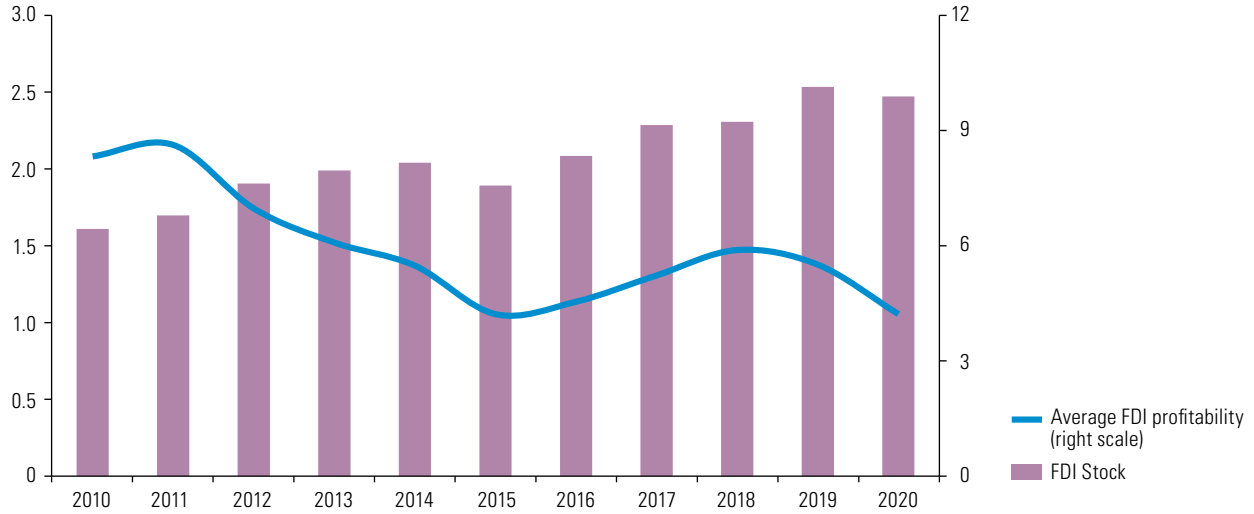


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures and estimates as of 30 June 2021.
Note: The Bolivarian Republic of Venezuela and Suriname were excluded because of a lack of data for 2020. El Salvador, Guyana, Haiti and Jamaica are also excluded because figures broken down by components are not available. The component data for the Plurinational State of Bolivia represent gross FDI inflows.

2. FDI income had less of an impact on the balance of payments

Average FDI profitability, measured as the quotient between income and stock, stood at 4.2% for 2020, the lowest since 2010 (see figure I.8). Capital outflows as FDI income therefore declined for the second year running. In addition, FDI stock shrank, primarily on account of a fall in the value of FDI stock in Brazil.

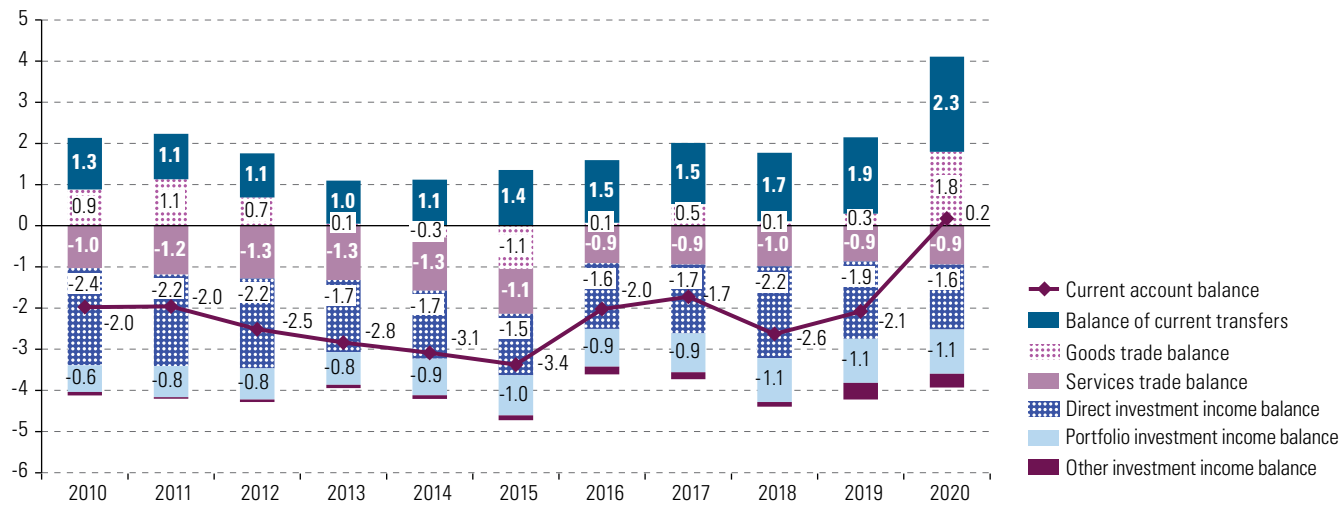
Figure I.8
Latin America and the Caribbean: foreign direct investment (FDI) stock and average return, 2010–2020
(Trillions of dollars and percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures and estimates as of 27 July 2021.
Note: Average profitability is calculated as the quotient between FDI income (debit) and the FDI stock. The calculation of average profitability excludes the Bahamas, Barbados, Guyana, Haiti, Jamaica, Peru, Suriname, Trinidad and Tobago and Venezuela (Bolivarian Republic of) because income (debit) data were not available.

This meant that the negative effect of FDI income on the balance of payments was less substantial in 2020. The region has run a current account deficit over the past decade, equivalent to 2.4% of GDP on average, whereas the deficit from FDI income averaged 1.9% of GDP. In 2020, the balance-of-payments current account posted a surplus, driven by the surplus in goods trade and transfers from abroad, and the share of capital outflows due to FDI income, which includes the repatriation of earnings, was down year-on-year, amounting to 1.6% of GDP (see figure I.9).

Figure I.9
Latin America and the Caribbean: balance-of-payments current account, by component, 2010–2020
(Percentages of GDP)

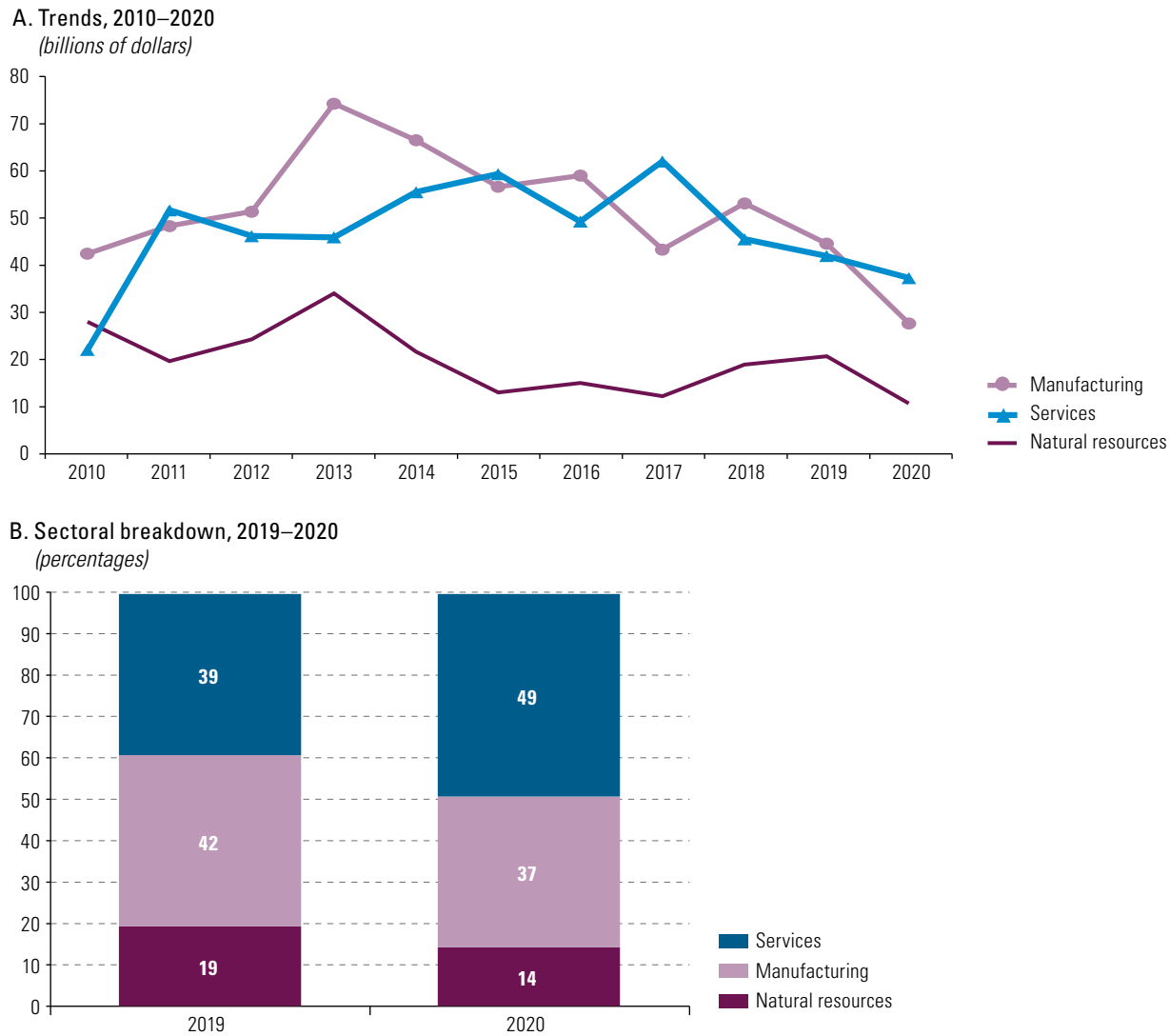


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official information.

3. Natural resources and manufacturing sectors were the hardest hit

Transnationals have traditionally set up in the region to exploit its abundant natural resources, especially mining and hydrocarbons, with a view to establishing export activities, access to markets in the services sector and manufacturing plants to supply the region. Manufacturing plants for export have been established in some countries —primarily Mexico and, to a lesser extent, Costa Rica and El Salvador— as transnationals seek cost-efficiency and access to the United States market. In a year marked by the pandemic, investments in natural resources and in manufacturing were the hardest hit in 2020, falling by 47.9% and 37.8%, respectively, year-on-year. The drop in investment in services was less steep (-11.0%) (see figure I.10). Almost half of FDI inflows in 2020 went to services and the weight of manufacturing fell to 37%, below the average for the last decade (39%).

Figure I.10
Latin America and the Caribbean (12 countries): trends and sectoral breakdown of foreign direct investment (FDI) inflows[a]
(Billions of dollars and percentages)



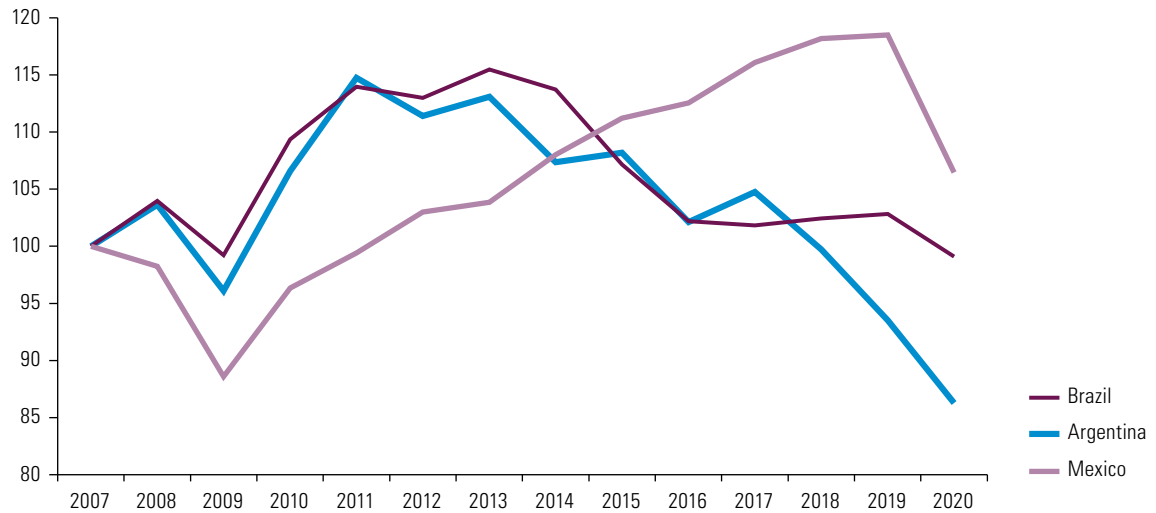
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures and estimates as of 27 July 2021.

[a] The countries included were those with sectoral data for 2020, namely Belize, Brazil, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Mexico and Plurinational State of Bolivia. Figures for Brazil do not include the reinvested earnings component and figures for the Plurinational State of Bolivia refer to gross investment (excluding divestments). Sectoral data for Mexico are computed according to the criteria of the *Balance of Payments and International Investment Position Manual, fifth edition* (BPM5). The data analysed represent 72% of total 2020 inflows.

Looking at the 12 countries with sectoral data available for 2020, the largest year-on-year drop in absolute values was in manufacturing, mainly due to lower investment in Brazil, where FDI inflows fell by 41%, and Mexico (-34%); the Dominican Republic was the only country that saw an increase in manufacturing FDI (23%). Weaker investment in natural resources was widespread throughout the region, with the largest declines in Brazil and Colombia, which received less investment in hydrocarbons. Colombia recorded the steepest decline in FDI inflows to services, due to lower investment in the trade, restaurants and hotels, transport and storage, and communications sectors.

Manufacturing FDI declined more than inflows to other sectors over the decade. This trend is in line with the production dynamics in several major manufacturing hubs, particularly in Argentina and Brazil. In Brazil, manufacturing value added for 2019 was 9.6% lower than that registered in 2014, and fell even further in 2020, 12.9% lower than 2014 values. In Argentina, meanwhile, this variation was -12.9% and -19.7% in 2019 and 2020, respectively. In Mexico, the region's second largest industrial producer behind Brazil, production grew between 2014 and 2019 (9.7%). The 10.2% contraction in 2020, caused by the pandemic, translates into a cumulative fall of 1.5% over the period under consideration (see figure I.11). Despite this, FDI inflows to manufacturing in Mexico has been stagnant and on the decline since 2014.

Figure I.11
Argentina, Brazil and Mexico: industrial value added, 2007–2020
(Index: 2007=100)



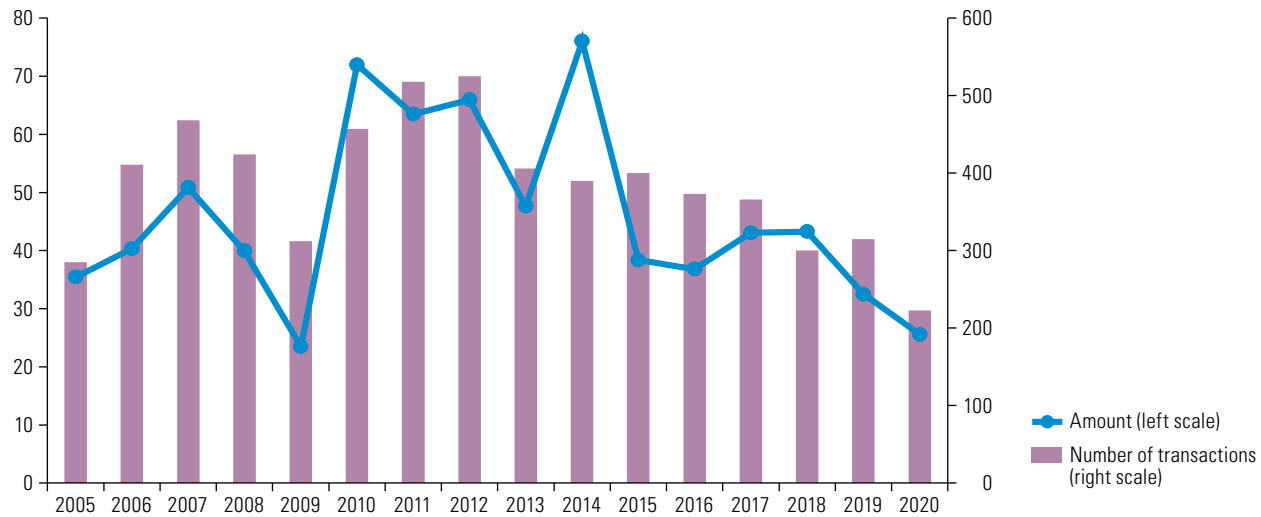
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official information from the National Institute of Statistics and Census (INDEC) (for Argentina), the Brazilian Institute of Geography and Statistics (IBGE) (for Brazil) and the National Institute of Statistics and Geography (INEGI) (for Mexico).

In 2020, several leading manufacturing transnationals announced their withdrawal from the region. After 101 years in Brazil, the automobile manufacturer Ford is closing its plant as it embarks on a production restructuring process to adapt to new technological requirements. This will result in the loss of 5,000 jobs (*El País*, 2021). Meanwhile, in response to lower demand for luxury cars given the economic situation, Daimler will stop producing Mercedes Benz in Brazil and close its plant that employs 370 people (Europa Press, 2020). Japanese manufacturer Sony is shutting down its plant in the Manaus Free Zone; the plant was acquired by the Brazilian company Mondial as it sought to increase production and expand its product offer (*Folha de S. Paulo*, 2020).

In addition, the United States firm Nike changed its business model for Argentina, Brazil and Chile and is selling its distributors. The distributors in Brazil were acquired by the Brazilian Grupo SBF; the planned sale of those in the other countries to Mexico's Grupo Axo was cancelled on account of the adverse effects of the pandemic. In Argentina, the main departures of transnationals occurred in the services sector. Retail chain Walmart was acquired by Argentine investors (*Forbes*, 2020a), the Chilean-Brazilian airline LATAM is ceasing operations in the country, and the Chilean company Falabella also ceased operations in 2020.

In 2020, these divestments coincided with less interest from foreign companies in acquiring or investing in existing companies and in announcing new investments. Cross-border mergers and acquisitions, already down in 2019, fell by 21% in value terms to a total of US$ 26 billion, which was slightly higher than the figure recorded in 2009 in the wake of the international financial crisis (see figure I.12). The number of deals has been trending down since 2015, with the 29% year-on-year drop in 2020 bringing the number to its lowest since 2005.

Figure I.12
Latin America and the Caribbean: cross-border mergers and acquisitions targeting companies in the region, 2005–2020
(Billions of dollars and number of transactions)

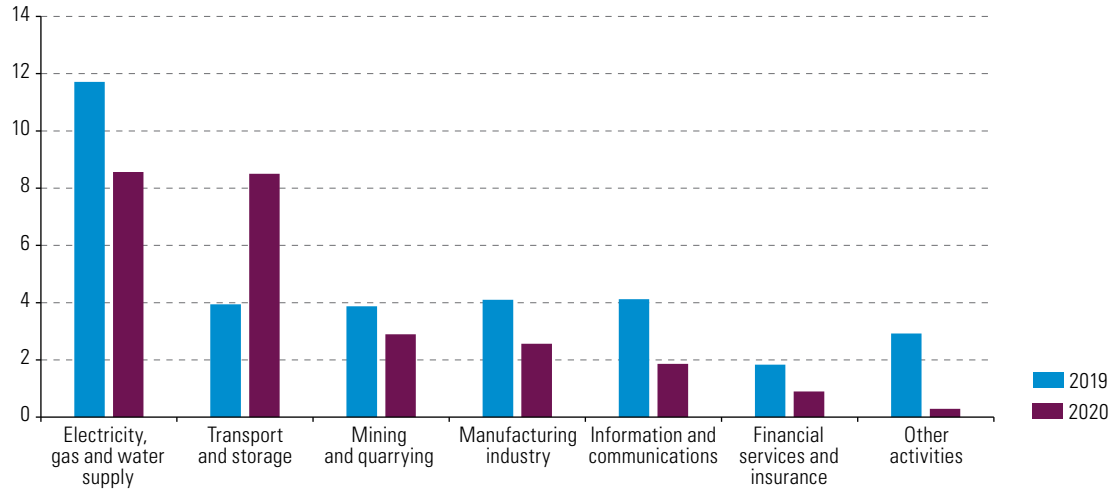


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Bloomberg.
Note: Includes cross-border transactions completed as of 31 December of each year that represent more than 10% of the capital of the acquired company. The completion of a transaction does not imply that capital inflows to the region will be generated; first, because the data include operations where the selling firm is also foreign; and, second, because the payment methods do not always include cross-border capital flows between the countries of the parties involved.

This decline was across the board in all sectors of economic activity, with the exception of transport and storage, with several large deals in Brazil, Chile and Mexico boosting the number of mergers and acquisitions in this sector (see figure I.13). In 2020, there was continued interest in electricity services, which was the sector with the highest volume of acquisitions and mergers, albeit 27% less than in 2019.

As in 2019, the energy sector, both electricity and hydrocarbons, attracted the most investment in 2020. Infrastructure construction and concessions and logistics, agrochemicals and the pharmaceutical industry also attracted interest from transnationals from outside the region. Notably, three major deals —which were not exclusively related to data centres, as in previous years— were concluded in the digital economy sector in 2020 (table I.3) (for an analysis of investment strategies in the digital era, see chapter III).

Figure I.13
Latin America and the Caribbean: cross-border mergers and acquisitions targeting companies in the region, by economic activity, 2019–2020
(Billions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Bloomberg.
Note: Includes cross-border transactions completed as of 31 December of each year that represent more than 10% of the capital of the acquired company.

Table I.3
Latin America and the Caribbean: 20 largest cross-border mergers and acquisitions, 2020

Company	Country of origin	Assets acquired	Percentage	Asset location	Country of seller	Sector	Amount *(millions of dollars)*
China Yangtze Power Co. Ltd.	China	Sempra Energy - Luz del Sur	83.6	Peru	United States	Electricity	3 590
Acciona S.A.	Spain	Consorcio Move São Paulo S.A.	100	Brazil	Brazil	Construction	2 700
State Grid Corporation of China	China	Chilquinta Energía S.A., Tecnored S.A.	100	Chile	United States	Electricity	2 230
Canada Pension Plan Investment Board, Ontario Teachers' Pension Plan Board	Canada	Impulsora del Desarrollo y el Empleo en América Latina (IDEAL)	40	Mexico	Mexico	Construction-Infrastructure	2 177
GIC and Albertis	Singapore and Spain	Red de Carreteras de Occidente S.A.B. de C.V.	72.3	Mexico	United States	Infrastructure	1 658
Trident Energy Ltd.	United Kingdom	Campos Pampo and Enchova-Petrobras	100	Brazil	Brazil	Energy-Oil	1 000
Red Eléctrica Corporación S.A., Grupo Energía Bogotá S.A.	Spain and Colombia	Argo Energia Empreendimentos e Participações S.A.	100	Brazil	Singapore	Electricity	833
Sumitomo Chemical Co., Ltd.	Japan	Nufarm	100	Brazil, Argentina, Colombia and Chile	Australia	Chemical	802
Northland Power Inc.	Canada	Empresa de Energía de Boyacá S.A.	99.2	Colombia	Canada	Electricity	790
DP World	United Arab Emirates	Puertos y Logística S.A.	100	Chile	Chile	Logistics	758
Allianz SE	Germany	SulAmérica (motor insurance)	100	Brazil	Brazil	Insurance	743
The Carlyle Group Inc.	United States	Occidental Petroleum Corporation (OXY) (land-based exploration and exploitation)	100	Colombia	United States	Oil and gas	700
Adevinta ASA, Prosus NV	Norway and the Netherlands	Grupo ZAP	100	Brazil	Brazil	Internet-Real estate	504
Caisse de dépôt et placement du Québec	Canada	Invekra S.A.P.I. de C.V.	24	Mexico	Mexico	Pharmaceuticals	500
Uber Technologies Inc.	United States	Delivery Technologies SpA (Cornershop) (51%)	51	Chile and Mexico[a]	Mexico	Internet	450
Daio Paper Corporation, Marubeni Corporation	Japan	Fábrica de Papel Santa Therezinha S.A. (Santher)	100	Brazil	Brazil	Paper	422
Colony Capital, Inc.	United States	Centro de datos de Grupo Folha	100	Brazil	Brazil	Internet	400
Karoon Energy Ltd.	Australia	Campos Baúna and Piracicaba Petrobras	100	Brazil	Brazil	Oil	380
Equinor ASA, Royal Dutch Shell plc	Norway and the Netherlands	Bloque Bandurria Sur - YPF	49	Argentina	United States	Oil	355
Actis LLP	United Kingdom	Complexo Eólico Serra da Babilônia - EDP Renováveis, S.A	100	Brazil	Portugal	Renewable energies	325

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Bloomberg.
[a] In 2021, Uber finalized the acquisition of 100% of Cornershop. Chile and Mexico were the initial markets. It now operates in Brazil, Canada, Colombia, Costa Rica, Peru and the United States.

Electricity companies continue to attract Chinese capital, which in the last three years has made strong inroads into the electricity markets of Brazil, Chile and Peru, mainly by acquiring assets from United States companies (see chapter II for a detailed analysis of Chinese investment in the region). In 2020, United States company Sempra Energy sold its assets in Chile and Peru to State-owned Chinese firms. In Peru, China Yangtze Power Co. Ltd. acquired Luz del Sur, a private electricity distribution company serving more than one million customers in Lima, for US$ 3.59 billion. In Chile, State Grid Corporation of China acquired Chilquinta Energía S.A. for US$ 2.23 billion, a transaction that also gives it control of construction and infrastructure services company, Tecnored S.A., and 50% of Eletrans S.A., an electricity transmission company.

The next three largest transactions were in construction and infrastructure concession activities. In Brazil, Spanish company Acciona S.A. signed a US$ 2.7 billion concession for the construction and management of a subway line with the Brazilian consortium Move and the State of São Paulo. The projected duration of construction is five years, with a concession of 19 years (Reuters, 2020). In Mexico, the Grupo Carso company sold 40% of its stake in Impulsora del Desarrollo y el Empleo en América Latina (IDEAL), which operates 15 highway concessions, three multimodal transport terminals and two water treatment plants, and has several highway projects under construction, to two Canadian pension funds for US$ 2.177 billion (*El Economista*, 2020). Also in Mexico, Spain's Abertis Infraestructuras and Singapore's GIC Special Investments Pte. Ltd. acquired a majority share of the Mexican consessionaire Red de Carreteras de Occidente.

The sale of Petrobras assets continued to generate some of the largest transactions in the region. Another significant transaction was concluded in Argentina, with the acquisition of 49% of the Bandurria Sur land block of the Vaca Muerta field by the European companies Royal Dutch Shell plc and Equinor.

The expansion of the agricultural industry, a sector that sustained production during the crisis caused by the pandemic (ECLAC, 2021), continues to attract the interest of agrochemical suppliers. In 2020, Japan's Sumitomo Chemical Co. Ltd. acquired the subsidiaries of Australian group Nufarm in Argentina, Brazil, Chile and Colombia for US$ 802 million. The aim of acquisition was to expand its global footprint and strengthen its own development and distribution network in the region, and reflects a strong interest in the Brazilian soybean market (Sumimoto Chemical, 2021).

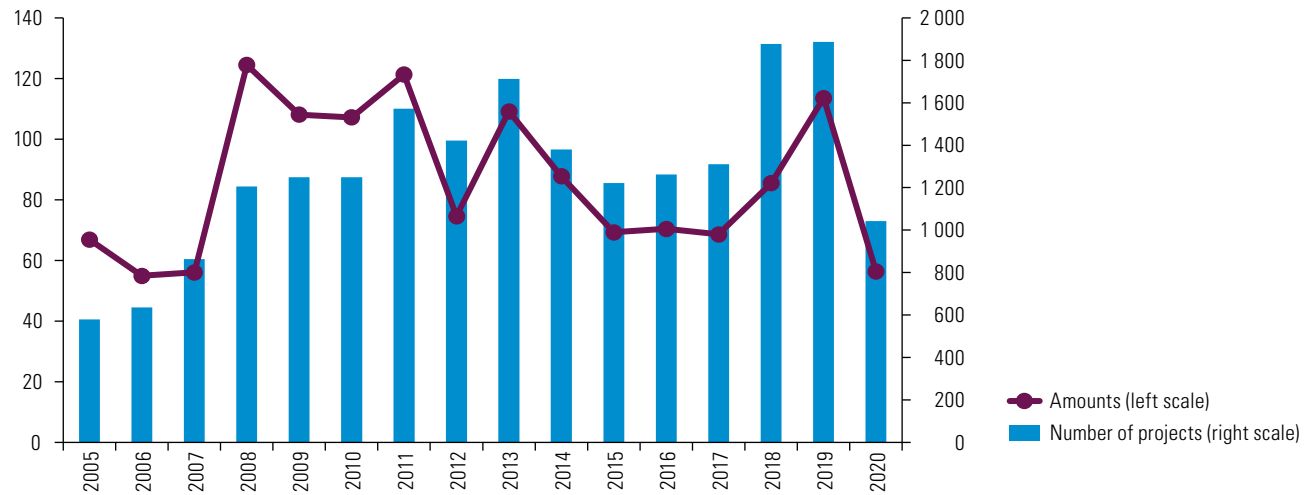
Another industry that maintained production levels during the crisis caused by the pandemic was the pharmaceutical industry. National capacities in this sector, which attracted the interest of transnational investors, were key to tackling the health crisis. In this regard, one of the largest transactions was the acquisition by Canada's Caisse de dépôt et placement du Québec of a minority stake (24%) in Mexico's Invekra S.A. for US$ 500 million. Invekra, established to consolidate the shares of Laboratorios Sanfer and Laboratorios Hormona, is a group of 15 companies that manufacture and distribute medicines and also includes companies specializing in veterinary products, household cleaning and personal care products, packaging and aerosol manufacturing. It is present in 10 countries in Latin America and employs about 2,900 people (Sanfer, 2021).

The largest transaction in the digital economy was the purchase of the Brazilian real estate platform Grupo ZAP by OLX, a platform owned jointly by Norway's Adevinta ASA and Prosus NV of the Netherlands. This deal allowed OLX to acquire its competitor in the real estate sector and expand its operations, which employ some 1,600 persons, 400 of whom work in technology (G1, 2020). In addition, the digital platform Uber Technologies completed its US$ 450 million acquisition of a 51% stake in Chilean-based Delivery Technologies SpA, known commercially as Cornershop, a mobile app for ordering from supermarkets and other shops. In 2021, Uber finalized the acquisition of 100% of

Cornershop. The company, which began operations in Chile and Mexico, currently has a presence in Brazil, Canada, Colombia, Costa Rica, Peru and the United States —a successful example of a Latin American start-up that has reached global markets in the digital economy, leveraged by foreign investors. In Brazil, data centres continue to attract transnational capital. In 2020, increased demand for broadband brought about by lockdown measures prompted United States company Digital Colony to acquire a data centre from Brazil's Folha to provide a megaplatform offering services to telecommunications and broadband providers, as well as Internet content companies.

In addition to exacerbating the downward trend in cross-border mergers and acquisitions, the crisis caused by the pandemic had a significant impact on announcements of new investments. In 2020, announced projects slumped to levels seen in the mid-2000s, both in terms of the number of announcements (-45% year-on-year) and investment amounts, which were about half those recorded in 2019, with a total of around US$ 56 billion (see figure I.14). The number of announcements having reached their levels in a decade in 2018 and 2019, it is hardly surprising that the drop in 2020 was steep. However, this is the first time a global crisis has affected the number of project announcements in the region. Following the 2008 global financial crisis, FDI inflows and cross-border mergers and acquisitions fell in 2009 and recovered rapidly the following year. At the time, there was no decline in the number of project announcements and while amounts dropped by 13%, the values remained very high (above US$ 100 billion). The 2020 crisis, however, had a different impact on the business outlook of transnationals. Project announcements fell to levels not seen in more than 10 years, with the lowest number of announcements since 2007.

Figure I.14
Latin America and the Caribbean: foreign direct investment project announcements, 2005–2020
(Billions of dollars and number of projects)

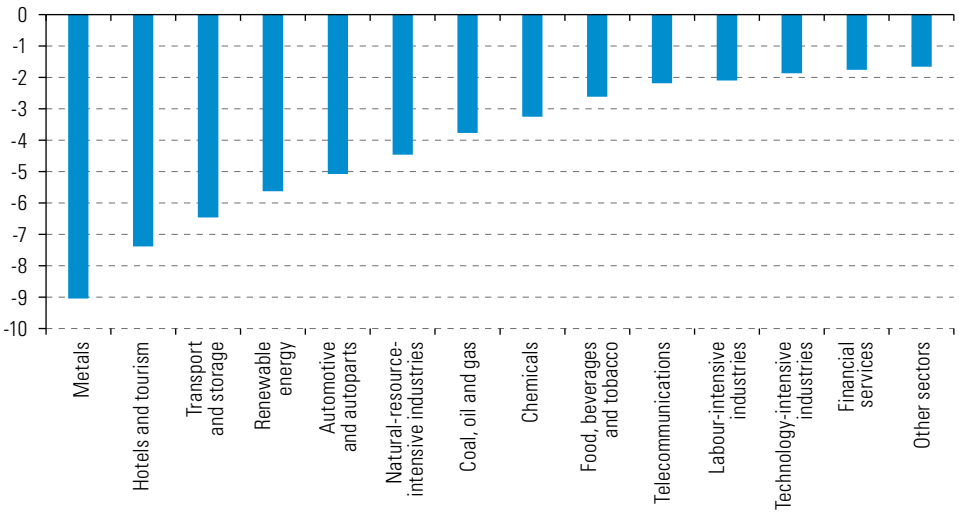


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Financial Times, fDi Markets [online database] https://www. fdimarkets.com/.

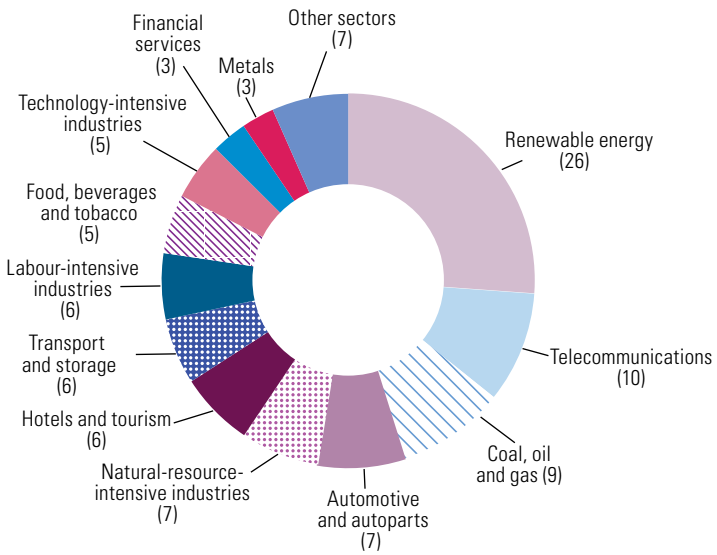
The reduction in announcements was seen across all economic activities. However, decline in the amounts of project announcements between 2020 and 2019 is largely attributable to smaller volumes in metal mining, hotels and tourism, and transport and storage sectors (see figure I.15.A). In fourth place was the renewable energy sector, which, despite registering fewer announced investments, received the largest amounts of investment projects in Latin America and the Caribbean in 2020, accounting for 26% of the total amount (see figure I.15.B).

Figure I.15
Latin America and the Caribbean: foreign direct investment project announcements, by sector, 2019–2020

A. Difference 2020–2019
(billions of dollars)



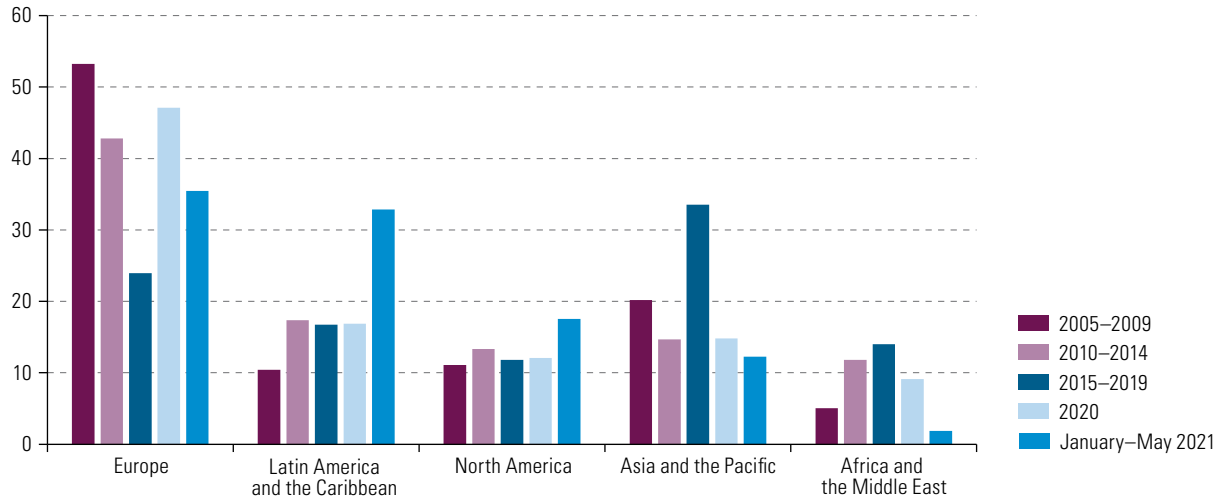
B. Distribution by sector, 2020
(percentages of the total amount)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Financial Times, fDi Markets [online database] https://www. fdimarkets.com/.

Latin America and the Caribbean has featured prominently on the world map of renewable energy investment projects. Since 2010, it has been the second largest destination for announcements in this sector, accounting for 17% of the global total of projects over the decade (see figure I.16). This share remained virtually unchanged in 2020, as announcements also declined in the rest of the world. However, the scale of recent announcements for the region as of May 2021 brought its share of total renewable energy projects to 33%, close to Europe's 35%. One of the most significant announcements in 2021 was by Australian company Enegix Energy, with a US$ 5.4 billion project to build what is claimed to be the world's largest green hydrogen plant in Brazil (Cabello, 2021). Meanwhile, in the far south of Chile, a consortium comprising Europe's Siemens Energy, Porsche, Enel Green Power, Chile's State-owned Empresa Nacional del Petróleo (ENAP) and the Chilean electricity company AME, is building a pilot plant to produce hydrogen-based fuels. The project is co-financed with 8 million euros from Germany's Federal Ministry for Economic Affairs and Energy (AméricaEconomía, 2021).

Figure I.16
Global FDI announcements in renewable energies, by region, January 2005–May 2021
(Percentages of the total amount)

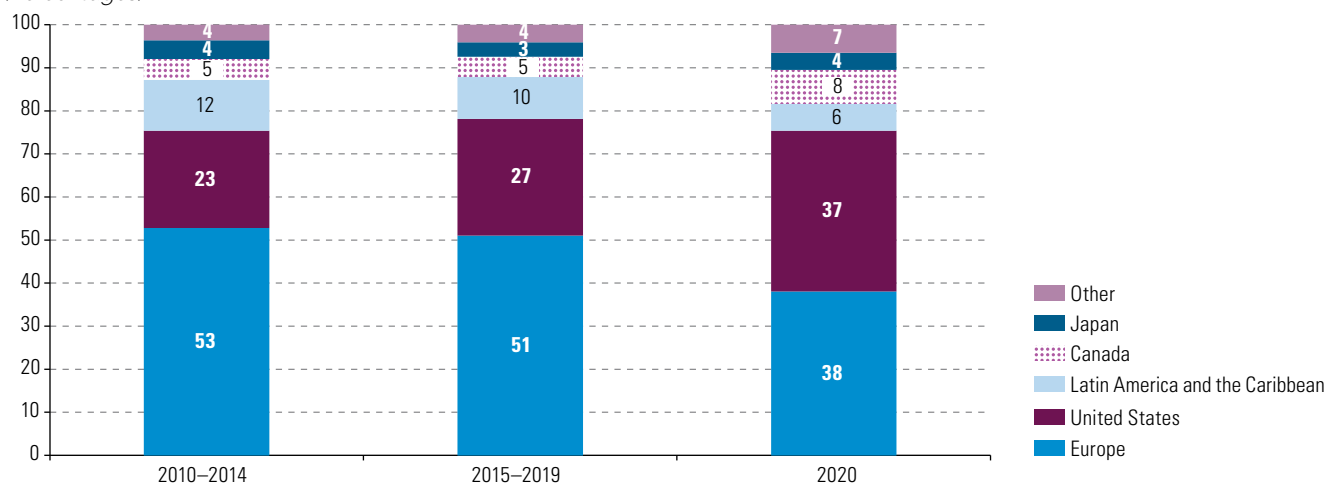


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Financial Times, fDi Markets [online database] https://www. fdimarkets.com/.

4. The United States increased its share of FDI as Europe and Latin America saw theirs decline

The structure of FDI origin changed in 2020. In the previous decade, European companies had been the main investors and up to 2019 accounted for more than half of FDI inflows. In 2020, this share fell to 38%, just above that of the United States, which rose by 10 percentage points to 37% (see figure I.17). This change in structure is explained by a smaller decline in investment from the United States (4%) compared to Europe (49%) and Latin America and the Caribbean (35%). As noted in previous editions of this report, determining the origin of FDI using national accounts data is imprecise. First, because these accounts only show the immediate origin of capital, and therefore cannot be used to identify inflows from third countries, and second, because there are few countries in the region whose official statistics include these data.

Figure I.17
Latin America and the Caribbean (9 countries): foreign direct investment (FDI) inflows, by origin, 2010–2020[a]
(Percentages)

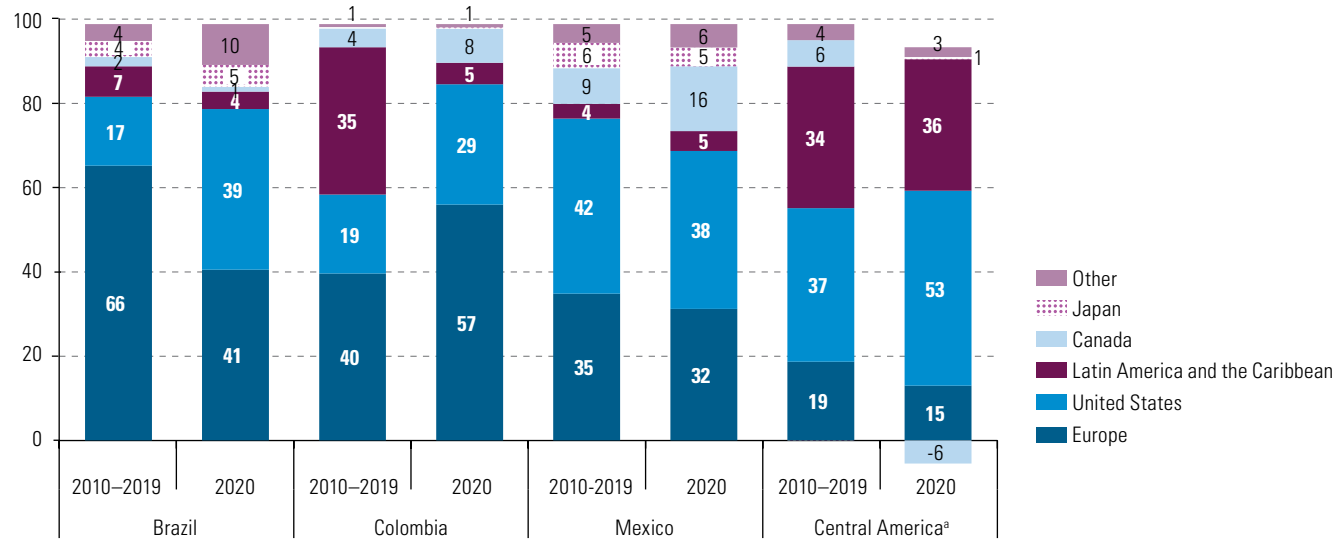


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures and estimates as of 27 July 2021.

[a] The countries considered are Brazil, Colombia, Costa Rica, the Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras and Mexico, for which data by origin refer to 2020. The figure for Brazil does not include reinvested earnings. In all cases, funds for which the origin cannot be determined because of entry through tax havens are excluded.

The smaller decline in FDI from the United States is mainly explained by the increase in investments in Brazil from that country in 2020. By contrast, inflows from the two European countries that invested the most in Brazil —the Netherlands and Luxembourg— fell between 2019 and 2020, leading to a decrease in Europe's share of investment (see figure I.18). Given the tax advantages offered by both Luxembourg and the Netherlands, FDI recorded as originating from these countries does not strictly reflect investments by Netherlands- and Luxembourg-based transnational companies in the region, so no conclusions can be drawn about the behaviour of firms from these countries. FDI in Brazil from all other European countries except Italy and Ireland fell in 2020.

Figure I.18
Latin America and the Caribbean (subregions and selected countries): foreign direct investment (FDI) inflows, by origin, 2010–2020
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures and estimates as of 27 July 2021.
[a] Central America includes Costa Rica, El Salvador, Guatemala and Honduras, for which data by origin are available as of 2020.

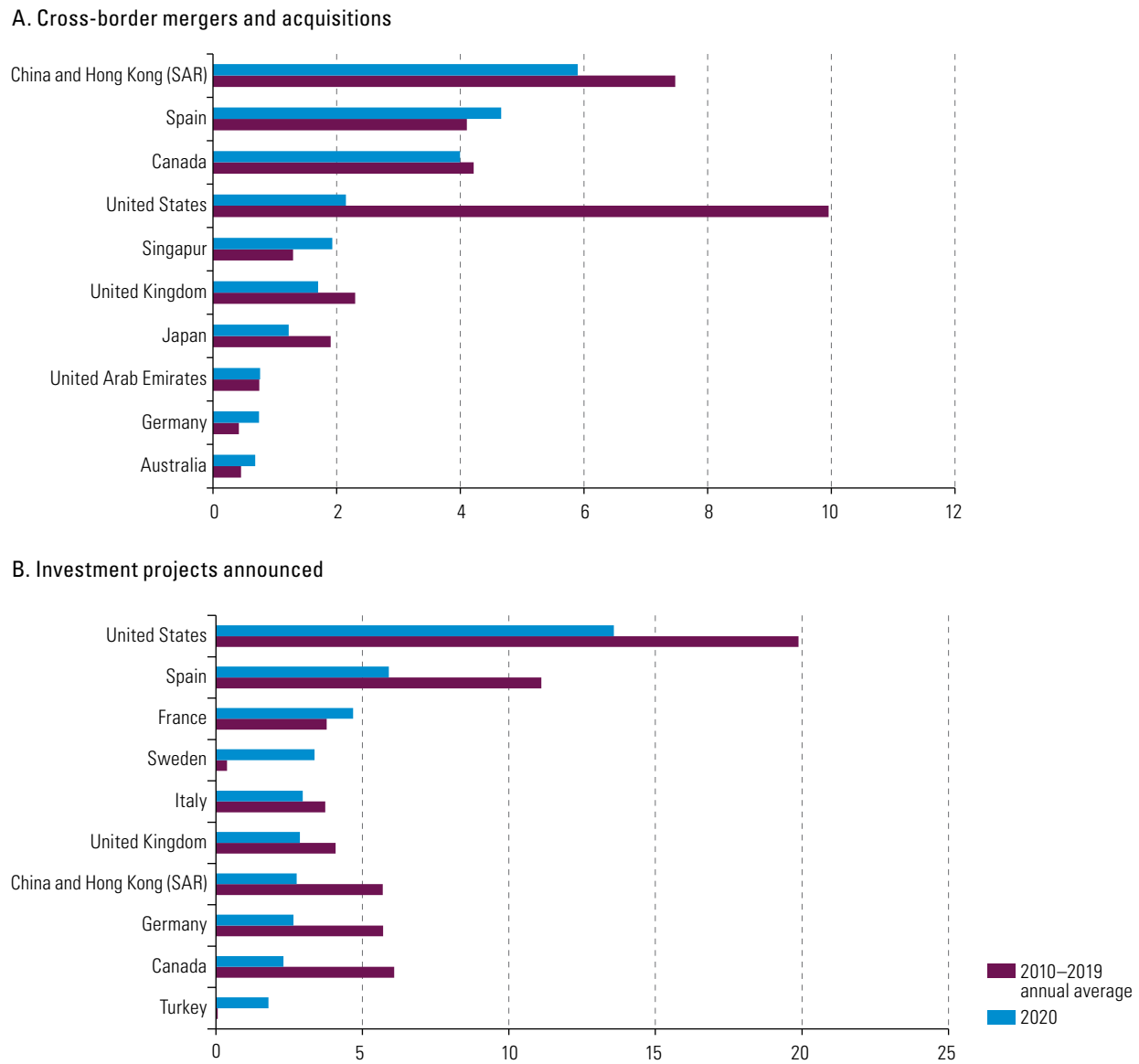
The decline in intraregional FDI flows in Colombia (90%), where investments from the region usually account for more than one third of FDI inflows, is noteworthy. In Central America, however, flows from the region remained steady and continue to account for more than one third of investment in the subregion.

Analysis of cross-border mergers and acquisitions confirmed the weak activity of trans-Latin companies in the region (see section C). Considering the mergers and acquisitions and projects announced in 2020, there are no Latin American or Caribbean countries among the top 10 investors in the region.

The analysis of these operations confirms that China remains a major investor in the region, although this is not reflected in official national accounts (for a detailed analysis of China's investment, see chapter II). In fact, in 2020, China was the largest investor in terms of mergers and acquisitions, and maintained its interest in electricity generation and distribution companies in the region (see figure I.19.A). The largest acquisition in 2020 was made by China Yangtze Power Co. Ltd., a subsidiary of the State-owned China Three Gorges Corporation, which acquired Sempra Energy's entire stake (83.6%) in the distributor Luz del Sur, one of the largest electricity distributors in Peru, for a total of US$ 3.59 billion (see table I.3). Also in 2020, the Chinese company State Grid

International Development Limited (SGID), a subsidiary of State Grid Corporation of China, acquired all of the United States-based Sempra Energy's businesses in Chile, including 100% of its shares in Chilquinta Energía S.A. and Tecnored S.A., for a total of US$ 2.23 billion. These acquisitions follow State Grid's mega acquisition in 2017 of CPFL Energia, one of Brazil's largest electricity production and distribution groups, for about US$ 9.9 billion, and China Three Gorges Corporation's various operations including the purchase of Empresa de Generación Huallaga in Peru in 2019 and the Jupia & Ilha Solteira hydroelectric plant concession in Brazil in 2015. Chinese State-owned companies have thus consolidated their presence in the electricity generation and distribution market in Brazil, Chile and Peru.

Figure I.19
Latin America and the Caribbean: mergers and acquisitions, and foreign direct investment projects announced, by country of origin, 2010–2020
(Billions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Bloomberg and Financial Times, fDi Markets [online database] https://www.fdimarkets.com/.

Spain and Canada were the second and third largest investors through mergers and acquisitions in the region. Both countries were ahead of the United States, whose investments through this mechanism fell for the second consecutive year in 2020, to less than a quarter of the annual average for the past decade (see figure I.19.A).

Investment announcements in 2020 fell by 50% and were dominated by United States companies ahead of Spain and France. China, however, plays a much smaller role in investment announcements than in mergers and acquisitions in the region (see figure I.19.B).

Sweden ranked fourth in project announcements in the region in 2020, thanks to a US$ 3.2 billion mega investment in Paraguay. The investment by Sweden's Girindus Investments via its subsidiary Paracel in a pulp mill is the largest private investment in Paraguay to date (*Revista PLUS*, 2020). The mill, which is expected to create 4,000 direct jobs and to be commissioned in 2023, is expected to produce 1.5 million tons of bleached hardwood kraft pulp (BHKP) per year. Turkey is also among the top 10 investing countries on the basis of projects announced in 2020 following the news that the ANEX Tourism Group based in that country will invest US$ 1.8 billion in a new hotel in Punta Cana in the Dominican Republic. Several companies from the United Kingdom and the United States also announced major investments: Pan American Energy Group (AXION Energy), a subsidiary of the United Kingdom's BP, opened a US$ 1.5 billion premium diesel refinery in Argentina. And General Motors of the United States announced a US$ 1 billion extension of its Ramos Arizpe plant in Mexico, to increase capacity for manufacturing electric vehicles, battery packs and other electronic components such as electric motors. This investment is part of the multinational's plan to build or convert plants into electric vehicle facilities globally in its effort to offer electric vehicles exclusively by 2035.

5. Investment facilitation: towards new governance of foreign investment for development

The FDI landscape in 2020 shows the strong impact of the pandemic on the decisions of investors operating in the region. The sectoral structure has remained more or less unchanged in the past decade, apart from investments targeting digital application companies. In order for the countries of the region to achieve the Sustainable Development Goals (SDGs), they need to be able to attract investments that support the achievement of these Goals, and having a multilateral regulatory framework in place can help countries to do so.

A multilateral agreement on investment facilitation for development has been under negotiation at the World Trade Organization (WTO) since September 2020. These negotiations are the result of an initiative launched at the eleventh World Trade Organization Ministerial Conference in Buenos Aires in December 2017, and involve more than 100 countries, including 17 Latin American countries.[3]

Investment facilitation encompasses measures aimed at streamlining procedures and improving the transparency and predictability of the legal and administrative frameworks applicable to FDI in each country. It is a relatively new concept that follows the same logic as trade facilitation (which seeks to streamline and simplify procedures applicable to trade in goods). Investment facilitation is distinct from investment protection, which refers to the legal obligations of host States to foreign investors, such as national treatment, fair and equitable treatment, free transfer of earnings to the parent company and prohibition of performance requirements, among others. These obligations are often contained in investment protection agreements and in the investment chapters

[3] Argentina, Barbados, Brazil, Chile, Colombia, Costa Rica, Dominica, Dominican Republic, Ecuador, Grenada, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay and Uruguay.

of free trade agreements, and are backed by dispute settlement mechanisms such as the International Centre for Settlement of Investment Disputes (ICSID), which allows investors to sue host States if they consider these guarantees have not been respected. The countries of the region faced 234 claims within the framework of ICSID between 1995 and 2017 and accumulated a total of US$ 20.588 billion in compensation to foreign companies (Olivet, Müller and Ghiotto, 2017). The investment facilitation negotiations at WTO expressly exclude investment protection and investor-State dispute settlement issues.

Investment protection and free trade agreements have traditionally focused on providing as many legally enforceable guarantees as possible to foreign investors, with little concern for the development needs and priorities of the host country. By contrast, investment facilitation emphasizes cooperation between foreign investors and host country authorities, seeking to prevent conflicts and to ensure that FDI contributes to the sustainable development of host countries. For this reason, investment facilitation is a concept that does not generate the strong political resistance faced by traditional investment protection treaties.

The core elements of investment facilitation can be summarized as: (i) transparency; (ii) predictable and consistent application and (iii) gradual simplification of formalities and other requirements applicable to FDI. Thus, investment facilitation appears to be a more effective alternative that comes at a lower fiscal cost to attract and retain FDI than financial incentives such as subsidies or tax exemptions (Herreros, 2018).

The countries of the region have identified several elements that could be included in a WTO framework agreement on investment facilitation:[4]

- Coordination mechanisms: the agreement should establish coordination mechanisms between the different ministries and agencies involved in FDI at all levels of government (national and subnational). Such coordination should also be established between governments of origin and host governments.
- Single windows: in line with the single window for trade model included in the WTO Trade Facilitation Agreement, countries are implementing single windows to facilitate interaction between foreign investors and government agencies. Single windows should replace and not add to procedures.
- Aftercare: institutionalization of services for established investors, for example through dialogue, can help investment agencies improve the likelihood of reinvestment and avoid disinvestment if conflicts arise, by providing a space to identify, address and resolve these conflicts.
- Stakeholder dialogue: a mechanism should be established for stakeholders to comment on proposed laws, policies and regulations or changes to existing ones that affect them, prior to their implementation and well in advance, so that they have the opportunity to provide input and thus increase the predictability of regulations.
- Transparency, simplification and streamlining of administrative procedures: the simplification and streamlining of procedures for project applications and approvals should be fostered. Members are asked to consider introducing implied consent administrative procedures, for which authorization is granted automatically when the competent authority fails to act within the period set out in laws and regulations, unless investors have been notified otherwise. A complementary approach is risk-based administrative approval, whereby less risky investments undergo a less thorough review.

[4] Outcomes of the high-level regional round table on the benefits and challenges of a WTO Investment Facilitation Framework for Development for Latin American Economies, organized by the International Trade Centre (ITC), the Economic Commission for Latin America and the Caribbean (ECLAC), the German Development Institute, WTO and the World Economic Forum. See report [online] https://www.intracen.org/uploadedFiles/intracenorg/Content/Redesign/Events/IF,%20Caribbean%20countries,%20webinar%2024%20Feb%202021%20report%20FV.pdf.

- Linkage programmes: programmes to support the creation of linkages between foreign investors and local suppliers should be included, with databases of these suppliers, along with programmes to enable them to meet the requirements and specifications of foreign investors. Supplier databases could include sustainability dimensions, allowing investors to engage companies that operate sustainably and thereby motivate and reward these operations. The databases may also include potential investment projects in the host country.
- Dispute prevention: the framework agreement should include provisions aimed at preventing disputes between foreign investors and host States, for example through an investment ombudsman.
- Responsible business conduct: provisions should be included to foster responsible business conduct by transnational companies, for example, through explicit reference to internationally recognized standards such as the Guiding Principles on Business and Human Rights of the United Nations and the Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy of the International Labour Organization (ILO). The future agreement should contain an obligation of host countries not to lower their environmental standards in order to attract FDI.
- Recognition of sustainable investors: a "recognized sustainable investor" category (similar to the authorized economic operator certification in the Trade Facilitation Agreement) should be created. This would involve granting additional investment facilitation benefits to investors with a good sustainability track record.[5]

The participation of the countries of Latin America and the Caribbean in these negotiations is essential to foster a new model of multilateral governance in which the countries of the region position their interests and requirements, and to achieve greater coherence between the rules of the multilateral trading system and the SDGs. The countries of the region have actively promoted investment facilitation at the multilateral, regional and national levels. Brazil, for example, signed bilateral investment facilitation agreements with the four members of the Pacific Alliance and led the negotiations of an investment facilitation protocol for the Southern Common Market (MERCOSUR), signed in 2017. A future multilateral agreement on investment facilitation should not only help developing countries attract more capital, but also enhance the contribution of FDI to the achievement of the SDGs in host countries.

C. Latin American investments abroad: slowdown in light of considerable uncertainty

In 2020, FDI outflows from Latin American countries amounted to US$ 12.343 billion, down 73% compared with 2019. These figures reflect the complex conditions faced by the largest Latin American companies because of the COVID-19 pandemic, which has weighed heavily on their international expansion strategies and on the flow of direct investments abroad. In recent years, Brazil, Chile, Colombia, Mexico and Panama have accounted for most of the region's FDI outflows. However, this is not a stable and homogeneous trend, and the situation in each country is different: while Chile and Mexico recorded increases in direct investment outflows in 2020, Argentina, Brazil, Colombia and Panama recorded declines (see table I.4).

[5] Sustainable investments are increasingly important in the region. In September 2020, Mexico issued the world's first sovereign bond linked to the SDG and raised US$ 889 million. Private fundraising to finance SDG-oriented programmes generated US$ 5.696 billion. Roughly 73% of the funds were allocated to "sustainable investors". For more details on this instrument, see box I.2.

Table I.4
Latin America and the Caribbean (selected countries): foreign direct investment (FDI) outflows, 2012–2020
(Millions of dollars and percentage variations)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	Absolute variation 2019–2020 *(Amount)*	Relative variation 2019–2020 *(Percentages)*
Argentina	1 055	890	1 921	875	1 787	1 156	1 726	1 539	1 294	-245	-15.9
Brazil	2 083	15 644	20 607	3 134	14 693	21 341	2 025	22 820	-3 467	-26 287	-115.2
Chile	20 556	9 888	12 800	15 931	8 492	3 524	1 309	9 339	11 725	2 385	25.5
Colombia	-606	7 652	3 899	4 218	4 517	3 690	5 126	3 153	1 744	-1 409	-44.7
Mexico	18 775	18 034	5 665	10 973	7 905	2 877	12 120	5 991	6 237	247	4.1
Panama	-274	331	329	1 091	933	-338	570	2 205	-3 016	-5 221	-236.7
Uruguay	4 154	-2 058	1 838	1 898	1 307	4 718	2 273	59	-2 071	-2 130	-3 585.6
Venezuela (Bolivarian Republic of)	4 294	752	1 024	-399	-1 041	-2 234	-661	...	...	...	...
Other countries	-43	634	2 213	1 204	351	129	1 284	647	-103	-750	-115.9
Latin America and the Caribbean	**49 994**	**51 766**	**50 295**	**38 926**	**38 944**	**34 862**	**25 771**	**45 754**	**12 343**	**-33 411**	**-73.0**

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures and estimates as of 27 July 2021.

In Chile, equity inflows, reinvested earnings and intercompany loans remained at high levels, indicating an active internationalization strategy among the companies. This dynamic is likely a result of the pandemic and the ensuing economic crisis along with the prevailing political uncertainty, which have pushed investors to increase their positions outside the country. Meanwhile, in Mexico, the ratification of the United States-Mexico-Canada Agreement (USMCA) has helped to reverse the uncertainty that prevailed during its negotiation and to mitigate some of the economic effects of the pandemic, which has helped some large companies and business groups to strengthen their positions abroad, mainly through the reinvestment of earnings.

Brazil recorded significant disinvestments in activities abroad by some of its companies with the largest international presence, such as Petrobras. There were also transfers, in the form of intercompany loans, from subsidiaries abroad to parent companies in Brazil. The aim is to help finance operations in the country in an economic recession caused by the pandemic, which has added to the prolonged period of uncertainty in the Brazilian economy. A similar situation has emerged in Colombia, as companies have turned to their subsidiaries abroad to support their activities in the domestic market.

As mentioned in earlier reports, balance of payments figures are an indicator of the internationalization strategies of the region's companies. However, as this process progresses and companies become integrated into international financial circuits, the dimensions of the process are underreported and distorted in the overseas direct investment data. As a result, those figures must be supplemented by background information on investments announced and acquisitions made by Latin American companies outside their home markets. With this background, a better picture of the strategies adopted by Latin American companies outside their domestic markets can be formed.

At the global level, the year 2020 has been marked by a severe health and economic crisis and by great uncertainty arising from the characteristics and evolution of the pandemic. In 2020, the greatest contraction in global GDP since the Second World War was recorded as a result of economic activity falling across the board in both developed and developing economies. In Latin America, on top of several years of weak growth came negative external shocks and the need to implement lockdown and physical distancing policies and to shut down productive activities, which turned the health crisis into the worst economic, social and production crisis the region has experienced in 120 years, with a 6.8% contraction in regional GDP (ECLAC, 2021).

In the slowdown, companies generally adopted conservative strategies. As a result of the uncertainty made worse by the pandemic, between March 2020 and the first half of 2021, transactions led by Latin American companies were reduced considerably, and those that were completed were for smaller amounts than those recorded in previous years. In any case, in this complex panorama, the actions taken by companies from Argentina, Brazil, Chile, Colombia and Mexico, which have led the internationalization process, stand out (see table I.5).

Table I.5
Largest cross-border mergers and acquisitions made and successfully completed by trans-Latin companies, 2020–2021
(Millions of dollars)

Date	Buying company	Country	Acquired company	Country	Sector	Amount
6 January 2020	Natura	Brazil	Avon Products, Inc.	United Kingdom	Cosmetics and personal care	4 110
14 December 2020[a]	América Móvil	Mexico	Oi (32%)	Brazil	Telecommunications	700
28 April 2021	Becle S.A.B de C.V.	Mexico	Eire Born Spirits LLC	Ireland	Beverages	600
2 March 2021	Interconexión Eléctrica SA (Grupo ISA)	Colombia	Piratininga Bandeirantes Transmissora de Energia (PBTE)	Brazil	Electric power	304
3 September 2020	Interconexión Eléctrica SA (Grupo ISA)	Colombia	Eteselva S.R.L. and Etenorte S.R.L.	Peru	Electric power	159
16 April 2021	Hidrovias do Brasil S.A. (HBSA)	Brazil	Imperial Logistics operations in South America	South Africa	Transport	90
9 October 2020	Banco de Crédito e Inversiones S.A. (BCI)	Chile	Executive National Bank	United States/Canada	Financial Services	75
1 October 2020	Despegar	Argentina	Best Day Travel Group	Mexico	Internet	57
1 March 2021	Enaex S.A.	Chile	Downer EDI Ltd.	Australia	Engineering and construction	45
4 February 2021	BrasilAgro - Companhia Brasileira de Propriedades Agrícolas	Brazil	Yatay Agropecuaria S.A., Ombu Agropecuaria S.A., Agropecuaria Acres del Sud S.A., Yuchán Agropecuaria S.A.	Argentina	Agriculture	30
10 February 2020	Compañía Minera Autlán S.A.B. de C.V.	Mexico	CEGASA Portable Energy SL	Spain	Alternative energy	29
22 October 2020	Pochteca Materias Primas S.A. de C.V.	Mexico	Ixom Chile S.A.	Chile, Singapore, Australia	Chemicals	15
3 June 2020	Empresas CMPC S.A.	Chile	Samcarsa de México S.A. de C.V.	Mexico	Forest products and paper	13

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Bloomberg.
[a] Operation not completed.

The biggest deal, completed in 2020 before the start of the pandemic, was the Brazilian company Natura's US$ 4.11 billion acquisition of London-based Avon Products. With this acquisition, Natura became the fourth largest beauty products company in the world, only surpassed by L'Oreal of France, Procter & Gamble (P&G) of the United States and the Anglo-Dutch Unilever. The combination of the Avon, Natura, The Body Shop and Aesop brands significantly expands the Brazilian company's global reach and presence.

Another important transaction involving a Brazilian company, although of a much smaller magnitude, was the purchase of the shipping business of the South African company Imperial Logistics in Paraguay by the river transport and logistics company Hidrovias do Brasil S.A. (HBSA). The acquisition includes Imperial Shipping Paraguay, some assets and the Baden port concession —on the banks of the Paraguay River— under a joint venture with the Paraguayan electromechanical products and services company CIE S.A.[6] With this operation, HBSA greatly strengthens its position in the logistics corridor of the southern region, which includes the Paraná-Paraguay waterway that runs through Argentina, Brazil, Paraguay, the Plurinational State of Bolivia and Uruguay. Since 2012, HBSA has been operating in the Paraná-Paraguay corridor transporting grains, pulp and iron ore.

[6] Imperial Shipping Paraguay, which employs 150 workers, has a fleet of 7 tugboats and 84 barges with a cargo capacity of 1.7 million tons per year and with clients in the steel and agricultural sectors.

Finally, Companhia Brasileira de Propriedades Agrícolas (BrasilAgro) acquired 100% of the following companies based in the Plurinational State of Bolivia for US$ 30 million: Agropecuaria Acres del Sud S.A., Ombu Agropecuaria S.A., Yatay Agropecuaria S.A. and Yuchán Agropecuaria S.A.[7] The acquisition includes a total area of approximately 9,900 hectares, located in the central region of the Plurinational State of Bolivia, suitable for second crop planting. The operation is intended to allow BrasilAgro to continue its internationalization strategy, which began in Paraguay, to generate more income and to strengthen its competitive position.

The Mexican telecommunications operator América Móvil has a significant presence in 18 countries in the region, and in some, such as Colombia, Ecuador and Mexico, it is the market leader. At the end of 2020, the telecommunications market recorded strong growth in demand as a result of social distancing and the new working conditions imposed because of the pandemic. In this context, América Móvil acquired a large stake in one of the biggest telecommunications groups in Brazil, consolidating its presence in the largest regional market. In conjunction with Telefónica and Telecom Italia (TIM), it acquired the mobile assets and licenses of Oi in Brazil for about US$ 3.2 billion, in an auction organized by the judicial administrator of the telephone company, which filed for bankruptcy in 2016. América Móvil paid 22% of the total price to obtain 32% of Oi's mobile clients, which allowed it to increase its share in the Brazilian market from 25.6% to 31%, mainly concentrated in São Paulo.[8] For some analysts, this transaction is one of the biggest investments during the COVID-19 pandemic (*Expansión*, 2021).

As part of its strategy to continue strengthening its position in Latin America, the Mexican operator tried to acquire Telefónica's assets in El Salvador. However, it abandoned the operation in September 2020 because of the conditions imposed by the regulatory authorities of that country. At the same time, in a similar and pragmatic move, América Móvil sold its subsidiary TracFone Wireless, Inc. —the largest virtual operator of prepaid mobile services in the United States— to Verizon Communications for US$ 6.25 billion, half in cash and the rest in Verizon shares (*Forbes*, 2020b). With this operation, América Móvil lost a subsidiary that generated about 15% of its total sales, but was paid the equivalent of 10 years of earnings from TracFone Wireless, Inc. (*Expansión*, 2021). The deal is expected to be closed in the third quarter of 2021 (*Forbes*, 2021).

One of the biggest operations in the region during the pandemic took place at the beginning of 2021: the Mexican alcoholic beverage group Becle, producer of José Cuervo tequila, acquired the Irish company Eire Born Spirits (EBS), owner and marketer of the Proper No. Twelve Irish Whiskey brand founded by the wrestler Conor McGregor, for US$ 600 million. Becle, which already owned 49% of EBS, acquired the remaining 51%.

Mexican bakery company Bimbo stands out for having been able to adapt to the difficult conditions prompted by the pandemic. With much of the population confined to their homes, the company reorganized its production lines to offer products, such as packaged sliced bread and frozen bread, that would make it possible to go out and shop as little as possible. Bimbo also made changes to its distribution strategy, developing delivery programmes to reach the consumer directly. This allowed it to record one of its best performances ever, especially outside Mexico. The changes were made with small investments, but above all they showed the adaptability of the company's executives.

Grupo ISA, of Colombia, has been one of the most active companies in the acquisition of assets abroad. Through Interconexión Eléctrica, it acquired electricity transmission companies in Brazil and Peru. Although these acquisitions were not very large, they

[7] BrasilAgro is one of the largest Brazilian companies in terms of arable land and focuses primarily on the acquisition, development, use and sale of rural properties suitable for agriculture. The company acquires rural properties with the potential to generate value through the maintenance of assets and the development of profitable agricultural activities. Since 2006, when it began operating, BrasilAgro has acquired 14 rural properties and sold 4 farms.

[8] With this operation, Telefonica and TIM will consolidate their positions in the North-East region of Brazil and Rio de Janeiro, respectively.

allowed Grupo ISA, which is also present in Chile and the Plurinational State of Bolivia, to increase its share of the electricity transmission market in Brazil and Peru.

In Peru, in September 2020, Interconexión Eléctrica paid US$ 158.5 million for the transmission company Orazul Energy Group and its subsidiaries Etenorte and Eteselva, which operate six transmission lines covering a total of 746 kilometres. Although the acquisition was small, it is expected to generate synergies with existing transmission operations in Peru and consolidates the company's already dominant position in the electricity transmission sector, increasing its market share from 70% to 73%.

In March 2021, Interconexión Eléctrica completed the purchase of Piratininga Bandeirantes Transmissora de Energia (PBTE) in Brazil for US$ 304 million. This operation allows Grupo ISA to continue strengthening its position in the electricity transmission sector in Brazil. PBTE is strategically positioned to connect two substations of Companhia de Transmissão de Energia Elétrica Paulista (ISA CTEEP) in the city of São Paulo, in addition to generating operational synergies. At present, Grupo ISA transports close to 33% of the electricity produced in the country. It also transports 60% and 94% of the energy consumed in the South-East region and in the state of São Paulo, respectively. In Brazil, Grupo ISA operates in 17 of the 26 States through more than 18,000 kilometres of transmission lines.

In Chile, where it is common for large companies to make big acquisitions abroad, this dynamic practically came to a halt in 2020 and 2021. The largest transaction was the purchase of the United States-based Executive National Bank by Banco de Crédito e Inversiones S.A. (BCI) for US$ 75 million. This purchase involves a merger with City National Bank of Florida (CNB), which is the third bank BCI has acquired in the State of Florida after it took control of Totalbank in 2018 and merged it with CNB. With this operation, CNB obtains assets of US$ 15.500 billion and consolidates its position as the second largest bank based in the State of Florida, and one of the 100 biggest in the United States.

In short, in a very complex period marked by the economic and health crisis caused by COVID-19, Latin American companies have drastically reduced their activity outside national borders. Uncertainty persists and it is difficult to predict how direct investment abroad will evolve. However, the economic crisis may also create new opportunities for Latin American companies with greater financial capacity to undertake new mergers and acquisitions that will allow them to expand their presence in foreign markets.

D. Conclusions

After the crisis in 2020, the global FDI landscape in 2021 remains fairly complex. Forecasts by the United Nations Conference on Trade and Development (UNCTAD) indicate that an increase of between 10% and 15% is to be expected this year. This would leave global FDI 25% below the 2019 level of US$ 1.5 trillion, possibly recovering by 2022. However, the magnitude and characteristics of the recovery, both in 2021 and 2022, will depend on the pace of the global economic recovery, the possibility of pandemic relapses and the impact on FDI of the economic stimulus programmes implemented by countries, along with the strategies of transnational corporations in the efforts towards greater resilience of their business models and global supply chains.

Large transnational companies recorded declines in sales and earnings, but at the same time were able to maintain a very high level of liquidity on their balance sheets in 2020. On one hand, they reduced acquisitions and kept capital spending stable and, on the other, they increased their financing operations, mainly in the form of debt and equity capital raising. The end result has been an increase of more than 25% in cash holdings, totalling US$ 8 trillion, in the top 5,000 listed non-financial companies (UNCTAD, 2021).

This increase in liquidity is not necessarily expected to translate into increased investment, and indeed the global recovery in investment projects remained weak in the early months of 2021 (UNCTAD, 2021). The uncertainty related to the evolution of the pandemic with the spread of new variants of the virus, the mixed progress of vaccination campaigns in the different countries, the return to restriction measures that affect productive capacity and economic growth and, more generally, the prioritization of the resilience of supply chains, create a situation in which transnational firms are likely to focus more on improving their supplier networks and making strategic purchases for corporate restructuring than launching new projects. A gradual process of diversification and regionalization of supply chains is more likely than the reshoring of production.

The recovery plans implemented by countries are another important variable in determining the intensity and geographic distribution of investments. In advanced economies, as is the case in the European Union and the United States, recovery plans focus on the development of physical and digital infrastructure and of a more sustainable economy, including renewable energy. This can generate new investment flows to the sectors involved. However, in many developing countries, because of the more limited fiscal space, the plans concentrate on measures to resolve economic and social emergencies and thus make transfers to the smallest economic agents and the most vulnerable social sectors. The size, duration and sectoral focus of recovery plans are factors that can influence the geographic orientation of new investment flows.

The health situation and above all the uneven progress of vaccination campaigns, as well as their effectiveness, are also elements to be taken into consideration. To the extent that it is necessary to maintain health restrictions that limit the productive capacity and the development of economic activities —or even in contexts of low restrictions, but with major epidemic outbreaks— the possibility that transnational companies want to make new investments or reinforce the existing ones is more limited, especially considering that, despite strong liquidity, the expansion of activities is not a priority for these companies in the current situation.

Therefore, there are several factors that suggest that the recovery of FDI, both in 2021 and 2022, will be fairly uneven depending on the different geographic and economic areas.

Forecasts indicate FDI growth of between 15% and 20% for developed economies and between 5% and 10% for Asia. Meanwhile, for other regions of the world, expectations are less optimistic: for the transition economies a variation between -10% and 0% is expected, for Africa the variation is expected to be between 0% and 10% and for Latin America and the Caribbean between -5% and 5% (UNCTAD, 2021).

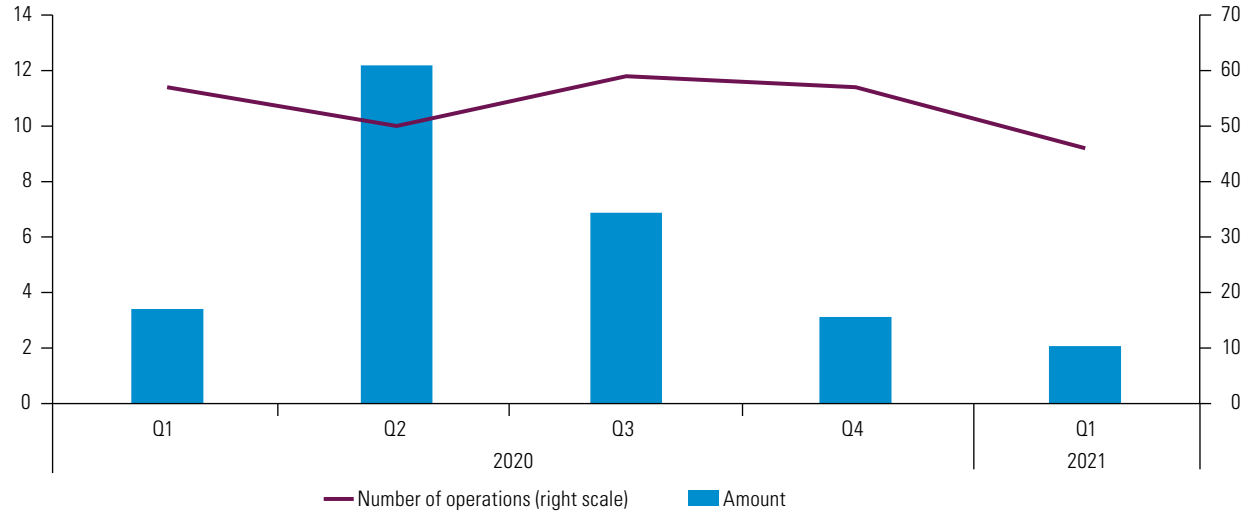
Before the 2020 crisis, Latin America and the Caribbean had ended a decade in which FDI inflows had peaked in 2012 at US$ 214.644 billion. Since then, foreign investment inflows had declined steadily, bringing into focus, especially in South American countries, the relationship between FDI flows and commodity price cycles in the region (ECLAC, 2020). In 2020, amid the backdrop of a severe economic, health and social crisis, FDI inflows fell sharply, to US$ 105.480 billion, which is 51% lower than the level seen in 2012.

The outlook for 2021 is complex. The international context suggests that global FDI flows will be slow to recover and that, for the reasons mentioned above, the operations of transnational companies will be more oriented towards developed countries and Asia.

Global mergers and acquisitions in 2020 almost recovered the value of the previous year and are forecast to remain fairly stable in 2021 (UNCTAD, 2021). However, the search for assets in strategic sectors for international recovery and for public plans to transform the productive structure (infrastructure, health industry, digital economy) suggest that a large share of these operations will focus on Europe, North America and some Asian countries.

Indeed, mergers and acquisitions in the region had already fallen sharply in terms of value in 2020 (21%) and showed no signs of recovery in the second half of the year. This trend appears to have been confirmed in the first four months of 2021 (see figure I.20).

Figure I.20
Latin America and the Caribbean: cross-border mergers and acquisitions, 2020 and first quarter of 2021
(Billions of dollars and number of operations)



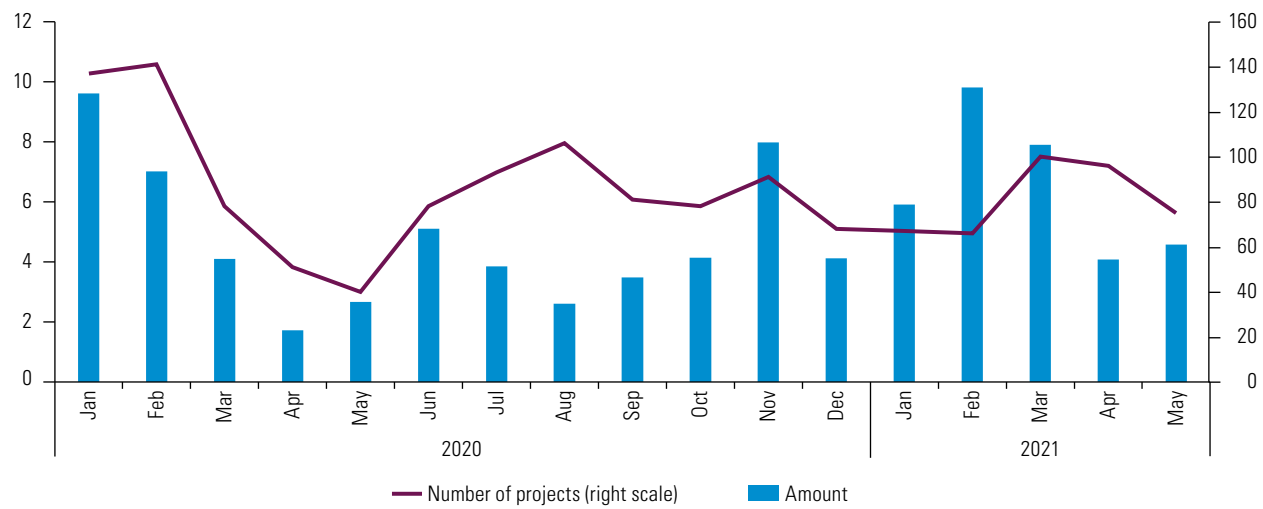
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Bloomberg.

With regard to investment projects, the first months of 2021 do not indicate a global recovery (UNCTAD, 2021) and this is consistent with the strategies of many transnational firms that, despite available liquidity, prefer to focus more on building resilience than on generating new investments.

In Latin America and the Caribbean, projects reflected a recovery between September 2020 and February 2021. However, from February 2021 until May 2021, announcements reflect a further decline in the value of projects (see figure I.21).

In addition to the above-mentioned elements, the estimates of the Economic Commission for Latin America and the Caribbean (ECLAC) indicate GDP growth of 5.2% for 2021. This means that the region will not recover the GDP level of 2019 in 2021. In such a scenario, it is difficult to expect FDI inflows into the region to increase by more than 5%.

Figure I.21
Latin America and the Caribbean: announced foreign direct investment projects, 2020 and January–May 2021
(Billions of dollars and number of projects)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Financial Times, fDi Markets [online database] https://www. fdimarkets.com/.

Latin America and the Caribbean face significant challenges. The economic recovery is likely to be partial and in parallel, because of better commodity prices and increased demand, some countries are expected to focus on reprimarizing as an option for growth. This means a return to an economic model that has not been able to guarantee a sustained increase in GDP and productivity over time.

Given this situation, a profound transformation process is necessary. Public policies are needed to address the pandemic and to connect the emergency to a transformative recovery with equity and sustainability. To this end, ECLAC has identified eight sectors for the big push for sustainability: the transition to renewable energy, sustainable electromobility in cities, the inclusive digital revolution, the health manufacturing industry, the bioeconomy, the care economy, the circular economy and sustainable tourism. These sectors would contribute to achieving growth rates in three dimensions at the same time: one compatible with the external constraint, i.e., substituting some critical imports; another in the pursuit of equality as a key development objective, transferring from the richest 1% to the poorest 1% through taxation or other mechanisms; and a third linked to a rate that is compatible with planetary boundaries.

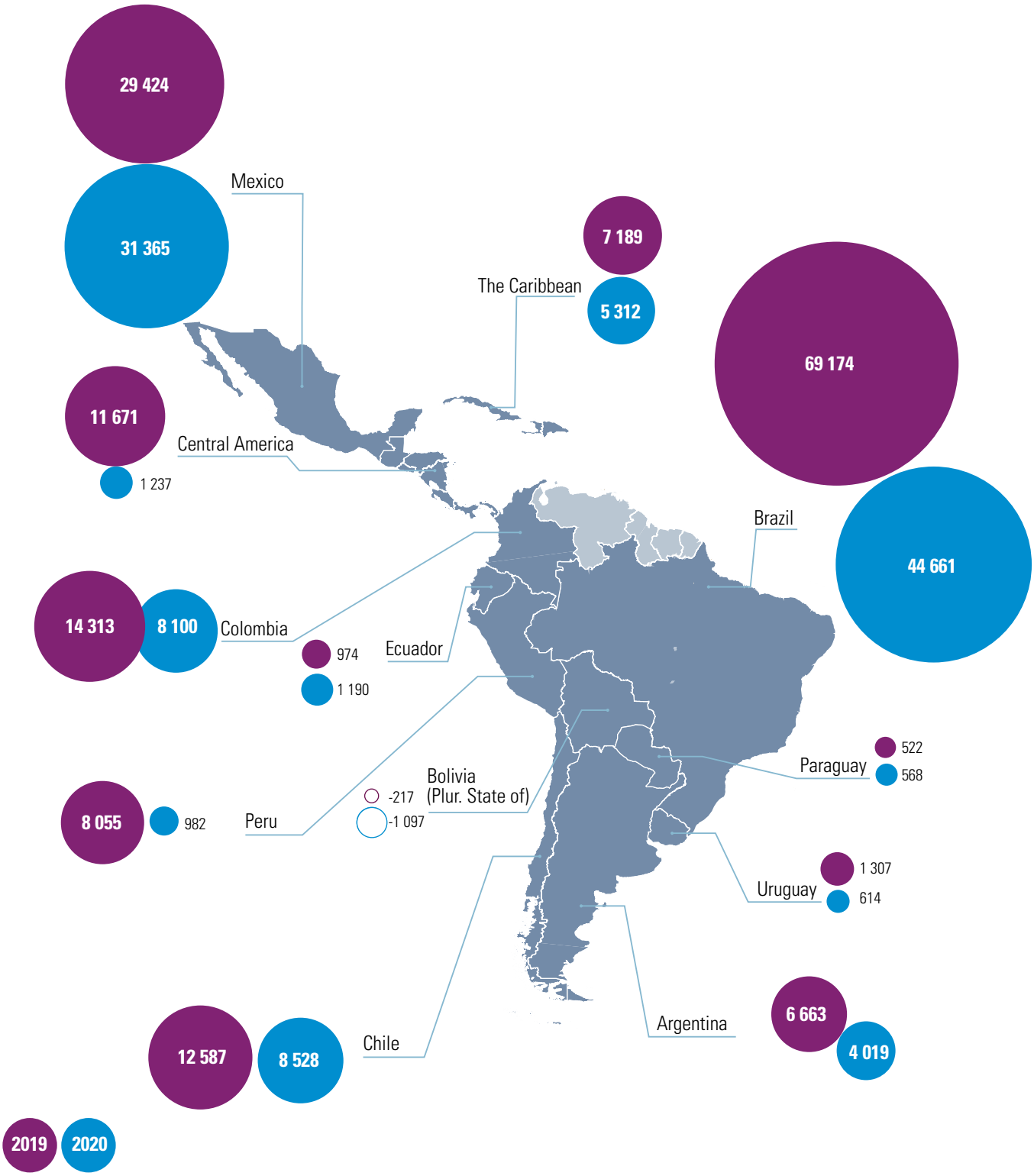
FDI has made significant contributions in the region, both as a complement to domestic investment and a source of new capital, and in terms of the expansion of export activities and the development of the automotive industry, telecommunications, some segments of the digital economy and the pharmaceutical and medical devices industry. However, there is no evidence that FDI has contributed to significant changes in the region's productive structure in the past decade and that it has been a catalyst for transforming the productive development model (ECLAC, 2020).

At present, the challenge is greater given the characteristics and magnitude of the crisis, and FDI must be channelled towards activities that generate greater productivity, innovation and technology and contribute to the development of the eight sectors mentioned. To that end, the countries of the region will need to implement plans to reactivate and transform production in addition to providing emergency aid for smaller companies and more vulnerable social segments, which will also need to be maintained throughout 2021. At the same time, both governments and the private sector must use their capacities to ensure that the policy of attracting foreign capital is also incorporated into industrial policy as an instrument for the transformation of the productive structure.

E. Analysis by country: all subregions received less foreign direct investment

The pandemic diminished foreign direct investment (FDI) inflows in all subregions of Latin America and the Caribbean. In 2020, only five countries received more FDI than they had in 2019: the Bahamas and Barbados in the Caribbean, Ecuador and Paraguay in South America, and Mexico (see map I.1). In South America, foreign investors reduced their investments in the main recipient economies. In Central America, Panama recorded capital outflows, mainly owing to intercompany lending operations, which resulted in negative net investment for 2020. Other countries that were heavily affected in the subregion included El Salvador, Honduras and Nicaragua, while FDI to Costa Rica and Guatemala decreased by less than the average for the region as a whole. In the Caribbean, FDI inflows also declined by less than the regional average (-25.5% overall), with the Dominican Republic remaining the leading recipient country, despite a 15.4% reduction in inflows. The next largest FDI recipient was Guyana, which has been receiving larger amounts of FDI since it started producing hydrocarbons.

Map I.1
South America (10 countries), Central America and the Caribbean: foreign direct investment inflows, 2019 and 2020
(Millions of United States dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures and estimates as of 27 July 2021.
Note: In the Caribbean, there are no 2020 data for Haiti.
Information according to International Monetary Fund (IMF), *Balance of Payments and International Investment Position Manual: Sixth Edition (BPM6)*, Washington, D.C., 2009, except for the Bahamas, Barbados, Guyana, Haiti, Paraguay and Peru.

1. Brazil recorded the largest reduction in FDI since the international financial crisis

Total FDI inflows to Brazil, at US$ 44.661 billion, were 35.4% lower in 2020 than in 2019. This reduction did not prevent the country from remaining the leading FDI recipient in Latin America and the Caribbean and as the eleventh largest FDI recipient in the world, down from sixth place in 2019 (UNCTAD, 2021). This dynamic unfolded against the backdrop of a major health crisis and an economic contraction that caused output to shrink by 4.1% in 2020.

The slump in investment affected all components of FDI. Equity inflows were the predominant type, accounting for 63% of the total, with investments in this category 34.4% lower than in 2019. This represented a third consecutive year of decline, which is worrying since equity inflows best reflect the new investments entering the country. The second largest component of FDI inflows, reinvestment of earnings, accounted for 28% of the total and was down by 40.1%. This component has displayed the highest variance, even posting substantial negative flows in some years; and in 2020 it declined after three years of positive growth. Inflows representing intercompany lending fell by 25.8% and accounted for 9% of the total. Unlike 2018 and 2019 when intercompany lending was decisive in setting the trend, in 2020 the predominant variables were equity and reinvestment of earnings, in that order.

The origin of investments varied considerably.[9] Inflows from the United States grew by 35%, having declined in 2018 and 2019. This was the leading country of origin, accounting for 32% of all FDI entering the region. In contrast, inflows from Europe receded. The Netherlands was the second largest country of origin, despite a reduction of 25.4%, a situation similar to that of Luxembourg. The two latter countries report a large share of FDI origins, because transnationals based in other countries use these markets to take advantage of the tax exemptions they offer. There was also a reduction in investments originating from countries whose firms have a significant presence in Brazil, such as France (-35.8%) and Spain (-30.8%), and also Germany which recorded net disinvestment in 2020. The European exception was Italy, whose investments increased by 69.6%, to represent 3% of the total FDI received by Brazil. The Italian group, Enel, has a major presence in Brazil, with 81 plants providing renewable energy capacity totalling 5 GW in wind, solar and hydroelectric power. In 2020 a project was announced for the construction of five new plants, involving an investment of around US$ 800 million.

In the case of Asia, investments from Japan slumped by 37.1%, whereas those from Singapore grew by 38.2%. Unlike in the previous year, no large-scale acquisitions by Chinese firms were finalized in the utilities sector in 2020. This does not mean that their interest in Brazil has waned, however. An important operation, of unknown amount, involves an initial incursion into Latin America by the Chinese investment fund Fosun Group, which purchased the Brazilian fund, Grupo Rio Bravo Investimentos.[10]

Manufacturing and services remained the favoured sectors (accounting for 45% and 38% of total inward FDI), although inflows to manufacturing fell by 41.4%, whereas FDI channelled into services remained broadly stable (+1.7%). Investment in natural resources recorded the steepest fall (-54.4%), having surpassed US$ 10 billion in 2018 and 2019.

9 The data broken down by origin and sector do not include reinvestment of earnings.

10 In the Forbes 2021 ranking of the largest 2000 companies, it ranked 459th and has assets of US$ 117.4 billion (see Murphy and others, 2021).

Fewer investments were received in all natural-resource-related activities than in 2019. While oil and gas accounted for 85% of total FDI in natural resources in 2020, the corresponding inflows were down by 60.3% on the previous year. Petrobras continued to divest assets in 2020, albeit on a smaller scale than in the previous year. Acquisition of the Pampo and Enchova fields by the British firm Trident Energy, for US$ 1 billion, was the largest purchase in the hydrocarbons sector, followed by that of the Baúna and Piracicaba fields by the Australian Karoon Energy Ltd. for US$ 380 million.

Foreign direct investment declined in the leading manufacturing sectors for the second year running. However, as oil refineries did not suffer reductions in FDI in 2020, they became the leading destination sector. In 2020, 86% of FDI in manufacturing was channelled into four sectors: coke manufacturing, refined petroleum products and biofuels (53% of the total), the manufacture of paper and paper products (13%), the automotive industry (11%) and the chemical industry (9%). Apart from the refineries category, where investments increased by 35.6%, capital inflows in 2020 were smaller than in the previous year. Despite the drop in FDI in the paper and chemical industries, both sectors saw major acquisitions by Japanese firms in 2020. Sumitomo Chemical Co. Ltd. acquired the subsidiaries of the Australian group, Nufarm, in Argentina, Chile, Colombia and Brazil for US$ 802 million, mainly owing to the expansion of the soybean business in Brazil. As this operation was carried out between two foreign firms, it does not count as FDI; but it is indicative of the sectors in which transnationals are interested. In the paper industry, a consortium formed by the Japanese Daio Paper Corporation and Marubeni Corporation acquired the Brazilian firm, Fábrica de Papel Santa Therezinha S.A. (Santher), for US$ 422 million. The consortium aims to enter the Brazilian toilet paper and personal care market, which is the fourth largest in the world in this segment and is expected to grow by around 5.5% next year (Santher, 2021).

The decrease in manufacturing FDI is consistent with the trend of production. Owing to the pandemic-induced crisis, manufacturing value-added decreased by 3.6% between 2019 and 2020; but this fall is framed by a pre-existing scenario of stalled production. Following sharp reductions in manufacturing value-added in both 2015 (-5.8%) and 2016 (-4.6%), Brazil has since been unable to regain the levels of manufacturing output it had achieved in the early years of the 2010 decade.

In view of this situation, in 2020 a number of transnational manufacturing firms announced that they would withdraw from the country, on the grounds of restructuring decisions and because they consider production costs to be high. One of the most emblematic exits is that of the automobile manufacturer, Ford, which announced the closure of its plants after 101 years of production in Brazil, resulting in the loss of 5,000 jobs (*El País,* 2021a). This decision is part of a restructuring process in the firm, which did not choose Brazil as a platform owing to the need to adapt to the technological changes currently unfolding in the automotive industry. Other firms in the same sector will also close certain product lines in Brazil. Daimler, manufacturer of Mercedes Benz, will close its vehicle plant employing 370 people because the economic situation in the country has caused a drop in sales of luxury cars —a situation compounded by the pandemic (Europa Press, 2020). In the electronics industry, Sony withdrew from the country after 48 years, selling its factory in the Manaus Free Zone to Brazil's Mondial, which aims to expand production capacity and diversify the product range (*Folha de S. Paulo*, 2020). Meanwhile, in the pharmaceutical industry, the multinational, Roche, announced in 2019 that it would leave the country. The process will be completed in 2023 (G1, 2019).

Investments in services in 2020 were similar to the previous year, although not all activities were stable. Electricity and gas services received the largest amount of investment in 2020, accounting for 15% of inflows, although down by 10.9% relative

to 2019. Measured by project announcements, the amount in 2020 was 22% lower than in 2019, but there are large-scale investments in prospect. In addition to the Enel projects mentioned above, in 2020, the French firm, Engie, announced a project to build, operate and maintain a 1,800 km power transmission line, with an estimated investment of US$ 830 million. The corresponding 30-year concession will enable it to consolidate its position in the electricity infrastructure market in Latin America, with a presence in both Brazil and Chile (Engie, 2020).

Financial activities received more FDI than in 2019, particularly non-financial holding companies and insurance, which absorbed 14% and 10% of total investments in services, respectively. The acquisition of Rio Bravo Group, mentioned above, may have had an impact on this result. There were also larger inflows into information technology services, which became the fifth ranked service subsector in terms of investment in 2020. In contrast, investments in telecommunications continued the declining trend of the second half of the 2010 decade (net flows in that area were actually negative in 2020). The development of information technology services is attracting attention from transnationals seeking to acquire existing capacities. In 2020, the real estate platform Grupo ZAP was sold for US$ 504 million to OLX Brasil, a joint venture between the Norwegian Adevinta ASA and Prosus NV of the Netherlands. As in 2019, data centres were also targets of investment. Digital Colony, based in the United States, bought a data centre from Folha Group for US$ 400 million, to provide services to telecom and broadband providers, as well as Internet content firms.

In contrast, FDI inflows in the commerce and transport sectors dwindled (-16.4% and -92.9%, respectively), such that, in 2020, commerce accounted for 10% of total FDI in services, and transport accounted for 2%. Despite the decreased FDI in the transport sector, one of the largest movements among Spanish firms during the year was an agreement between Acciona and a Brazilian consortium involving Move and the State of São Paulo worth approximately US$ 2.8 billion, to build and run the São Paulo metro. The objective is to complete Line 6 of the metro, involving an expected construction time of five years and a 19-year concession (*El Economista*, 2020a) In addition to the aforementioned manufacturing divestments, in the commerce sector the Nike group's departure from Argentina, Brazil, Chile and Uruguay implied the sale of its assets in the region (Bakermckenzie, 2020). The Brazilian SBF Group acquired Nike's distribution rights in physical and digital stores in Brazil for US$ 213 million. In the education sector, the Laureate Education Inc. group, of the United States, ceased to operate in Brazil and Chile. In Brazil, the group's operations, which include 11 educational institutions, will be purchased by Brazil's Grupo Ser Educacional S.A. for US$ 724 million.

2. South America: steep falls among the major FDI recipients

In 2020, FDI inflows to Chile totalled US$ 8.528 billion —32.2% less than in 2019 but still more than in 2017 and 2018. The adverse impact of the pandemic on investments only made itself felt in the last four months of the year, because, in the previous eight months of 2020, FDI inflows had been up on the year-earlier period. This made Chile the region's third largest FDI recipient behind Brazil and Mexico.

The various components of FDI trended similarly. Most investment entered in the form of equity (51%), where inflows were 28.5% lower than in 2019. The reinvestment of earnings by firms already established in the country was the second largest component (38% of the total), but 27.7% lower than in 2019. The steepest reduction occurred in intercompany lending (-53.7%), which accounted for just 11% of total flows.

Although the number of mergers and acquisitions targeting firms in Chile decreased by 44% between 2019 and 2020, the volume of transactions remained around US$ 3 billion; and several firms already installed in the country attracted interest from foreign investors. Strictly speaking, many of these operations do not involve FDI inflows, since they are transactions between two foreign firms. In 2020, the highest-value agreements were completed in the energy and basic utilities sectors, which have grown vigorously in recent years, as well as in infrastructure and digital economy firms.

The Chinese State-owned enterprise, State Grid Corporation of China, through its subsidiary State Grid International Development Limited, acquired the assets of Chilquinta Energía S.A. from Sempra Energy, of the United States, for US$ 2.23 billion. This transaction will also give the Chinese firm control of Tecnored S.A., which provides construction and infrastructure services, and 50% of the transmission firm, Eletrans S.A. As this operation was undertaken between two foreign firms, it is not considered FDI. However, it highlights a very important dimension of the strategy being pursued by Chinese firms: they aim to acquire strategic assets in the infrastructure sectors and expand their presence in the Chilean market. Also in the infrastructure sector, although in basic water services, the Canadian group, Algonquin Power & Utilities Corp (APUC), paid US$ 162 million for a 93.6% stake in Empresa de Servicios Sanitarios de Los Lagos S.A., which provides drinking water, sewerage and wastewater treatment services in the Los Lagos and Los Ríos regions. Of the shares in question, a 53.51% holding was acquired from Aguas Andinas, and the remainder were obtained through a public offering (Guía Chile Energía, 2020). As in the previous case, this is an operation between foreign companies, since Aguas Andinas is controlled by Sociedad General de Aguas de Barcelona (SGAB), which in turn is owned by the Franco-Spanish Suez Group, which entered the Chilean market in 1999 when Empresa Metropolitana de Obras Sanitarias (EMOS) was privatized.

In port infrastructure, the Chilean firm, Puertos y Logística S.A., which operates Puerto Central S.A. in San Antonio, in the central zone of the country, and Puerto Lirquén in the Biobío region, was sold for US$ 758 million to DP World of the United Arab Emirates.

In 2020, the digital platform, Uber Technologies, paid US$ 456 million for a 53% stake in Cornershop, which provides shopping services in supermarkets and other stores through a mobile application (app). In June 2021, Uber announced a US$ 1.4 billion offer for the remaining 47% of the shares. Thus, before becoming "Cornershop by Uber", the firm will have attained a value of US$ 3 billion (*La Tercera*, 2021). Like other examples in various Latin American and Caribbean countries, Cornershop demonstrates the importance of foreign venture capital for the growth of start-ups in the region. The Mexican fund, ALLVP, was the first to invest in the Chilean firm, when the app was valued at US$ 8 million. In total, ALLVP contributed US$ 5 million; and seven years later it would earn US$ 200 million from its sale to Uber (*La Tercera*, 2021). The importance of foreign equity funds for the growth of innovative startups in Chile is evidenced by the fact that the country's investment promotion agency, InvestChile, includes venture capital funds in studies on sectors with high investment potential, alongside the food industry, mining, energy, global and technology services, and infrastructure for recycling, and plastic containers and packaging.

Project announcements were down by 45% in number and by 29% in amount in 2020. Renewables remained the leading sector and accounted for 79% of the total value of announcements, while the number of announcements was almost unchanged (32 in 2020, compared to 34 in 2019). Solar and wind energy were ranked second. The largest project involves the British firm, Solarcentury, which won a tender for land devoted to solar energy in northern Chile, with a total investment estimated at US$ 950 million.

Lastly, investments in copper mining are expected to remain active in response to burgeoning international demand. According to a report by the Ministry of Mining and the Chilean Copper Commission (COCHILCO, 2020), mining investments totalling US$ 74 billion are projected for the next eight years.

The country receiving the fourth largest amount of investment in 2020 was Colombia, where inflows of US$ 8.1 billion were 43.4% lower than in the previous year. This was the first time since 2009 and 2010 that the level of FDI had fallen below US$ 10 billion. The reduction was explained by smaller equity inflows (-45%), which accounted for 49% of total inflows in the country, and lower reinvestment of earnings (-66%), which had a 20% share. In contrast, intercompany lending increased by 5% from its 2019 level, to represent one third of total FDI. Measured on a quarterly basis, FDI inflows have been declining since the second quarter of 2020.

Most FDI in 2020 targeted services (61% of the total), with inflows down by 38% from their 2019 level. Financial and business services received the largest share of inflows (26%), although flows were 31% lower than in the previous year. The transport, storage and communications sector suffered the steepest fall (-101%). This is in line with a trend that had been manifesting itself over the past three years. Similarly, inflows in the commerce, hotels and restaurants sector declined by 62% year-on-year, to account for 10% of the total. The only sectors that saw an increase in FDI inflows during 2020 were basic services (electricity, gas and water) (+129%) and community, social and personal services (+84%). FDI in natural resources accounted for 32% of the total (oil 17% and mining 13%), and inflows were down 47% relative to 2019. Investment in manufacturing fell by 60% from the 2019 level, to account for just 7% of inflows in 2020, compared to an average of 13% in the past decade.

All of Colombia's leading FDI sources cut back on their investment in 2020. Between them, the United Kingdom (-65%), Panama (-45%), Switzerland (-38%), Spain (-30%) and the United States (-14%) invested US$ 2.711 billion less than in 2019. The United States remained the leading investor, accounting for 28% of the total, followed by Spain (22%). In contrast, investments originating in the Netherlands increased by 345% to US$ 1.116 billion; but this does not necessarily involve Dutch investors, since firms from third countries use this market as a base for investing abroad, owing to the tax benefits on offer.

In line with the aforementioned increase in FDI in basic utilities, in June 2020 Energía de Boyacá (EBSA) was taken over by Northland Power, of Canada, in a US$ 790 million transaction. EBSA had previously been acquired in 2012 by the Canadian fund Brookfield Asset Management as part of a privatization process. Hydrocarbon production in the country continues to attract foreign capital. The Carlyle Group of the United States acquired the entire portfolio of its compatriot firm, Occidental Petroleum Corporation, for a total of approximately US$ 825 million. As transactions were between foreign firms, they would not be counted as FDI inflows in Colombia's balance of payments. Nonetheless, they reveal the attractiveness of this market for foreign investors. In the retail sector, Makro Supermayorista S.A. was sold to the Peruvian group InRetail Peru Corp. In that transaction, Orkam Holding Colombia N. V. received US$ 360 million.

As in the rest of the region, new investment announcements receded sharply in 2020. Total projects fell by 59% in amount and by 53% in number, with the renewable energy and coal, oil and gas sectors contributing most to this decline. Nonetheless, the largest-value announcements in 2020 were made by Canadian firms linked to energy and mining. The largest project announced for Colombia in 2020, estimated at US$ 400 million, was undertaken by the Canadian firm, Canacol Energy, and consists of a gas pipeline that will link deposits in the Caribbean with the interior of the country. The second largest is a gold mine expansion project by Caldas Gold Marmato which is expected to make investments valued at US$ 275 million over the next three years (Rumbo minero, 2021).

Foreign direct investment flows to Argentina were also hit by the crisis caused by the pandemic and totalled US$ 4.019 billion in 2020, 39.7% below the previous year's level. Since 2012, most FDI has taken the form of reinvestment of earnings, which accounted for 66% of the total in 2020 but was down by 38.8% year-on-year. Equity inflows were the second largest component (29% of the total) but were also 47.2% lower than in 2019. In contrast, intercompany lending inflows grew by 35.3%, despite representing a smaller share of the total.

In 2020, transnational firms reduced their M&A activity in Argentina. The number of cross-border operations identified fell from 27 to 15 between 2019 and 2020, for a total of about US$ 430 million in the latter year (in 50% of the transactions the value is unknown). Hydrocarbon production and mining were the leading actors, and the largest operation occurred in the Vaca Muerta field. The Anglo-Dutch firm, Royal Dutch Shell plc, and Norway's Equinor ASA paid US$ 355 million for 49% of the Bandurria Sur block, owned by Schlumberger of the United States. This transaction is part of a partnership agreement between the aforementioned European companies and Argentina's YPF. In 2021, an additional 11% was transferred to the European consortium under this agreement. Both the YPF authorities and those of the European firms see the agreement as auspicious for the development of one of the largest shale oil fields in Vaca Muerta (YPF, 2020).

In the mining sector, the Canadian firm, Cerrado Gold, acquired sole ownership of Minera Don Nicolás S.A. for US$ 45 million, in the belief that the gold mine, located in Santa Cruz province, has untapped opportunities (Newsfile, 2020). In lithium mining, the Chinese firm, Jiangxi Ganfeng Lithium Co., Ltd. paid US$ 16 million for an additional 1% of Minera Exar S.A., thus raising its stake to 51%. With this acquisition, the Chinese firm is now the conglomerate with the largest stake in the Caucharí-Olaroz lithium project located in Jujuy province , whose counterpart is the Canadian company Lithium Americas, which owns 49% of the shares (LithiumAmericas, 2020).

Project announcements decreased by 34% in number, but grew by 7% in value terms to reach levels around US$ 4 billion, similar to those of 2017 and 2019. The largest project was a high-grade diesel refinery plant inaugurated by Pan American Energy Group (AXION Energy), which required an investment of US$ 1.5 billion. In transportation and logistics, Germany's DHL inaugurated a new distribution hub with an investment of US$ 350 million.

In manufacturing industry, a sector in which Argentina has substantial capabilities but whose production has been trending down since the early 2010 decade, Japan's Nissan announced an additional investment of US$ 130 million in its Córdoba plant. The investment aims to incorporate the latest technology in the manufacture of pickup trucks, which are sold in Argentina and Brazil.

In the communications sector, the increased demand for Internet traffic owing to the pandemic led to an expansion of service providers for traffic and data management, with projects by the Spanish firm, Movistar, and United States firms Lumen and Globalstar, the latter specializing in satellite communications.

Lastly, transnational firms expanded their renewable energy generating capacity. In 2020, the United States firm, AES, started up nine of the 20 wind turbines that comprise the Vientos Neuquinos wind farm, which was built with an investment of US$ 140 million (Energía Estratégica, 2020).

In Ecuador, FDI in 2020 was 22.1% higher than in the previous year, at US$ 1.19 billion. This is 50% more than Ecuador's average annual inflow of the last decade. Of this FDI, 70% corresponded to equity inflows, which almost doubled in amount relative to 2019 (+94.4%). This rise offset smaller inflows in respect of intercompany lending (-47.7%), and also in the reinvestment of earnings which declined by 7.2% and accounted for 13% of FDI in 2020.

In this scenario, the mining sector attracted the most foreign capital and accounted for 48% of total inward FDI in 2020, with inflows up by 40%. FDI in services also grew strongly, especially business services (+96%), which accounted for 20% of total flows into the country. Foreign investment in the construction sector was up by 155% on the 2019 level and accounted for 15% of total inflows. Between them, these three sectors absorbed 82% of investments in 2020. FDI from all major origins increased, and the three largest investors accounted for 61% of the total: Canada (29% of the total), Spain (20%) and the United Kingdom (12%). The United States (8%), Uruguay (5%) and China (5%) provided smaller shares.

In the renewable energies sector, two large investments were made following a tendering process by the Ministry of Energy and Non-Renewable Natural Resources of Ecuador. The first was a 258 MW photovoltaic project awarded to the Spanish firm Solarpack, and the second involves two wind farm projects to be undertaken by Zero-E, a subsidiary of ACS. An investment of US$ 330 million is estimated to develop both projects.

A key feature of the investment landscape in Ecuador was its reincorporation into the International Centre for Settlement of Investment Disputes (ICSID). The aim of this move is to attract more investment into the country and strengthen relations with trading partners. The agreement was signed in June 2021; and, on 30 June, Ecuador's Constitutional Court ruled that legislative approval was not required prior to ratification. Since Ecuador's withdrawal in 2009, ICSID has handed down several rulings in favour of multinational firms, particularly oil companies with a presence in the country. In 2017, ICSID ordered US$ 337 million be paid to the United States firm, Burlington, which was prospecting together with Perenco. In 2015, it ordered compensation be paid to Oxy (United States) following the cancellation of a contract that allowed it to extract 100,000 barrels of oil per day in the Ecuadoran Amazon. More recently, ICSID awarded US$ 374.4 million in compensation to the Anglo-French oil company Perenco, in litigation brought against a 2007 decree that increased the State's share of oil surpluses (Estado de Minas, 2021).

It should be recalled that, in October 2013, the Commission for the Comprehensive Citizen Audit of Reciprocal Investment Protection Treaties and the International Investment Arbitration System (CAITISA) had been created to audit investment treaties and make recommendations. The Commission investigated and analysed the country's bilateral investment agreements and their impacts. In its final report, issued in May 2017, it recommended that 16 bilateral investment treaties be terminated (TNI, 2017). The report made three main criticisms of such treaties: (i) the fact that claims by large firms are brought directly before international tribunals without first exhausting domestic legal remedies and instances; (ii) the high costs that such litigation entails for the countries; and (iii) the large amounts of the penalties imposed.

In Peru, FDI inflows shrank by 87.8% to US$ 982 million in 2020, the lowest amount since 2000. Most of the reduction is explained by capital outflows in the form of intercompany lending. This component went from a net inflow of US$ 2.823 billion in 2019 to an outflow of US$ 1.015 billion in 2020. In addition, equity inflows were down sharply by 87.7%, and the reinvestment of earnings decreased by less (-28.1%). Sectoral FDI data are not available in Peru, but mining (especially copper) and energy have attracted interest from transnational firms in recent years.

The region' largest acquisition in 2020 took place in Peru. While not strictly FDI, as it involved a transaction between two foreign firms, it reflects China's interest in the region's electric power utilities, including major acquisitions in Brazil, Chile and Peru. The State-owned China Yangtze Power Co. Ltd., a subsidiary of China Three Gorges Corporation, acquired Luz del Sur, which serves 33% of the country's electricity distribution sector. Luz del Sur belonged to Sempra Energy of the United States and

was sold for US$ 3.59 billion. Through this acquisition, the Chinese firm also acquired Sempra Energy's stake in Tecsur S.A., which provides construction and electrical infrastructure services to Luz del Sur and third parties; and it also gained a stake in Inland Energy S.A.C., Luz del Sur's generating arm. Another major transaction involved suppliers to the mining industry, with the Breca group, one of Peru's largest business conglomerates, selling an 83.5% stake in the explosives manufacturer, Exsa, to Orica Mining Services, a subsidiary of Australia's Orica Limited, for US$ 203 million.

Unlike in 2019, no megaprojects or new mining investments were announced in 2020. Announcements prioritized projects in renewable energies and communications (with the expansion of data centre by the United States firm, Lumen Technologies, and infrastructure development by Telefónica de España. The latter corresponded to the "Internet for All (IPT)" project —a joint venture created with Facebook, IDB Invest and the Development Bank of Latin America (CAF), to help bridge the digital divide. In 2020, this project connected 135,000 inhabitants of the Puno area to the 4G network. The project has also connected 1.6 million people nationwide and aims to have 2.3 million in rural areas connected by end-2020 (*Revista Economía,* 2020).

In Uruguay, FDI inflows were also lower than in 2019, at US$ 614 million (-53.0%). Nonetheless, equity inflows increased to US$ 906 million, 80% higher than in 2019. Thus, the year-on-year reduction was explained by negative balances in the reinvestment of earnings and, to a greater extent, in inter-company lending.

In 2019, the last year for which sectoral data are available, most FDI inflows in Uruguay were recorded in the financial services sector (67%) and in manufacturing (26%). According to the country's investment promotion agency (Uruguay XXI), in the last decade the sectors that have offered outstanding investment opportunities are agribusiness, forestry, timber, cannabis, global services (consisting of business services, software and information technology services, trade services, financial services and creative services), and renewable energies. In fact, the largest investment announcement in 2020 was made by a Canadian firm, Boreal, which inaugurated a medical cannabis processing plant, the largest in Latin America to date (*Pharmabiz*, 2020), with an estimated investment of around US$ 28 million. In addition, one of Uruguay's largest technology firms, Infocorp, which is specialized in financial services, was acquired by the Constellation Software group, also of Canada. Infocorp provides software and services to more than 100 markets and generates sales of around US$ 3 billion per year (Uruguay XXI, 2020).

Lastly, it is worth noting the growth of the firm, dLocal, which develops payment solutions for businesses seeking to set up in emerging markets. In June 2021, this firm was listed on Wall Street's Nasdaq index and reached over US$ 10 billion in market value (*El País,* 2021b). This milestone, together with the sale of the food ordering platform, Pedidos Ya, to Germany's Delivery Hero for an undisclosed sum in 2014, reflects the internationalization opportunities afforded by the expansion of the digital economy. This process enables emerging companies from countries with small markets such as Uruguay, whose population does not exceed 3.5 million people, to capitalize with foreign funds in their growth process and deploy international expansion strategies.

In 2020, FDI inflows to Paraguay increased for the second consecutive year, rising to US$ 568 million —8.8% more than in 2019. This level of investments is above the range of the last decade, when it averaged US$ 379 million per year.

The largest proportion of investments corresponded to intercompany lending (45% of the total), which was 8.3% higher than in 2019. Equity inflows remained stable (down by just 0.6%). Reinvestment of earnings accounted for just 15% of total FDI, despite growth of 84%.

The latest available sectoral data, for 2019, show that 63% of FDI went to manufacturing (mainly the processing of oils, chemical manufacturing and refrigeration), followed by transportation and financial services.

In 2020, Paraguay was the target of the largest project announcement made in Latin America and the Caribbean, involving the creation of Paracel, a pulp mill and eucalyptus plantations that aim to achieve the highest sustainability standards. This is a joint venture between the Zapag Group, Paraguay's leading fuel importer and distributor, and the Swedish group, Girindus Investments, which is an expert in the pulp production chain, spanning sustainable reforestation to pulp production. The investment for the entire project is estimated at US$ 3.6 billion (IDB Invest, 2021), making it the largest private investment in the country's history.

In the Plurinational State of Bolivia, FDI flows were negative on net, with divestments totalling US$ 1.097 billion in 2020, reflecting the huge impact of the pandemic on foreign investors in this country.

According to sectoral data, which are only available for gross FDI, the sectors that attracted the most funds were oil and gas production (71%), wholesale and retail trade (44%) and manufacturing industry (29%). In contrast, the losses incurred by foreign firms in mining, transportation and storage, communications and real estate, and business and rental services, owing to the interruption of economic activities, resulted in net outflows in these sectors.

Spain has been the main source of investment in the Plurinational State of Bolivia, accounting for 26% of FDI in the decade of 2010. However, a 57% reduction between 2019 and 2020 meant that Peru became the country with the most FDI in Bolivian territory. Other prominent investor countries were Argentina, the Bahamas and the Netherlands.

3. Mexico: dealing with a scenario of high uncertainty

In 2020, Mexico was again the second largest FDI recipient in Latin America and the Caribbean, although it has gone a long way towards closing the gap on the regional leader, Brazil. Inflows totalled US$ 31.365 billion, 6.6% more than in 2019, and accounted for 30% of the regional total, compared to 18% in 2019. Although equity inflows contracted sharply in 2020, reinvestment of earnings and intercompany lending were broadly in line with the previous years' trend. The reinvestment of earnings fell back somewhat (-10.7%) from the high level attained in 2019; while intercompany lending reversed the previous year's outflows to post a net inflow of US$ 8.679 billion. Thus, despite the low growth environment and the uncertainty resulting from the health and economic crisis caused by the COVID-19 pandemic, Mexico has been able to attract a large amount of foreign investment —to a considerable extent thanks to ratification of the Agreement between the United States of America, the United Mexican States, and Canada (USMCA).

As in the previous three years, FDI in the services sector in 2020 exceeded that received by manufacturing. Services accounted for 56.4% of total FDI, with manufacturing absorbing 38.2%, and natural resources 5.3%. Continuing the historical trend, the largest investments in manufacturing were in the transport equipment subsector (38% of total manufacturing FDI), followed by the chemical industry (8%) and beverages and tobacco (5%). In the services sector, inflows in financial services increased by 24.6%, to absorb nearly 43% of total flows into services. Commerce absorbed 8% of total FDI inflows, a drop of 1 percentage point; FDI in the telecoms sector (4% of the total) also fell by 1 percentage point.

In 2020, investment from the United States accounted for 37.1% of total FDI received by Mexico, while the European Union was the source of 28%. Within this economic bloc, inflows from Spain ranked first, accounting for 52% of European investments. In terms of investor countries, Canada ranks second after the United States, providing 15.2% of the total FDI received by Mexico. Further behind is Spain, followed by Japan, which is the Asian country with the most investment in Mexico, representing 4.4% of the total in 2020.

The number of project announcements in Mexico fell by more than 50% from 652 in 2019 to 301 in 2020. In the latter year, the sectors with the largest number of announcements were software and telecommunication services (11%), financial activities (9%) and consumer products (7%). The sectors that historically have had the highest number of announcements, such as renewable energies, automotive and autoparts, were all down in 2020.

The main mergers and acquisitions carried out by foreign firms in Mexico in 2020 were concentrated in two main activities: infrastructure concessions and the pharmaceutical sector. In a context marked by uncertainty, mergers and acquisitions were rare. Several of them consisted of one foreign firm selling its operations in Mexico to another foreign investor.

In April 2020, two Canadian pension fund managers, Canada Pension Plan Investment Board and Ontario Teachers' Pension Plan, purchased a 40% stake in the construction and infrastructure concession management firm, Impulsora del Desarrollo y el Empleo en América Latina (IDEAL), in a US$ 2.718 billion transaction with Grupo Financiero Inbursa, owned by Mexican business magnate Carlos Slim. At the time of the acquisition, IDEAL was operating 15 highway concessions (1,430 km), three multimodal transport terminals and two water treatment plants. It also had major projects under construction, such as the Las Varas-Puerto Vallarta highway from the State of Nayarit, and Mitla-Tehuantepec, in the State of Oaxaca.

In June 2020, the construction firm, Abertis, and a Singaporean investment fund, GIC Private Limited, bought 72% of the highway operator, Red de Carreteras de Occidente (RCO), for US$ 1.658 billion. Although this was not strictly FDI, since it was a transaction between two foreign firms, it reflects the interest that the Mexican road infrastructure sector is awakening among foreign investors.[11] At the time of the transaction, RCO controlled five concession holders operating a network of eight highways in the central-west region spanning a total of 876 km. These connect the country's main industrial corridor, El Bajío, with the two largest cities: Mexico City and Guadalajara.

In the pharmaceutical sector, the Canadian institutional investor, Caisse de dépôt et placement du Québec (CDPQ), paid US$ 500 million in September 2020 for a 24% stake in the Mexican pharmaceutical firm, Laboratorios Sanfer. This is part of the Invekra group, owned by investment firm General Atlantic of the United States. According to CDPQ, this transaction will enable Sanfer to implement a growth plan in Mexico and strengthen its expansion in Latin America, where it has made a series of acquisitions.

It is estimated that 2021 could be more auspicious for investments in Mexico. Firstly, the growth of the United States economy can be expected to boost Mexican exports, especially in the manufacturing sector. In this scenario, large firms will have

[11] The consortium formed by Abertis and GIC bought a 70% stake from Goldman Sachs Infrastructure Partners (GSIP) and an additional 2.3% from Mexican investors and pension fund managers.

better access to financing, enabling them to roll out more ambitious investment plans. Secondly, the reconfiguration of global value chains resulting from the tensions caused by the COVID-19 pandemic could put Mexico in a better position to benefit from the relocation of production to countries that are geographically closer to, or have shared values and strategic interests with, those in which the investment and consumption centres are situated (nearshoring and ally-shoring, respectively).[12] This is convenient for firms that wish to shorten their supply networks and move closer to the United States market. Lastly, the ratification of USMCA would provide a more propitious framework for taking advantage of the initiatives launched by the current United States administration for an economic recovery, based on an industrial policy that harnesses advanced technologies to tackle major contemporary challenges (see boxes I.1 and I.2).

Box I.1
An initiative for structural change in the United States economy and global technology leadership

In June 2021, the United States Senate passed the United States Innovation and Competition Act of 2021 (USICA) in a bipartisan vote. The Act seeks to boost the competitiveness of the United States through an ambitious investment strategy. It responds to the current administration's desire to deploy industrial policy as a mechanism to boost the development of certain technology industries. The legislation extends the role of the federal government in sectors considered strategic, such as the semiconductor industry and mobile broadband. It does so through various mechanisms that include incentive programmes, as well as increased funding for research and development.

The amendment to the Act provides for a US$ 100 billion budget. This includes US$ 52 billion in emergency funding to implement the Creating Helpful Incentives to Produce Semiconductors for America Act (CHIPS for America Act), which supports semiconductor production for the automotive industry, the military, and other essential industries. There is an additional amount of nearly US$ 1.5 billion to implement the United States Telecommunications Act passed in 2020 as part of the National Defense Authorization Act (NDAA), with the aim of fostering innovation in the field of fifth-generation (5G) mobile communications technology.

The United States Innovation and Competition Act establishes intellectual property protections against foreign nations, exclusion from financing programmes and reduced purchases of goods and services for certain countries. It also emphasizes the importance of regaining positions of international leadership to ensure that international trade rules benefit the United States.

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of T. Lee and J. Londoño, "The United States Innovation and Competition Act (USICA): a primer", 9 June 2021 [online] https://www.americanactionforum.org/wp-content/uploads/2021/06/The-United-States-Innovation-and-Competition-Act-USICA-A-Primer-FINAL-1.pdf.

Box I.2
Mexico: issuance of sovereign bond related to the Sustainable Development Goals: a new way to attract foreign investment?

On September 14, 2020, Mexico issued the world's first sustainable sovereign bond aligned to the United Nations Sustainable Development Goals (SDGs), in order to raise private funding for SDG-oriented programmes. This is a seven-year bond (maturing in 2027) for a total of 750 million euros (€ 750 million), equivalent to US$ 889 million, with a coupon of 1.35%, the second lowest coupon in Mexico in the euro market.[a] This is considered an important step in achieving the Sustainable Development Goals and financing for development.

Demand for the Mexican SDG bond totalled US$ 5.696 billion, equivalent to 6.4 times the allotted amount. A total of 267 global investment firms participated in the auction (Devdiscourse, 2020). According to the investment bank Natixis

[12] The latter also referred to as "friend-shoring", following remarks by President Biden (Coy, Peter, 2021), "Onshoring' Is So Last Year. The New Lingo Is 'Friend-Shoring'", *Bloomberg*, 24 June [online]: https://www.bloomberg.com/news/articles/2021-06-24/-onshoring-is-so-last-year-the-new-lingo-is-friend-shoring.

Box I.2 (concluded)

(sole SDG sovereign structuring advisor in the transaction), a large portion of the issue (€549 million, or 73% of the total) was awarded to "sustainable investors" (those that incorporate environmental, social and governance (ESG) criteria in their investment decision process) (Natixis, 2020). The distribution was as follows:

- 46% of the transaction (€ 349 million) was allocated to "strongly committed" funds (dedicated to green or sustainable bond funds and mandates).
- 20% of the transaction (€ 149 million) was allocated to "partially committed" funds (which incorporate ESG criteria in their investment decisions).
- 7% of the transaction (€ 52 million) was allocated to "lightly committed" funds (signatories to the Principles for Responsible Investment, but not active players in the broader responsible investment market).

This innovative bond was issued under the Sovereign Bond Framework, which is consistent with Mexico's Sustainable Development Goals, and was announced by the Federal Government of Mexico on 21 February 2020 (Ministry of Finance and Public Credit of Mexico, 2020). This framework has unique features: the use of the SDGs as an entry point, dual eligibility including geospatial criteria, and enhanced governance involving an international agency (the United Nations Development Programme–UNDP) at various stages. The latter issued an alignment letter on the framework, recognizing its unique features, which include the use of SDGs as an entry point and eligibility criterion, including the collection of spatial data to identify the most disadvantaged communities. UNDP will also publish an opinion on the impact report.[b]

The Framework aligns with the 2018 edition of the Sustainable Bond Guidelines published by the International Capital Market Association (ICMA) and with the spirit of the European Union's green bond standard. The Framework specifies the four core components of the Green Bond Principles and the Social Bond Principles (SBP), as follows: (i) use of proceeds; (ii) process for project evaluation and selection;(iii) management of proceeds; and (iv) reporting. The Framework also includes external review modalities, such as verification and second party opinions.[c]

While investment in SDGs is part of a global agenda, SDG investment gaps are mostly local. While public policies, and also social bond or sustainability frameworks, are usually based on national averages, this framework focuses specifically on the lower range of territories and populations in Mexico, especially those in the south of the country.[d]

Mexico will use the proceeds raised by the SDG bonds to finance projects located in 1,345 cities selected on the basis of low literacy and low school attendance rates, poor health services, lack of toilets, sewage or drinking water in homes, lack of access to electricity, or lack of basic equipment such as refrigerators. This is "localized financing" that ensures resources are allocated to the most disadvantaged areas and most vulnerable populations (indigenous people, older adults and children).

In early July 2021, a second Euro-denominated bond was issued for a 15-year term at a coupon rate of 2.25% (very low for a Euro bond at this maturity) for a total amount of € 1.25 billion, which helps consolidate Mexico's sustainable yield curve. This second bond was acquired by 60 sustainable investors. According to Gabriel Yorio, Mexico's Undersecretary of Finance, this type of instrument will be "crucial" for Mexico to meet its spending plans in the coming years (Ministry of Finance and Public Credit of Mexico, 2021).

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Devdiscourse, "Mexico becomes first country to issue US$ 890m Sustainable Development Goals Bond", 15 September 2020 [online] https://www.devdiscourse.com/article/headlines/1212299-mexico-becomes-first-country-to-issue-890m-sustainable-development-goals-bond; Natixis, "Mexico's € 750m 7-year inaugural SDG Bond met strong investors' appetite", 24 September 2020 [online] https://gsh.cib.natixis.com/our-centre-of-expertise/articles/mexico-s-750m-7-year-inaugural-sdg-bond-met-strong-investors-appetite; Ministry of Finance and Public Credit of Mexico, "SDG Sovereign Bond Framework: United Mexican States Building Prosperity: Financing SDGs for an inclusive economy", 2020 [online] https://www.finanzaspublicas.hacienda.gob.mx/work/models/Finanzas_Publicas/docs/ori/Espanol/SDG/UMS-SDG_Sustainable_Bond_Framework.pdf and "Comunicado No. 041 México consolida curva de rendimientos sostenible con nuevo bono alineado a Objetivos de Desarrollo Sostenible de la ONU", 6 July 2021 [online] https://www.gob.mx/shcp/prensa/comunicado-no-041-mexico-consolida-curva-de-rendimientos-sostenible-con-nuevo-bono-alineado-a-objetivos-de-desarrollo-sostenible-de-la-onu-276495; and information from LatinFinance and other media.

[a] Targeted on five SDGs, including SDG 2: Zero hunger, SDG 3: Health and well-being, SDG 4: Quality education, SDG 8: Decent work and economic growth, and SDG 9: Industry, innovation and infrastructure.

[b] Investors welcome UNDP's involvement, which they see as enhancing the transparency and validity of impact reporting. This issue enhances the involvement of multilateral agencies in the process of issuing innovative financial instruments, such as green, social and sustainability bonds, not only to provide collateral, but also to assist with their framework. They also highlight the importance of international cooperation and the search for common frameworks and solutions for a sustainable future.

[c] Vigeo Eiris issued a second-party opinion on the framework and awarded its highest level of assurance, considering it to be aligned with the four core components of the 2018 Green Bond Principles, the 2018 Social Bond Principles and the Sustainable Bond Guidelines.

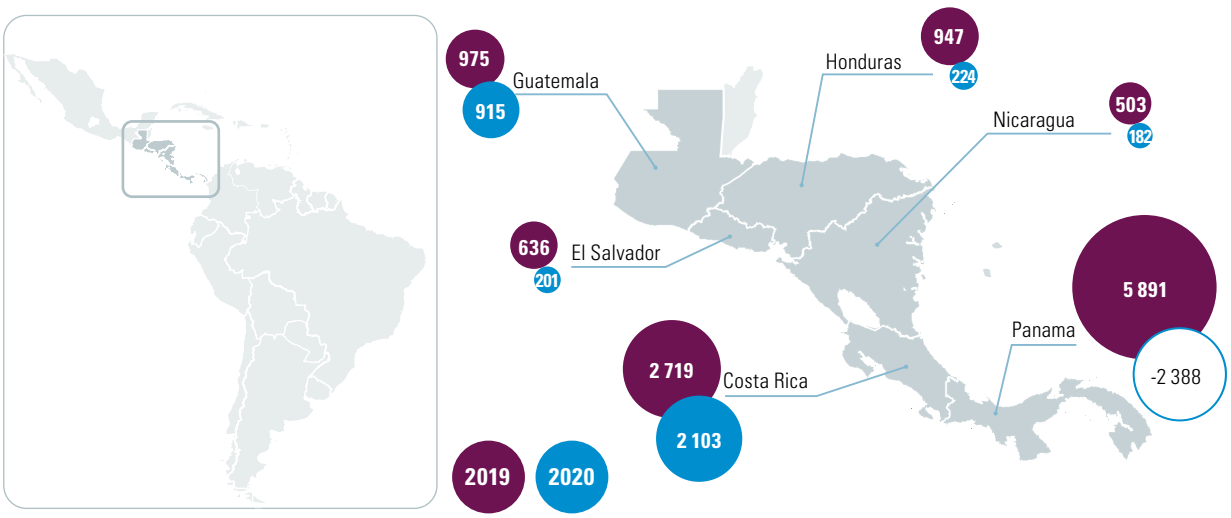
[d] Geospatial eligibility is based on open data collected through the Population and Housing Census and analysed by the National Council for the Evaluation of Social Development Policy (CONEVAL).

4. FDI in Central America contracts sharply, except in renewable energy and medical devices

In the Central American subregion, all countries received less FDI in 2020, with inward investment down by 89%, or US$ 10.434 billion, on the previous year's total inflow. Figure I.22 shows that the main cause of this sharp contraction was the collapse of FDI in Panama.[13]

As this is the steepest reduction recorded in all of Latin America and the Caribbean, Central America saw its share of regional FDI shrink from 7.2% to 1.2%. The slump in investments in Panama meant that the distribution of the region's FDI ranking also changed in 2020, with Costa Rica and Guatemala ranking first and second in terms of Central American FDI inflows, respectively.

Map I.2
Central America (6 countries): foreign direct investment inflows, 2019 and 2020
(Millions of United States dollars)



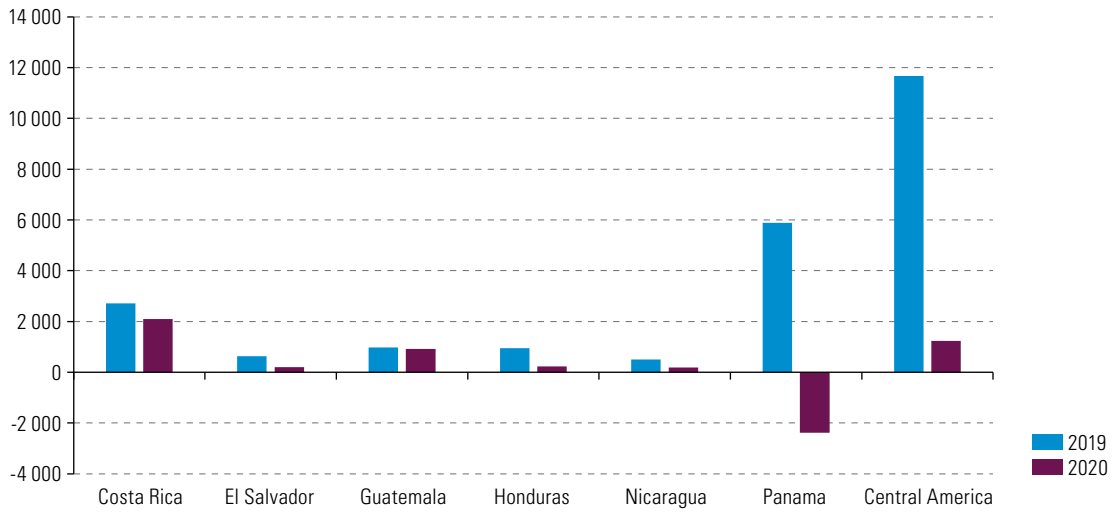
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures and estimates as of 27 July 2021.
Note: Information according to International Monetary Fund (IMF), *Balance of Payments and International Investment Position Manual: Sixth Edition (BPM6)*, Washington, D.C., 2009.

In sectoral terms, the pattern observed in 2019 was maintained in 2020, with services and manufacturing again the two leading sectors. In terms of origin, just under 50% of all investments come from the United States, while investments from within the Central American subregion account for 22%. Of this, 77% comes from Panama, reflecting this country's role as a financial hub from which firms from elsewhere in the world make investments in the region.[14] Reinvested earnings (US$ 1.94 billion) became the largest component of Central American FDI in 2020. Although down by 66% from the previous year's level, this item was sufficient to offset the net outflow of intercompany lending (-US$ 835 million).

[13] This analysis uses data calculated according to the sixth edition of the *Balance of Payments and International Investment Position Manual*. If the criteria of the fifth edition of the *Balance of Payments Manual* (BPM5) are applied, intercompany lending is positive and offsets the net outflows of equity inflows and reinvestment of earnings. As a result, when measured according to BPM5, FDI in Panama shrank by 86% in 2020, but remained net positive.

[14] Only four countries (Costa Rica, El Salvador, Guatemala and Honduras) provided information on the sectors and origins of FDI in 2020. The amount reported represents approximately one third of the total.

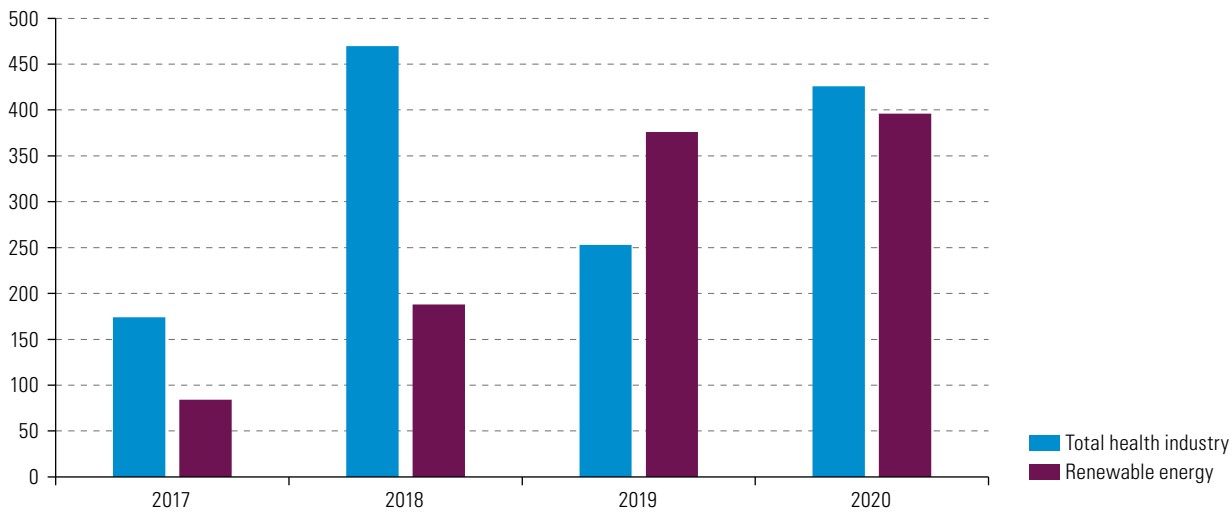
Figure I.22
Central America: foreign direct investment inflows, 2019 and 2020
(Millions of United States dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official information.

There were 149 investment announcements for Central American countries in 2020, for a total value of US$ 3.745 billion. These represented 14% of the number and 7% of the amount of investments announced for Latin America and the Caribbean as a whole. While announcements for Central America were down sharply on the previous year (-23% in number and -27% in value terms), the reductions are more moderate than in the region as a whole, where the number of announcements decreased by 45% and the value announced fell by 50%. In this scenario, sectors related to the health industry[15] (especially medical devices) and to renewable energy stood out with increases in announced values of 68% and 5%, respectively (see figure I.23).

Figure I.23
Central America: FDI announcements in health and renewable energy sectors, 2017–2020
(Millions of United States dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Financial Times, fDi Markets [online database] https://www.fdimarkets.com/.

[15] This category includes biotechnology, pharmaceuticals, medical devices and healthcare services.

Costa Rica was the subregional leader, accounting for 68% of the number of announcements and 37% of the value announced. Panama ranked second, with shares of 15% and 35%, respectively (see table I.6).

Table I.6
Central America (selected countries): FDI announcements by country, 2020
(Millions of United States dollars and percentages)

	Announcements		Amount	
	Number	Percentage	Value	Percentage
Costa Rica	101	68	1 400	37
El Salvador	8	5	180	5
Guatemala	7	5	130	3
Honduras	8	5	421	11
Nicaragua	2	1	300	8
Panama	23	15	1 314	35
Total	149	100	3 745	100

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Financial Times, fDi Markets [online database] https://www.fdimarkets.com/.

By sector, investment announcements are mainly concentrated in manufacturing (47% of the number and 39% of the value) and in services (46% and 42%, respectively). Announcements in the extractive and energy sectors, although fewer in number, involve higher average values than those of manufacturing and services (see table I.7).

Table I.7
Central America: FDI announcements by sector, 2020
(Millions of United States dollars and percentages)

	Number	Percentage	Value	Percentage	Average value
Manufacturing	70	47	1 477	39	21.1
Services	69	46	1 555	42	22.5
Extractive and energy	10	7	713	19	71.3
Total	149	1	3 745	1	25.1

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Financial Times, fDi Markets [online database] https://www.fdimarkets.com/.

Lastly, 43% of the projects announced for the subregion and 36% of their value are concentrated in three areas of production: the health industry, information and communication technologies, and renewable energies.

Costa Rica received the subregion's largest FDI inflow in 2020, totalling US$ 2.103 billion. Nonetheless, this is 23% less than the previous year's amount and the lowest value recorded by the country in the last decade. In terms of composition, the reinvestment of earnings is confirmed as the largest item (54%), despite also contracting sharply (-31%). Manufacturing remains the leading sector (66% of the total), with the United States the leading country of origin (68%).

Of the 101 investment announcements, one quarter are targeted to the pharmaceutical and medical devices sector, and another quarter to information and communication technology projects. Costa Rica is pursuing an investment attraction strategy that prioritizes three areas: knowledge-intensive services, smart manufacturing in life sciences, and health and well being, which are precisely the areas referenced by the project announcements. In particular, announcements in the area of medical devices have increased significantly in recent years, from five in 2017 to 22 in 2020.[16] In this period, Costa Rica accounted for 100% of all announcements made in this sector in the Central American subregion.

There were also two acquisitions in these sectors. The first was the purchase of the Costa Rican firm, Isthmus Software, by the United States software developer, 3Pillar Global. Isthmus has more than 17 years of experience providing database, big data analytics, software quality control, and financial software development and marketing

[16] The medical device industry grew significantly between 2000 and 2019: the number of firms in the sector operating in the country increased from eight to 72, and employment grew 20-fold (from 1,500 to 29,812 persons employed) (CINDE, 2020, cited in ECLAC, 2020).

services for firms in the United States and Latin America (see Connect Americas (undated)). The purchase forms part of a growth plan that 3Pillar Global has established since partnering with CIP Capital, which invests in firms in the business information and technology services sectors (*LexLatin*, 2021a) The acquisition of Isthmus will give the United States firm access to the Costa Rican market and a varied portfolio of strategic clients, while strengthening its technological capabilities by incorporating a 200-strong staff team (La República.net, 2021). The second acquisition occurred in the manufacturing sector and involved Olimpia Hardware Inc., which for more than 20 years has operated in the glass, aluminium and PVC sector and has a strong presence in Latin America and the Caribbean. This firm was taken over by Assa Abloy, a global Swedish firm that provides door-opening solutions, employs more than 49,000 staff and generates over US$ 11 billion in sales (CISION PR Newswire, 2020).

In El Salvador, FDI flows contracted by 68.4% in 2020, to US$ 201 million. Foreign investment in services and, to a lesser extent, in manufacturing helped to offset the slide experienced by the other sectors. The countries of the Central American subregion, especially Panama, were the main sources of these investments,[17] compensating for reductions in FDI from Canada (-US$ 188 million), Mexico (-US$ 83 million) and the United States (-US$ 42 million). Intercompany lending accounted for 90% of the net inflow of US$ 201 million thus generated.

In terms of mergers and acquisitions, Imperia Intercontinental of Honduras paid US$ 250 million for the local banking and insurance business of Canada's The Bank of Nova Scotia (Scotiabank) (*LexLatin*, 2021b).

Project announcements included a US$ 143 million investment by the French firm, Neoen, which reported operational roll-out of the Capella Solar photovoltaic park. This project envisages the construction of two 140 MW capacity plants to generate about 4% of the energy in El Salvador's wholesale market (Construir, 2020).

Guatemala received US$ 915 million of FDI in 2020, 6% less than in 2019. This reduction was the smallest recorded among the countries of the subregion, ranking Guatemala second in terms of subregional FDI share. Just under 70% of the US$ 915 million consists of investments in the service sectors, and 43% of these are in financial services. In terms of origin, the United States, Colombia and the Central American subregion all contribute similar amounts, with 21% coming from the United States and Colombia, and 20% from Central America. Ninety-five percent of Guatemalan FDI takes the form of reinvestment of earnings.

Seven investment projects were announced in 2020, five of them in the food and beverage sectors; but there were no mergers or acquisitions of Guatemalan firms. Nonetheless, Bia Coffee Investments, which is part of Bia Food Investments —a member of the Guatemalan consortium, The Central America Bottling Corporation (CBC)— took a 50% stake in the Ecuadoran firm Solubles Instantáneos C.A. (SICA).

In Honduras, the US$ 224 million of FDI recorded in 2020 represents a reduction of 76% and is barely one-fifth of the country's average inflow of the last 10 years. This total amount comprises inflows of US$ 314 million representing reinvested earnings, and outflows of both intercompany lending (-US$ 73 million) and equity inflows (-US$ 18 million). The majority of the investments came from the United States (US$ 248 million) and Colombia (US$ 146 million), while Switzerland, Belgium and Mexico, among others, generated net outflows. While the vast majority of FDI in Honduras was channelled into the service sectors, there was also a significant increase in the goods processing (maquila) sector —with a net inflow of US$ 235 million— and a sharp contraction in FDI in manufacturing industry —including US$ 165.3 million in debt write-offs with foreign subsidiaries.

Four cross-border mergers or acquisitions were recorded in 2020. Three of them involved the Canadian mining firm, Glen Eagle Resources Inc., which acquired 100%

[17] As noted above with respect to Panama as a financial hub, it is impossible to trace the country of origin of these investments.

of the Piedra Dorada mining concession (Intrado Globe Newswire, 2020a) and took a 50% stake in the Moloncosa concession (Intrado Globe Newswire, 2020b). Through these operations, the Canadian firm gained rights to exploit a 17 km^2 area located in the heart of the country's most prolific gold-bearing region.

There were eight project announcements in 2020. The largest (estimated at US$ 188 million) was made by the Colombian firm, Celsia, a subsidiary of Grupo Argos, which announced the inauguration of the first solar farm to supply the cement sector in Honduras (CELSIA, 2020). In addition, Ticsa USA Inc. announced its intention to invest more than US$ 135 million to modernize Puerto Castilla (PortalPortuario, 2020).

Nicaragua received US$ 182 million in FDI in 2020 —down by 64% on the 2019 figure. Most of the inflow came in the form of reinvestment of earnings (44%) and equity inflows (40%). In this context, the United States firm, New Fortress Energy LLC announced a US$ 700 million investment project to build a natural-gas-fired power plant, which will deliver 2.2 million MWh of energy per year to the National Interconnected System (García & Bodán, 2020; BNamericas, 2021). As of early 2021, the plant was under construction (Latin American Construction, 2021).

Panama experienced the subregion's steepest drop in FDI in 2020, posting a net outflow of US$ 2.388 billion. Of this, 63% represents the repayment of intercompany loans. Equity inflows and the reinvestment of earnings were also negative, but with relatively smaller shares (18% and 19%, respectively).

In this context, there were six large cross-border mergers and acquisitions, three of them in technology-intensive sectors, pharmaceuticals, biotechnology and renewable energy. In the pharmaceutical sector, Colombia's Blueberries Medical Corp. acquired BBV Labs, a laboratory certified to produce medical cannabis and its derivatives. In biotechnology, China's Eucure Biopharma Co. Ltd. acquired Beijing Biocytogen Biotechnology Co. Ltd., specializing in the development of therapeutic drugs and antibodies. In the renewable energy sector, the local subsidiary of AES Corporation, of the United States, purchased a 55MW wind farm from Goldwind Americas, a subsidiary of the Chinese wind turbine manufacturer Goldwind Science & Technology Co., Ltd. (Renewables Now, 2020a).

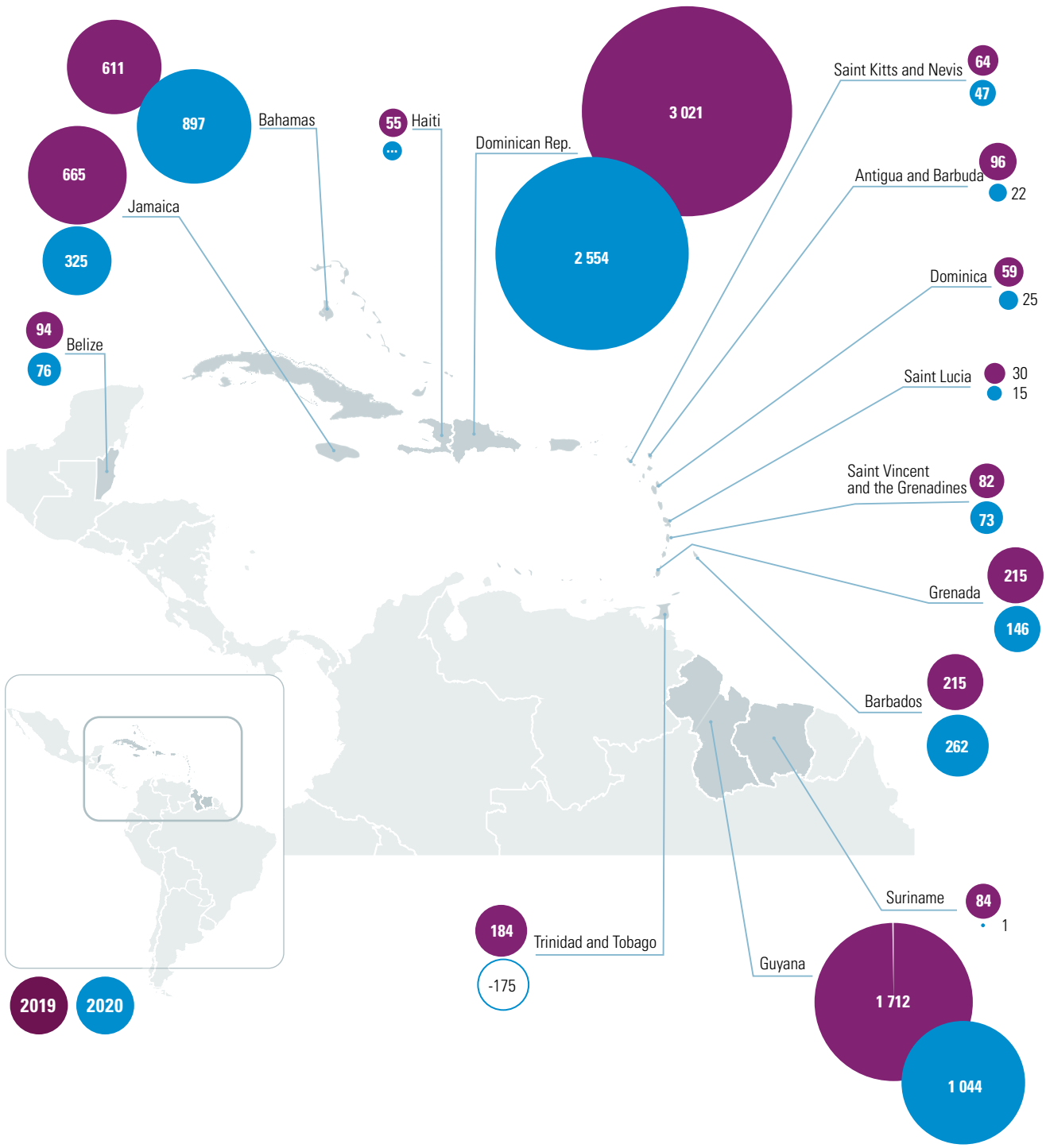
In 2020 there were also 23 investment project announcements totalling US$ 1.314 billion. Nine of these, representing approximately 81% of the total amount, are projects in the real estate and construction sector. The largest announcement was made by the Mexican conglomerate Caxxor Group, which plans to invest US$ 500 million in the Panamanian real estate sector and US$ 250 million in logistics infrastructure (BNamericas, 2020). In sectors of higher technological content, there were three major announcements in the software and communications sectors and in renewable energies. The latter includes Enel's US$ 50 million project to build a new solar plant in El Jagüito (Enel Green Power, 2020).

5. The Caribbean: increased FDI in the Bahamas and Barbados softened the impact of the crisis

Owing to the small size of their economies and their limited room for manoeuvre, the Caribbean economies are among the worst affected by the pandemic. Furthermore, most of them are heavily dependent on tourism, which was one of the sectors hit hardest by the crisis in 2020. With hotel stays down by 70% and cruise travel at a standstill, the subregion's economies contracted by 7.5% in 2020 (ECLAC, 2021). Foreign direct investment in the subregion also fell (-25.5%), largely owing to reductions in the Dominican Republic, Guyana, Jamaica, and Trinidad and Tobago. In contrast, investment flows into the Bahamas increased, owing partly to the reconstruction made necessary by Hurricane Dorian in 2019.

At the date of publication of this report, Haiti had not issued FDI data for the full year, having received US$ 55 million in FDI in 2019 and about US$ 7.5 million in the first quarter of 2020.

Map I.3
The Caribbean (selected countries): foreign direct investment inflows, 2019 and 2020
(Millions of United States dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures and estimates as of 27 July 2021.
Note: Information according to International Monetary Fund (IMF), *Balance of Payments and International Investment Position Manual: Sixth Edition (BPM6)*, Washington, D.C., 2009, except for the Bahamas, Barbados, Guyana and Haiti.

Inflows to the subregion's leading FDI recipient, the Dominican Republic, fell by 15.4% in 2020, to US$ 2.554 billion. This is explained mainly by reduced foreign investment in the mining and telecom sectors (-91% and -139%, respectively). In the latter case, FDI has fluctuated widely and was particularly high in 2019 (more than three times the 2010-2018 average).

Despite the COVID 19 crisis, FDI flows into the two leading recipient sectors, tourism and real estate, remained stable, representing 37% and 17% of FDI inflows in the country in 2020. Foreign investment increased in manufacturing (+23%) and in the electricity sector (+47%), accounting for 16% and 17%, respectively, of total inflows in 2020.

In the tourism sector, the ANEX Tourism Group, based in Turkey, announced a US$ 1.8 billion investment to open a new hotel in Punta Cana. The hotel will have 500 rooms in its first stage, and the Selectum Luxury Resort complex is slated to have a total of 7,000 rooms when completed by 2024. This mega hotel project is expected to create 10,000 jobs (*Diario Libre*, 2020). Another tourism project involves an investment of about US$ 41 million in a new hotel complex of the Hilton chain in La Romana, by Playa Hotels & Resorts (headquartered in the United States) (Telemundo47.com, 2020).

In addition to tourism, renewable energies continue to develop in the subregion, and in the Dominican Republic in particular. Several foreign investment projects were announced in 2020 in this sector which is increasingly important for the Caribbean economies. Streamline Integrated Energy Corp. a renewable energy developer and subsidiary of the United States firm SI-Energy Holdings, announced plans to develop a 50 MW waste-to-energy plant in the province of San Pedro de Macoris (Renewables Now, 2020b). In addition, Electronic JRC, a subsidiary of Neo Solar Power, a solar energy firm based in Taiwan Province of China, has obtained permission to expand the capacity of its solar photovoltaic park in the country. As a result, the 30 MW Monte Plata Solar project, located in Monte Plata province, which was the first solar plant to be installed in the country in June 2016, will have its capacity doubled to 60 MW.

In the manufacturing sector, Oscor, a producer of medical devices based in the United States, announced that it will expand its manufacturing plant in the Las Américas Industrial Free Trade Zone in Santo Domingo. In addition, DP World, a logistics operator based in the United Arab Emirates, has invested US$ 114 million to increase its operating capacity by expanding DP World Caucedo's main berth. The increase in terminal capacity represents the start of a project to turn Punta Caucedo into a logistics hub for the Americas. DP World also announced plans to build an economic zone for manufacturing, with a view to attracting investment from foreign firms in this sector. This will be located in the DP World Caucedo free zone (DP World, 2020).

In Guyana, FDI inflows decreased by 39.1% to about US$ 1.044 billion in 2020, which still represents more than five times the average inflow prior to the discovery of oilfields in the country. Major investments to exploit the large deep-water deposits discovered in 2015 began in 2018. Between then and 2020, US$ 3.565 billion was invested in this sector in Guyana, with a peak in 2019 of almost US$ 1.5 billion. Oil production began in 2020, generating growth of 43.5% in Guyana's GDP while regionwide GDP shrank by 6.8% in the wake of the pandemic (ECLAC, 2021).

Between 2000 and 2017, FDI inflows averaged about US$ 200 million per year; but since 2018, Guyana has received an annual average of US$ 1.292 billion. Most of these investment flows are destined for the energy sector, which absorbed 98% of the FDI entering the country in 2020. At the same time, the expansion of oil activities has also fuelled the development of support and service activities. For example, in January 2020, the Danish firm, Blue Water Shipping, which provides shipping and cargo

services, announced the opening of a new office in Guyana to support the domestic oil and gas market (HLPFI, 2020). Another example is the British marine services firm, Inchcape Shipping Services, which has opened a new office in Georgetown. This will provide support to clients holding permits for geological exploration and offshore oil and gas extraction in Central America (Inchcape Shipping Services, 2020). The new office will also provide general vessel maintenance services, crew changes, delivery of spare parts, ship supply and bunkering operations in the dry bulk and tanker sectors.

The Bahamas is ranked third in the subregion in terms of FDI inflows and one of the two countries that received larger inflows in 2020, despite the COVID-19 crisis and the 14.5% contraction of its economy. FDI inflows to the Bahamas grew to about US$ 897 million, 46.8% more than the previous year's US$ 611 million. Nonetheless, inflows in 2020 were still less than 70% of the annual average for the 2010–2019 decade. Moreover, the COVID-19 pandemic has had a major impact, since tourism is the country's leading economic sector and accounted for half of the country's employment and 77% of its exports in 2019. Owing to the pandemic and the international health restrictions, tourist numbers and spending fell by 78% and 76%, respectively, in 2020; and this has also had detrimental spillover effects on other sectors, such as commerce (WTTC, 2021).

In Jamaica, FDI shrank by 51% to US$ 325 million, the smallest amount since 2011. The country's tourism sector has also been hit hard by the COVID-19 crisis. At the same time, the government wants to strengthen the island's business and financial services sector, which has become a priority in its strategic development plan (Vision 2030). In 2020, new investment projects were announced in the business process outsourcing (BPO) sector. For example, Founders Agency, a digital marketing firm based in the United States, announced the opening of a new office in Kingston to serve the Central American and Caribbean markets. In addition, the United States firm, C4GlobalSolutions, a provider of outsourced customer services, has expanded its facility in the Montego Bay Free Trade Zone. Despite representing a very small amount, the sector is a major job creator. Also noteworthy is the growth in remittance flows into Jamaica in 2020, which amounted to US$ 2.905 billion (up 21% over the previous year) and more than offset the decline in FDI inflows. Remittances are very important for the country's economy because, in addition to supporting domestic consumption, in many cases they also make it possible to finance investments by micro, small and medium-sized enterprises (MSMEs).

Barbados is the other country (along with the Bahamas) in which FDI increased in 2020, with inflows totalling US$ 262 million —21.7% more than in 2019. Despite the international situation and its repercussions on tourism, which remains the country's most important economic sector, equity inflows and reinvestments were maintained at 2019 levels, and intercompany lending increased by 35%. As is true of the other Caribbean countries, Barbados has a thriving services industry. This includes the expanding presence in the country of Centralis, a Luxembourg-based outsourced business service provider. Its new office will support the firm's development and growth in the local market.

The countries that make up the Organization of Eastern Caribbean States (OECS) (Antigua and Barbuda, Dominica, Grenada, Saint Lucia, Saint Kitts and Nevis and Saint Vincent and the Grenadines) received FDI inflows totalling US$ 329 million in 2020 —40% less than the previous year's US$ 547 million. These small, tourism-reliant, economies were the hardest hit by the COVID-19 crisis.

Grenada, the leading OECS recipient of FDI, received a total of US$ 146 million, which was 32.1% less than in 2019. Saint Vincent and the Grenadines suffered a smaller reduction (-11.1%) with inflows of around US$ 73 million; while Saint Kitts and Nevis

received FDI of US$ 47 million, down by 26.3% year-on-year. Meanwhile, Dominica received about US$ 25 million (-57.6%) and Antigua and Barbuda about US$ 22 million, which was 76.8% less than the previous year's US$ 96 million. Saint Lucia proved to be the country of the region hit hardest by the economic crisis, as it GDP shrank by 23.8% in 2020. The island also saw its FDI cut by more than half (-51%) from the 2019 level, with inflows of just US$ 15 million in 2020.

In Belize, FDI inflows shrank by 18%, to US$ 76 million in 2020. This is explained by a 77% decrease in reinvestment of earnings, which was only partially offset by an increase in new capital inflows into the country. Construction has been the sector hit hardest by the drop in FDI inflows (-27%).

In Suriname, FDI totalled just US$ 800,000 in 2020 —a 99% reduction in inflows relative to the previous year's US$ 84 million. Having suffered a political crisis in 2020, the country is in a complex economic and debt situation. According to estimates (ECLAC, 2021), it is one of the two countries in the region (along with the Bolivarian Republic of Venezuela) in which growth is expected to remain negative in 2021 (-1%).

Sharing the Guyana-Suriname basin with Guyana, Suriname is embarked on promoting its own "big oil boom". Its State-owned oil and gold mining enterprise, Staatsolie, expects the country's offshore acreage to show the same potential as that of neighbouring Guyana; and exploration started to display positive results for the first time in 2020. In January of that year, Apache and TotalEnergies announced a significant oil discovery offshore Suriname, followed by a similar find in April 2020. In January 2021 they announced their fourth oil discovery in Block 58 offshore Suriname. Along with the December 2020 discovery in Block 52 by ExxonMobil and its partner, the Malaysian State-owned Petronas, Suriname reported a total of five discoveries between January 2020 and January 2021. Experts predict that it will take between five and ten years to start offshore oil production, world oil prices permitting. Staatsolie announced that it expects to start production in 2025 (Argus, 2021).

Trinidad and Tobago posted net negative FDI of US$ 175 million in 2020, since the outflow of capital from foreign firms established in the country, representing either divestments or the repayment of debts acquired previously, outweighed inflows. This result is explained mainly by divestments in the energy sector, where net FDI has been negative since 2015, and by the fall in oil prices. In 2019, divestments in the energy sector were more than offset by FDI inflows in the other sectors, resulting in a net inflow of US$ 184 million.

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Annex I.A1

Table I.A1.1

Latin America and the Caribbean: inward foreign direct investment by country, 2003–2020[a]

(Millions of dollars)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Antigua and Barbuda	179	95	238	361	341	161	85	101	68	138	101	46	114	97	155	205	96	22
Argentina	1 652	4 125	5 265	5 537	6 473	9 726	4 017	11 333	10 840	15 324	9 822	5 065	11 759	3 260	11 517	11 717	6 663	4 019
Bahamas	713	804	1 054	1 492	1 623	1 512	646	1 097	1 409	1 034	1 590	3 551	713	1 260	901	947	611	897
Barbados	185	228	390	342	476	615	255	446	456	527	118	592	418	269	206	242	215	262
Belize	-10.9	111	127	109	143	170	109	97	95	189	95	153	65	44	24	118	94	76
Bolivia (Plurinational State of)	197	85	-287.8	281	366	513	423	643	859	1 060	1 750	657	555	335	712	302	-216.6	-1 097.5
Brazil	10 123	18 161	15 460	19 418	44 579	50 716	31 481	82 390	102 427	92 568	75 211	87 714	64 738	74 295	68 885	78 163	69 174	44 661
Chile	4 026	6 797	7 462	7 586	13 475	18 473	13 855	16 020	25 565	31 368	22 210	23 558	20 879	12 329	6 128	7 760	12 587	8 528
Colombia	1 720	3 116	10 235	6 751	8 886	10 564	8 035	6 430	14 647	15 040	16 210	16 169	11 724	13 848	13 837	11 535	14 313	8 100
Costa Rica	575	794	861	1 469	1 896	2 078	1 615	1 907	2 733	2 696	3 205	3 242	2 956	2 620	2 925	3 015	2 719	2 103
Dominica	32	27	32	29	48	57	58	43	35	59	25	12	7	42	22	77	59	25
Dominican Republic	613	909	1 123	1 085	1 667	2 870	2 165	2 024	2 277	3 142	1 991	2 209	2 205	2 407	3 571	2 535	3 021	2 554
Ecuador	872	837	493	271	194	1 057	309	166	646	567	727	772	1 323	756	625	1 388	974	1 190
El Salvador	123	366	398	267	1 455	824	366	-225.6	218	466	179	306	396	348	889	826	636	201
Grenada	91	66	73	96	172	141	104	64	45	34	114	107	156	110	156	176	215	146
Guatemala	263	296	508	592	745	738	522	658	1 219	1 270	1 479	1 442	1 231	1 174	1 130	981	975	915
Guyana	26	30	77	102	152	178	164	198	247	294	214	255	122	58	212	1 119	1 712	1 044
Haiti	14	6	26	161	75	30	55	186	114	174	159	94	104	93	385	105	55	-
Honduras	403	547	600	669	928	1 006	509	969	1 014	1 059	1 069	1 704	1 317	1 147	941	1 380	947	224
Jamaica	721	602	682	882	866	1 437	541	228	218	413	545	582	925	928	889	775	665	325
Mexico	18 225	24 916	26 018	22 141	31 110	29 783	19 657	30 477	23 835	18 207	50 791	28 631	35 789	38 861	33 122	37 676	29 424	31 365
Nicaragua	201	250	241	287	382	627	434	490	936	776	965	1 077	967	989	1 035	838	503	182
Panama	771	1 012	1 027	2 498	1 777	2 402	1 259	2 363	3 132	2 980	3 943	4 459	5 058	5 585	3 977	5 487	5 891	-2 388
Paraguay	25	28	36	114	202	263	71	462	581	697	245	412	308	425	576	458	522	568
Peru	1 335	1 599	2 579	3 467	5 491	6 924	6 431	8 455	7 682	13 622	9 826	3 930	8 314	6 739	6 860	6 967	8 055	982
Saint Kitts and Nevis	78	63	104	115	141	184	136	119	112	110	139	157	128	121	48	34	64	47
Saint Vincent and the Grenadines	55	66	41	110	121	159	111	97	86	115	160	124	124	80	163	42	82	73
Saint Lucia	112	81	82	238	277	166	152	127	100	78	95	65	152	162	49	57	30	15
Suriname	-76.1	-37.3	28	-163.4	-246.7	-231.4	-93.4	-247.7	70	174	188	164	267	300	96	131	84	1
Trinidad and Tobago	808	998	940	883	830	2 801	709	549	41	-1 904.3	-1 130.0	661	177	-23.6	-470.9	-700.2	184	-175.1
Uruguay	416	332	847	1 493	1 329	2 106	1 529	2 289	2 504	6 394	987	4 085	2 673	-520.2	2 640	1 773	1 307	614
Venezuela (Bolivarian Republic of)	2 040	1 483	2 589	-508.0	3 288	2 627	-983.0	1 574	5 740	5 973	2 680	-1 028.0	769	1 068	-68.0	886	…	…
Total	**46 508**	**68 794**	**79 350**	**78 174**	**129 263**	**150 675**	**94 725**	**171 528**	**209 953**	**214 644**	**205 704**	**190 969**	**176 430**	**169 207**	**162 137**	**177 012**	**161 664**	**105 480**

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures and estimates as of 27 July 2021.

[a] Data are compiled using the methodology of the International Monetary Fund (IMF), Balance of Payments and International Investment Position Manual: Sixth Edition (BPM6), except in the case of the Bahamas, Barbados, Guyana, Haiti, Paraguay, Peru and Venezuela (Bolivarian Republic of). The methodology of the fifth edition of (BPM5) is used in part of the series for the following countries: Antigua and Barbuda, Bolivia (Plurinational State of), Dominica, Grenada, Saint Kitts and Nevis, and Saint Lucia (2003–2013); Argentina (2003–2005); Dominican Republic (2003–2009); Ecuador (2003–2015); Guatemala (2003–2007); Honduras (2003–2012); Mexico and Nicaragua (2003–2005); Panama (2003–2014); Suriname (2003–2016); Trinidad and Tobago (2003–2010); and Uruguay (2003–2011).

Table I.A1.2

Latin America and the Caribbean: inward foreign direct investment by destination sector, 2008–2020[a]

(Millions of dollars)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Argentina[b]													
Natural resources	1 537	946	2 741	1 056	6 586	5 084	-828.6	2 141	352	...	...	...	...
Manufactures	5 477	264	3 991	4 096	3 963	3 841	5 850	6 420	-1 577.5	...	...	...	...
Services	5 126	2 556	4 140	5 830	6 295	4 511	6 454	6 704	1 620	...	...	...	...
Belize													
Natural resources	37	7	13	29	100	22	10	12	22	10	21	-	-
Manufactures	-	-	-	-	-	-	-	-	-	-	-	-	-
Services	127	97	82	64	92	87	121	111	139	121	123	121	90
Other	16	9	5	5	6	9	9	13	6	7	10	15	9
Bolivia (Plurinational State of)[c]													
Natural resources	859	420	531	622	1 166	1 550	1 558	916	372	638	448	221	66
Manufactures	154	74	276	240	119	317	390	23	137	260	147	148	63
Services	290	193	128	171	220	162	173	227	592	312	309	206	90
Brazil[d]													
Natural resources	11 210	4 288	20 278	8 901	10 140	17 180	9 391	5 924	10 140	5 030	10 644	11 448	5 223
Manufactures	9 763	9 952	25 852	33 551	37 580	39 323	42 484	34 349	37 025	21 383	33 494	24 905	14 593
Services	9 091	5 667	7 233	28 574	27 494	23 873	34 583	31 952	22 631	32 317	17 609	12 002	12 211
Other	-	-	223	207	162	123	82	144	157	106	85	67	157
Chile													
Natural resources	4 599	6 062	6 053	12 673	13 507	4 714	8 827	10 102	1 574	2 668	-2 057.4	4 621	-
Manufactures	1 570	28	1 572	-54.1	-460.2	3 105	1 900	1 354	16	-325.9	267	139	-
Services	8 725	7 092	7 805	12 918	6 823	17 676	14 973	11 198	9 936	3 434	15 156	2 887	-
Other	256	674	589	-1 387.2	11 498	- 3 284.7	- 2 142.5	-1 774.2	803	351	-6 042.9	4 282	-
Colombia													
Natural resources	5 176	5 670	4 976	7 236	7 972	8 513	7 091	3 368	2 491	4 475	4 143	4 878	2 589
Manufactures	1 696	1 260	210	1 108	1 925	2 138	2 826	2 638	1 844	2 368	1 310	1 500	605
Services	3 693	1 105	1 244	6 303	5 143	5 560	6 252	5 718	9 513	6 994	6 083	7 936	4 905
Costa Rica													
Natural resources	71	78	-3.2	-18.7	20	2	13	403	110	34	93	5	-60.1
Manufactures	431	373	980	887	399	329	614	622	953	1 269	1 352	1 668	1 163
Services	1 696	875	530	1 548	1 847	2 392	2 271	1 726	1 138	1 481	1 038	1 119	650
Other	122	118	176	45	-7.8	19	27	1	3	-6.1	5	20	10
Dominican Republic													
Natural resources	357	758	240	1 060	1 169	93	-38.5	6	486	410	185	225	21
Manufactures	574	280	566	355	1 257	404	607	368	413	1 365	540	356	436
Services	1 938	1 128	1 218	862	716	1 494	1 640	1 831	1 508	1 796	1 811	2 440	2 097
Ecuador													
Natural resources	265	58	189	380	243	274	724	628	509	193	878	502	557
Manufactures	198	118	120	122	136	138	108	264	38	144	105	110	52
Services	595	133	-143.1	142	189	315	-59.9	431	209	288	406	362	580
El Salvador													
Natural resources	31	9	1	-0.6	-2.6	6	1	1	1	1	-	-	-
Manufactures	28	92	-65.3	149	-49.2	285	83	290	267	457	582	51	50
Services	479	243	-224.8	66	490	-147.2	245	77	81	374	163	552	259
Other (maquila)	365	21	59	4	29	35	-22.5	28	-1.5	58	81	33	-108.4

Table I.A1.2 (concluded)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Guatemala													
Natural resources	209	110	147	391	461	440	51	23	59	-49.6	-98.2	64	8
Manufactures	76	23	199	187	132	190	197	238	242	277	274	227	219
Services	447	383	290	711	644	789	1 159	963	881	804	713	659	631
Other	6	6	23	-69.2	33	60	37	8	-6.6	99	92	26	57
Guyana													
Natural resources	87	65	94	108	122	173	113	59	41	161	1 138	1 480	985
Manufactures	12	8	16	30	44	10	31	13	4	2	6	30	26
Services	62	77	70	92	113	17	44	17	5	41	12	6	32
Other	17	14	18	17	14	14	67	33	8	8	76	197	-
Honduras													
Natural resources	4	10	84	62	41	70	72	64	-93.8	-67.0	57	9	6
Manufactures	267	98	341	392	438	325	667	385	430	635	-37.4	-110.3	70
Services	736	402	545	560	579	665	678	755	803	607	942	600	343
Mexico													
Natural resources	4 578	1 407	1 642	1 052	3 056	5 956	2 857	1 780	1 029	1 521	1 621	2 026	1 477
Manufactures	9 236	6 713	14 243	11 613	9 720	31 250	18 874	17 802	18 028	15 451	15 702	15 990	10 627
Services	15 719	9 735	11 256	12 909	8 968	11 010	8 743	15 905	12 092	17 260	16 598	16 228	15 682
Nicaragua													
Natural resources	57	47	77	191	123	272	109	32	-11.8	29	105	136	-
Manufactures	122	70	108	226	302	234	246	280	378	234	110	25	-
Services	447	318	323	550	347	350	378	501	385	541	438	219	-
Other	-	-	-	-	22	125	151	137	147	232	184	124	-
Panama													
Natural resources	-59.0	-33.9	77	94	1 164	468	27	1 679	730	2 043	1 612	1 632	…
Manufactures	161	104	-113.8	298	520	142	250	-7.6	221	316	119	557	…
Services	2 106	1 190	2 760	2 761	1 526	2 957	4 182	2 885	3 795	1 818	3 350	2 132	…
Paraguay													
Natural resources	7	7	-1.0	20	34	45	74	30	-4.8	3	-18.9	27	-
Manufactures	201	-33.4	302	210	409	-29.8	-286.0	103	129	256	168	332	-
Services	55	98	160	351	254	237	624	175	301	317	308	164	-
Uruguay													
Natural resources	604	253	329	383	435	342	43	42	182	-88.9	-43.0	-61.7	-
Manufactures	261	242	131	190	568	507	677	163	-759.1	-90.9	185	471	-
Services	1 068	1 027	1 037	1 482	1 177	3 370	1 484	861	- 1 277.6	-411.4	25	1 360	-
Other	238	71	820	572	36	32	32	20	29	-9.4	-22.1	47	-
Total													
Natural resources	29 628	20 160	37 468	34 237	46 336	45 204	30 094	27 210	17 986	17 012	18 728	27 210	10 871
Manufactures	30 226	19 663	48 727	53 601	57 005	82 506	75 519	65 303	57 788	44 000	54 324	46 397	27 905
Services	52 399	32 316	38 453	75 893	62 917	75 318	83 944	82 034	64 351	68 092	65 084	48 992	37 570
Other	1 019	914	1 914	-605.3	11 793	-2 867.1	-1 759.6	-1 389.9	1 146	846	-5 532.9	4 810	125

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures and estimates as of 27 July 2021.

[a] Data are compiled using the methodology of the International Monetary Fund (IMF), Balance of Payments and International Investment Position Manual: Sixth Edition (BPM6), except in the cases of Costa Rica, Honduras, Mexico, Panama and Paraguay. The methodology of the fifth edition of (BPM5) is used in part of the series for Ecuador (2008–2015).

[b] According to data from the Central Bank of the Republic of Argentina.

[c] Gross foreign direct investment flows, excluding divestments.

[d] Data do not include reinvested earnings.

CHAPTER

II

Chinese investment in a changing world: repercussions for the region

II

A. China: an economic powerhouse with new characteristics

In a world still in crisis on account of the coronavirus disease (COVID-19) pandemic, China has continued to make progress towards consolidating its position as a global economic power. However, the sheer scale of the country, which accounts for 18% of global GDP and 22% of the world's manufactured exports (*The Economist*, 2021), its ascent in the global technological hierarchy and its handling of some of its international relations and internal problems have triggered disagreements and conflicts with other economic powers. This is particularly true with respect to the United States, which since the post-war period and the end of the tensions of the Cold War had been the world's technological leader. As stated by Rosales (2020), the United States and China are disputing hegemony over the technologies that will shape the twenty-first century.

One of the differences between China and other world powers is the path it took to attain this position of leadership. China's enhanced role in the world economy and its successful productive transformation were achieved through the implementation of successive economic, industrial and technological strategies with medium- and long-term visions that invariably included the implicit goal of returning the country to its central place as a great power. In 1978, when Deng Xiaoping announced the country's economic reform and opening up, China was an impoverished nation, accounting for 3.4% of world GDP and with a per capita GDP of only US$ 156 and, in 1980, with 88% of its population living in extreme poverty. No world power had such indicators barely 40 years ago. The change in China was made possible through a profound transformation of the productive structure and the closing of technological gaps, both of which were pursued by successive government plans.

Moreover, over the course of this forty-year-long process and partly because of the country's sheer dimensions, China has been able to impose its own terms and conditions on this economic opening. That means that it did not need to abide strictly to the conditions already prevailing in international relations. One example of this is the way in which it has used foreign direct investment (FDI) to close the technology gap. China is one of the world's leading recipients of FDI, but the conditions it imposed on transnational investments were such that they allowed for technological spillovers and local capacity-building. At the same time, outward FDI from China has been growing steadily, rising from 5.5% of total global outward FDI stock in 2000 to 11.3% in 2019. This has made the country the third largest source of FDI in the world after the European Union and the United States. These overseas investments use a dual strategy that, first, ensures the supply of natural resources and, second, secures access to cutting-edge technologies through mergers and acquisitions in core economies.

Within the framework of Chinese industrial and technological strategies, the Made in China 2025 plan announced in 2015 has been key in the country's advancement as a technological power. The plan's goal was to modernize the country's industrial capacity, strengthen innovation and the development of new technologies, and narrow the technological gap with the leading countries. The implementation and effects of this plan became a bone of contention with the Trump Administration and one of the triggers of the recent United States-China trade disputes. Those disputes, which crystallized in the conflicts over 5G technology and the actions of the Chinese company Huawei, and, more recently, in the tensions that have arisen in the semiconductor industry, have evolved into a struggle for global technological leadership.

In an attempt to defuse tensions with the United States, China has stopped referring to the Made in China 2025 plan in its official discourse, but its development goals remain in place. Thus, the Fourteenth Five-Year Plan, which covers the 2021–2025 period and was announced in March 2021, focuses on two themes: first, the construction of a new development model called "dual circulation", which recognizes the importance of encouraging domestic consumption and not relying solely on export-driven growth, and, second, the promotion of technological development, self-sufficiency, innovation and the deployment of national industries. One of the main objectives set by this five-year plan is that spending on research and development (R&D) should increase at an annual rate of 7% between 2021 and 2025 in order to secure significant technological advances, including in cutting-edge technologies.

In this scenario, it is clear that China will continue working to achieve technological leadership. The most recent plan's emphasis on self-sufficiency and technological security is on account of the continued pursuit of its long-term strategy and the country's commercial and technological conflicts with the United States over the past two years, but it is also the result of current conditions in the global economy, which has been profoundly affected by the COVID-19 crisis. The hefty share of Chinese output in world supply chains has been a sensitive issue during the recent global economic crisis and has exacerbated existing rivalries. In February 2021, United States President Joe Biden issued an executive order on critical supply chains that was intended to boost the domestic manufacturing of certain products. The order set a 100-day deadline to examine vulnerabilities and propose ways to secure the country's supply chains in four product classes where manufacturers in the United States rely on imports: semiconductors, high-capacity batteries, pharmaceuticals and their active ingredients, and critical minerals and strategic materials, such as rare earths (The White House, 2021).

In contrast, China's relationship with the European Union has, in principle, been less contentious, as illustrated by the investment agreement between the two parties that was concluded in December 2020 after seven years and 35 negotiating rounds. On 30 December 2020, the European Union and China reached an agreement —the European Union-China Comprehensive Agreement on Investment— that will govern their bilateral investments going forward. The European Union has said that this agreement, in addition to addressing issues such as labour rights, forced technology transfers and unfair competition, particularly from Chinese State-owned enterprises, gives it better access to sectors such as the automotive industry, financial services, real estate, and financial leasing and renting. While the agreement will improve access to the Chinese market, it fails to address certain crucial structural issues, such as domestic procurement rules that discriminate against foreign investors, or restrictions on cross-border data flows (MERICS, 2021). Moreover, while the European Commission highlights unprecedented commitments on human and labour rights, to date China has only undertaken "to work" towards ratifying the International Labour Organization (ILO) conventions that are not included in the Comprehensive Agreement (MERICS, 2021).

In addition, the agreement still needs to be ratified by the European Parliament. The debate and vote have been delayed and compromised by the sanctions China imposed on some members of the Parliament in March 2021 in response to the

European Union's sanctions on various Chinese officials for human rights violations in Xinjiang. Leaving those conflicts to one side, the economies of China and the European Union are already integrated and, even in the absence of an agreement, trade and investment between the two sides would continue to be important. Human rights are, however, a cause for contention between the two powers; they could therefore cause the agreement to fail.

In the technology area, ever since the heightening of tensions between China and the United States, the European Union has emphasized the need to improve its digital sovereignty. Recent chip shortages have further fuelled its aspiration to raise domestic production —which today accounts for less than 10% of global semiconductor output— up to at least 20% (CNBC, 2021).

In this scenario —with the traditional Western economic powers disputing several areas of economic leadership with China and its different approach— it is crucial that the countries of Latin America and the Caribbean acquire a greater understanding of the Asian powerhouse's emerging role, vision and strategy so they can assume a position that will allow them to establish a mutually beneficial relationship with it. To date, the relationship between the region's countries and China has been one of dependence, which has not contributed to a more inclusive model of development that reduces poverty and increases equality (Stallings, 2020).

In the context of China's emergence as one of the world's technology leaders, prolonged commercial and technological tension with the United States could have repercussions around the world. To some extent, Beijing and Washington, D.C., are pressuring other countries to choose whether or not to use Chinese-made equipment in their 5G networks, and as long as that remains ongoing, there is a danger that the Internet and the global technology industry could end up divided into two rival and completely incompatible spheres of influence (*Financial Times*, 2019a; Pollack, 2020). Latin America and the Caribbean will not be unaffected by this conflict. Indeed, one element in China's striving for technological leadership has been the international dissemination of its technologies, which has been particularly important for developing countries. The Digital Silk Road —a component of the Belt and Road Initiative that promotes the spread of new Chinese technologies through digital infrastructure, e-commerce, data security and smart city projects— has undeniably had an impact on the growing number of Chinese projects in the region's technology and digital sectors.

At the regional level, China is one of Latin America and the Caribbean's main trading partners and it has also been gaining prominence as an investor. Since 2010, the presence of Chinese companies in the region has increased, through various different types of investment: mergers and acquisitions (with which the largest investments have been made), development of new projects, construction contracts and concessions. These investments have certain characteristics that the region's countries must take on board in order to obtain the greatest benefits.

Accordingly, this chapter provides an overview of China's past and current investments in Latin America and the Caribbean and places those investments in the context of China's development strategy. It highlights the evolution and particularities of Chinese investments in the world and in the region, and it offers an analysis of the opportunities available to the region in this scenario.

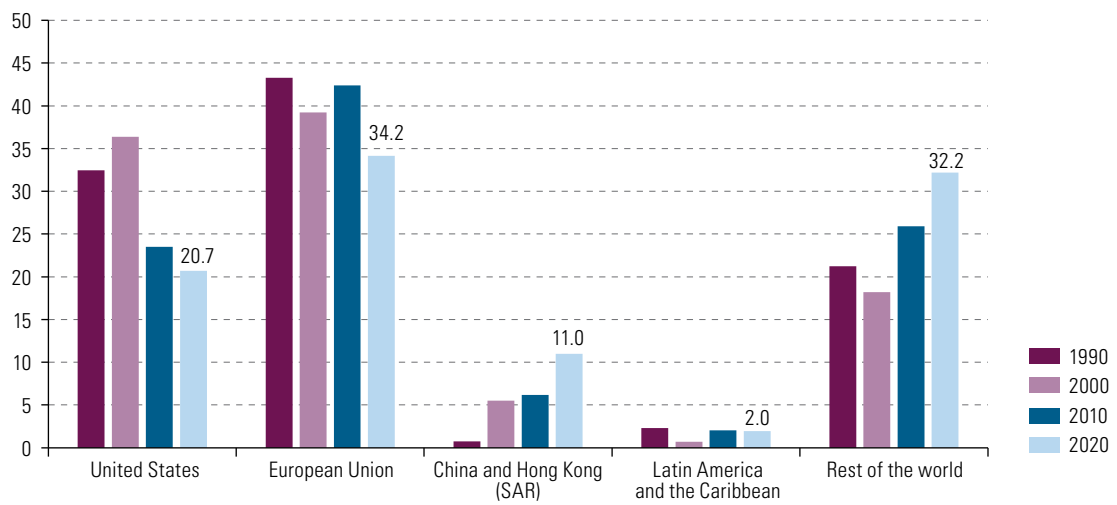
B. Foreign direct investment, a strategic element in China's industrial technological development

1. In the space of three decades, China has become one of the main destinations and origins of foreign direct investment

China's positioning itself as a key player in the world economy was one of the biggest changes on the international scene at the start of the twenty-first century. The rapid growth of cross-border trade and investment was the result not only of domestic economic growth, but also of an explicit drive towards internationalization launched at the end of the twentieth century and incorporated into the country's economic, technological and industrial development strategy.

In 2019, after the United States, China was the second country with the most capital invested beyond its borders. That position was won after decades of expanding outward investment, which was driven by promotion policies. Thus, FDI from China —including Hong Kong Special Administrative Region (SAR) of China— rose from less than 1% of the global stock in 1990 to 11% in 2020 (see figure II.1).

Figure II.1
Global foreign direct investment stock by country and region of origin, 1990, 2000, 2010 and 2020
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations Conference on Trade and Development (UNCTAD).
Note: For the purposes of the chart, the grouping of China and Hong Kong Special Administrative Region (SAR) of China was retained for pre-1997 figures.

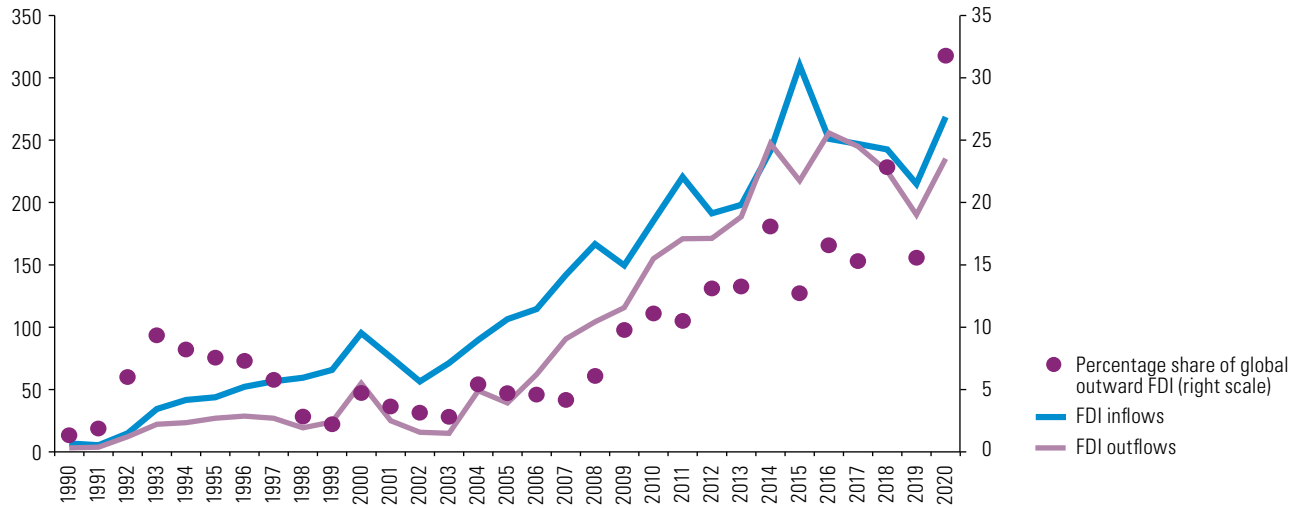
In the late 1990s China launched the Going Global or Go Out Policy, which encouraged companies to invest directly abroad. In 2001, with China's accession to the World Trade Organization (WTO), domestic reforms intensified in conjunction with a drive towards internationalization, and a new era of economic openness began. Outward investment rules and regulations were phased in gradually after 2004 and, in 2013, the Belt and Road Initiative —also called the New Silk Road— was launched. In those years, Chinese industry had a surplus of installed capacity and the country needed to meet domestic economic targets. The Belt and Road Initiative became a tool for expanding China's market beyond its borders and solved the problem of massive overcapacity in many industries, such as steel and cement (*The Economist*, 2017). In addition, the initiative represented an economically viable option for expanding the economic influence of State-owned enterprises and enabling them to deal with excessive indebtedness.

The growth of outward investment was accompanied by a robust expansion of inward FDI into China. Ever since the first foreign investment was authorized in the country in 1980, the expansion of transnational corporations into China has been intense and steady.[1] The framework regulating the entry of those companies has gradually become more flexible, but there are still fierce barriers to the entry of foreign capital into certain sectors deemed strategic: telecommunications, air and maritime transport, finance, public services and the media (Li, 2019). In contrast, as will be seen below, Chinese companies have acquired important positions in those sectors abroad. In addition to its sectoral approach, the regulation of inward FDI also considers the type of investment made. Initially, only joint ventures with Chinese companies were allowed, which gave them low-cost access to sophisticated technologies and equipment. This restriction was gradually relaxed, as were the geographical restrictions imposed at the outset, under which FDI was allowed only in special economic zones and some coastal cities.

This process of rising inflows of foreign capital made China —including Hong Kong (SAR)— the world's second largest FDI destination after the United States in 2019, and the outright leader in 2020. Except for a few specific years, overseas investments received by China and Hong Kong (SAR) outstripped the amount of funds they invested abroad. This means that, in its process of internationalization, the country has received more FDI than it has distributed (see figure II.2). In 2020, China and Hong Kong (SAR) received about US$ 269 billion in FDI and spent US$ 235 billion, the latter figure representing 32% of the world's total outward FDI. This sharp rebound in 2020 —a year when global FDI plummeted due to the effects of the pandemic— followed three years of declining outward investment and was mainly on account of expanding profit reinvestments by Hong Kong (SAR) companies in Asia (UNCTAD, 2021a), given that outward FDI from China rose by only 3%.

[1] The first transnational company to set up in China was Beijing Air Catering (BAC), a joint venture between Maxim's Catering Limited, the leading catering company in Hong Kong (SAR), and the Civil Aviation Administration of China; it took place in 1980 under the 1979 legislation that allowed the establishment in the country of joint ventures with foreign companies (Li, 2019).

Figure II.2
China and Hong Kong (SAR): foreign direct investment flows, 1990–2020
(Billions of dollars and percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations Conference on Trade and Development (UNCTAD).
Note: For the purposes of the chart, the grouping of China and Hong Kong Special Administrative Region (SAR) of China was retained for pre-1997 figures.

2. Chinese mergers and acquisitions in core economies prompted regulatory changes

A period of slowdown in China's outward FDI began in 2017, on account of both internal and external factors. Until 2016, outbound investment by Chinese companies was regulated only weakly. That year, outward investment from China (excluding Hong Kong SAR) rose by 34.7% in year-on-year terms and there was a major imbalance between sectors: in some —such as the entertainment, hotel and real estate sectors— the increase was more than 100% (Dussel, 2019). At a time of weak exchange rates and rapidly dwindling foreign exchange reserves, the Chinese Government tightened its regulation of outward FDI, particularly in those sectors where investments could be seen as not in line with transnational corporations' usual logic of expansion, such as access to raw materials and markets or the search for strategic or low-cost assets for export. Thus, from 2017 onwards, tighter controls were put in place in an effort to reduce debt and to reorient investment towards national priorities. Among the measures adopted was the categorization of outward investment into three groups: encouraged, restricted and prohibited (see table II.1).[2] The regulatory overhaul imposed new regulations and rules for investment outflows from China (excluding Hong Kong SAR) and led to reductions in investment outflows of 19.3% in 2017, 9.6% in 2018 and 18.1% in 2019.

[2] See United Nations Conference on Trade and Development (UNCTAD),),"China publishes guidelines on overseas investments", 4 August 2017 [online], https://investmentpolicy.unctad.org/investment-policy-monitor/measures/3103/china-china-publishes-guidelines-on-overseas-investments.

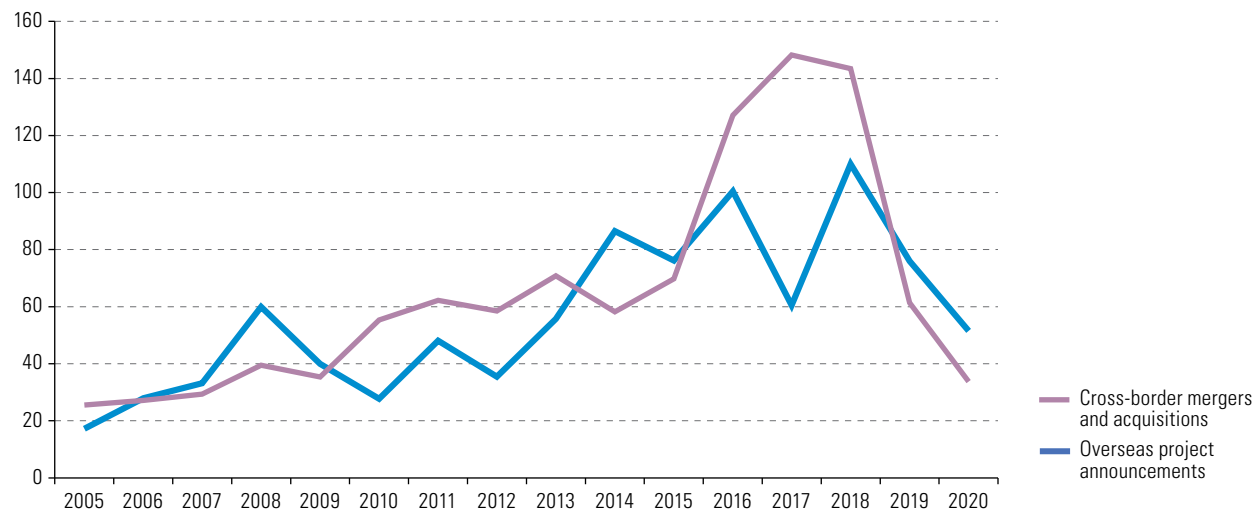
Table II.1
China: classification of outward investments under the 2017 reforms

Encouraged investments	Restricted investments	Prohibited investments
- Activities supporting the One Belt One Road strategy: energy, infrastructure and public services - High-tech, advanced manufacturing and research and development (R&D) - Hydrocarbons, mining and natural resources - Agriculture, forestry and fisheries - Logistics services - Financial service branches	- Sensitive countries and regions - Real estate, hotels, cinema, entertainment and sports - Creation of investment funds with no specific business objectives - Facilities not meeting current technical standards - Activities contravening environmental or safety standards	- Military technologies and products - Gambling and sex industries - Activities endangering national security

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis J.P. Morgan, *2018 Global M&A Outlook* [online] https://www.jpmorgan.com/insights/research/2018-ma-outlook.

In addition to domestic restrictions, overseas acquisitions by Chinese companies have faced more stringent regulatory mechanisms imposed by the target countries, particularly in the United States and the European Union, and these changes have likely played a role in the decline of Chinese mergers and acquisitions abroad. Between 2017 and 2020, the total amount involved in mergers and acquisitions by Chinese companies in the world fell by 77.2%, with a massive drop of 57.3% in 2019 (see figure II.3). This downward trend continued into 2020 (which posted a decrease of 45%), when the global crisis resulting from the pandemic may also have had an impact. In 2020, while Chinese mergers and acquisitions fell in Europe, North America, and the Asia-Pacific region, they increased in Latin America and the Caribbean. Chinese investment announcements in the world registered a lower decline. That may be because such projects mainly target developing economies where, in contrast to the core economies, no measures have been taken to screen the qualitative aspect of FDI inflows.

Figure II.3
China and Hong Kong (SAR): project announcements and cross-border mergers and acquisitions by companies, 2005–2020
(Billions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from Bloomberg and Financial Times, fDi Markets.

Investment in core economies through mergers and acquisitions has given Chinese companies immediate access to the most affluent markets, as well as to leading-edge technologies and advanced forms of production, management and innovation. The largest such expansion took place between 2016 and 2018, and the growing participation of Chinese companies in high-tech markets began to be used in target countries as an argument to curb such investments on the grounds of national defence. Thus, Chinese companies —especially State-owned enterprises and high-tech sectors— have faced heightened scrutiny abroad. Faced with the burgeoning number of mergers and acquisitions by transnationals from emerging economies, China in particular, the developed countries have reacted by establishing legal mechanisms to protect those assets they deem "strategic". This process, which began at least five years ago, continues to unfold and, at present, the expansion of Huawei and 5G technology is one of the main areas of conflict.

Investment control regimes have been strengthened in the core economies. The Committee on Foreign Investment in the United States allows the Government to review mergers and acquisitions that threaten to undermine national security. Created in 1975 to review investments by member countries of the Organization of the Petroleum Exporting Countries (OPEC) that were seen as politically rather than economically motivated, the committee has regained visibility in recent years in the light of increased acquisitions by China. When a foreign company purchases an asset, the Committee on Foreign Investment identifies any national security risks and proposes ways to mitigate them. If it concludes that the risks cannot be mitigated, it recommends that the president block the transaction. In 2018, with the passage of the Foreign Investment Risk Review Modernization Act, the Committee's powers to investigate and block transactions on national security grounds were expanded (*The New York Times*, 2018a). Then, in February 2020 and under the terms of that Act, new regulations were adopted that expanded the committee's reach and gave it the authority to block transactions in the technology and real estate sectors (United States Department of the Treasury, 2021). The new regulations modified its processes and re-evaluated the criteria used to determine what types of FDI constituted national security threats. These changes almost certainly had an impact on the volume of Chinese acquisitions in the United States, which fell by 89% between 2017 and 2020.

Although the changes occurred against the backdrop of a trade standoff between the United States and China, these new laws and regulations entail formal and permanent barriers to investment. These restrictions, which are likely to survive any deal with China, have become part of the new normal in economic relations between the United States and the rest of the world.

In contrast, until 2019, the European Union had no bloc-level mechanism to control FDI inflows. A proposal was floated in 2017 for the creation of a legal framework aimed at controlling FDI on security and public order grounds. On 10 April 2019, "Regulation (EU) 2019/452 of the European Parliament and of the Council of 19 March 2019 establishing a framework for the screening of foreign direct investments into the Union" came into force (*Official Journal of the European Union*, 2019). This regulation introduces a supranational foreign investment review process that involves the Commission and defines a mechanism for Union cooperation intended to prevent the controls from being circumvented. The process does not replace the oversight of foreign investment at the national level, and the final decision on the approval, restriction or prohibition of foreign investment remains with the member States.

The regulations stipulate that in order to review an operation for reasons of national security or public order, the impact of the foreign investment on the following may be taken into account: critical infrastructure (energy, transport, communications, data

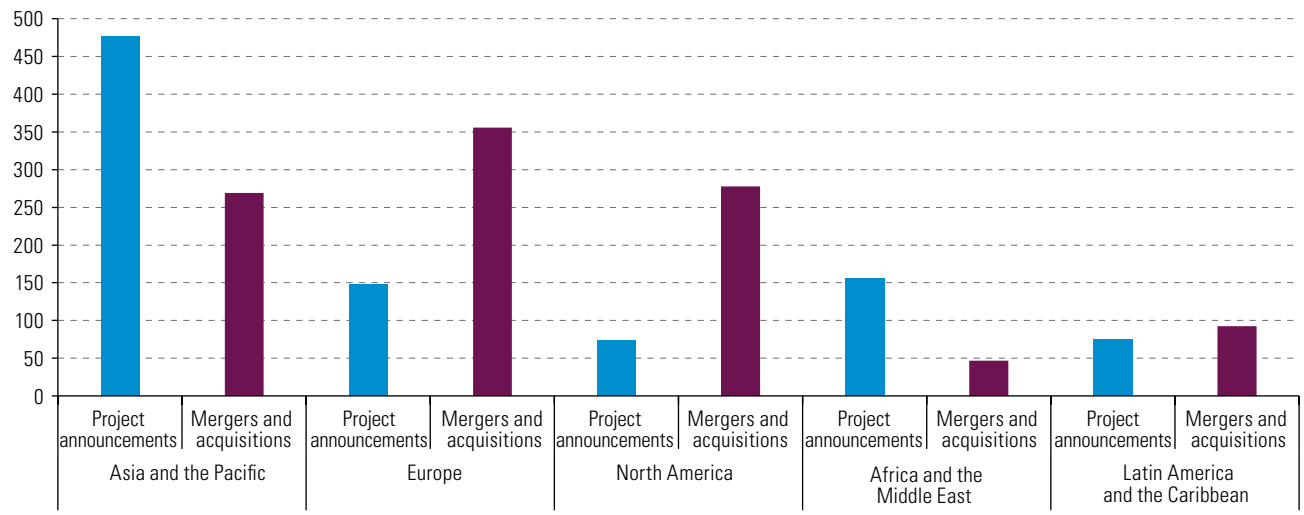
storage, space, financial and sensitive facilities); critical technologies (e.g. artificial intelligence, robotics and semiconductors); technologies with potential dual-use applications (such as cybersecurity, aerospace and nuclear); the supply of critical inputs; access to sensitive information or the ability to control such information; and the freedom and pluralism of the media. Similarly, the regulation states that special consideration may be given to whether the investor is directly or indirectly controlled or financed by a third-country government, whether it has already been involved in activities affecting public security or public order and whether there is a serious risk that it will engage in criminal or illegal activities (European Commission, 2019). Similar to the situation in the United States, these changes will outlast the current tensions with China and constitute a new scenario for regulating FDI inflows in one of the world's most important markets.

3. The internationalization process involved regionally differentiated strategies

Chinese companies have used different types of investment, including greenfield investments and the acquisition of existing companies, depending on the destination region and sector, and these preferences have been consistent with the country's development strategy.

On the one hand, greenfield investments allow the penetration of new markets in sectors where Chinese companies have established capacities. For example, the Belt and Road Initiative, which focuses on infrastructure development and targets mainly Eurasia —and, to a lesser extent, Africa— explains the preponderance of project announcements in those areas. The Asia-Pacific region has been the natural destination for the internationalization of Chinese companies: it accounted for the largest share of project announcements between 2005 and 2020 (51%), followed by Africa and the Middle East (16.8%). Latin America and the Caribbean, with 8%, ranked fourth (see figure II.4).

Figure II.4
China and Hong Kong (SAR): project announcements and cross-border mergers and acquisitions by companies, by region of destination, 2005–2020
(Billions of dollars)

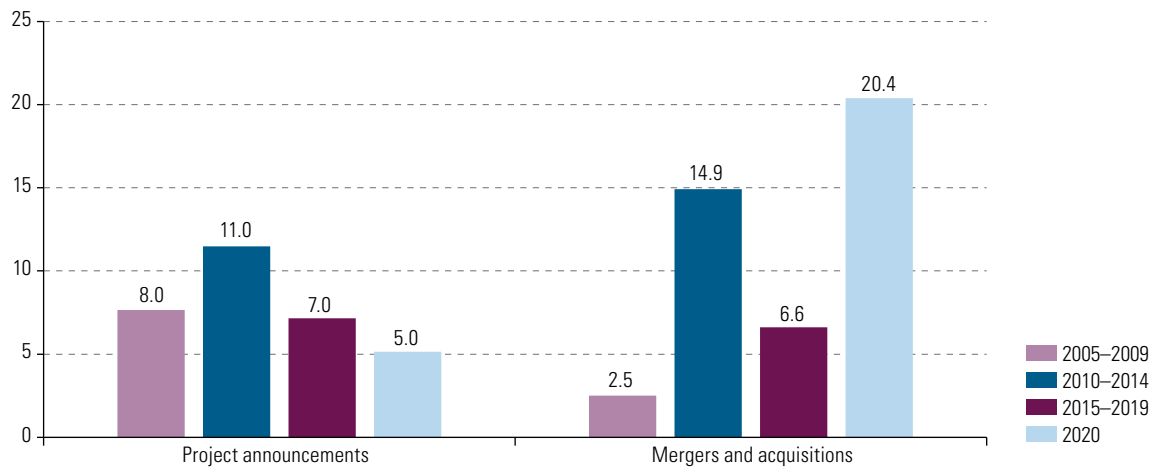


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from Bloomberg and *Financial Times*, fDi Markets.

Mergers and acquisitions, on the other hand, ensure access to natural resources and improve the technological capacity and know-how of Chinese companies. China's development strategy for the manufacturing sector aims to move the country up the technological hierarchy of value chains and reduce its dependence on foreign technology imports and investment, as set out in both its five-year plans and the Made in China 2025 plan. Acquisitions in high-tech sectors in North America and Europe, for example, are part of its bid to develop these sectors domestically (see section D of this chapter). In that context, the largest volume of merger and acquisition deals were concluded in Europe (34% of the total amount between 2005 and 2020), followed by North America (27%) and Asia and the Pacific (26%) (see figure II.4). Latin America and the Caribbean accounted for 8.9% of the total, and a similar share was recorded for project announcements.

Latin America and the Caribbean's share as a destination for Chinese investment through both methods is not high and has varied from one year to the next. Between 2005 and 2010, the region accounted for an average of 8% of project announcements, a share that increased to 11% in the period 2010–2014 (see figure II.5). In 2013, the region accounted for 14% of the announcements made by Chinese companies, but from then on its importance as a destination for new projects began to decline. In 2019, however, the highest ever participation was recorded: 18%. In 2020 the region's share fell again to a minimum, but the events of that year preclude determining whether this represents a significant drop in Chinese companies' interest in the region or just a period of reduced dynamism.

Figure II.5
Latin America and the Caribbean: share of foreign direct investment from China and Hong Kong (SAR), by type, 2005–2020
(Percentages of the total amounts)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from Bloomberg and *Financial Times*, fDi Markets.

Latin America and the Caribbean's share in mergers and acquisitions carried out by Chinese companies varies greatly, which is consistent with the nature of the economic undertakings being analysed and the magnitude of the operations carried out in the region, where one large operation in a given year can completely change the pattern. An analysis of the average transaction volumes over five-year periods shows that the region's highest average share (15%) was also recorded between 2010 and 2014 (see figure II.5). In 2020, however, despite the severe crisis in the region caused by the COVID-19 pandemic, Latin America and the Caribbean's share of China's global mergers and acquisitions represented 20% of the total.

C. China's increasing share in Latin America and the Caribbean after 2010

1. Business ties growing beyond trade relations

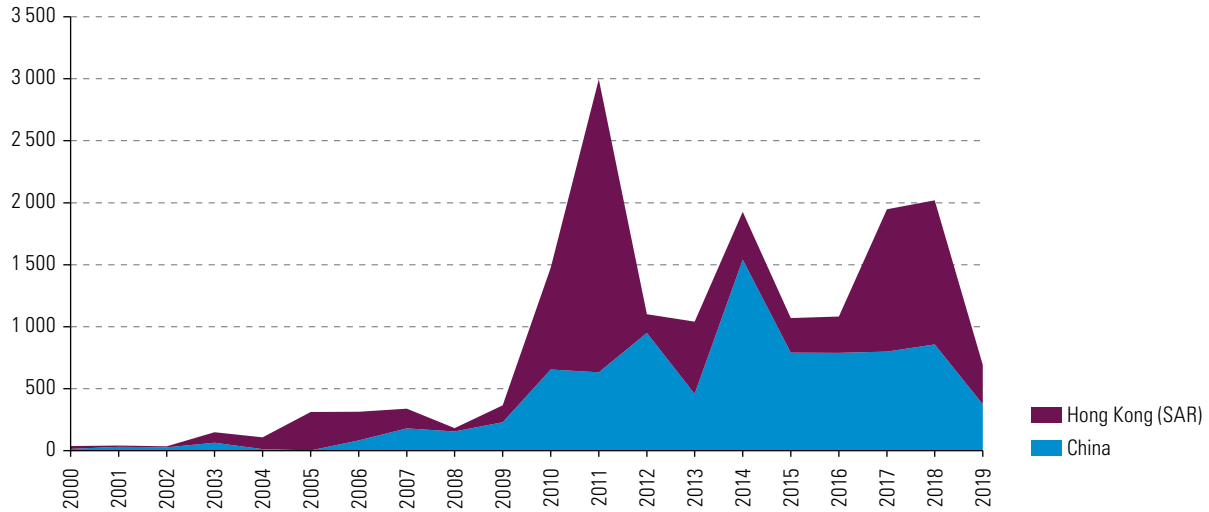
The deepening of economic relations between China and Latin America and the Caribbean over the last decade can primarily be seen in trade volumes, with figures of enormous magnitude in both exports and imports, but it is also present in the growth of Chinese investment in the region. Certain characteristics of those investments —including the type, sectoral composition and type of companies involved— make it an important phenomenon in terms of the impact it could have on the development of the receiving countries.

Before 2010, FDI inflows to the region from China (including Hong Kong (SAR)) were small, amounting to less than US$ 400 million per year. From 2010 onwards, a period of great dynamism began, and those inflows rose to more than US$ 1 billion per year: a peak of close to US$ 3 billion was reached in 2011, and then the annual figures varied until stabilizing at around US$ 2 billion in 2017 and 2018 (see figure II.6). With this rate of growth, it accounted for 1.6% of the region's total FDI inflows in 2018, but that share was still low compared to traditional sources such as the European Union (50%) or the United States (22%). In 2019, there was a significant drop in inflows from China (including Hong Kong (SAR)), when they accounted for a mere 0.6% of the total. That decline was consistent with the behaviour of Chinese FDI elsewhere in the world and conclusions cannot be drawn about future trends.

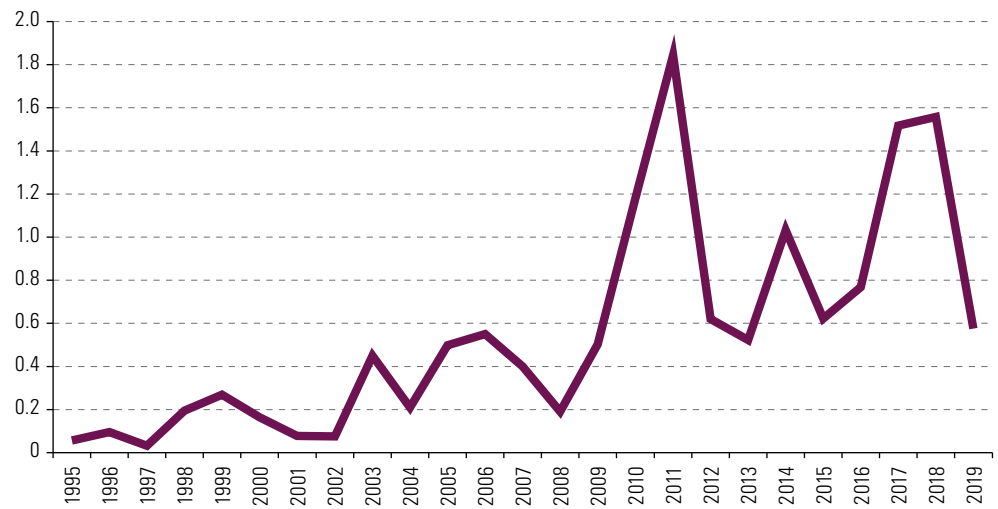
Note that these figures are those recorded in the official balance of payments statistics and therefore indicate capital entering directly from China. However, they underestimate the presence of Chinese companies in the region, for two reasons: first, not all the countries break down their FDI inflow data by the origin of the capital, and this means that some countries are excluded from the statistics; and second, a large portion of the capital flows do not come directly from China, but are invested through third markets. The latter factor is more relevant in the case at hand. A study in Brazil estimated that 80% of investments of Chinese origin in 2016 entered through third countries, mainly Luxembourg and the Netherlands (Central Bank of Brazil, 2018).

Figure II.6
Latin America and the Caribbean (selected countries):[a] FDI inflows from China and Hong Kong (SAR)

A. Amount, 2000–2019
(millions of dollars)



B. Region's share of global inflows, 1995–2019
(percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official information.
[a] The countries for which information on the origin of FDI is available are Argentina (up to 2016), Brazil (excluding reinvested earnings), Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua (until 2013), Panama (until 2018), Paraguay, the Plurinational State of Bolivia and Uruguay.

To address this shortcoming and determine those investments in quantitative and qualitative terms, two complementary data sources will be analysed: (i) mergers and acquisitions of assets located in the region's countries, and (ii) announcements of investment projects. The following section will also analyse the activity of Chinese companies through construction contracts, an investment method that does not constitute FDI but which has risen in importance in several of the region's countries.

The amounts involved in mergers and acquisitions allow the determination of the volume of business generated through interest in investing in companies operating in the local market (both domestic and foreign companies located in the region) or interest in acquiring them in their entirety. This information makes it possible to identify the Chinese companies' internationalization strategies in terms of the size of the agreements and the target sectors, countries of destination and principal companies. These figures, however, are not necessarily included in the receiving countries' FDI flows. Whether or not this is done depends on the nationality of the parties involved (the selling company may also be foreign), the payment method and other financial terms in the agreement. In addition, because of the data source used (Bloomberg), only transactions in which one of the parties involved is listed on the stock exchange are counted, which could leave out smaller deals.

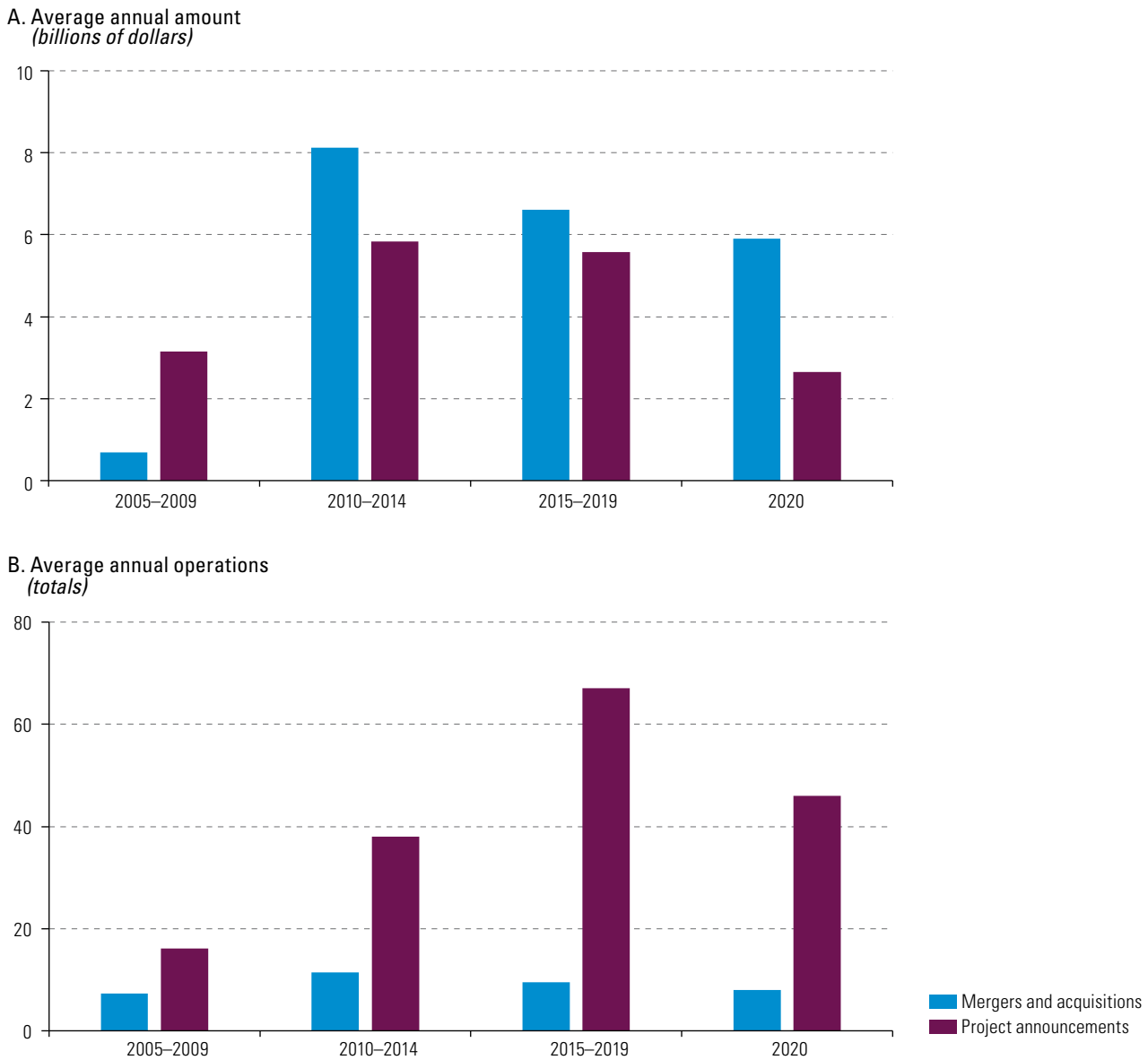
Project announcements identify companies' desire to invest in new projects; they have a greater potential to produce spillovers in the economy, since they involve the development of a new activity. The amounts of these announcements, however, are far from exact. First, when the companies do not publish the amount involved, it is estimated in the data source (*Financial Times*, fDi Markets) and that entails a probability of error. Moreover, although the investment is accounted for in the year in which it is announced, disbursements may be made in later periods and the amounts may be different from those announced: it is also possible for projects to be put on hold.

In total, between 2005 and 2020, Chinese and Hong Kong (SAR) companies completed 150 mergers and acquisitions in the region, for a total amount of US$ 83 billion.[3] They also announced 652 investment projects worth an estimated total of US$ 75 billion. Both types of investment reported increases in the number of operations carried out from 2010 onwards, with the highest average annual amount observed between 2010 and 2014 (see figure II.7). In addition, the amount of the investments announced was lower than the value of the mergers and acquisitions. This situation is analogous to what occurred in Europe and North America, where the preference for mergers and acquisitions has been notable, although in the region's results the amounts involved in both types of investment are numerically closer.

This dynamic led to an increase in the share of Chinese companies in the region's total amount of mergers and acquisitions from 1.7% between 2005 and 2009 to 16.3% between 2015 and 2019 (see figure II.8). Among project announcements, in contrast, the weight of Chinese companies in the total amount has been more stable and the maximum was reached between 2015 and 2019, with a share of 6.4%. In any case, this evolution has not been constant: there have been sizeable year-on-year variations, which makes sense considering the type of variable under analysis, in which large operations can skew the results enormously. In 2019, for example, mergers and acquisitions by Chinese companies accounted for only 10% of the region's total, while in 2020 their share rose to 23% as a result of two megadeals that took place in the electricity sector, one in Chile and the other in Peru.[4]

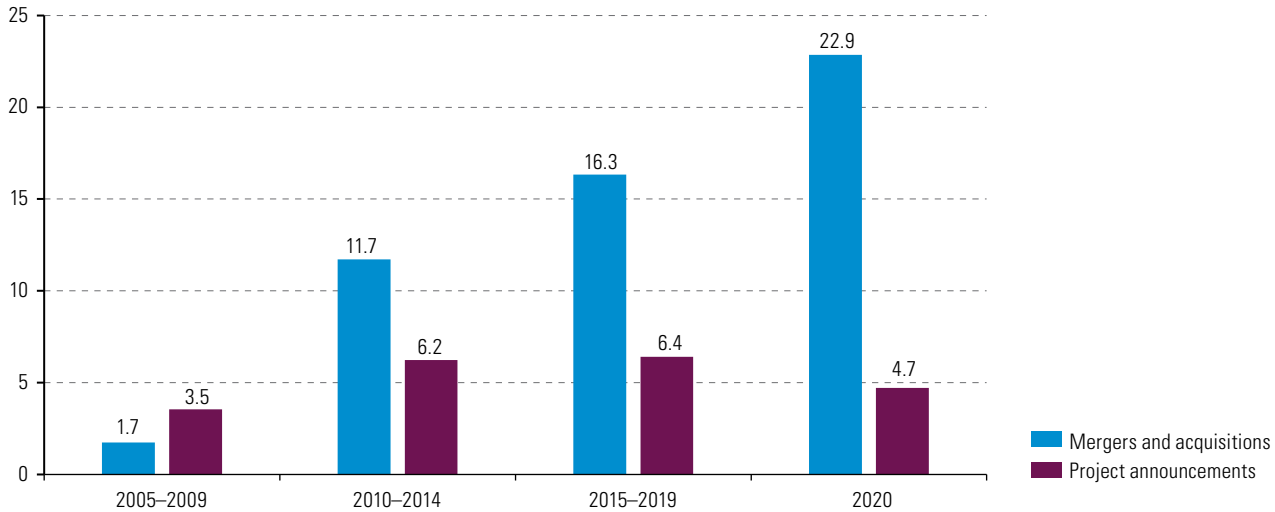
3 The value of 83% of the operations observed in the period analysed is known.
4 Transactions exceeding US$ 1 billion are considered megadeals.

Figure II.7
Latin America and the Caribbean: investments by Chinese and Hong Kong (SAR) companies, by type, 2005–2020



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from *Financial Times*, fDi Markets and Bloomberg.
Note: Only merger and acquisition transactions that were completed are included, and these are accounted for in the year in which the deal was closed. Cases are included when the target acquisition represented 10% or more of the capital stock. For investment announcements where the company did not disclose the amount involved in the project, the estimated amounts given in the data source are used.

Figure II.8
Latin America and the Caribbean: share of China and Hong Kong (SAR) in the region's foreign investment, by type, 2005–2020
(Percentages)



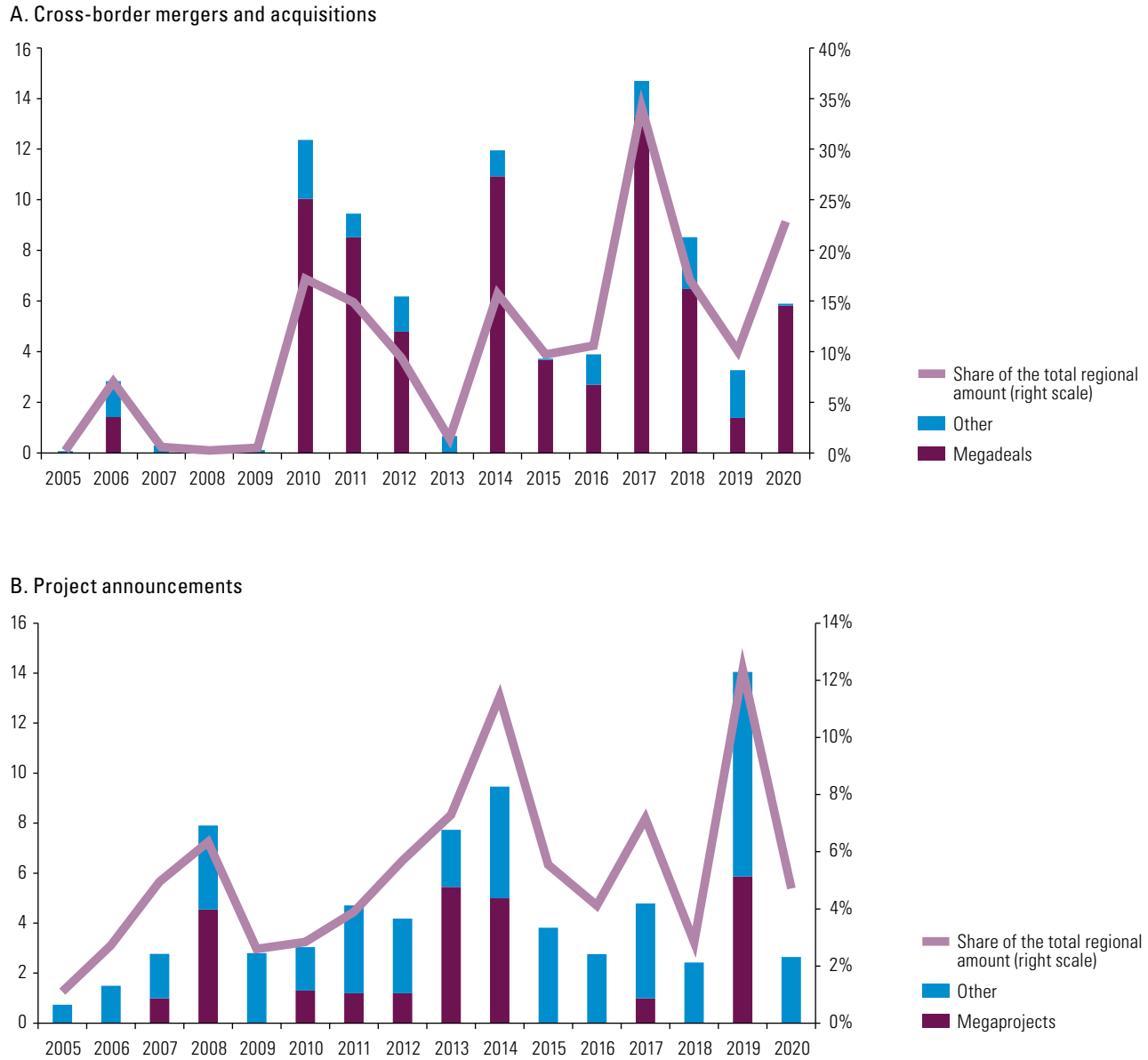
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of *Financial Times*, fDi Markets [online database] https://www.fdimarkets.com and Bloomberg.

Note: Only merger and acquisition transactions that were completed are included, and these are accounted for in the year in which the deal was closed. Cases are included when the target acquisition represented 10% or more of the capital stock. For investment announcements where the company did not disclose the amount involved in the project, the estimated amounts given in the data source are used.

Megadeals have played a major role in mergers and acquisitions by Chinese companies in the region; this stands in contrast to the situation with respect to project announcements, where they have a lower relative weight (see figure II.9). Between 2005 and 2020, there were 26 mergers and acquisitions that exceeded US$ 1 billion, accounting for 82% of the total operations volume. Among the announcements, meanwhile, megadeals have been less frequent: only 15 projects were worth US$ 1 billion or more, although they accounted for 35% of the cumulative amount for the period.

As a result of these large-scale operations, China (including Hong Kong (SAR)) was among the main investors in Latin America and the Caribbean in terms of mergers and acquisitions: in 2020 it was the country whose agreements accounted for the largest amount, followed by Spain and Canada (see figure II.10A). Over the 2005–2019 period, China ranked second only to the United States as the second largest source of cross-border mergers and acquisitions in terms of the amounts involved, outperforming some of the region's other historical investors, such as Spain, Canada, the United Kingdom and France. Project announcements by Chinese companies, in contrast, reported an all-time high in 2019, and over the 2015–2019 period the country ranked fifth among the region's project sources. In 2020, despite a sharp drop in the amounts announced by all sources, China ranked fourth in terms of project volumes (see figure II.10B).

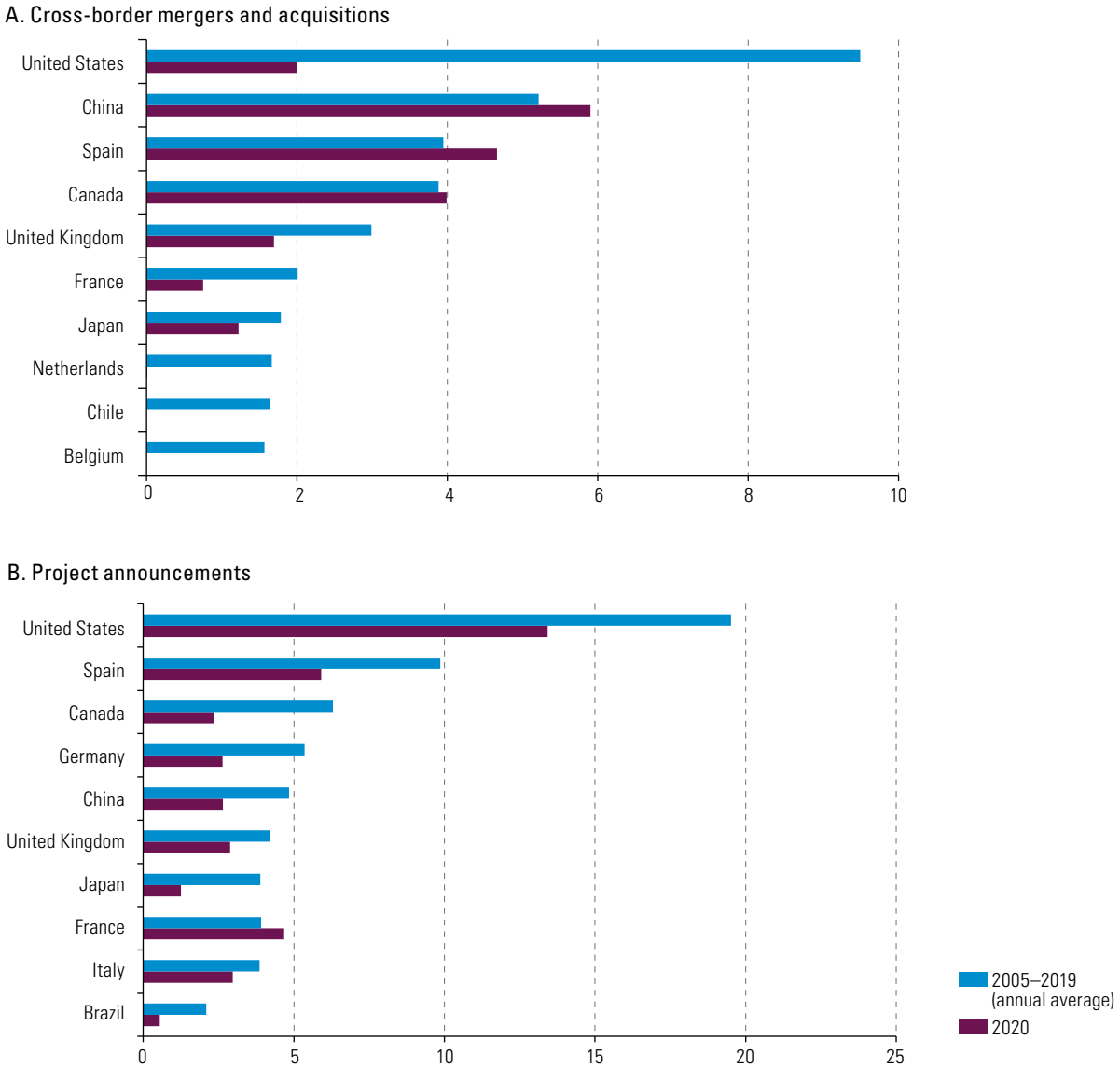
Figure II.9
Latin America and the Caribbean: investments by Chinese and Hong Kong (SAR) companies, by type, 2005–2020
(Billions of dollars and percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of *Financial Times*, fDi Markets [online database] https://www.fdimarkets.com and Bloomberg.

Note: Only merger and acquisition transactions that were completed are included, and these are accounted for in the year in which the deal was closed. Cases are included when the target acquisition represented 10% or more of the capital stock. For investment announcements where the company did not disclose the amount involved in the project, the estimated amounts given in the data source are used. Transactions exceeding US$ 1 billion are considered very large agreements or projects.

Figure II.10
Latin America and the Caribbean: main origins of foreign investment, by type, 2005–2019 and 2020
(Billions of dollars)

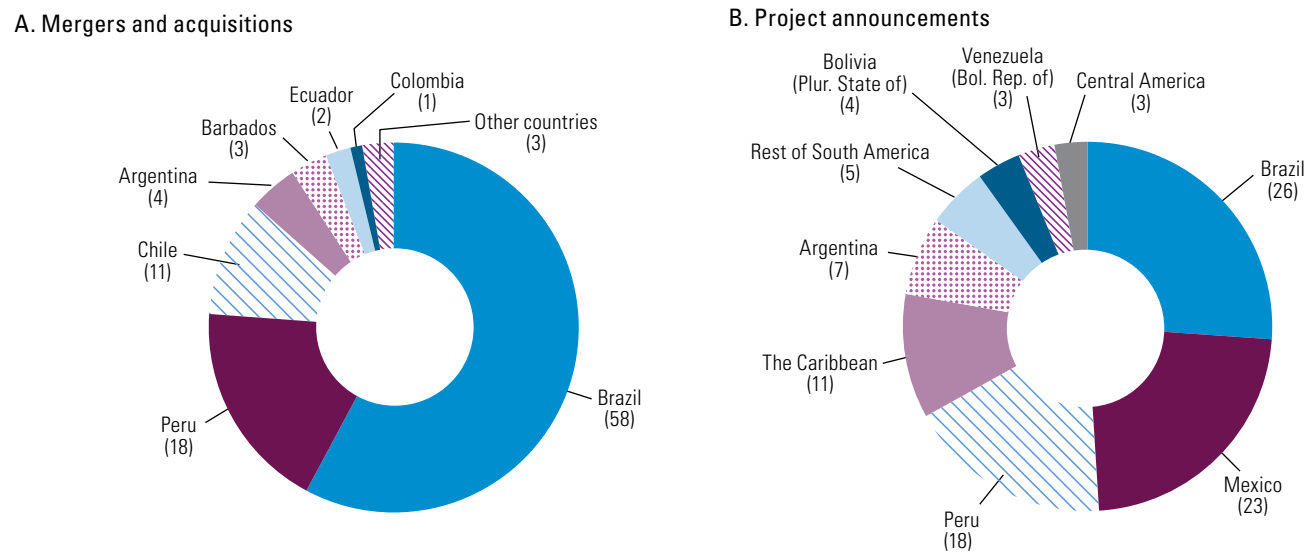


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of *Financial Times*, fDi Markets [online database] https://www.fdimarkets.com and Bloomberg.

Note: Only merger and acquisition transactions that were completed are included, and these are accounted for in the year in which the deal was closed. Cases are included when the target acquisition represented 10% or more of the capital stock. For investment announcements where the company did not disclose the amount involved in the project, the estimated amounts given in the data source are used.

As regards the destination of these investments, the largest mergers and acquisitions focused on Brazil, along with Peru, Chile and Argentina (see figure II.11). There was a greater diversity of destination countries among the project announcements and, in addition to Brazil and Peru, Mexico received a large proportion of China's investment projects. The Caribbean has also received a significant share, with sizeable projects announced in Jamaica, Antigua and Barbuda, Cuba and Guyana. As discussed in the following section, this geographical breakdown is related to the sectors in which those announcements were made.

Figure II.11
Latin America and the Caribbean: investment by companies from China and Hong Kong (SAR), by country of destination and type, 2005–2020
(Percentages of the total amounts)

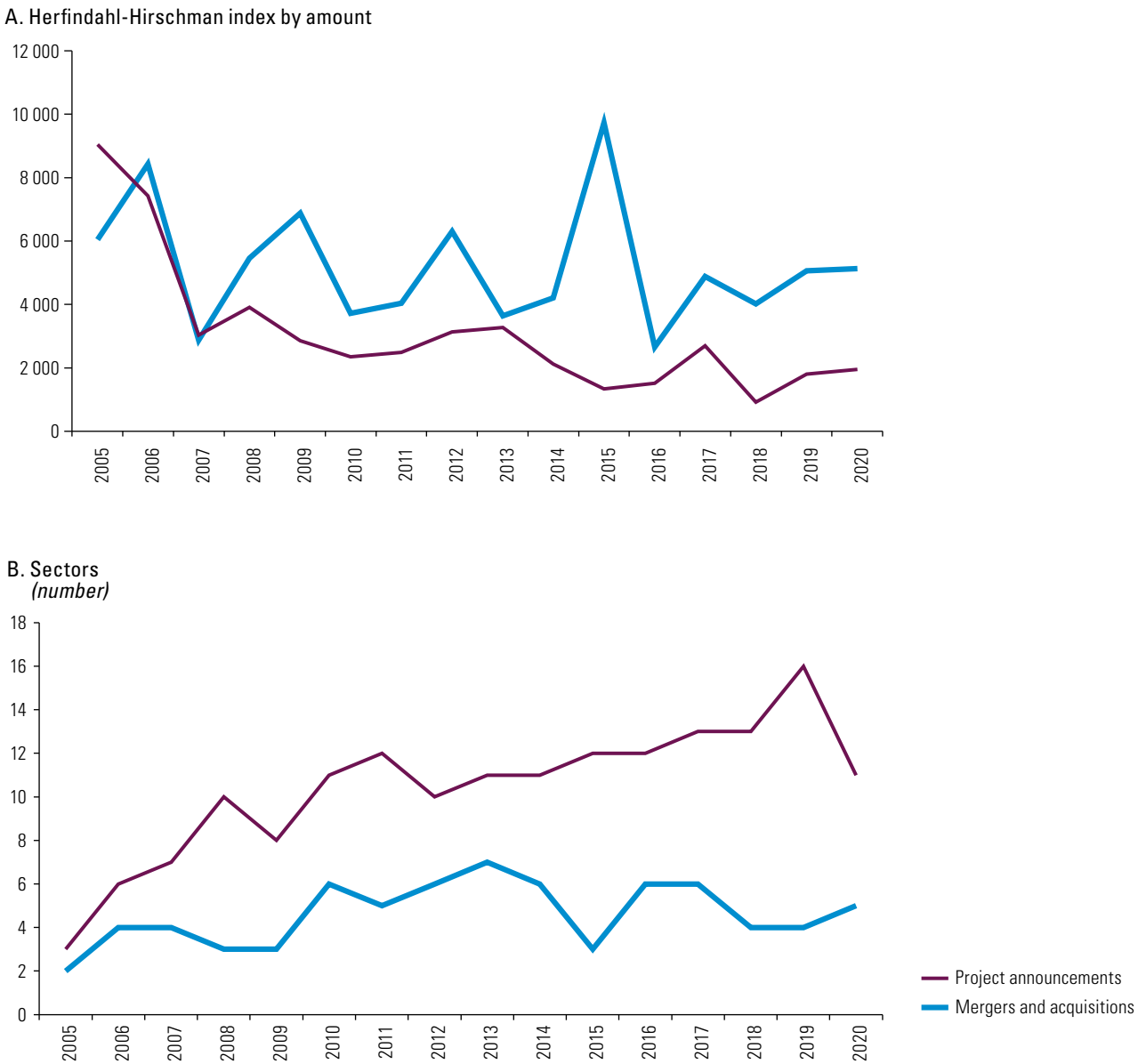


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of *Financial Times*, fDi Markets [online database] https://www.fdimarkets.com and Bloomberg.

2. Mining, energy and transport infrastructure accounted for the largest investments

The first phase of Chinese investment in the region, which lasted from the start of the century until early 2010, was characterized by investments in hydrocarbons, metal mining, agriculture and fisheries. As noted in previous studies (Ellis, 2014; Pérez Ludeña, 2017; Dussel, 2019), a gradual process of diversification began in 2010, with Chinese companies embarking on investments in electricity, the construction of transport infrastructure (mainly ports) and, to a lesser extent, manufacturing, the financial sector and information and communications technologies. Thus, over the past decade, the interests of Chinese transnational companies in the region have expanded, the concentration of amounts has decreased and the number of sectors receiving investments has risen, a transformation that can above all be seen in project announcements (see figure II.12). In mergers and acquisitions, on the other hand, sectoral concentration has not significantly changed, on account of the fact that these operations focus on sectors prioritized by the Chinese Government's internationalization strategies.

Figure II.12
Latin America and the Caribbean: evolution of the concentration of investments by Chinese companies, by sector, 2005–2020

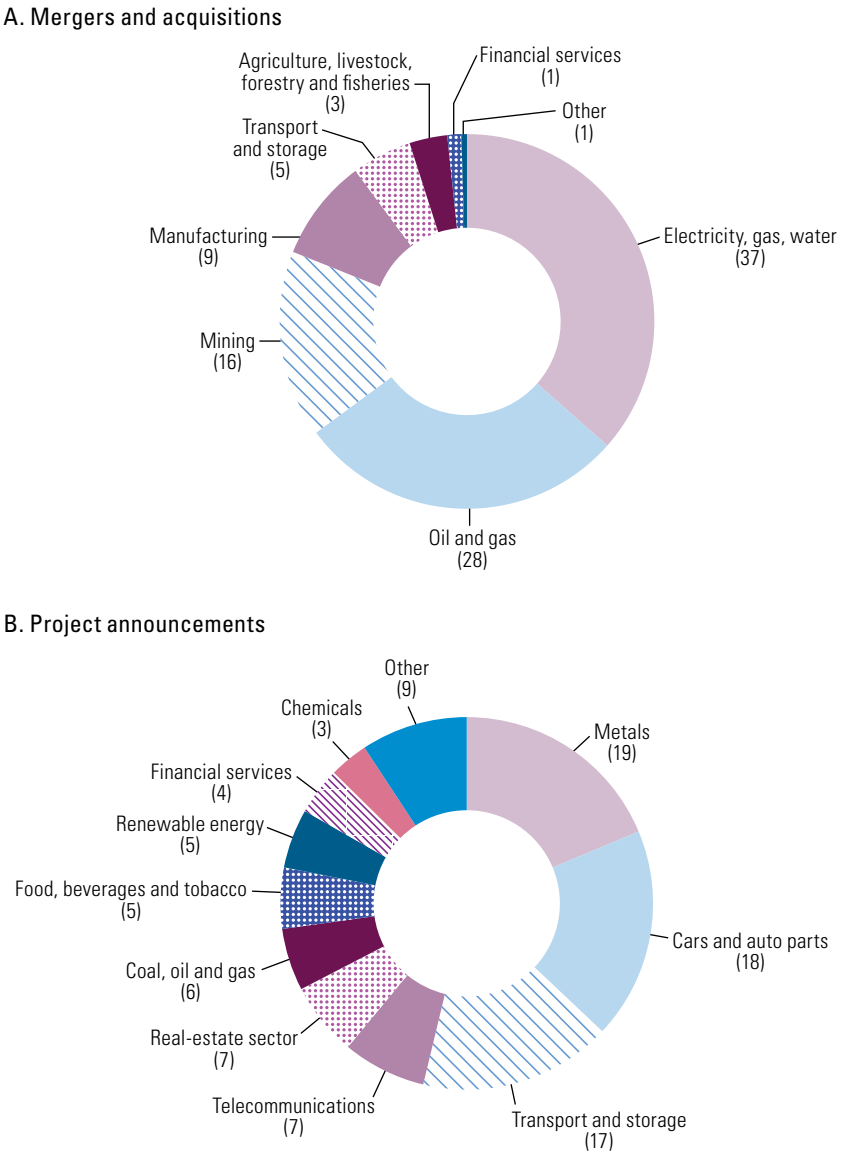


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from Bloomberg and *Financial Times*, fDi Markets.

In addition to the fact that the two forms of investment (mergers and acquisitions, and project announcements) have had different trajectories in terms of the number of sectors, there are also differences in terms of the economic activities on which they have focused. Between 2005 and 2020, three sectors accounted for 81% of the total amount spent on mergers and acquisitions: electricity, gas and water companies (generation, distribution and integrated companies), oil and gas, and mining. Among project announcements, in contrast, the three leading sectors accounted for only 54% of the total: metals (64% of the amount announced in the sector was for extraction and the remainder for steel), automotive and auto parts, and transport and storage. As can be seen, the metals sector commanded a similar share of project announcements

and mergers and acquisitions activity; in the case of the other two sectors, however, participation was higher in project announcements (see figure II.13). Consequently, the largest investments in metal mining and steel in Latin America and the Caribbean were made through the acquisition of existing operations, in many cases from transnationals based in other territories. Nevertheless, investments by Chinese companies have also increased installed capacity.

Figure II.13
Latin America and the Caribbean: investments by Chinese companies, by type and sector, 2005–2020
(Percentages of the total amounts)

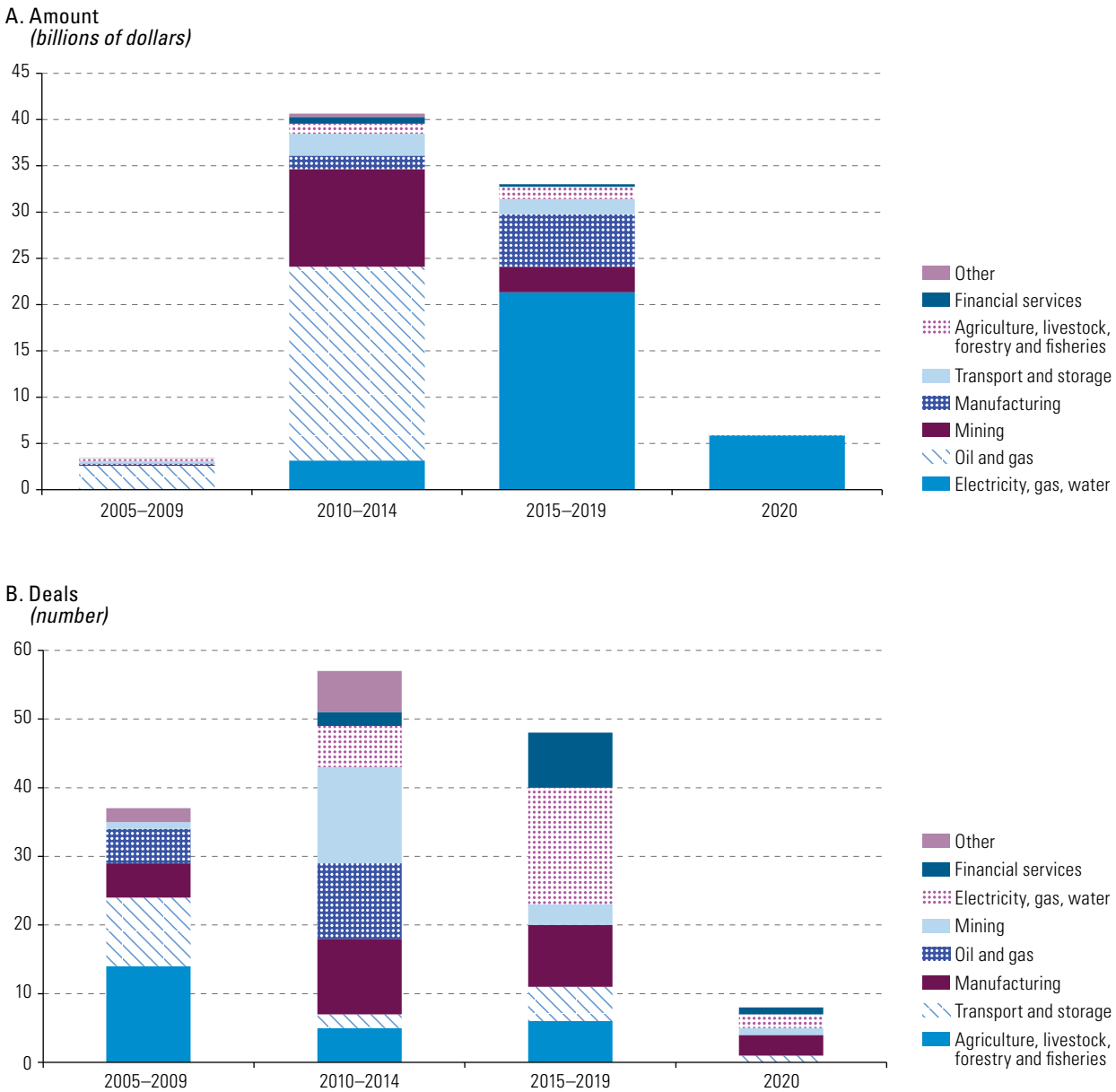


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from Bloomberg and *Financial Times*, fDi Markets.

Analysing the evolution over time, in the first decade studied (2005–2014) the largest investments were in the extractive industries (see figure II.14A). Initially, between 2005 and 2009, the focus was on companies in the following three sectors: transport and logistics, primarily on account of the acquisition of assets in Panama, where in 1997 Hutchison Whampoa of Hong Kong (SAR) had already obtained a 25-year concession for the Port of Cristóbal on the Atlantic and the Port of Balboa

on the Pacific; the fishing industry in Peru, where the China Fishery Group Ltd. of Hong Kong (SAR) made several acquisitions; and hydrocarbons in Colombia, Ecuador and Mexico (see figure II.14B). A substantial expansion of investments began in 2010, although extractive industries continued to dominate over the first half of the decade. In the hydrocarbons sector, investments were made in some of the main integrated companies operating in the region; exploitation concessions were also obtained, mostly in Argentina, the Bolivarian Republic of Venezuela, Brazil, Peru and Trinidad and Tobago. In the mining sector, meanwhile, large acquisitions were made in Peru and Brazil, and smaller investments were made in Argentina, Ecuador, Jamaica, Mexico and the Plurinational State of Bolivia.

Figure II.14
Latin America and the Caribbean: cumulative mergers and acquisitions by Chinese companies, by period and sector, 2005–2020



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Bloomberg.

In the second half of the 2010s and in 2020, extractive industries were no longer a priority. Thus, there are no records of mergers or acquisitions in the hydrocarbons sector since 2015; instead, the focus shifted to the acquisition of electricity, gas and water supply companies, with an emphasis on electricity and three countries: Brazil, Chile and Peru. Investments in transport and storage, financial services and manufacturing —especially basic chemicals and agrochemicals— also became more important during this period (see table II.2).

Table II.2
Latin America and the Caribbean: largest mergers and acquisitions carried out by Chinese companies, 2005-2020

Year	Country of assets	Investing company	Assets acquired	Seller's country	Amount *(US$ millions)*
Electricity, gas, water					
2015	Brazil	China Three Gorges Corporation	Jupia e Ilha Solteira Hydro Power Plant	Brazil	3 680
2016			Duke Energy International Brasil Ltda.	United States	1 200
2010		State Grid Corporation of China	Expansion Transmissão TPU Itumbiara (ETIM)	Spain	1 721
2012			Seven high-tension transmission towers	Spain	942
2017			CPFL Energia S.A. (94.75%)	Brazil	9 901
2017		State Power Investment Corporation Limited	Hidroeléctrica São Simão	Brazil	2 255
2018		China Gezhouba Group Company Limited	Sistema Produtor São Lourenço S.A.	Brazil	869
2019		CGN Energy International Holdings Co. Limited	Two solar plants and a wind farm	Italy	739
2018	Chile	China Southern Power Grid Company Limited	Transelec S.A. (27.7%)	Canada	1 300
2020		State Grid Corporation of China	Chilquinta Energía S.A., Tecnored S.A.	United States	2 230
2019	Peru	China Three Gorges Corporation, Hubei Energy Group, CNIC Corporation Limited China	Empresa de Generación Huallaga S.A.	Peru and Brazil	1 390
2020		China Yangtze Power Co Ltd	Luz del Sur (83.6%)	United States	3 590
Oil and gas					
2011	Argentina	China Petroleum & Chemical Corp (Sinopec)	Occidental Argentina Exploration & Production Inc.	United States	2 450
2012		China Petroleum & Chemical Corp (Sinopec)	Petrogal Brasil, Ltda. (30%)	Portugal	4 800
2010	Brazil	China Petroleum & Chemical Corp (Sinopec)	Repsol Sinopec Brasil (40%)	Spain	7 100
2011		Sinochem Group Co Ltd	Proyecto Peregrino (40%)	Norway	3 070
2006	Colombia	China Petroleum & Chemical Corp (Sinopec)	Omimex de Colombia Ltd (50%)		800
2006	Ecuador	Andes Petroleum Ltd.	EnCana	Canada	1 420
2014	Peru	China National Petroleum Corp (Sinopec)	Petrobras Energia Peru S.A.	Brazil	2 600
2011	Trinidad and Tobago	China Investment Corporation (CIC)	Assets of GDF Suez	France	851
Mining					
2017	Argentina	Shandong Gold Mining China	Barrick Gold Corporation, Veladero Mine (50%)	Canada	960
2010	Brazil	East China Mineral Exploration & Development Bureau	Itaminas iron mine	Brazil	1 220
2011	Brazil	China Niobium Investment Holding	Companhia Brasileira de Metalurgia e Mineração (15%)	Brazil	1 950
2016	Brazil	China Molybdenum Co., Ltd	Anglo American's niobium and phosphate business	United Kingdom	1 500
2014	Peru	MMG Ltd, CITIC Group Corp, CNIC Corp Ltd	Las Bambas copper mine		7 005
Transport and storage					
2011	Barbados	HNA Group Co Ltd, Bravia Capital Hong Kong Ltd	GE SeaCo Srl	United States	1 049
2018	Brazil	China Merchants Port Holdings Company Limited China	Paranaguá Container Terminal (90%)	Brazil	896
Manufacturing					
2017	Brazil	CITIC Agricultural Industry Fund Management China	Dow AgroSciences Sementes & Biotecnologia Brasil Ltda.	United States	1 100
2018	Chile	Tianqi Lithium China	Sociedad Química y Minera de Chile S.A. (24%)	Canada	4 066
Agriculture, livestock, forestry and fisheries					
2010	Brazil	Noble Group Ltd	Two sugar mills	Brazil	950
2019	Chile	Joyvio Agriculture Development China	Australis Seafoods S.A. (99.83%)	Chile	920

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Bloomberg.
Notes: Only includes completed transactions with known amounts of over US$ 500 million. Those transactions are accounted for in the year the deal was closed.

As previously analysed, project announcements grew significantly in the 2010s and diversified in terms of their sectors and destination countries. Between 2005 and 2009 there were fewer projects and sectoral concentration was very high: metals (including mining and metal manufacturing), automotive and auto parts, and transport and storage accounted for 80% of the total amounts announced (see table II.3). Over the following five-year periods, these three sectors retained the lead, but new areas of interest emerged, including communications and renewable energies.

Table II.3
Latin America and the Caribbean: investment announcements by Chinese companies, by sector, 2005–2020
(Percentages of the total amounts)

2005–2009		2010–2014		2015–2019		2020	
Metals	41	Automotive and auto parts	19	Transport and storage	19	Automotive and auto parts	44
Automotive and auto parts	20	Transport and storage	15	Metals	14	Renewable energy	17
Transport and storage	19	Metals	13	Automotive and auto parts	14	Financial services	11
Coal, oil and gas	8	Communications	13	Renewable energy	11	Consumer goods	6
Financial services	6	Real-estate sector	12	Chemicals	9	Electronic components	5
Food and beverages	3	Food and beverages	11	Communications	6	Communications	4
Communications	1	Coal, oil and gas	7	Real-estate sector	5	Transport and storage	4
Consumer electronics	1	Financial services	4	Consumer goods	4	Hotels and tourism	4
Business machinery and equipment	1	Industrial machinery	2	Coal, oil and gas	3	Consumer electronics	2
Industrial machinery	0	Renewable energy	1	Financial services	2	Food and beverages	2
Other	1		4		13		2

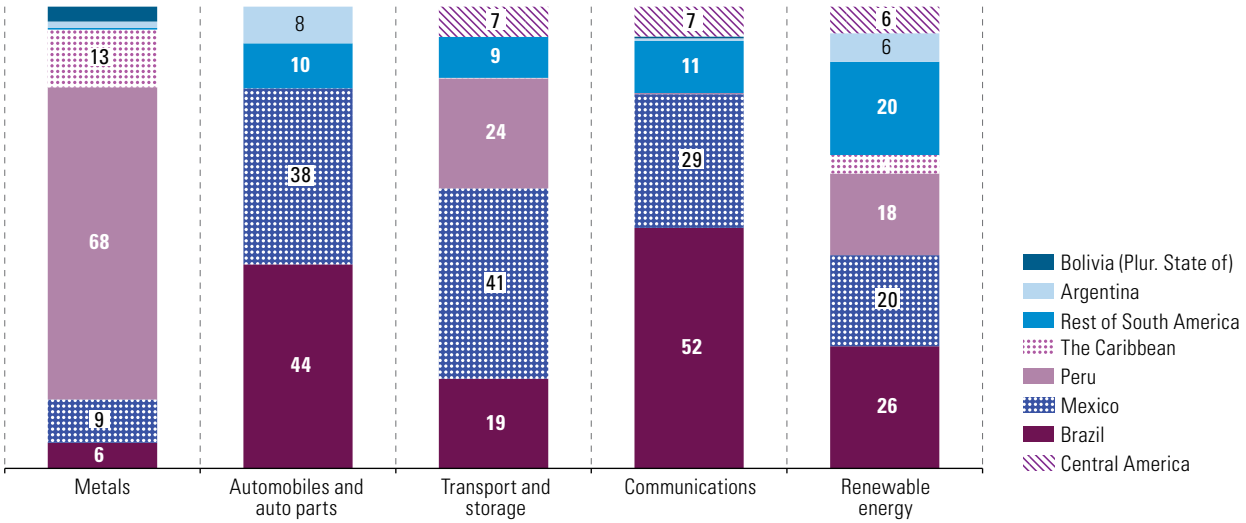
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of *Financial Times*, fDi Markets.

With regard to metals, between 2005 and 2020 Chinese companies announced few projects in the mining sector, but these have been large: out of a total of 41 projects, 10 extractive undertakings accounted for 74% of the total amount. The remaining projects involved metal manufacturing. The extractive projects are mainly located in Peru and involve very large copper and iron ore mining facilities (some expansions, and other new projects). This explains Peru's leading position among the destinations for metals sector announcements (see figure II.15). The largest copper mining announcements were as follows: a 2014 announcement by MMG (belonging to China Minmetals Corporation) for the Las Bambas mine, worth US$ 3 billion, and a 2008 announcement by Chinalco (Aluminum Corporation of China) for the Toromocho mine, worth US$ 2.15 billion. In iron ore mining, the Shougang Group, which set up in Peru in 1993, announced expansions in 2007 and 2017, each worth US$ 1 billion. The metal mining panorama was completed by a very large project announced by Bosai Minerals in the bauxite mining sector in Guyana (US$ 1 billion) and smaller projects announced in Argentina and Mexico.

Metal manufacturing projects are more numerous, but the amounts involved are smaller and most are located in Mexico. A large number of them involve plants that manufacture metal parts for the automotive industry, intended to supply the United States market. One example of investments in this segment is provided by the Minth Group, which in 2014 and 2017 announced expansions of its automotive metal parts plant located in Aguascalientes, Mexico. These investments amounted to a total of US$ 475 million. The second largest announcement was made jointly by Beijing Shougang International Engineering Technology (BSIET) and Altos Hornos de México (AHMSA) in 2019. This investment was worth US$ 330 million and was destined for

a coking plant that would supply the AHMSA steel facility. In Brazil, several important announcements were made in the steel sector: one was a joint venture between Brazil's Vale and Concremat, a subsidiary of the State-owned China Communications Construction Company. That investment, worth US$ 317 million, was announced in 2019 and was earmarked for a steel plant. In Jamaica, the State-owned Jiuquan Iron and Steel Company (JISCO) built an aluminium manufacturing plant. The investment was announced in 2017 and involved an estimated amount of US$ 160 million. In the Plurinational State of Bolivia, the largest project announced was the 2016 award of the construction of Empresa Siderúrgica del Mutún to the Sinosteel company, worth US$ 450 million. Work on that construction project resumed at the beginning of 2021 and it is being financed by the Export-Import Bank (Eximbank).

Figure II.15
Latin America and the Caribbean: investment announcements by Chinese companies, by destination countries and selected sectors, 2005–2020
(Percentages of the total amounts)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of *Financial Times*, fDi Markets.

Most of the announcements in the automotive and auto parts sector were made in Brazil and Mexico (see figure II.15), although there were also some projects in other South American countries: Argentina, the Bolivarian Republic of Venezuela, Colombia, Paraguay and Uruguay. Most of the manufacturing plant announcements, however, failed to materialize. The projects announced by the auto manufacturer Chery Automobile represented the largest amount (15% of the total): its largest announcement was made in 2009, for a US$ 700 million plant in Brazil. The plant opened in 2014 and is the company's largest overseas facility. It also announced a plant in Uruguay in 2005, which closed in 2015, and in 2011 it formed a joint venture with local capital to assemble vehicles in the Bolivarian Republic of Venezuela. The other companies with significant announcements were Anhui Jianghuai Automobile (JAC Motors) (11% of the total), Changan Automobile Group (9%), Geely Holding Group (7%) and BYD (7%). JAC announced plants in Brazil, but they did not materialize. It has no established manufacturing plants in Mexico, but the Mexican company Giant Motors Latinoamérica assembles JAC cars for the local market.

One interesting aspect of China's automotive sector is that the country is the world's leading manufacturer of electric cars, and this could have a positive impact on the region. In 2016, for example, BYD inaugurated its first all-electric bus chassis assembly facility in the city of Campinas, Brazil. It expanded its operations in 2017 and inaugurated its first solar panel plant, also in Campinas, and then, in 2020, opened a battery factory at the Manaus Industrial Pole in the country's interior. In this way, not only has the company supplied the regional market through imports of electric buses and has a significant presence in the public transport fleets of cities in Chile, Colombia and Brazil, for example; it has also invested in the construction of new capacities.

In the communications sector, 19 companies announced projects between 2005 and 2020. Three of these led the investments: Huawei Technologies, which accounted for 47% of the total number of projects and 63% of the total value of all the announcements, Xiaomi, which accounted for 21% of the number and only 1% of the value, as their projects were aimed at sales or marketing, and ZTE, which represented 14% of the number and 9% of the value. Most of the projects announced in the communications sector involved sales or marketing, as Chinese companies have achieved significant market shares in the region, although the largest deals were for tenders to build infrastructure. As discussed in section D.3, Chinese companies have a growing presence in the telecommunications sector. This represents an opportunity, but also a potential source of conflict due to rivalry with the United States over leadership in the field of new digital technologies.

Finally, projects targeting renewable energies began to gain prominence in 2015. Projects were announced by 15 companies, with the large portion of the funds involved targeting solar energy (57%), a sector in which China has a very strong global position, and hydroelectric power (29%). The largest project was that of Hydro Global Peru, a company formed by China Three Gorges Corporation and Portugal's EDP Energias, which obtained a 30-year concession to build the San Gaban III Hydroelectric Power Plant. This project, valued at US$ 438 million, was financed by the China Development Bank. The interest of China Three Gorges in establishing hydropower companies in the region has also had an impact in Chile, where in 2018 it acquired the Brazilian-owned company Atiaia Energia. The acquisition covered the latter company's Rucalhue project for the construction of a hydroelectric power plant with an estimated investment of US$ 240 million, construction of which is still pending. In the area of solar energy, Chinese companies won some tenders to build solar parks and there were other projects for the establishment of subsidiaries. Jinko Solar, for example, is one of the region's main suppliers of photovoltaic panels and has subsidiaries in Brazil, Chile and Mexico.

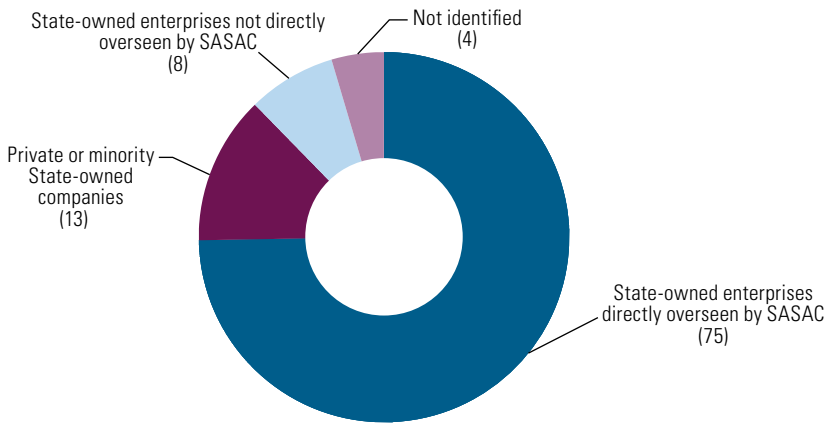
3. State-owned companies and large conglomerates are the main investors

As indicated above, certain characteristics of China's progress towards becoming a world power differentiate it from other leading countries. These include the strong presence of State-owned enterprises and the Government's support for the internationalization of companies through tax benefits and public financing, notably through the China Development Bank and the Export-Import Bank. In 1979, when authorization to invest abroad was first granted, permission was only given to State-owned enterprises, which had to operate under the supervision of the

Ministry of Commerce. Private companies received authorization in 1985, and in 2004, when the internationalization policy was already in force, the Government began to offer subsidized credits for overseas investments in certain priority areas: natural resources that were scarce in China, manufacturing and infrastructure, including the export of Chinese technology, and projects to strengthen the competitiveness of Chinese companies (ECLAC, 2011).

In line with this internationalization process, the Chinese companies that invested the most through mergers and acquisitions in the region were State-owned and under the supervision of the State-owned Assets Supervision and Administration Commission of the State Council (see figure II.16). This ministerial-level Commission was established in 2008 and, under a mandate from the Central Committee of the Chinese Communist Party, is responsible for supervising the operations of 98 of the largest non-financial State-owned enterprises.

Figure II.16
Latin America and the Caribbean: mergers and acquisitions by Chinese and Hong Kong (SAR) companies, by company ownership type, 2005–2020
(Percentages of the total amounts)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Bloomberg and the directory of businesses of the State-owned Assets Supervision and Administration Commission of the State Council.
Note: SASAC is the State-owned Assets Supervision and Administration Commission of the State Council.

In addition to State control, another characteristic feature of the Chinese companies that have invested the most in the region is their size. In 2019, for example, the two companies that accounted for the largest shares of mergers and acquisitions in the region were among the three largest in the world in terms of sales revenue: the State Grid Corporation of China, an electricity utility that employs about 908,000 people, and Sinopec, a hydrocarbon company with around 583,000 employees (see table II.4). Among the top ten players in the region's mergers and acquisitions, the only non-State-owned company is lithium producer Tianqi Lithium Corp, which is also small by comparison. This company, which took in about US$ 700 million in revenue in 2019, only has assets in Australia and Chile, in addition to China. Along with energy and mining companies, also among the top ten is the State-owned conglomerate CITIC Group Corp, which invests abroad in real estate and finance, energy and natural resources, manufacturing, engineering and construction, and other sectors. In the region, this conglomerate has invested in hydrocarbons, mining and agrochemicals.

Table II.4
Latin America and the Caribbean: Chinese companies investing the largest amounts in mergers and acquisitions, 2005–2020

Company	Amount (US$ millions)	Share of total mergers and acquisitions (percentages)	Number of mergers and acquisitions	Revenue in 2019 (US$ millions)	Employees	Fortune Global 500 Ranking
State Grid Corporation of China	14 919	18	9	383 906	907 677	3
China Petroleum & Chemical Corporation (Sinopec)	14 735	18	5	407 009	582 648	2
China Minmetals Corporation[a]	7 005	8	1	88 357	199 486	92
China Three Gorges Corporation	5 260	6	5	14 889	35 000	...
Tianqi Lithium Corp[b]	4 066	5	1	726	1 800	...
China Yangtze Power Co., Ltd[c]	3 590	4	1	8 978	3 990	...
Sinochem Group Co. Ltd	3 070	4	1	80 376	60 049	109
CITIC Group Corp	3 050	4	3	75 115	304 260	126
China National Petroleum Corporation	2 600	3	1	379 130	1 344 410	4
State Power Investment Corporation Ltd	2 255	3	2	39 407	123 010	316

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Bloomberg, Fortune Global 500 and data from company annual reports.
[a] The acquiring company, MMG, is 74% owned by China Minmetals.
[b] The only private company in the top ten.
[c] A subsidiary of China Three Gorges Corp.

The picture is similar among the companies making investment announcements, and only two of the ten with the largest announcement amounts are private: Hutchinson Whampoa, a Hong Kong (SAR) conglomerate with investments in the port industry, real estate, commerce, infrastructure, energy and telecommunications, and Huawei Technologies, one of the world's largest telecommunications, infrastructure and smart device companies (see table II.5). Some of these companies have also had a strong presence in mergers and acquisitions, and the new investment announcements were made in that context. Some new players emerged; however, these generally had a smaller business scale and greater sectoral diversification. These included: shipping companies, such as COSCO; steel companies, such as Shougang Group; companies manufacturing energy transmission and transformation equipment, renewable energies and new materials, such as Xinjiang TBEA Group; companies in the aluminium sector, such as Chalco; and automotive industry companies, such as SAIC Motors.

Table II.5
Latin America and the Caribbean: Chinese companies making the biggest investment announcements, 2005–2020

Company	Amount (US$ millions)	Share of total announcements (percentages)	Number of announcements	Revenue in 2019 (US$ millions)	Employees	Fortune Global 500 Ranking
Hutchison Whampoa[a]	6 359	8	10	...	...	
China Minmetals Corporation	3 676	5	3	88 357	199 486	92
China Communications Construction Company	3 643	5	10	95 096	197 309	78
China National Petroleum (CNPC)	3 493	5	8	379 130	1 344 410	4
Huawei Technologies	3 492	5	52	124 316	194 000	49
China Ocean Shipping Company (COSCO)	3 015	4	2	44 655	118 243	264
Shougang Group	2 860	4	5	29 274	97 903	429
Xinjiang TBEA Group	2 386	3	2	28 711	77 400	443
Aluminum Corporation of China (Chalco)	2 174	3	2	51 649	156 286	217
SAIC Motor Corporation (Chery Automobile)	1 356	1	5	122 071	151 785	52

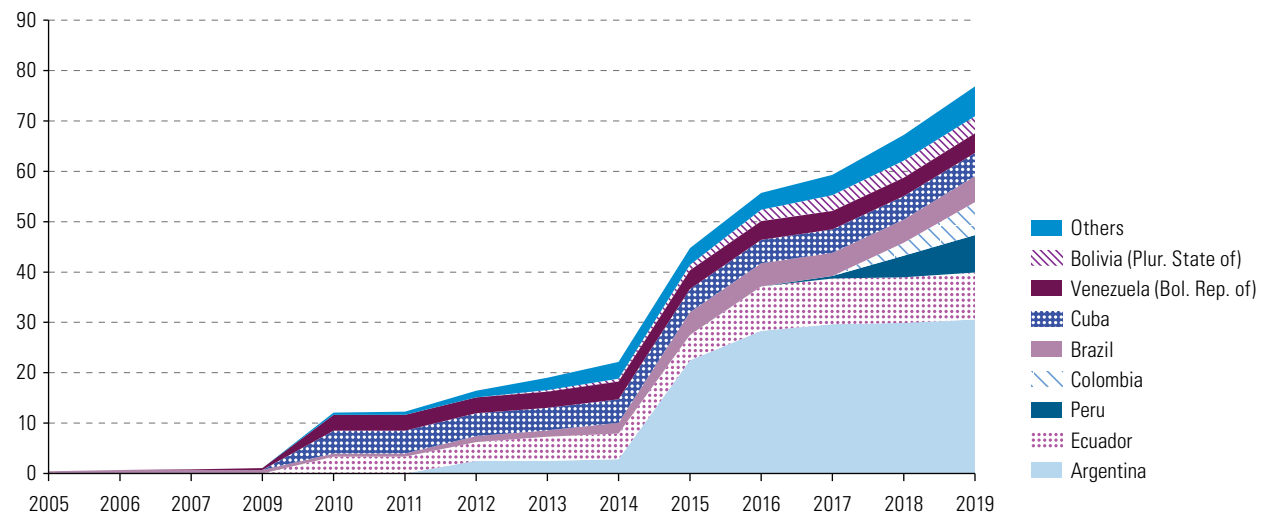
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of *Financial Times*, fDi Markets [online database] https://www.fdimarkets.com and Fortune Global 500.
[a] The only Hong Kong (SAR) company in the top ten.

4. Construction contracts and loans are a component of the internationalization strategy

In addition to FDI, construction contracts and infrastructure projects are another important component of Chinese companies' internationalization drive. Infrastructure projects can be defined as a service provided by a supplier to a client by means of a contract; this is usually reached through a tendering process, although it can also be the result of a direct appointment process, with ownership remaining with the customer (Dussel, 2020). As a result, unlike FDI projects, the infrastructure built is owned by the client and not by the companies that build it.

Infrastructure projects under different forms of contracts have particularly been used in the framework of the Belt and Road Initiative, and they represent a growing form of participation by Chinese companies and technologies in the region. According to the proposed definition, 86 infrastructure projects worth close to US$ 77 billion were recorded in the region between 2005 and 2019, and 51 of those projects (worth US$ 54.7 billion) were launched after 2015 (see figure II.17). Infrastructure projects carried out by Chinese companies often cover all stages of the process, such as the financing and post-construction phases (Dussel, 2020). Many of these are public works construction contracts that the countries fund through loans from Chinese development banks (Ellis, 2014). In addition, the countries' official development assistance has been used to support the internationalization of Chinese companies involved in infrastructure construction (ECLAC, 2011).

Figure II.17
Latin America and the Caribbean: cumulative totals of construction contracts with Chinese companies, by country, 2005–2019
(Billions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of P. Dussel, *Monitor de la infraestructura china en América Latina y el Caribe 2020*, Mexico City, Academic Network for Latin America and the Caribbean (Red ALC-China), July 2020.

According to the infrastructure projects monitor (Dussel, 2020), energy projects are at the forefront: 37 projects, worth US$ 49 billion (see figure II.18). These include hydroelectric power plants, alternative renewable energy plants, grid development projects and oil and gas projects, as well as a nuclear power project in Argentina. The latter represented a US$ 15 billion contract when signed in 2015, but it was paused in 2016 and, at the time of writing, is still under negotiation.

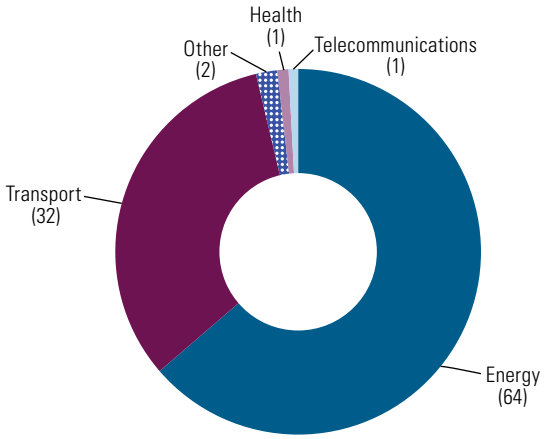


Figure II.18
Latin America and the Caribbean: construction contracts with Chinese companies, by sector, 2005–2019
(Percentages of the amount)

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of P. Dussel, *Monitor de la infraestructura china en América Latina y el Caribe 2020*, Mexico City, Academic Network for Latin America and the Caribbean (Red ALC-China), July 2020.

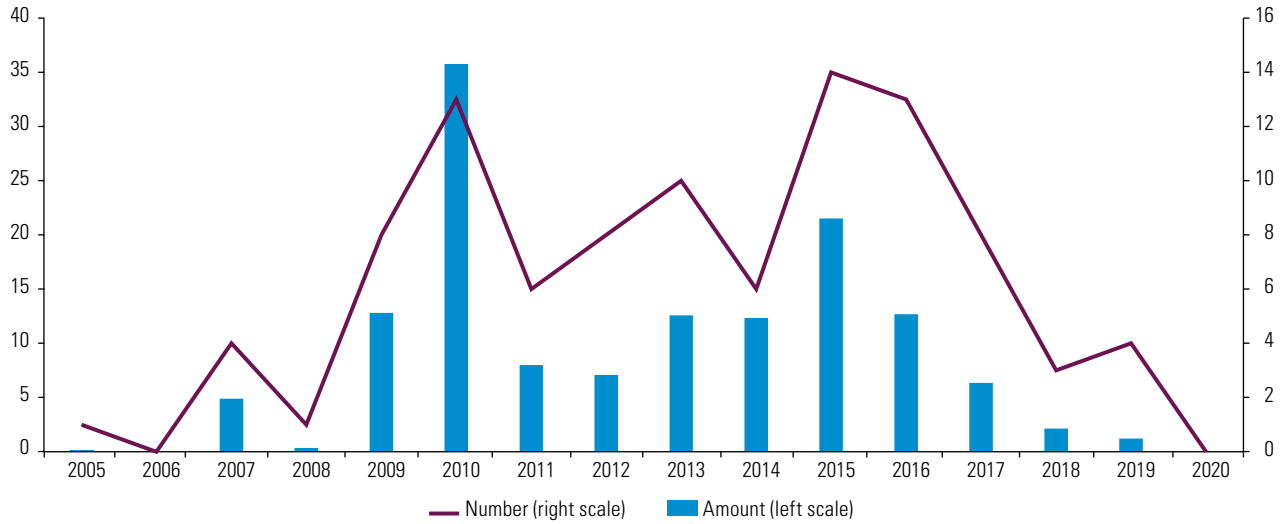
The second sector with the highest participation in infrastructure projects was transport, with 34 projects for roads, railways, ports and airports worth a total of US$ 25 billion. Health and telecommunications have to date accounted for a much smaller number of projects and much smaller investment amounts, even though the construction of hospital infrastructure and digital infrastructure are key areas in China's infrastructure development strategy.

Another important element is that in many cases, China also provides the region's governments with financing to carry out these projects. The loans are primarily extended by the China Development Bank and the Export-Import Bank of China (see box II.1). Thus, between 2005 and 2020, Latin America and the Caribbean registered some 99 loans for a total amount of some US$ 137 billion (see figure II.19).

China's lending to the region has been falling since 2015. In 2020, for the first time in 15 years, the China Development Bank and the Export-Import Bank did not lend to any Latin American or Caribbean countries. However, although State financing has been decreasing in recent years, Chinese development banks continue to play an important role in providing financing to Chinese companies participating in tenders in the region (The Dialogue, 2021).

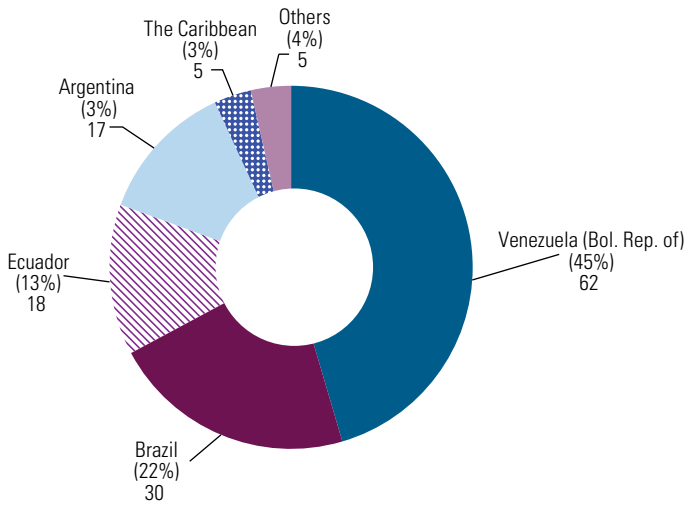
At the same time, the geographic concentration of lending has been high, with 93% of the amount extended during the period under review allocated to four countries: Argentina, the Bolivarian Republic of Venezuela, Brazil and Ecuador (see figure II.20).

Figure II.19
Latin America and the Caribbean: loans from China to countries in the region, 2005–2020
(Billions of dollars and number of loans)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of K. Gallagher and M. Myers, "China-Latin America Finance Database", Washington, D.C., Inter-American Dialogue, 2021.

Figure II.20
Latin America and the Caribbean: loans from China, by destination country, 2005–2020
(Percentages and billions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of K. Gallagher and M. Myers, "China-Latin America Finance Database", Washington, D.C., Inter-American Dialogue, 2021.

Box II. 1
The growing weight and characteristics of Chinese finance in developing countries

China's funding of developing countries is the subject of intense debate and controversy: some argue that the country's lending policy is putting many developing countries at risk of over-indebtedness; another point of view highlights the new opportunities that these loans offer. The truth is that not much analysis has been done on the effects that these contracts may have on debtor countries, as the terms of the loans are generally confidential.

Today, China is the world's largest official bilateral creditor (Morris, Parks and Gardner, 2020; Horn, Reinhart and Trebesch, 2019) and its presence is particularly strong in low-income countries, where China's lending flows have exceeded capital flows from multilateral creditors such as the International Monetary Fund (IMF) and the World Bank, as well as from private creditors (Horn, Reinhart and Trebesch, 2019). However, China is among the world's least transparent creditors when it comes to reporting on the volume and terms of its official lending. For example, according to research carried out by Horn, Reinhart and Trebesch (2019), 50% of China's loans to developing countries are not reported to IMF or the World Bank. One of the reasons for this opacity is that loans are not only provided on a bilateral (government-to-government) basis, but many of them are provided through Chinese State-owned enterprises (SOEs) to recipients that are often also SOEs; these are therefore not registered by statistical offices in developing countries, which generally do not record business-to-business loans (Horn, Reinhart and Trebesch, 2019).

Another reason for this opacity is that Chinese foreign aid, including loans, is influenced by and linked to the country's investment, trade and foreign policy objectives. The two largest foreign creditors are the two Chinese State-owned banks: the Export-Import Bank of China (China Eximbank) and the China Development Bank (CDB). Both are directly owned and operated under the supervision of the Ministry of Finance and the State Council (Horn, Reinhart and Trebesch, 2019). Additionally, China Eximbank is the agency that provides the Government's export credits and, for that reason, its mandate is to promote domestic enterprises through export credits (Morris, Parks and Gardner, 2020).

Chinese loans tend to differ from traditional official loans in other ways. The study by Morris, Parks and Gardner (2020) shows that China's official financing is offered on less favourable terms than that of the World Bank in comparable settings. China extends loans with systematically higher interest rates, shorter maturities and less generous grace periods. At the same time, almost all Chinese loans offer some degree of favourable terms, which may explain their attractiveness compared to other sources of financing available on the market.

The study by Galpern and others (2021) analysed around a hundred Chinese loan contracts and highlighted other differences between their terms and those of other sovereign loans. First, all Chinese loan contracts entered into after 2014 contain confidentiality clauses. Second, about 75% of the contracts examined contained a clause in which the borrower expressly undertook to exclude the debt from any restructuring that might take place through the Paris Club or any comparable debt treatment. In addition, the Chinese loans contained many clauses inspired by commercial loans of a type that are rare in sovereign loans. For example, all the China Eximbank and CDB contracts contained versions of the cross-default clause —which is common in commercial lending— whereby the lender has the right to terminate the contract and immediately demand repayment when a borrower defaults with respect to other lenders. Similarly, more than 90% of the Chinese contracts studied had provisions allowing the creditor to terminate the contract and demand immediate repayment in the event of significant changes in the laws or policies of either the borrowing or lending country.

Finally, the research concluded that China's lending conditions resemble those of commercial lending, and it underscored the need to make government-to-government lending more transparent, given that a lack of transparency in the sovereign debt world is not restricted to China and represents one of the main obstacles to understanding debt dynamics in many developing countries.

Source: S. Morris, B. Parks and A. Gardner, "Chinese and World Bank Lending terms: a systematic comparison across 157 countries and 15 years", *CGD Policy Paper*, No. 170, Center for Global Development, 2020 [online] https://www.cgdev.org/sites/default/files/chinese-and-world-bank-lending-terms-systematic-comparison.pdf; S. Horn, C. Reinhart and C. Trebesch, "China's overseas lending", *Kiel Working Paper*, No. 2132, June 2019 [online] https://www.ifw-kiel.de/fileadmin/Dateiverwaltung/IfW-Publications/Christoph_Trebesch/KWP_2132.pdf; and A. Galpern and others, *How China Lends: A Rare Look into 100 Debt Contracts with Foreign Governments*, Peterson Institute for International Economics and others, 2021.

D. China's quest for global digital technology leadership and its impact on the region

1. A technological drive for industry is part of China's development strategy

During the early years of its economic opening, China was seen in world markets as a centre of production based on imitation, where innovation and the skills to develop new technologies were scarce. That situation subsequently changed, and new technology sectors, as well as venture capital investments in the digital technologies, have received an unprecedented boost from the country.

China's tech giants play an increasingly important role in the global digital economy, and Chinese Internet companies are the best placed to compete with United States companies (see table II.6). With some 1.4 billion people, China is the world's largest e-commerce market, accounting for more than 40% of global online sales (Zhang and Chen, 2019). Its young, tech-savvy population is slowly closing the gap with the United States.

Table II.6
Largest Internet companies in the world, by market capitalization, February 2021

2021 ranking	Company	Country	Stock market value *(US$ billions)*
1	Amazon	United States	1 662
2	Alphabet	United States	1 392
3	Facebook	United States	759
4	Alibaba	China	571
5	Tencent	China	461
6	PayPal	United States	295
7	Netflix	United States	239
8	Adobe	United States	231
9	Salesforce.com	United States	162
10	Booking	United States	85
11	ByteDance	China	78
12	ServiceNow	United States	53
13	JD.com	China	52
14	Uber	United States	51
15	Meituan-Dianping	China	51
16	Shopify	Canada	46
17	Pinduoduo	China	44
18	Baidu	China	44
19	Workday	United States	42
20	NetEase	China	39

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Statista and Markinblog, February 2021.

From the earliest days, technology policies have been an integral part of China's development model. Over the past decade, these policies have been expressed with increasing clarity in national development plans. The goal of the Made in China 2025 plan is to promote greater technological sophistication in manufacturing industry in order to move up the value chain and thus reduce the country's dependence on foreign technology imports and investment. The plan, inspired by Germany's Industry 4.0. plan, focuses on smart manufacturing in ten strategic sectors: (i) new information and communications technologies, (ii) robotics, (iii) aerospace equipment, (iv) ocean engineering and high-end vessels, (v) railway stock, (vi) energy-efficient vehicles and new-energy cars (e.g. electricity and biogas), (vii) electrical equipment, (viii) new materials, (ix) medical equipment, and (x) agricultural machinery. Thus, the objective of the Made in China 2025 plan is to secure China's position as a world power in these high-tech sectors.

This plan is the first phase in China's development strategy, which aims to turn the country into an innovative nation by 2035 and a nation of global influence by 2049, the centenary of the founding of the People's Republic of China. The country aspires to become the world's leading manufacturing power, to lead innovation and to secure competitive advantages in key manufacturing areas (State Council of China, 2015; China-Britain Business Council, 2015).

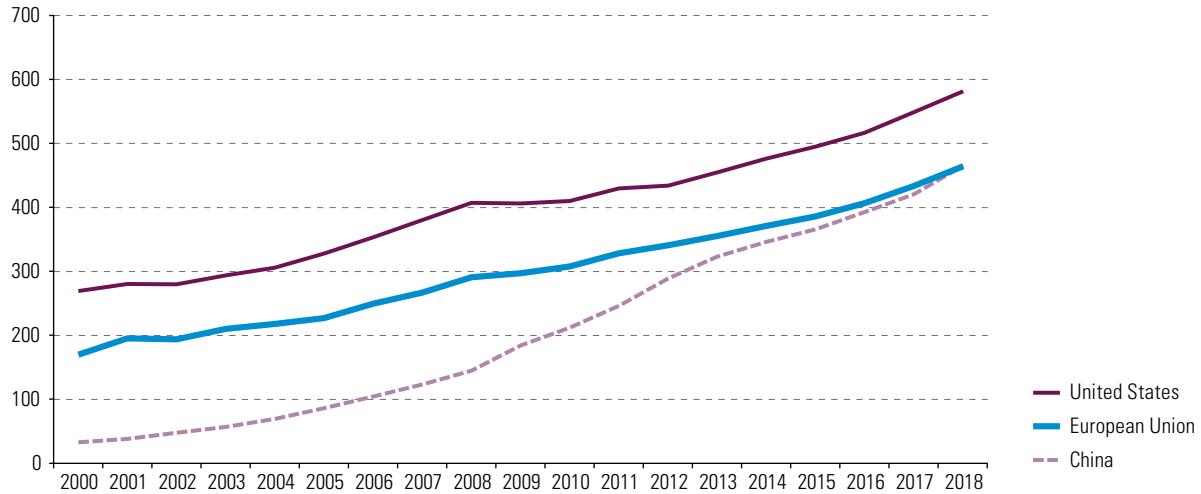
The Made in China 2025 plan, which was a way to harmonize the country's long-term strategies and bring them together into a concrete plan of action, further fuelled the conflict with the Trump Administration. After the dispute with the United States began in July 2018, Beijing decided to remove all references to the plan from public discourse. The country's new Fourteenth Five-Year Plan (2021–2025), however, shows that the basic objectives —including bolstering scientific and technological self-sufficiency— have not changed.

The new five-year plan, which focuses on technological development, self-sufficiency and security, was adopted in March 2021 at a time of commercial tensions and a dispute over 5G leadership that is directly affecting the supply chain of Chinese tech companies such as Huawei. One of the plan's main objectives is to secure major technological breakthroughs by increasing research and development (R&D) spending by 7% a year between 2021 and 2025. Particular emphasis will be placed on seven leading-edge technologies: (i) artificial intelligence, (ii) quantum information, (iii) neurological science, (iv) integrated circuits and semiconductors, (v) clinical medicine and health, (vi) genomics and biotechnology, and (vii) deep-earth, deep-sea, polar and deep-space research.

In its quest to close the technological gap with the United States and become the world's foremost technological power, China is investing increasing amounts in research and the expansion of its higher education system. In 2016, the United States awarded nearly 800,000 university degrees in science and engineering, while China awarded 1.7 million. With this, the number of science and engineering degrees awarded in China has doubled over the past ten years (NSF, 2020). At the same time, the research and development gap with the United States has also been narrowed: Chinese R&D investment totalled US$ 465.2 billion in 2018, compared to US$ 581.6 billion in the United States and US$ 464.5 billion in the European Union (see figure II.21). Nevertheless, China's R&D expenditure as a proportion of GDP, which currently stands at 2.14%, is still far behind that of other leading R&D spenders such as Japan (3.3%) and Germany (3.1%) and has not yet caught up with that of the United States (2.8%).[5]

[5] Information from the database of the United Nations Educational, Scientific and Cultural Organization (UNESCO).

Figure II.21
China, the United States and the European Union: gross domestic spending on research and development, 2000–2018
(Billions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from the United Nations Educational, Scientific and Cultural Organization (UNESCO).
Note: The 2018 configuration of the European Union is used, i.e. 28 countries including the United Kingdom; figures for China do not include Hong Kong (SAR).

These investments are already paying off. In 2017 China overtook Japan to become the world's second largest filer of patents: according to the World Intellectual Property Organization (WIPO), China's annual growth in patent applications was 13.4%.[6] China is also home to the world's three largest unicorns and is the country with the second largest number of such companies, narrowly behind the United States.[7] Thus, in 2020, there were 233 unicorns in the United States and 227 in China, together accounting for 80% of the global total (Hurun Research Institute, 2020).

The United Nations Conference on Trade and Development (UNCTAD) 2021 Technology and Innovation Report analysed 11 cutting-edge technologies that leverage digitization and connectivity, and found that China and the United States were the global leaders.[8] Together, the two countries account for between 30% and 70% of the world's publications and patents in each of these technologies. China is already a key player in the practical deployment of some, and Chinese companies are very active in 5G technology, drones and solar panels (UNCTAD, 2021b).

In the short term, however, China will remain dependent on foreign technologies. Overseas companies still provide essential inputs throughout its supply chains and that was evident in 2018 when telecommunications supplier ZTE Corporation nearly

6 See WIPO IP Statistics Data Center [online] https://www3.wipo.int/ipstats/.
7 "Unicorns" is a name given to tech start-ups worth US$ 1 billion or more. The three largest Chinese unicorns are Ant Group, valued at US$ 150 billion after plans to launch an initial public offering on the Hong Kong (SAR) and Shanghai stock exchanges were put on hold; ByteDance, which rose from US$ 5 billion to US$ 80 billion despite the United States Government's threats to TikTok; and the Didi Chuxing taxi-hailing app, valued at US$ 55 billion.
8 The 11 technologies analysed in the report (UNCTAD, 2021b) were the following: artificial intelligence (AI), the Internet of Things, big data, blockchain, fifth-generation (5G) telephony, three-dimensional (3D) printing, robotics, drones, genomic editing, nanotechnology and solar photovoltaics.

filed for bankruptcy after the United States threatened to ban the sale of microchips to the company (*The New York Times*, 2018b; Reuters, 2018). Semiconductors are one of the key technologies that enable the United States to maintain global leadership.

The shortage of semiconductors is mainly due to the COVID-19 crisis and to increased demand for consumer electronics, which exposed the bottlenecks that exist in the supply chains. Nevertheless, the impact of the trade tensions between the United States and China has exacerbated the shortage. Before the United States restricted Huawei's ability to purchase a wider range of chips manufactured or designed with United States equipment and software in August 2020, the Chinese company was already stockpiling radio chips in anticipation of further sanctions (*The New York Times*, 2020a; Bloomberg, 2020). Likewise, in September 2020, the United States imposed restrictions on Semiconductor Manufacturing International Corporation (SMIC), China's largest semiconductor manufacturer, preventing it from obtaining advanced chip-making equipment and curtailing the ability of SMIC to sell finished products to companies with links to the United States. This has worsened the global chip shortage (*The New York Times*, 2020b; *Financial Times*, 2020).

These trade tensions could, however, accelerate the development of alternative technologies: not only in China, but also in Europe. Thus, China's Fourteenth Five-Year Plan identifies semiconductors as a key technology for investment, and the countries of Europe have also taken stock of their dependence on United States technology and the impact that a trade conflict with that country could have on their economies. The European Union's 2030 Digital Compass sets out some clear industrial and technological goals, such as increasing the production of sustainable, cutting-edge semiconductors in Europe towards reaching 20% of global production by 2030, and manufacturing the region's first quantum-accelerated computer by 2025, which would pave the way for Europe to stand at the forefront of quantum capabilities by 2030 (European Commission, 2021).

2. The Digital Silk Road: a means to make China the technological leader

Since 2015, the Belt and Road Initiative has had a digital component to promote the dissemination of new Chinese technologies across the world: the Digital Silk Road. This first appeared in 2015 as the Information Silk Road and initially focused on investments in fibre-optic cables and telecommunications networks. Its scope has expanded since then to include investments in e-commerce and mobile payment systems, space industry projects, data centres, and research and projects related to smart cities. The implementation of this plan and the financing methods used for Digital Silk Road projects have largely mirrored the model used in other Belt and Road Initiative infrastructure projects, with concessional and non-concessional loans provided by the China Development Bank, the Export-Import Bank of China and State-owned commercial banks. In April 2019, at the Second Belt and Road Forum for International Cooperation, Xi Jinping, the President of the People's Republic of China, identified cooperation in the digital economy and innovation-driven development as two of the initiative's priority areas (BRF, 2019).

The Digital Silk Road represents an important opportunity for funding and deploying digital infrastructure in developing countries. In 2017, China's information and communications technology (ICT) infrastructure funding across Africa exceeded the combined funding of the continent's governments, multilateral agencies and the Group of Seven (G7) nations (ICA, 2018). Chinese-made fibre-optic cables have also increased digital connectivity in the landlocked countries of Central Asia. The Digital Silk Road projects undertaken worldwide since 2013 are estimated to be worth more than US$ 17 billion, with more than US$ 10 billion invested in e-commerce and digital payments, more than US$ 7 billion spent on loans and FDI in telecommunications network infrastructure and fibre-optic cables, and at least several hundred million invested in projects related to city security and the development of smart cities (MERICS, 2019a).

In the developing world, the priority given to digital development has been heightened in the context of the pandemic crisis, which significantly increased the demand for digital infrastructure to run the economy and social activities (education, teleworking and others) and to manage the health crisis, whether for tracking cases or organizing the logistics of vaccination.

For China, the Digital Silk Road is part of the technology development strategy set out in the Made in China 2025 plan and the National Informatization Strategy (State Council of China, 2016), and it reflects the political aspiration of achieving global high-tech leadership. The country is also actively influencing international standards for emerging technologies, such as blockchain, the Internet of Things and 5G technology, by taking leading positions in international standardization bodies. For example, Chinese experts have assumed a leading role in the 5G group of the International Organization for Standardization (ISO), a group known as 3GPP, by submitting 40% of the standards and 32% of the documents (MERICS, 2019b). In the context of the international tensions related to 5G technology and high-tech industries, the Digital Silk Road allows China to accelerate the development of its hard and soft power through the control of information and communications technology infrastructure (Magnus and Bretherton, 2020).

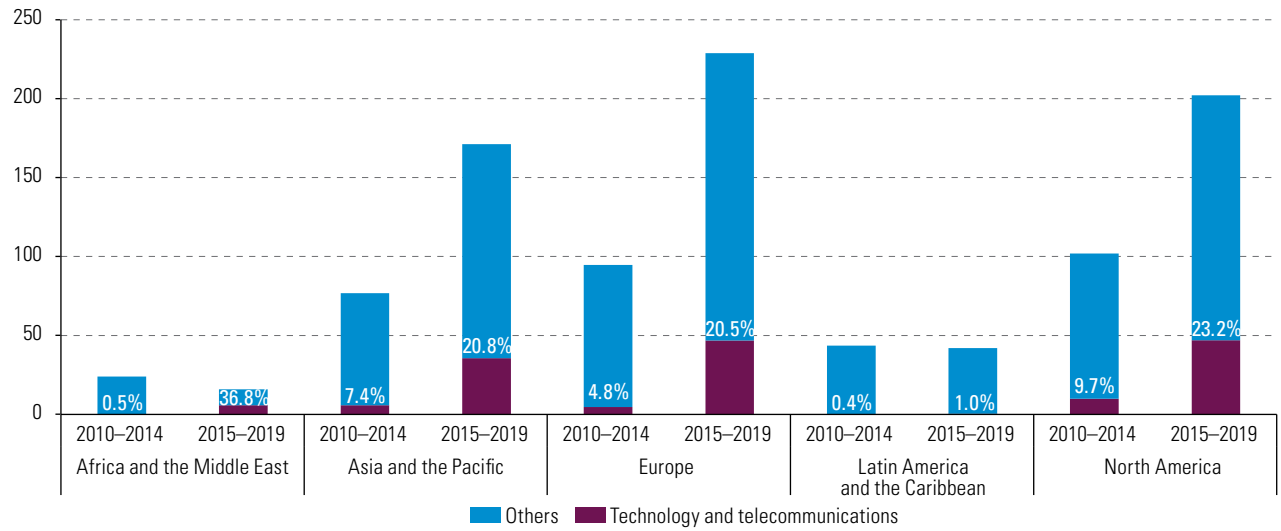
The Digital Silk Road therefore aims to help Chinese companies become global leaders and thus spread the country's cyber rules and standards. Chinese private companies —and in particular the tech giants, such as Baidu, Alibaba and Tencent ("the BATs") in the Internet sector and Huawei and ZTE in the digital infrastructure sector— are a part of China's digital expansion strategy. In addition to defining national targets for connectivity and investment in new technologies, the National Informatization Strategy (2016–2020) calls for China's Internet companies to go global and support the creation of the Digital Silk Road.

3. Chinese foreign direct investment in digital sectors in Latin America and the Caribbean

China's investment in telecommunications and high-tech sectors has increased in recent years, reflecting the country's digital expansion strategy and the growing global importance of its digital companies. Between 2005 and 2019, nearly a quarter (24%) of the total merger and acquisition operations carried out by Chinese companies abroad were in the telecommunications, Internet and technology sectors, although the weight

of these transactions in the total amount was only 14%.[9] Examining solely the last five years, however, companies' interest in those sectors has increased. Technology sectors' share in the total acquisitions amount has grown: from 6% between 2010 and 2014 to 19% between 2015 and 2019. These acquisitions occurred mainly in North America, where deals to acquire technology companies accounted for 23% of the total amount of deals closed in that region, and in Europe, where they accounted for 20% (see figure II.22).

Figure II.22
China: mergers and acquisitions by destination region, total amount and share of the telecommunications and technology sectors, 2010–2019
(Billions of dollars and percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Bloomberg.

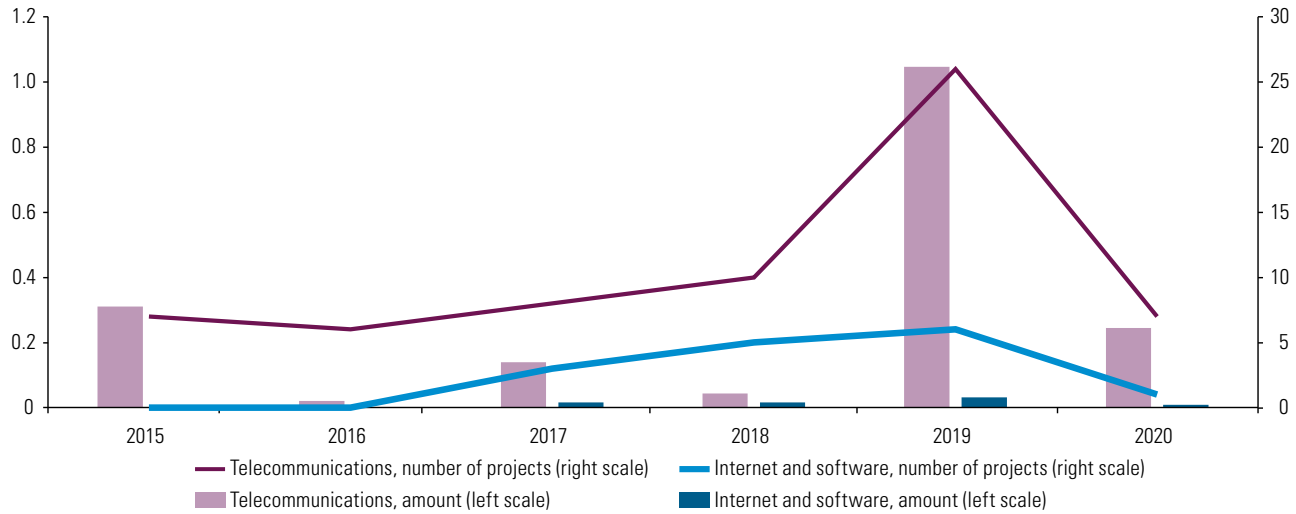
Chinese mergers and acquisitions in Latin American and Caribbean technology sectors are very rare (see figure II.22). Between 2013 and 2019, Bloomberg recorded only 13 transactions in the Internet and software sectors in Argentina, Brazil and Mexico. However, China's large technology companies, which have played a key role in implementing Digital Silk Road projects, have a growing presence in Latin America and the Caribbean. According to figures from the Australian Strategic Policy Institute's International Cyber Policy Centre, 12 of the largest Chinese technology companies —including Huawei, China Telecom and ZTE— have undertaken new activities in 15 Latin American and Caribbean countries since 2015, with investments in data centres, telecommunications networks and safe city projects. As 19 countries in Latin America and the Caribbean have already signed memorandums of understanding under the umbrella of the Belt and Road Initiative, it is very likely that other projects will be launched in the context of the Digital Silk Road.

Announcements of new projects by Chinese companies in the Latin America and Caribbean telecommunications, software and Internet sectors have increased in recent years (see figure II.23). Between 2015 and 2020, such announcements accounted for

[9] This is because in many cases these investments are of smaller magnitude than investments in more traditional sectors (mining, for example), and also because there were a significant number of transactions in which the amounts involved were not reported.

21% of the total number of projects announced by Chinese companies in the region. As most of these announcements were for small amounts, however, they accounted for only 6% of the total amount involved.

Figure II.23
Latin America and the Caribbean: projects announced by Chinese companies in the telecommunications, software and Internet sectors, 2015–2020
(Billions of dollars and number of projects)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of *Financial Times*, fDi Markets [online database] https://www.fdimarkets.com.

In the communications sector, most of the announcements made between 2015 and 2020 were by two companies, Huawei and Xiaomi, and they mainly involved commercial installations in the smartphone market. In 2018 and 2019, Xiaomi increased its presence in the region and reaffirmed its interest in the Latin American market: it announced 18 retail projects in seven of the region's countries (Brazil, Chile, Colombia, Costa Rica, Mexico, Panama and Peru). These projects accounted for 33% of the total number of Chinese announcements in the sector, but the investment involved was estimated at only US$ 25 million, representing 1% of the amount announced by Chinese companies in the region's communications sector. In contrast, Huawei, which accounted for 52% of the number of projects announced in the sector in the region, was responsible for 82% of the amount announced. Huawei has been present in the region for 20 years and has successfully entered the smartphone market. It currently operates in 20 Latin American countries, with a double-digit market share in 14 and a share of over 20% in four of them. In addition, Huawei is one of the top three mobile phone brands in Mexico, Colombia, Peru and Central America; in Colombia, the company commands 25% of the market (Latin America Tech, 2019). Its entry into the smartphone business in Brazil and Argentina was not so successful. However, it announced an investment of some US$ 800 million in a new production plant in the Brazilian State of São Paulo.

Huawei's main business in the region is not mobile phones, however, but telecommunications infrastructure, which explains the higher amounts involved in its projects. This sector, especially 5G infrastructure, is the one that has raised the most concerns in the United States, where it is argued that China could use that infrastructure

for espionage and endanger national security. Despite those reservations, Huawei already has a presence in the region's infrastructure and is investing in data infrastructure. In 2019 and 2020 it announced four new projects: one in Brazil and three in Chile. In 2020 it announced the creation of a second data centre in those countries, as well as plans to invest US$ 100 million in the development of cloud-based infrastructure in Chile by 2024, as part of its Huawei Cloud project. The company is considering building a fibre-optic network and installing a 5G network in that country. The Huawei Cloud project will be implemented over the next three to five years and, in addition to the Chilean market, will also serve neighbouring countries.

Also noteworthy in the telecommunications sector is China Unicom's 2015 investment to establish a submarine cable connecting Cameroon to Brazil: the South Atlantic Inter Link (SAIL). This was a joint investment between Cameroon Telecommunications (CAMTEL) and China Unicom (through its subsidiary, China Unicom do Brasil Telecomunicacões Ltda), and, according to fDi Markets estimates, the amount involved was around US$ 142 million. The entire project has been carried out by Huawei Marine Networks.

In the software and Internet sectors, Chinese investment in Latin America and the Caribbean is even more limited. DiDi has made some investments in Mexico, Colombia, Chile and Peru, for example, but the amount of investment required to enter those markets is low and the announcements were for a total amount of US$ 13.5 million. The entry of Chinese digital platforms into the Latin American digital market could, however, contribute to the development of digital services in the region.

Latin America and the Caribbean, with a potential market of 654 million people and a relatively young and predominantly (80%) urban population, is particularly attractive to China's large Internet companies. The region is the second fastest growing mobile market in the world behind sub-Saharan Africa, and it faces the same problems that China faced about ten years ago: for example, the fact that a large segment of the population is underbanked or unbanked (Crunchbase, 2019). These challenges represent great opportunities for local start-ups and Chinese platforms. The region's great potential for companies offering digital solutions to specific problems has led to the entry into the market of a large number of Chinese platforms in recent years, including Ofo, Mobike and DiDi.

The mobility solutions company DiDi Chunxing has been operating in Mexico since 2018; it also has a presence in Brazil, where it acquired the Brazilian company 99 Taxi, and, in 2019, it opened up in Colombia, Chile and Costa Rica. By February 2020, it had 20 million users in more than a thousand Latin American cities (Xinhua, 2020). In June 2019, DiDi issued a press release announcing its new financial services in Mexico and Brazil. The company will collaborate with financial institutions to offer its drivers bank cards that will allow them to receive payment for their services, as well as to withdraw and spend money in certain local shops. According to Jeffrey Towson, an investment professor at Peking University, this decision is part of DiDi's strategy to become a super-app or all-in-one application (BBC News Mundo, 2019).

Today, companies around the world are trying to replicate the successful Chinese super-app model in their regions. As a relatively homogeneous region with a large online population, Latin America and the Caribbean is a very attractive prospect for applications of this kind. Rappi, for example, which in its early days only offered food deliveries, has added services such as electric scooters, payments, person-to-person (P2P) transfers, cinema tickets and a debit card. Rappi's general manager for Argentina and Uruguay has stated that the intention of this Colombian start-up is to become a super-app (Contxto, 2020).

4. The presence of Chinese technology companies in the region goes beyond foreign direct investment

In addition to the investments analysed above, the presence of Chinese technology companies as suppliers has increased in Latin America and the Caribbean through contracts in the digital infrastructure sector, in areas such as 5G technology and submarine cables, and also in the quest to create smart cities. In this, Chinese digital infrastructure equipment companies —such as the privately owned Huawei and the State-owned ZTE— are playing a growing role.

Huawei, through its former subsidiary Huawei Marine, participated in the upgrade of several submarine cables in the region, including the Lázaro Cárdenas-Santiago Fibre-Optic Submarine Cable Telecommunications System in Mexico, the Bahamas Domestic Submarine Network (BDSNi) and the Suriname-Guyana Submarine Cable System (SG-SCS).[10] It also built the South Atlantic Inter Link (SAIL) submarine cable system between Africa and South America, the Southern Optical Fibre project and the Strategic Evolution Underwater Link (SEUL) submarine cable project in Belize, and it is connecting the Mexican State of Baja California with the rest of the country by means of a cable of this type (*El Sol de México*, 2020).

In the context of the ongoing commercial tensions, the construction of these cables has raised concerns in the United States as well as in other countries. This is because they are a potential security risk, given that they carry significant amounts of unencrypted information, which could allow the Government or other actors to conduct surveillance activities. In fact, the United States used cables in this way after the attacks of 11 September 2001, and continued to do so until Edward Snowden revealed the programme in 2013. The cables installed by Huawei Marine, however, represent but a small fraction of those deployed in the region and of those that link it to the rest of the world. In November 2019, for example, the United States company Google successfully installed a cable linking its home country to Chile. At the same time, Alcatel Submarine Networks, a part of Nokia, built a new submarine cable between Brazil and Europe that has been in operation since 2020.

For the implementation of 5G technology, the field remains wide open, as there are only a few small pilot 5G networks in the region. In the rest of the world, there were 144 commercial 5G networks in 61 countries as of January 2021, with more on the way (GSA, 2021). In that context, as of early 2020 Huawei held a leading position, having won more 5G contracts than any other operator in the world (*China Daily*, 2020), including 47 in Europe and at least seven in Latin America and the Caribbean (Latin America Tech, 2019), thus surpassing Ericsson and Nokia. The Chinese company is well positioned to lead sales of 5G equipment in the region, given that —according to analysts— its technology is one of the best and the most economical (*Financial Times*, 2019b). Therefore, according to a study by Mobile UK, excluding Huawei would result in more expensive 5G networks. However, Ericsson and Nokia are also present in Latin America, with the latter having built South America's first commercial pilot 5G network, referred to above, in Uruguay in 2019. Sweden's Ericsson, in turn, announced that its 5G network will be installed in the region between 2020 and 2021 (Bnamericas, 2019).

Intense competition to lead the implementation of 5G technology in the region exists among these companies, especially in the Brazilian market. Ericsson and Nokia have factories in São Paulo, and Ericsson has entered into a partnership to build a research

[10] Huawei Marine was sold to another Chinese company in June 2019.

centre focused on 5G technology and the Internet of Things in that city. Huawei, meanwhile, reported that it opened an Internet of Things lab in the same State, in partnership with the FIT Institute of Technology (The Dialogue, 2019). The Chinese company wants to show that it is ready to implement 5G technology in the country: in September and October 2019, for example, the Brazilian company Oi tested the technology with Huawei equipment at the Rock in Rio music festival. In November 2019 Huawei launched a cloud service backed by artificial intelligence, and China's ambassador to Brazil said he was confident the company would be selected to build the country's 5G network (Bloomberg, 2019). Later, in 2020, doubts arose and the possibility of banning Huawei from the tendering process was raised. However, following the change of government in the United States and pressure from telecommunications companies, which warned that excluding Huawei from Brazil's 5G market would mean a technological setback of three to four years, it was confirmed that the Chinese company's participation would not be blocked (Forbes, 2021). In March 2021, Brazil's National Telecommunications Agency (Anatel), the sector's regulator, revealed the details of the frequency auction to provide new services with 5G technology and to increase the quality and coverage of existing 4G LTE networks. The agency put around 4,000 megahertz of the radio spectrum out to tender for future 5G use (*El Economista*, 2021).

In addition to having a growing presence in the telecommunications infrastructure sector, Chinese companies have assumed an important role in the design of safe city systems in the region's countries. The Chinese company Dahua Technology, for example, one of the world's largest manufacturers of surveillance equipment, sells its security cameras in Latin America and provided 80% of the cameras purchased for the 2016 Rio de Janeiro Olympic Games. Concerns have been raised, however, about the role of Chinese telecommunications companies such as Huawei and ZTE in the continent's security systems. In Ecuador, the ECU-911 Integrated Security Service public security system was largely built by two Chinese companies, the State-owned China National Electronics Import & Export Corporation (CEIEC) and Huawei. The latter firm provides services and equipment, including surveillance cameras, data storage systems and a rapid-deployment portable system. According to reports, the system includes facial recognition technologies and 16 national, regional and provincial command and control centres, as well as a data laboratory and research partnerships. The ECU-911 system was designed as a way to monitor national emergencies and crime, although the national intelligence group also had access to a mirror of the surveillance system built in China (*The New York Times*, 2019). The project is considered part of the Belt and Road Initiative, and it was initially funded with a US$ 240 million Chinese State loan extended in 2012.

In addition to Ecuador, Chinese public security systems have been exported to Argentina, the Bolivarian Republic of Venezuela, Guyana, Panama, the Plurinational State of Bolivia and Uruguay. In 2018 Huawei implemented a comprehensive, integrated and modern safe city system for the Panamanian port of Colón (Huawei, 2020), and in 2019 it deployed 100 smart cameras in Georgetown as part of a Huawei safe city system that was built under the aegis of the Guyana National Broadband Project (*Kaieteur News*, 2019). That project was worth US$ 32 million and was reportedly financed by China. Similar safe city projects have also been reported in the Argentine Provinces of Salta and Mendoza and, in March 2019, the State-owned company ZTE signed a surveillance contract worth nearly US$ 30 million with Jujuy to provide cameras, monitoring centres, emergency services and telecommunications infrastructure. In 2016, Huawei and Cochabamba —the third largest city in the Plurinational State of Bolivia— signed a strategic cooperation agreement through which the city obtained the integrated Safe City solution, which includes smart surveillance, visualized critical

communication and a centralized command system. In 2018, the mayor of Montevideo led a delegation to China to explore smart city technology. Uruguay reportedly began installing 2,100 security cameras donated by the Chinese Government in 2019, and the country has cooperated with multiple Chinese technology companies, including Huawei and ZTE. Huawei also participated in the Bolivarian Republic of Venezuela's VEN 911 public safety project. An investigation published by Reuters in 2018 highlighted the central role ZTE played in inspiring and implementing the *Patria* programme. The *Carnet de la Patria* issued under this programme records personal data such as date of birth, family information, employment and income, property, medical history, State benefits received, social media presence, political party membership and voting history.

Such agreements through which Chinese companies supply comprehensive surveillance systems (cameras and connections) are relatively small and sometimes subnational in scope. They are nevertheless fuelling concern among both Latin American civil society actors and the United States Government, with the latter warning countries in the region about the risks of using Chinese technologies, alleging that they can be used for espionage. One of the reasons for these concerns is that while surveillance systems are geared towards emergencies, natural incidents and the fight against crime, they also provide tools that can be used to access citizens' private information and facilitate censorship or political persecution.

E. Conclusions

Ten years ago, when investments by Chinese companies were beginning to gain prominence in the region, they were highly concentrated in the hydrocarbon and mining sectors (ECLAC, 2011). Today, China's international position has changed immensely: the country has positioned itself as one of the world's major powers, a conflict for technological hegemony with the United States has arisen and its relations with the region have become more complex. The country has a growing regional relevance as a source of imported manufactured goods and as a destination for raw material exports, and the participation of Chinese companies in Latin American and Caribbean economies has also increased through FDI and infrastructure projects. However, the change that has taken place in the pattern of Chinese investments in Latin America and the Caribbean over those ten years does not coincide with the country's process of technological sophistication or the evolution of its companies in the world.

Today, Chinese investments no longer target only mining and hydrocarbons; however, they remain concentrated in a small number of activities deemed strategic in China's internationalization plans, with large acquisitions in the electricity sector and full or partial acquisitions for accessing strategic minerals such as copper, lithium and niobium. China has also been making purchases in the agricultural, fishing and agrochemical sectors, and in logistics and transport infrastructure, and it has a growing participation in the construction of digital infrastructure. Chinese companies have become more involved through mergers and acquisitions that have given them access to natural resources and markets, and through infrastructure projects that have often been financed by Chinese banks. Investments in new projects, meanwhile, have been less dynamic. Notable among these are some aimed at key sectors for the region's sustainable development, such as renewable energies and electric vehicles, and others aimed at the digital economy, where Chinese companies stand at the forefront of global technology. In terms of scale and scope, however, these investments are minor and focus mainly on marketing or assembly activities rather than manufacturing or research and development.

This growth in Chinese investment in the region was shaped by the country's strategic internationalization decisions. Thus, just as past policies led to an increase in the volume of investment and to its reorientation overseas, the change of emphasis that has taken place within the framework of the Belt and Road Initiative and the terms of the Fourteenth Five-Year Plan (2021–2025) —giving greater priority to domestic consumption, technological development and self-sufficiency— may have an impact on the nature of China's economic engagement with Latin America and the Caribbean, especially since most of the investments made in the region have been by State-controlled enterprises.

In addition, the increased presence of Chinese companies in the region has arisen partly through infrastructure projects in which Chinese companies implemented projects and provided financing to governments through national public development banks. These types of investments offer both opportunities and challenges: on the one hand, they enable the funding of the infrastructure needed for the countries' development; on the other, Chinese financing mechanisms have sometimes lacked transparency, and this could worsen the indebtedness of the region's countries without leaving a clear record of it.

Today, the world is afflicted by uncertainty as to what form the post-pandemic recovery process will assume. Policies to support this recovery in Latin America and the Caribbean must strive to overcome some of the structural challenges that have been faced for decades: low levels of productivity and wages, high levels of informality, high levels of inequality and dependence on natural resource exports, with limited participation in the high value-added segments of global value chains. FDI will be needed in this recovery process, and the region's countries will have to be watchful of the characteristics and potential of investments in order to foster beneficial links with foreign partners.

As the pandemic and global commercial tensions continue, multinationals are placing a higher priority on supply chain resilience. In the recovery plans of the core countries, meanwhile, priority is being given to achieving greater independence in terms of strategic inputs, materials and technology. The fact that multinationals wish to increase their resilience could favour investments in Mexico and Central America, because companies may be interested in locating closer to the United States market; to date, however, there has been no evidence of such a phenomenon. On the other hand, the changes in the world's commercial and political balance, as well as the focus in the core economies' recovery plans, should cause the countries of the region to reflect on their own dependence on strategic technologies or relations with the hegemonic powers.

In the case of China, these links could be more complicated if countries are forced to choose between aligning themselves with China or with the United States, or with companies from those powers, when deciding to build digital infrastructure. The change of government in the United States has made the tone of the relationship between the two powers less aggressive, but the underlying conflicts persist. Against that backdrop, bilateral relations between China and the region have in general taken precedence over multilateral agreements: as an example, 19 of the region's countries have signed agreements under the Belt and Road Initiative, and some have already participated in Digital Silk Road projects. There is therefore a need to promote greater regional cooperation to give the countries of the region more leeway in making commercial and investment decisions, a point on which experts on the relationship between China and Latin America agree (Rosales, 2020; Stallings, 2020).

The region's countries are facing a scenario in which they will be required to rethink how best to negotiate the involvement of Chinese companies, what tools they should use and what shape such participation should adopt. The issues at play in this scenario are the enormous weight of China as a trading partner and, in some cases, as a creditor; the way in which policy decisions arising from the strategic guidelines have an impact on its enterprises; and the importance of those companies in the development of new technologies. Latin America and the Caribbean's recovery process from the COVID-19 pandemic is an opportunity to embark on a new stage in economic relations with China and to develop policies that ensure that China's investments contribute to building productive capacities in the recipient countries, establishing links with local suppliers, generating employment and promoting sustainable development. Multilateralism must be a part of this strategic approach.

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CHAPTER III

Investment strategies in the digital age

Introduction

Digitalization is changing consumption, business and production models. Traditional industries are being transformed, and new activities and companies have been created and risen to global dominance. The simultaneous and combined development of physical components (infrastructure and devices) and intangible components (software) has been one of the key determinants of the speed of digital transformation.

An important feature of this new economy is its intensive use of data, a phenomenon that affects both technology sectors and activities in the traditional economy. The incorporation of data into products and services is blurring distinctions between sectors, creating new business opportunities and exposing traditional companies to competition from new digital ones, forcing them into deep restructuring. Overall, what is being seen is a shift in the global business landscape characterized by the consolidation of large digital companies.

This "datafication" of the economy is being facilitated to some extent by the availability and evolution of digital infrastructure. At the same time, the movement of growing volumes of data is becoming one of the main catalysts for large investments and innovation efforts aimed at bringing a new generation of digital infrastructure into being.

The main agents of this transformation are transnational companies. Their investments, which are often data-driven, have substantial effects that stimulate digitalization in other production sectors, but in some cases their business models can also have restrictive effects on market dynamics.

This digital transformation is taking place within different legal and regulatory frameworks that may either accelerate or retard it. Issues of industrial organization, market competition, data security and privacy and the value set on data as a strategic intangible asset are important in this respect.

The following section briefly describes a conceptual model[1] for analysing digital development, whose evolution has resulted in profound strains and transformations in the global production system. This model is structured in three dimensions, which have been termed the "connected economy", the "digital economy" and the "digitalized economy". Section B reviews these dimensions and describes their main evolutionary trends, both globally and in Latin America and the Caribbean. Lastly, section C focuses on the impact that the digitalization or more specifically the datafication of the economy has had on competition policies. This section also analyses the concept of the data marketplace and the issues of regulation and taxation of digital platforms.

A. The dimensions of digital development

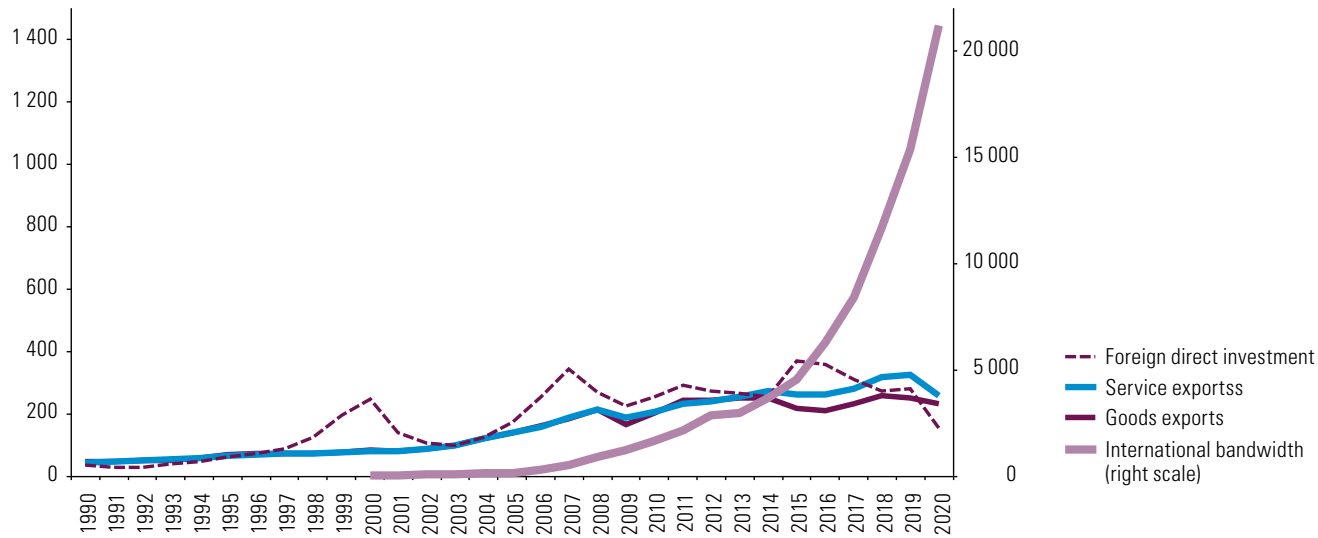
The digital revolution is giving rise to a new age characterized by the transformation of consumption, business and production models by the adoption and combined integration of advanced digital technologies, namely fifth generation (5G) mobile networks, the Internet of Things (IoT), cloud computing, artificial intelligence, big data analytics and robotics, among others. The current situation is one of transition from a hyperconnected society to a world which is digitalized in the economic and social dimensions and where the organizational, production and governance methods of the traditional economy coexist with the business, production and governance models arising from the new technological paradigm and adopt their innovations. This

[1] The model proposed by the Economic Commission for Latin America and the Caribbean is based on Bukht and Heeks (2017).

is beginning to result in the consolidation of a new, digitally interwoven system in which models from the two spheres are integrated and interact, giving rise to more complex ecosystems that are currently in the throes of organizational, institutional and regulatory transformation (ECLAC, 2018).

The dynamics of digitalization are apparent, for example, in the exponential growth of international bandwidth[2] since 2007 (see figure III.1). Taking this bandwidth as a proxy, digital flows have increased 13-fold in the last decade, growing by 38% in 2020 alone. This trend is particularly striking if it is considered that goods and services trade flows and foreign direct investment (FDI) flows fluctuated greatly in the wake of the 2008 global financial crisis and declined steeply in 2020 owing to the coronavirus (COVID-19) pandemic. By contrast, digital expansion seems unaffected by the problems besetting the economy. Indeed, far from holding back digital development, the effects of the pandemic, which led to a shift towards virtual media and the use of automation and robotics tools, have caused it to accelerate.

Figure III.1
Global goods and services trade flows, foreign direct investment and international broadband capacity, 1990–2020
(Index: base year 2003 = 100)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the United Nations Conference on Trade and Development (UNCTAD) and the International Telecommunication Union (ITU).

A global transformation of unprecedented speed began in the late 1990s, giving rise to three dimensions of digital development, with the emergence first of the connected economy, characterized by the deployment of broadband networks and mass use of the Internet, then of the digital economy with the expanding use of global digital platforms as a business model, and more recently with the move towards a digitalized economy whose production, organization and consumption models are based on the incorporation of digital technologies, in particular artificial intelligence solutions. In the near future, most social and economic activities will be transformed by the incorporation of intelligence based on advanced general-purpose digital technologies, which will shape autonomous decision-making and operating systems (Brynjolfsson and McAfee, 2014; Schwab, 2016).

[2] International bandwidth is the maximum capacity for data transmission from a given country to the rest of the world.

These dimensions of digital development are constantly evolving in a process that is both synergistic, with advances in one area driving progress in another, and systemic, in that the activities of society, the productive apparatus and the State alike are being transformed. In each of these areas, digital transformation is generating innovations that have the potential to enhance the well-being of individuals, the productivity of firms, the efficiency and effectiveness of the State and environmental sustainability, provided that appropriate governance is in place to address emerging challenges, including those related to market concentration, cybersecurity, employment and automation, personal data privacy and security, and taxation and fiscal issues.

However, improvements in welfare will depend on the widespread take-up of digital technologies and the development of enabling conditions to maximize the benefits and minimize the potential adverse effects of these technologies. In the productive sphere, for example, digitalization could have undesirable effects without the right enabling conditions, affecting employment levels and widening structural productivity gaps.

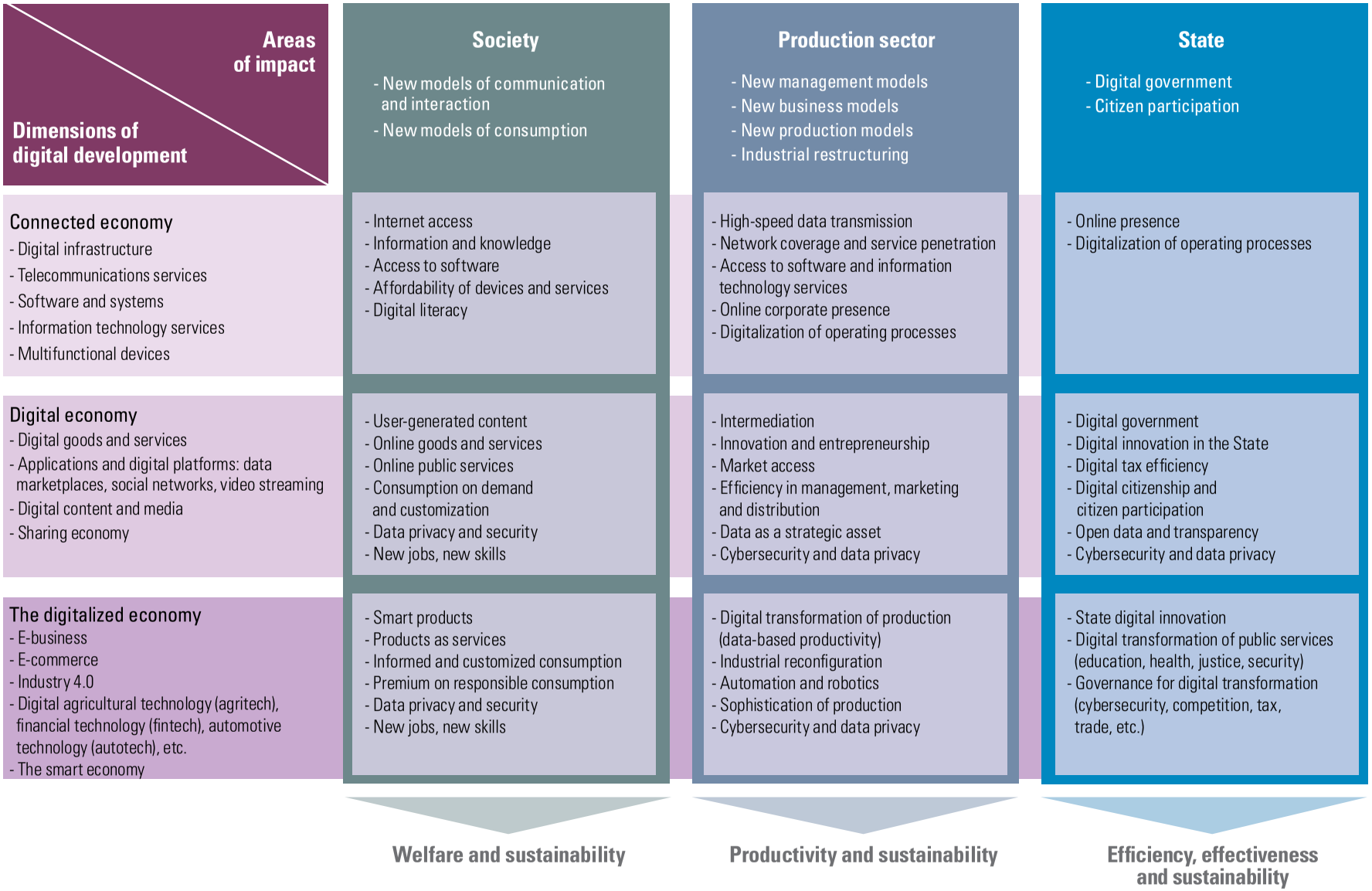
In relation to employment, the automation of activities resulting from the use of digital technologies can generate three types of effects: the disappearance of jobs due to automation of the occupation or activity, changes in the way an activity is carried out and, lastly, the creation of new activities or occupations (ECLAC, 2019a). The net effect of this phenomenon largely depends on public policies geared towards the development of enabling conditions. In this area, these policies should especially target the development of digital capabilities and skills among people working in traditional enterprises, who are more vulnerable to marginalization.

When it comes to productivity, for example, Latin America and the Caribbean has exhibited a large and widening gap relative to the developed economies in recent decades (ECLAC, 2020). Moreover, aggregate labour productivity has risen persistently slowly since 1950. Growth has mostly been due to the expansion of the labour force and the abundance of raw materials, while the contribution of productivity improvements has been small. The result is an undiversified production structure with low value added and export specialization in low-technology goods. This type of structure can yield periods of rapid expansion, as happened with the commodity boom, but is not conducive to sustained productivity growth. To achieve the latter, it is necessary to incorporate technology and diversify production into sectors that are more dynamic in terms of both technology and international demand.

Digital technologies are not independent of the sector, the organizational structure and other specific elements of the environment in which they are deployed. In particular, as the COVID-19 pandemic has highlighted, in a region where productivity varies so much by sector, territory and company size as it does in Latin America and the Caribbean, digital transformation offers opportunities but can also accentuate disparities. Public policies are crucial to ensure that this does not happen, particularly policies that strengthen the weakest sectors, territories or agents and help to boost technological absorption capacity, facilitate the transformation of business models and consolidate integration into more dynamic and innovative production systems. Despite the progress made in recent years, the low take-up of even basic technologies, especially among smaller firms, shows that there is still room for greater public policy action.

Diagram III.1 summarizes the effects of digitalization on society, the production sector and the State, showing the contributions of companies making up the different dimensions of digital development: the connected economy, the digital economy and the digitalized economy. From here on, the analysis will focus on the digital transformation in the productive sphere, paying special attention to the effects it is having on business strategies.

Diagram III.1
Dimensions and components of digital development and their effects on society, the production sector and the State



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of ECLAC, *Digital technologies for a new future* (LC/TS.2021/43), Santiago, 2021.
Note: The term "connected economy" refers to the core of the digital transformation, consisting in the implementation of broadband networks and mass Internet use. By "digital economy" is meant the use of global digital platforms as a business model. The term "digitalized economy" refers to the incorporation of digital technologies (and in particular artificial intelligence solutions) into the production, organization and consumption patterns of the economy as a whole.

The first dimension, the connected economy, originated in the late 1990s with the development of the Internet and the World Wide Web, high-speed digital data transmission networks, multifunctional hardware devices, and software of varying scope and functionality, which consolidated these elements as the core of the current digital transformation. In this phase, the determinants of development were associated with connectivity: the coverage of telecommunications networks (fixed networks and the different generations of mobile networks) and the penetration of Internet services among the population, the quality of broadband in terms of speed and latency, the affordability of access devices and services, the availability of software and digital content, and usability, among other elements. Thus, the telecommunications, hardware and software sectors experienced periods of substantial growth, although in the case of the first two this trend declined in the late 2000s.

This stage saw a revolution in both the form and speed of communications and in the generation of information and knowledge. This dimension fostered the development of the digital economy, understood as that part of economic production derived mainly from business models centring on the supply of digital goods and services (Bukht and Heeks, 2017). Digitally enabled innovations are radically changing the value proposition of the goods and services on offer from a variety of industries, with a disruptive effect on the economy as a whole. Examples of this are the reshaping of print media as people began to read on electronic devices, of the music and entertainment industry with the provision of on-demand multimedia services (streaming), and of the transport and accommodation industries by sharing economy models, to name some of the first industries to be impacted by the disruptive effects of innovative business models introduced by new actors who were digital natives.

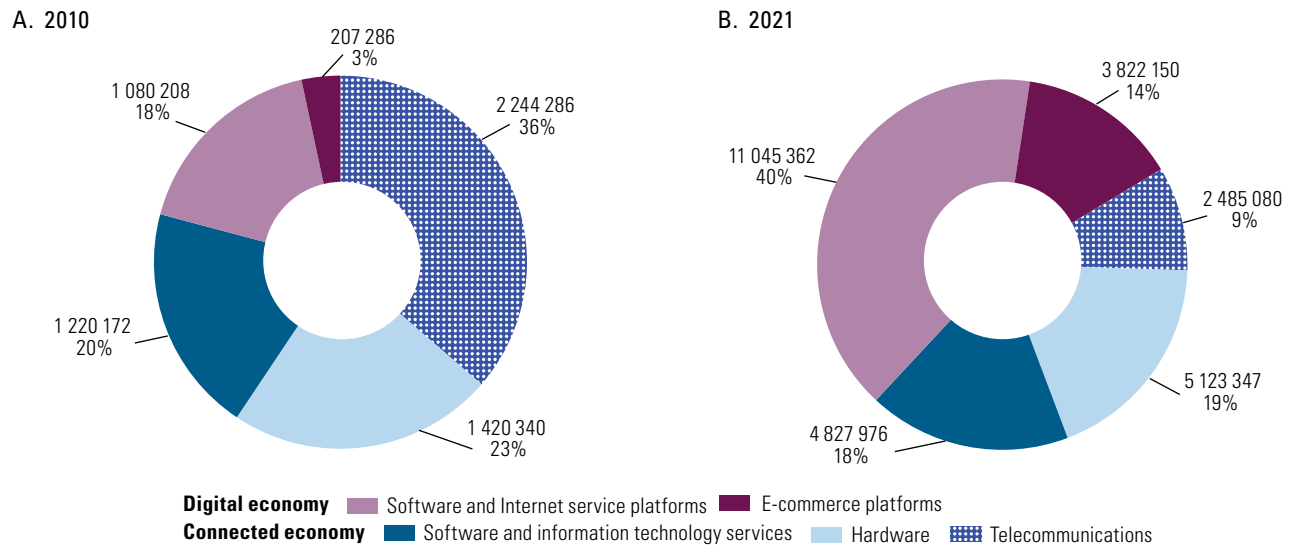
These new business models are now operating on digital platforms in numerous economic sectors, facilitating commercial transactions (Amazon, Alibaba, Mercado Libre), financial services (Ant Group, Avant, Mercado Pago, Nubank), communications and social networking (Facebook, Instagram, WhatsApp), tourism and accommodation (Despegar, Booking, Airbnb), application development (Apple iOS, Google Android), the matching of job offers and jobseekers (Laborum, LinkedIn, Workana, Freelancer), etc. Platforms make major contributions to the economy by matching up supply and demand in different markets, reducing transaction and intermediation costs through efficiency gains in asset utilization, and opening up new markets and business opportunities.

Over time, these models have been evolving and basing their value propositions not only on reduced intermediation and lower transaction costs, but also on the exploitation of information yielded by the data generated and shared on platforms. Thus, these digitally enabled business models facilitate the generation and capture of data that can be processed and analysed with smart tools and then used to improve decision-making and optimize business offerings by streamlining operating processes, segmenting markets and customizing and transforming products.

These forms of value creation have driven the dramatic growth of these new players in the digital ecosystem, a term that encompasses the connected and digital economy dimensions. As of March 2021, Internet companies (service and software platforms and e-commerce platforms) represented around 54% of the whole digital ecosystem in terms of market value, while companies in the "connected economy" accounted for 46% of the total, with most being in the hardware (19%) and software (18%) industries, segments that are led by Taiwan Semiconductor Manufacturing Company (TSMC) and Microsoft, respectively. Over time, companies in the telecommunications industry such as Verizon, AT&T, América Móvil and Telefónica have become less dominant, and

they now account for about 9% of the total value of the digital ecosystem. Comparing these values with those of 2010 reveals the transformation of this ecosystem, as at that time the connected economy accounted for 79% of the total value (including telecommunications with 36%, hardware with 23% and software with 20%), while Internet companies accounted for only 21% (see figure III.2).

Figure III.2
The connected economy and the digital economy: value of companies in each industry segment of the digital ecosystem and proportions of the total, by market capitalization, March 2010 and March 2021
(Millions of dollars and percentages)



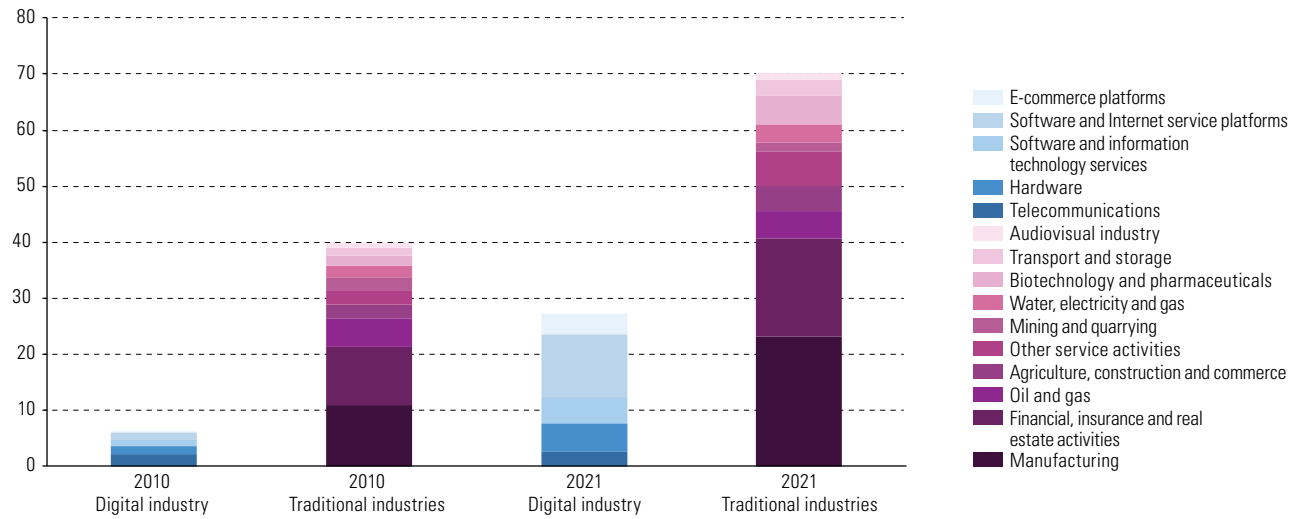
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Bloomberg data for the 5,000 companies with the highest market capitalization.
Note: The term "connected economy" refers to the core of the digital transformation, consisting in the implementation of broadband networks and mass Internet use. By "digital economy" is meant the use of global digital platforms as a business model.

Digital businesses are also revolutionizing traditional industries by changing business models that have been stable for decades. Technologies such as the Internet of Things, big data analytics and artificial intelligence are being widely adopted across economic sectors, driving the shift towards a digitalized economy. In this dimension of digital development, a wide range of economic sectors are expected to use information, intelligent decision-making systems and smart robots as competitive advantages to generate productivity improvements, with potential as well to optimize the environmental sustainability of production processes.

There is also an ongoing process of transformation in which digitalization goes beyond the optimization of existing production and management processes. In this dimension, products and services are being reconfigured and transformed (e.g., products as a service), as are business and production models, via the adoption of smart digital technologies, including automation and robotics. This is driving the resulting reconfiguration of value chains and the transformation of traditional markets and industries, leading to the rise of digital technologies in the automotive sector (autotech), the agricultural sector (agritech), the financial sector (fintech), etc.

The challenge for players in traditional industries is to incorporate digital technologies into their products, to develop digital services based on the use of data and to introduce intelligent systems into innovation, production, logistics and marketing processes. All this means exploiting developments that lie completely outside their core business but that have become pervasive in the economy. A comparison of the market value of companies in the different segments of the digital technology industry with that of companies in the main traditional industries shows the preponderance that the former is acquiring in the economy as a whole. By March 2021, the value of this industry was equivalent to just over one third of the value of traditional industries and represented 28% of the market value of the world's 5,000 largest companies (see figure III.3). This value has quadrupled in absolute terms since March 2010, when it represented 13% of the total.

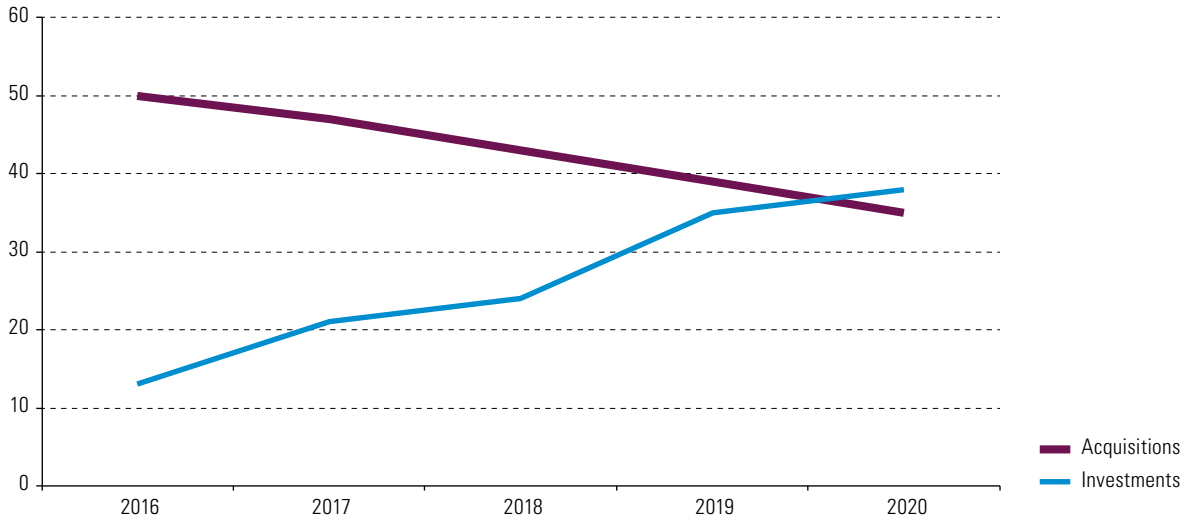
Figure III.3
Value of the digital technology industry in comparison with traditional industries, by segment, March 2010 and March 2021
(Trillions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Bloomberg data for the 5,000 companies with the highest market capitalization.
Note: The traditional sectors chosen are those that have historically had the highest market capitalizations.

In these circumstances, incumbents in traditional industries are turning to acquisitions and partnerships as a strategy for transformation and survival, even as digital companies expand their operations in traditional industries. Over the past five years, the technology giants (Amazon, Apple, Facebook, Google and Microsoft) have made a total of more than 200 acquisitions and over 100 investments, a pace that did not slow down with the COVID-19 crisis. Acquisitions have mainly targeted technology start-ups. In 2020, these companies focused on strengthening their artificial intelligence and virtual reality capabilities, among other areas such as entertainment and gaming. A shift in business strategy was also consolidated that year, with the number of investments exceeding the number of acquisitions (see figure III.4). Investments have targeted solutions for remote working, involving support for cloud, cybersecurity and productivity software providers, and for mobility and health-care players (CBInsights, 2021a).

Figure III.4
Annual acquisitions and investments by Amazon, Apple, Facebook, Google and Microsoft, 2016–2020
(Units)



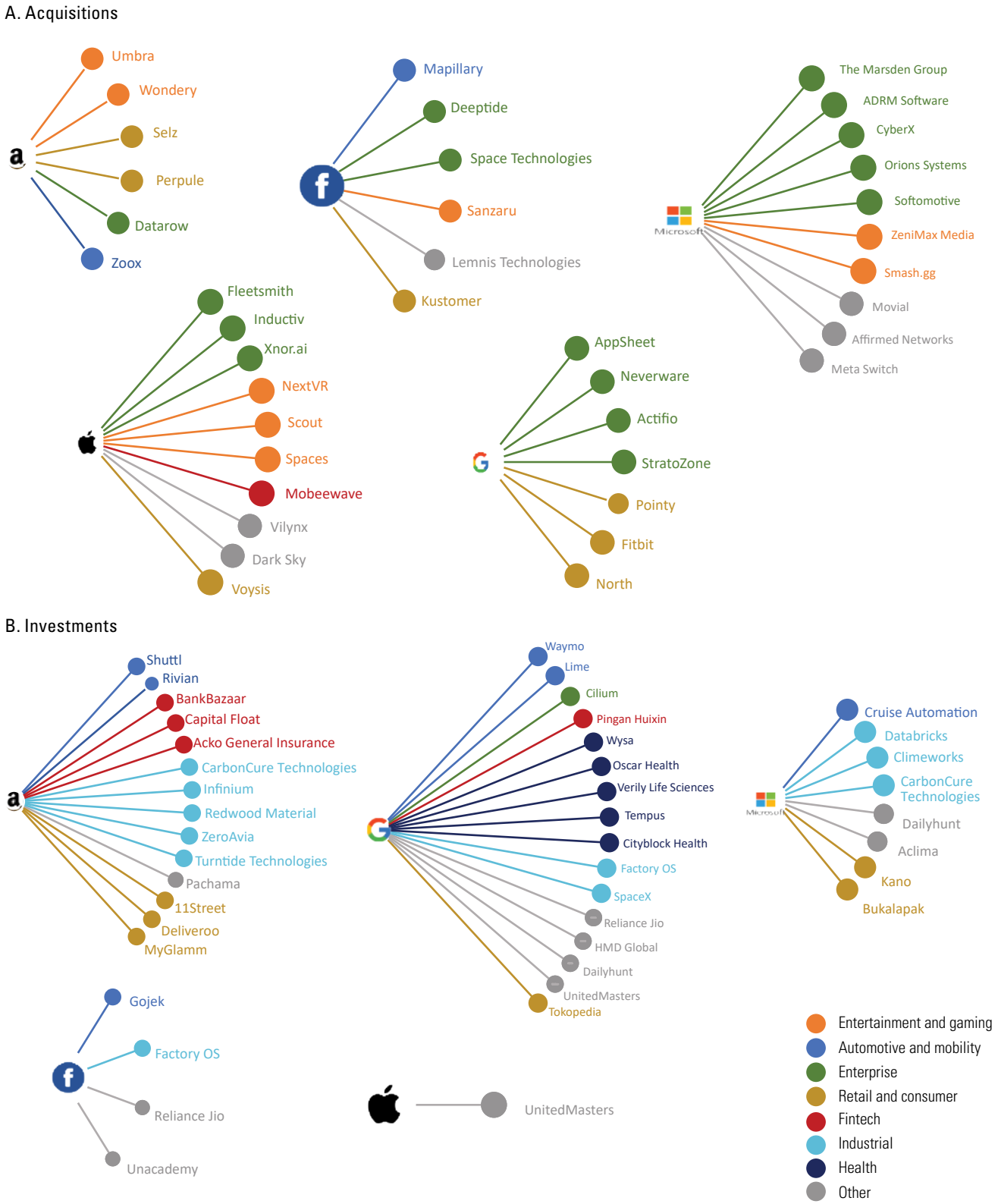
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of CB Insights, "The Big Tech Report: Investments, Acquisitions, & Key Themes", 5 May 2021 [online] https://www.cbinsights.com/research/report/big-tech-investments-acquisitions/.

In 2020 and the first quarter of 2021, Amazon, Facebook, Google and Microsoft all made major acquisitions worth more than US$ 1 billion apiece. These included Fitbit (acquired by Google for US$ 2.1 billion), Affirmed Networks (acquired by Microsoft for US$ 1.4 billion), Zoox (acquired by Amazon for US$ 1.3 billion) and Kustomer (acquired by Facebook for US$ 1 billion). As regards investments, the technology giants have implemented a strategy that allows them to enter new markets with technology adjacent to that of the core business, such as mobility (Microsoft), biopharmaceuticals (Google) and financial services (Amazon). Since the early 2020s, investment priorities have also included renewable energy and home automation technologies (Microsoft and Amazon), cloud security (Microsoft and Google) and health care (Google) (see diagram III.2).

In the automotive industry, for example, self-driving cars, vehicle connectivity, shared mobility and the digitalization of retail sales are presenting new challenges for the main traditional manufacturers. In this situation, technology companies such as Amazon, Apple, Facebook, Google and Microsoft are strengthening their capabilities, mainly in software development and cloud computing, in order to integrate their operating systems into cars, as well as investing in start-ups in the industry (CB Insights, 2021b).

Similarly, partnerships between technology giants and the largest vehicle manufacturers are proliferating. In early 2021, Apple and the Korean company Hyundai held negotiations to accelerate the production of the Apple Car. In parallel, Ford and Google entered into a strategic partnership to improve the connectivity of the former's vehicles. This follows on from a similar agreement between Toyota and Microsoft in 2019 and General Motors' acquisition of self-driving car start-up ServiceMax in 2016 (PYMNTS, 2021). Again, in September 2020 General Motors passed a milestone by becoming the first carmaker with more than 1 million subscribers to its Wi-Fi-enabled data services provided by AT&T (General Motors, 2020).

Diagram III.2
Acquisitions and investments by Amazon, Apple, Facebook, Google and Microsoft, January 2020–31 March 2021
(Units)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of CB Insights, "The Big Tech Report: Investments, Acquisitions, & Key Themes", 5 May 2021 [online] https://www.cbinsights.com/research/report/big-tech-investments-acquisitions/.

Another example is the pharmaceutical industry, where incumbents such as Merck and Roche are investing in artificial intelligence for health care,[3] with solutions ranging from computer vision in companion diagnostics to machine learning for drug research and development (CB Insights, 2020). Cases like these are being reported in the vast majority of industries.

The common underlying disruptive element in the transformation of consumption, business and production models is digital data. People, companies and organizations produce and consume data of all kinds, making these the source of value creation in the new paradigm, to the point where they have become a new type of asset that determines the importance of economic agents in the digital era. Current consumption and production models are increasingly intensive in data analytics and are supported by the proliferation of the Internet of Things, with smart devices and sensors of all kinds generating huge volumes of information that serve to reshape and reorient decision-making processes through the use of artificial intelligence in areas as diverse as urban transport, financial flows, risk models, medical diagnosis and treatment, manufacturing production processes, consumer and citizen behaviour, etc.

Data are seen by many analysts as the new oil, in the sense that they are today's source of wealth generation (*The Economist*, 2017). As will be seen in section C of this chapter, however, data have characteristics of their own that make them unlike any other input: they are reproducible and non-rivalrous, have marginal costs close to zero and evince increasing returns to scale (the more information is available, the greater the accuracy of predictive and learning algorithms). All this can affect competition. It also raises issues of privacy and security, and likewise of ethics in relation to the development of algorithms.

This raises challenges with regard to competition and tax policy, privacy and security, and equity of access to what is a key resource in the new economy. A debate is now beginning on regulatory aspects in these areas, and technology standards are being addressed, as are trade and intellectual property issues. In contrast to previous paradigms, dealing with these issues requires not just a national approach but international dialogue because of the transnational nature of the activities of digital platforms. In addition, since data are a vital source of competitive advantage, there are geopolitical considerations that add complexity to an already challenging situation and shape companies' investment strategies (see section C).

Changes in business and production models could also affect these corporate strategies. Indeed, digital technologies have given rise to new international ventures and business models that have allowed some firms to build a global presence without significant amounts of FDI, even though FDI continues to underpin the internationalization strategies of firms in traditional industries. In fact, it is estimated that digital transnational corporations make about 70% of their sales outside their home countries, while only 40% of their assets are located abroad (UNCTAD, 2017). Thus, the shift towards a digitalized economy has as yet brought no clear trends in FDI flows. Much the same is true of the merger and acquisition strategies that have predominated in the development of the digital economy. Thus, digital transnational corporations are having less of a visible impact on host countries when it comes to physical investment and job creation.

Another key element in corporate strategies is the increasingly important role of digital infrastructure in supporting digital development. Indeed, the ability of countries to provide adequate digital infrastructure for the operation of digitally enabled international production networks could become a new key determinant of transnational firms' location decisions (Gestrin and Staudt, 2018). In view of this, the implementation of fifth generation (5G) mobile networks is particularly important, both for attracting investment in the telecommunications sector and for promoting investment and digitalization in the rest of the production fabric.

[3] See section C of this chapter for details of the Machine Learning Ledger Orchestration for Drug Discovery (MELLODDY) project.

B. Digitalization and corporate strategies

1. The digital transformation and its effects on industrial organization

From their origins until the mid-1990s, the industrial organization of the telecommunications, media and cultural products sectors comprised a series of parallel value chains that operated independently. Each of them included operators performing specific functions such as transport or the provision of network equipment or access devices. The value chains that shaped the structure of each of the sectors existed in watertight compartments with little scope for interrelation between them.

Furthermore, many of the companies operating in each value chain were vertically integrated. This was the case with telecommunications operators, which did everything from building and operating networks to developing products and delivering them to users. In content distribution, on the other hand, to take video products as an example, there were companies that produced, packaged and distributed programmes and others that specialized in specific segments: studios produced programmes, television channels packaged content to appeal to a specific audience, and cable television operators distributed it.

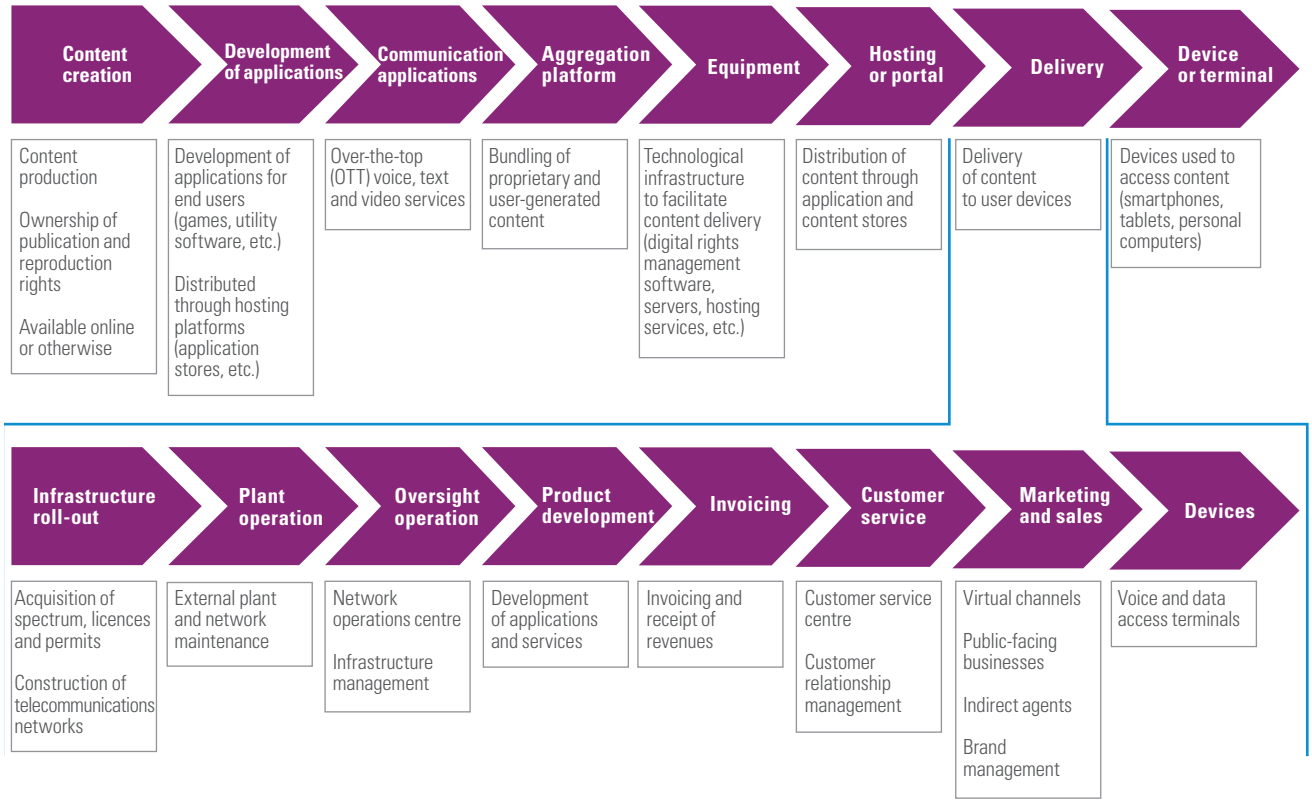
In that period, crossover between value chains, such as when cable operators sought to enter the telecommunications business or telephone companies tried to diversify into content distribution, was rare and seldom resulted in business success. Both the information sector and the telecommunications sector recognized that there was a business opportunity associated with diversification into adjacent value chains, but they could not find the technology platforms that would enable them to do this.

Wholesale digitalization of content and distribution platforms, the expansion of broadband Internet and the development of multifunctional devices facilitated the convergence of value chains, leading to a radical change in industrial organization. The original segmentation between information distribution and connectivity disappeared and the production chains of the media, telecommunications and cultural products industries began to integrate, generating a unique structure of complex and profound interdependencies. This dynamic was accompanied by an intense wave of mergers and acquisitions.

In this new set of interrelationships, distribution and connectivity are no longer independent production chains, but have become the inputs that allow the different components to relate to one another and reach the end user. Thus, while the components of the digital ecosystem mentioned above are still present, the contribution of each has changed (see diagram III.3).

Similarly, new components began to emerge in the renewed organization of industry. For example, developers of digital applications (a function that did not exist in the previous production chain) create new value propositions that involve matching supply and demand for specific products, as when purchasing airline tickets, swapping rooms in private homes and finding job opportunities. These functions did exist before, but did not operate as efficiently as they do now with digital applications and platforms (see box III.1).

Diagram III.3
The value chain of digital content and services



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of R. Katz, *El ecosistema y la economía digital en América Latina*, Santiago, Fundación Telefónica/Editorial Ariel/Economic Commission for Latin America and the Caribbean (ECLAC), 2015.

Box III.1
What are digital platforms?

A digital platform is a technology-enabled business model that creates value by facilitating exchanges between two or more interdependent groups.[a] It usually connects users to producers, facilitates transactions and allows firms to share information to increase collaboration or innovation in products or services. Platforms are built on a shared and interoperable infrastructure, fuelled by data and characterized by multistakeholder interactions. The main attributes that characterize digital platforms and differentiate them from other technological systems are:

- Interdependence: most digital platforms affiliate specific groups of users and offer them the ability to interact and transact with different, likewise affiliated groups.
- Network effects: the value of use of a platform depends directly on the number of users it has in its different categories. This refers to the effect a new user of a good or service has on the value of that good or service for other existing or potential users.
- Economies of scale and scope of data: as the number of users increases, larger amounts of personal and non-personal data of great potential value can be collected. Through analytical tools, data can be used to better meet consumer preferences, optimize business processes, reduce costs and identify market trends and new opportunities.
- Technology convergence: the convergence of multiple technologies is making it possible to create a new economy of dynamic, demand-driven and personalized services. New technologies are having equally large effects on the cost of provision, levels of investment and time to market.
- Interoperability and multi-connection: companies using a given platform for a certain purpose are able to use other platforms for the same purpose simultaneously and at no additional cost.
- Risk control and management: operators use self-regulatory strategies based on codes of conduct, user feedback, prior checking of provider credentials, dispute resolution protocols, assurance systems and content blocking or filtering, among others.

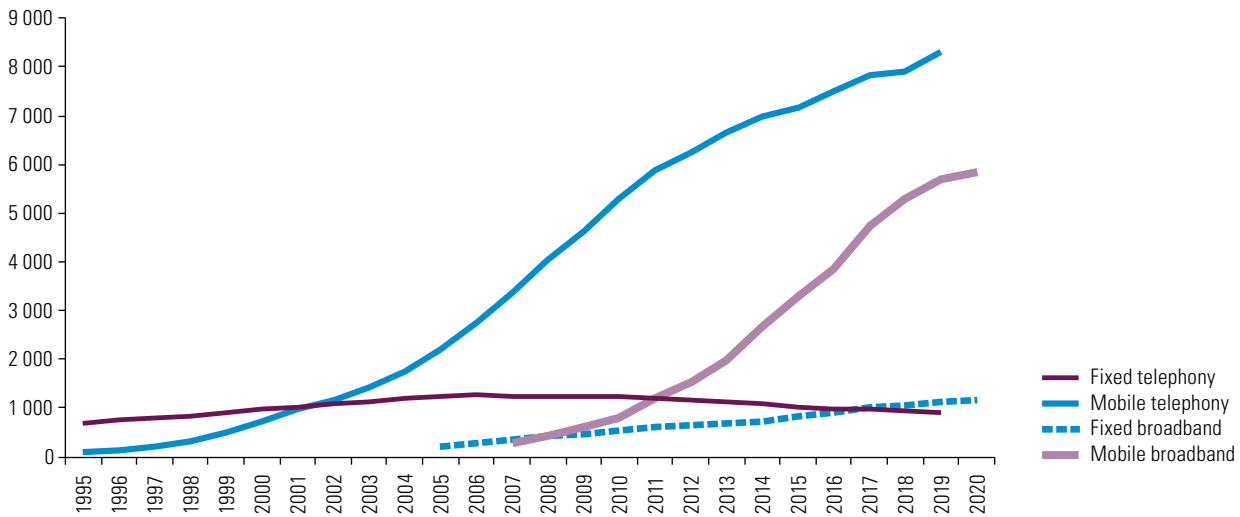
Source: Economic Commission for Latin America and the Caribbean (ECLAC).
[a] ECLAC, *Data, Algorithms and Policies: Redefining the Digital World* (LC/CMSI.6/4), Santiago.

(a) The connected economy: incumbent operators exposed to disruptive change

During the 1990s, the telecommunications industry underwent major changes spurred by technological innovation, increased competition and the international expansion of the major telephony operators. With the rapid emergence of the Internet and the development of mobile services, the sector experienced an unprecedented boom. In the early 2000s, however, the vast majority of information and communications technology (ICT) players were affected by an abrupt reversal of the industry's heavy overvaluation. From then on, the transformation process in the telecommunications sector began to intensify. Technological changes and the development of new services reshaped the core of the telecommunications operators' business, with a new orientation towards emerging high value added services requiring large investments in new network technologies.

With the removal of traditional industry boundaries, incumbent operators began to see a decline in revenues owing to the obsolescence of some important services in their business model, such as fixed telephony, and the emergence of new players and disruptive applications. However, this dynamic was partially offset by the performance of wireless services and data traffic (see figure III.5). In this situation, operators sought to generate additional revenues by diversifying more rapidly, mainly into audio and video distribution, and both incumbent operators and alternative companies started to design innovative marketing strategies, with the bundling of voice, data and video services playing a prominent role. As the convergence process accelerated, the general dominance of incumbent operators began to be challenged by the rise of other players from similar business lines. First it was the cable television operators and then the major providers of Internet-based content and applications, leading to a powerful wave of mergers and acquisitions aimed at adding technological value to the services and applications offered.

Figure III.5
Telecommunications service subscribers worldwide, by segment, 1995–2020
(Millions)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the International Telecommunication Union (ITU).

Faced with increasingly sophisticated market demands, however, operators came up against the limitations that were beginning to manifest themselves in the available infrastructure. Despite uncertainty about the potential to make investments pay, there was a rapid roll-out of new fibre optic networks for fixed platforms and especially for advanced mobile communications: third and fourth generation mobile, 3G and 4G, respectively. The operators' gamble paid off, as the market responded favourably to new applications for bundled services and high-speed data traffic, especially mobile. This transformation was accelerated by far-reaching changes in consumer behaviour, exponential growth in the use of smartphones, tablets and other devices, and more recently by a large volume of video streaming over wireless networks and mobile applications of all kinds.

At the same time, digital platforms implemented strategies that allowed them to expand their field of action by entering segments dominated by traditional telecommunications and audiovisual media operators. Thus, platforms became direct competitors thanks to the development of Voice over Internet Protocol (VoIP) and text messaging, with Skype[4] becoming the leader for long-distance calling and Messenger and WhatsApp[5] for text messaging. In addition, regulatory changes forcing incumbent operators to open up their networks to competitors altered the competitive environment and strained companies' profitability. In particular, they fostered competition between operators and generated downward pressure on service prices.

Today, while network connectivity is a critical piece of the value chain emerging around the Internet of Things,[6] most of the value continues to accrue at other links in the chain, with applications directly connected to customers. Accordingly, companies positioned at the edges of the Internet of Things value chain are attracting large amounts of capital investment, which will continue to drive further growth and severe disruption for telecommunications operators.

In a context where the level of uncertainty surrounding the telecommunications industry is increasing, incumbent operators have had to learn to embrace disruption and reinvent their network service capabilities to drive growth again. In this context, fifth generation (5G) mobile is beginning to be seen as a major opportunity to address these challenges (see box III.2).

In 2020, 4G became the dominant mobile technology worldwide with more than 4 billion connections, representing 54% of the total. 4G connections will continue to grow over the next few years and are expected to peak at just under 60% of global connections by 2023 (GMSA, 2020a) (see figure III.6).

4 In 2011, Microsoft acquired Skype for US$ 8.5 billion.

5 In 2014, Facebook acquired WhatsApp for US$ 21.8 billion.

6 The Internet of Things value chain usually starts in the physical world. Sensors or actuators can be implanted to collect information from the physical world and digitalize it for further processing. Implementing such systems requires a network capable of handling the volume of information to be processed and transmitting it to the cloud quickly and efficiently. The information generated is sent to a platform that processes it so as to create fully automated behaviour patterns. In this way, the system can make decisions autonomously on the basis of the experience built up over the iterations of the process. The key to machine learning is to create models for solving problems that can only be solved with the help of advanced computer systems.

Box III.2
5G: the new technology frontier that will make the Internet of Things viable

Fifth generation (5G) mobile is a complete system of mobile (or fixed, depending on the application) wireless communications that delivers enhanced mobile broadband (eMBB), ultrareliable low latency communications (URLLC) and massive machine type communications (mMTC) and brings a step change in performance: edge computing, network segmentation, ultra-availability, low delays and other enhancements. This technology is an enabler of other technologies such as the Internet of Things, mainly in automated and controlled industries (health care, assisted and self-driving cars, smart cities) and in general in all critical applications that require low delay, high reliability, high bandwidth and segmented service quality.

5G enables the provision of high-speed data connections (in fixed connections it can replace fibre optics) with lower network infrastructure investment costs. As a wireless technology, it does not have the sunk operating costs of a fixed network and can provide coverage from base stations, substantially reducing the initial investment.

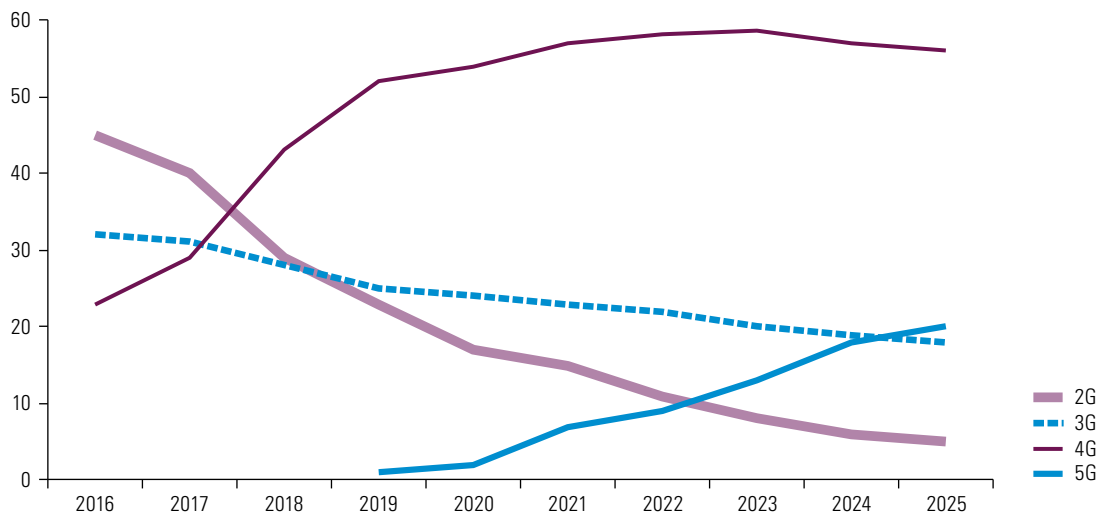
It should be mentioned that 4G-LTE currently meets many advanced requirements such as high speeds and support for massive non-critical applications of the Internet of Things, allowing operators to move more gradually to 5G. Operators can focus on advanced broadband provision by implementing 5G networks supported by 4G infrastructure, or go straight to a 5G network to harness the full benefits of this technology.

With regard to this, the Internet of Things has requirements that are met by 5G but that earlier technologies are wholly or partially unable to cater to:

- High data transport speeds (over 1 GB/s) in a single band.
- Delays of less than 1 millisecond and ultrareliability to support critical applications: telemedicine, control of precise and fast-responding industrial processes, autonomous vehicles, etc.
- Edge computing, while not unique to 5G, offers the advantages of very low delays, large numbers of high-speed connected devices, greater data security for customers and less network traffic.
- Support for a large number of devices from the same base station.
- Provision of services using end-to-end network segmentation with different applications, or different quality requirements, using network segmentation at different layers.
- The ability to install private networks as required in enterprises, critical services, etc.

Source: Economic Commission for Latin America and the Caribbean (ECLAC).

Figure III.6
Global market shares of mobile telecommunications technologies, by generation, 2016–2025
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from GMSA.

By April 2021, 435 operators in 133 countries were investing in 5G, including trials, licence acquisition, planning, network deployment and launches. Of these, 162 operators in 68 countries had launched one or more commercial 5G services (GSA, 2021). These operators collectively represent more than 40% of the global mobile subscriber base (GSMA Intelligence, 2020). In addition, more than 700 5G devices had been announced, including 351 smartphone models, of which 431 were commercially available (GSA, 2021). By 2025, 5G will account for 20% of global connections, with particularly strong take-up in developed countries of Asia, North America and Europe. To support this generational shift and further drive consumer engagement, operators are expected to invest around US$ 1.1 trillion globally between 2020 and 2025 in mobile technologies, with approximately 80% being in 5G networks (GSMA, 2020a).

5G is now approaching a critical mass of deployments and commercial network subscribers worldwide, suggesting a rapid upward adoption curve for the technology in the coming years. In December 2020, the 5G subscriber growth rate was three times that of 4G LTE, which took five years to reach the same level of users. In the second year of commercially available 5G technology, the industry went from 15.4 million to 401 million subscribers (5G Americas, 2021).

Despite some financial headwinds, the outlook for total global mobile revenues remains stable. Following a stabilization of pricing trends, especially in Europe and India, and continued strong income growth in emerging markets, total mobile revenues reached US$ 1.03 trillion in 2019 (GSMA, 2020a). Revenues will steadily increase by around 1% per year until 2025, largely owing to revenue growth in enterprise Internet of Things segments and new 5G services.[7]

Over the past decades, the telecommunications industry has shown its dynamism and ability to adapt to new technologies and changing user needs. Although 5G is seen as the industry's next big challenge, the COVID-19 pandemic has introduced issues and unknowns that require immediate attention. Almost instantaneously, video calls replaced many face-to-face interactions, a substantial portion of the workforce adopted home-based teleworking, children traded the classroom for virtual meeting rooms, commerce turned to online sales channels, and telemedicine became an option for health-care provision. This has not only put pressure on the traffic capacity of networks, but has created demands to address the digital divide. Thus, as virtual channels become more prevalent, telecommunications companies must offer good coverage and high-quality connectivity while modifying business models to reflect the difficult global economic situation even as they implement 5G.

(b) The digital economy: the emergence of the new global leaders

The dynamics characterized by the creation of digital goods and services and online business models based on global platforms have allowed the digital economy to consolidate in less than 20 years. These data-intensive models have been spreading rapidly, to the point where their main exponents have positioned themselves beyond the digital industry. Today, the large digital platforms have become the world's most valuable companies by market capitalization (see table III.1).

[7] The convergence of networks, storage and processing power has enabled the Internet of Things to flourish, with business models for goods delivery and service provision, in everything from books to transport management, facing the prospect of disruption because of the convergence of wireless connectivity, hardware, software and cloud services, data analytics and artificial intelligence. The Internet of Things will be an integral part of the technological shift towards 5G. Between 2019 and 2025, the number of global Internet of Things connections will more than double to nearly 25 billion, while global Internet of Things revenues will triple to US$ 1.1 trillion (GSMA, 2020a).

Table III.1
The 10 largest companies in the world by market capitalization, 31 March 2000, 2009 and 2021
(Billions of dollars)

2000				2009				2021			
Company	Country	Sector	Value	Company	Country	Sector	Value	Company	Country	Sector	Value
Microsoft	United States	Technology	588	Exxon Mobil	United States	Oil	337	Apple Inc	United States	Technology	2 050
General Electric	United States	Holding	475	PetroChina	China	Oil	287	Microsoft	United States	Technology	1 778
NTT DoCoMo	Japan	Telecommunications	366	Wal-Mart Stores Inc.	United States	Retail	204	Amazon Inc.	United States	Technology	1 558
Cisco Systems	United States	Technology	349	ICBC Ltd.	China	Finance	188	Alphabet Inc.	United States	Technology	1 395
Wal-Mart Stores Inc.	United States	Retail	286	China Mobile Ltd.	China	Telecommunications	175	Facebook Inc.	United States	Technology	839
Intel Corporation	United States	Technology	277	Microsoft	United States	Technology	163	Tencent	China	Technology	767
NTT	Japan	Telecommunications	275	AT&T Inc.	United States	Telecommunications	149	Tesla Inc.	United States	Automotive	641
Exxon Mobil	United States	Oil	266	Johnson & Johnson	United States	Pharmaceuticals	145	Alibaba Group	China	Technology	615
Lucent Technologies	United States	Telecommunications	238	Royal Dutch Shell	Netherlands	Oil	139	TSMC	Taiwan Province of China	Technology	613
Deutsche Telekom	Germany	Telecommunications	210	Procter & Gamble Co.	United States	Consumer goods	138	Berkshire Hathaway	United States	Finance	590

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Financial Times, FT Global 500; and PwC, Global Top 100 companies.

This leadership position, derived from the growth of the original core business (hardware, software, advertising and digital goods and services), has allowed firms in this sector to diversify and expand, on the basis of their technical expertise, into other areas such as communications infrastructure, cloud computing, financial activities, retail and services such as those related to health care, thus permeating different sectors of the traditional economy. Digital platforms are now present in numerous economic sectors.[8] This universe is dominated by firms from the United States and China (see table III.1).

Digital platforms make major contributions to the economy by creating new matches between supply and demand for goods or services in different markets, helping to increase efficiency in the use of assets, and providing companies, including micro, small and medium-sized enterprises (MSMEs), with business and productivity-enhancing opportunities. They are also major sources of innovation. In fact, nine digital platforms originating in the United States were awarded 11,585 patents in 2014 (Evans and Gawer, 2016). As mentioned above, by introducing new products, services and business models, they have become a factor for disruption in sectors as diverse as transport, accommodation, banking, education and media.

At the same time, it is important to bear in mind that digital platforms also present some problematic aspects, mainly related to data concentration (to be discussed in section C of this chapter) and the emergence of new employment-related demands and disputes. In fact, the flexibility of the working relationships generated by digital enterprises is often associated with difficulties in securing social protection and trade union rights for workers and in formalizing employment.

[8] Amazon, Alibaba, eBay, Taobao and Rakuten facilitate transactions between e-commerce buyers and sellers; Airbnb connects homeowners with renters; Uber connects drivers with passengers for urban travel; Facebook links users with one another and with advertisers; Apple's iOS connects application developers with their users; Google's Android connects device manufacturers, application developers and users; Sony's PlayStation and Microsoft's Xbox consoles facilitate interactions between game developers and users; American Express, Paypal and Square connect merchants with consumers for electronic payments; Ticketmaster links event venues with consumers; Kickstarter connects entrepreneurs with funders; and Upwork connects freelancers with clients.

(c) The digitalized economy: the quest for digital assets in traditional industries

As reiterated above, the changes driven by digital technologies have had a profound impact on the global business landscape. Besides the direct consequences for the importance of the connected economy and the digital economy, digital technologies are transforming business models, the competition dynamics of firms, investment decisions and value chains in traditional industries, giving rise to what has been called the "digitalized economy". These technologies are increasing the efficiency of production processes and optimizing decision-making by making it easier to identify new areas of business and by dynamizing the relationship with consumers.

The digitalization of traditional sectors is producing major changes right along value chains. Indeed, digital technologies and the digitalization of knowledge are reconfiguring the role of distance in production networks and making it possible to generate and distribute knowledge on a global scale (Castellani, Jiménez and Zanfei, 2013; Castellani, Rullani and Zanfei, 2017), with the following changes occurring:

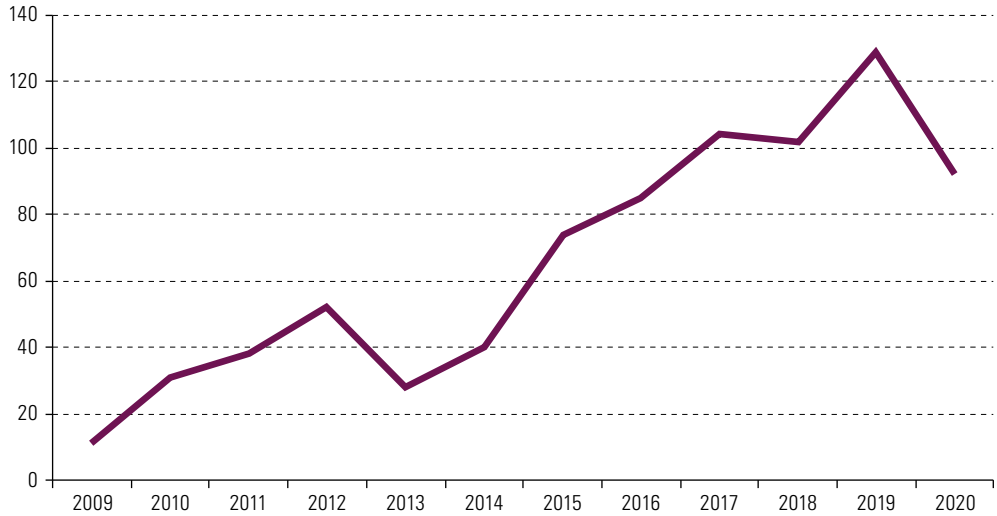
- The codification of knowledge and the centrality of data in decision-making are reducing the competitive advantages associated with the fragmentation of production processes and favouring the concentration of knowledge-intensive activities around major technology hubs and in markets with high-quality digital infrastructure.
- Activities along the chain are not becoming less important, but their role is changing. A manufacturing company can codify the knowledge involved in producing a product and transfer it digitally to a smart plant in the target market. Thus, the specificities of local markets become critical, as they can yield a competitive advantage.

These dynamics can profoundly change companies' cross-border investment decisions. In fact, as the digitalization of processes and production chains advances, the need for companies to have a physical presence to meet the requirements of consumers is diminishing, and thus FDI is becoming less important as an instrument for entering new markets (Eden, 2016; UNCTAD, 2017). At the same time, as the incorporation of digital technologies and services into key stages of production processes advances, the need to invest in digital companies and assets will increase (Bughin, Catlin and LaBerge, 2019).

Mergers and acquisitions in the digital sector by the largest traditional firms are evidence of a major shift in their investment strategies. Between 2009 and 2019, the number of such operations increased greatly, from 10 to 129 (see figure III.7). The most dynamic sectors for the acquisition of digital assets were manufacturing sectors such as consumer goods, the automotive sector, food and beverages, and aerospace (see figure III.8).

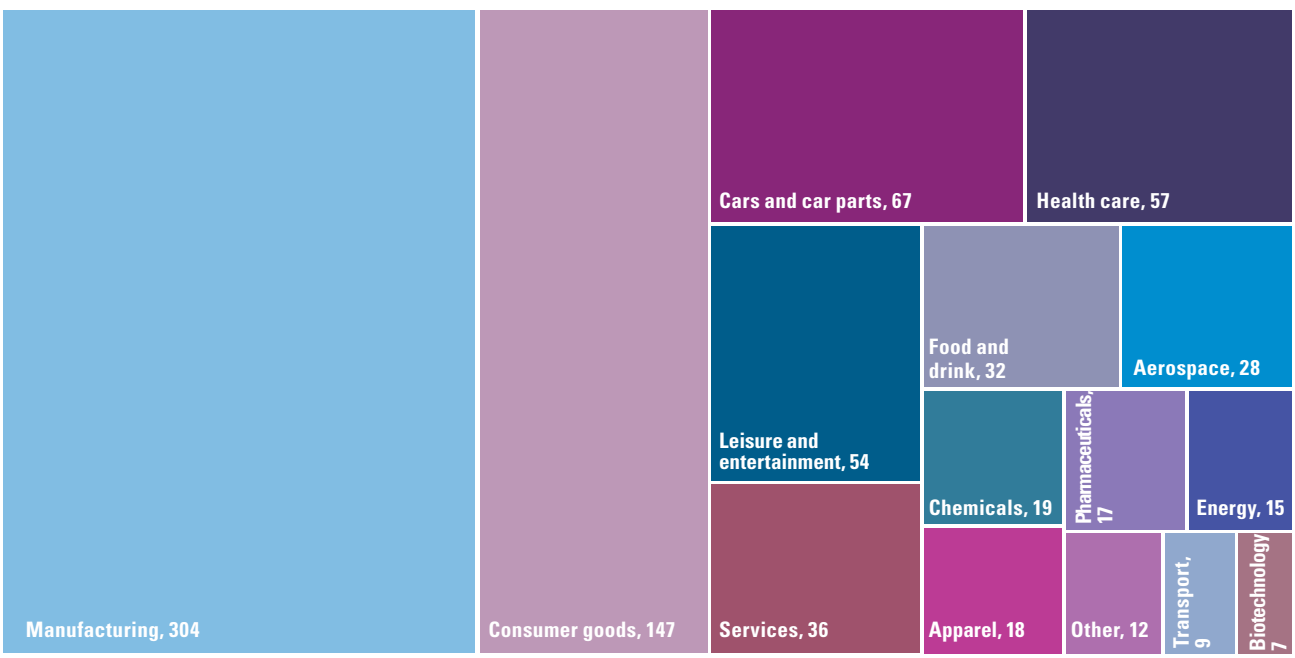
This increase in investment in the digital economy by non-digital firms confirms the trend towards digitalization in the traditional economy and, considering the speed of technological change, could translate into an investment dynamic different from that observed to date. The need for firms in traditional sectors to increase their in-house digital assets and capabilities could lead to a reconfiguration of the structure of global value chains and cross-border investment dynamics. Indeed, the purchase of digital assets is different in nature from the acquisition of non-digital assets. When a transnational corporation, for example, buys a digital platform or cloud services company, it can immediately provide access to it and allow it to be used by subsidiaries located in different markets around the world.

Figure III.7
Mergers and acquisitions in the digital sector by traditional firms ranked in the top 5,000 by market capitalization, 2009–2020
(Number of transactions)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from Bloomberg.

Figure III.8
Distribution of mergers and acquisitions in the digital sector by traditional firms ranked in the top 5,000 by market capitalization, by sector of acquiring firm, 2009–2020
(Percentages and number of transactions)

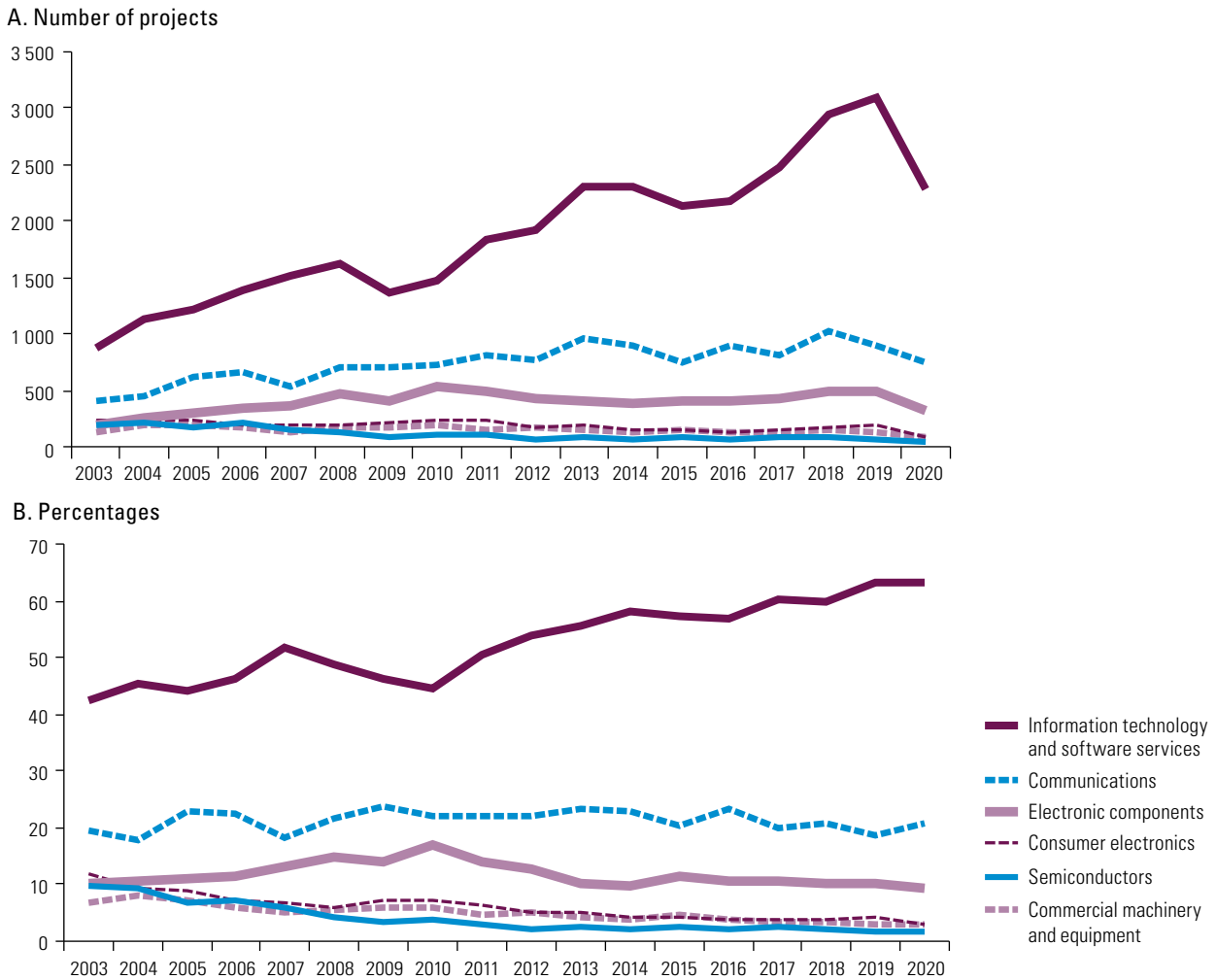


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from Bloomberg.

Cross-border investments in the digital economy through mergers and acquisitions have been heavily concentrated in developed economies. In fact, just 46 of the 822 transactions identified were by companies headquartered in developing countries, and in only 88 transactions was a developing country company the target of the acquisition. Accordingly, mergers and acquisitions involving digital assets are likely to continue to be concentrated in countries with greater digital capabilities and commercial opportunities.

However, an analysis confined to mergers and acquisitions could introduce a twofold bias regarding the characteristics of FDI as this relates to the digitalization of the economy. On the one hand, excluding technology- and knowledge-seeking investment projects could underestimate the pulling power of developed countries for digital investments. On the other, failing to include projects right along the value chain could underestimate the potential for capacity-building and capacity strengthening in emerging and developing economies.[9] In fact, investment projects in sectors linked to the digital economy and the connected economy represented 23% of the total between 2003 and 2020. Before the COVID-19 pandemic, the number of digital projects was showing a positive trend, peaking at 4,914 announced projects in 2018, as against 2,093 reported in 2003. In 2020, the number of project announcements decreased to 3,624. During the period under review, information technology and software services accounted for more than half of all projects (54%), followed by investments in communications (21%) and electronic components (11%) (see figure III.9).

Figure III.9
Digital technology-related foreign direct investment projects announced worldwide, by sector, 2003–2020
(Number of projects and percentages)

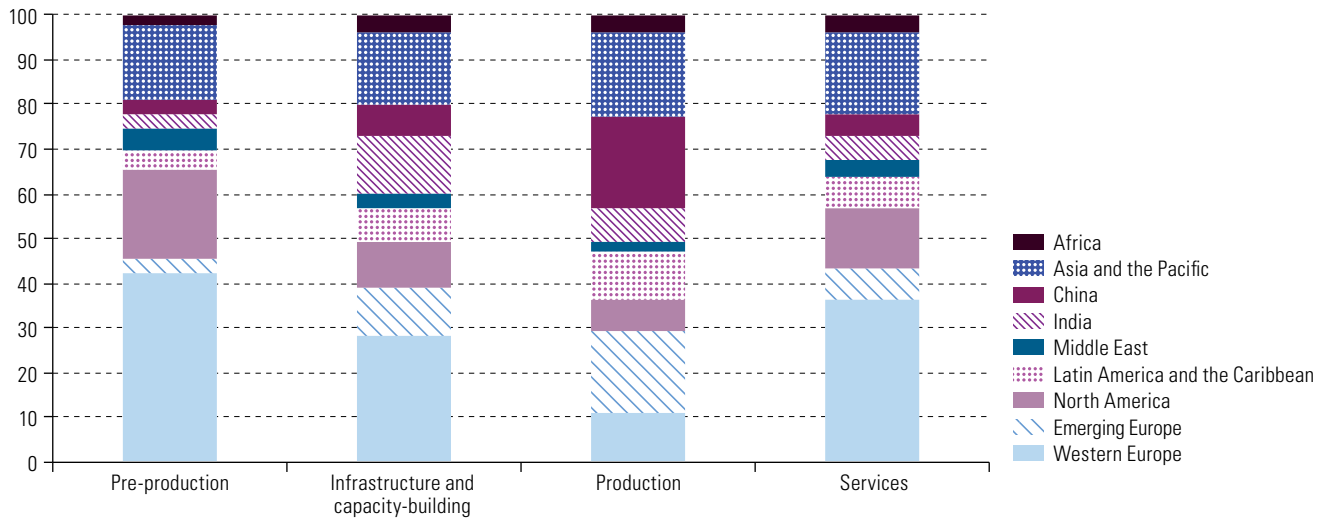


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from fDi Markets.

[9] Unfortunately, the data available at the project level do not identify the sector of the investing company, which makes it impossible to compare investment behaviour in digital technology-related sectors.

The geographical distribution of digital technology-related projects confirms the concentration of the digital economy in developed regions, particularly in Western Europe. That region is the destination for 33% of all projects, followed by Asia and the Pacific (18%), North America (12%) and Latin America and the Caribbean (7%). Along the value chain, the most developed countries attract the bulk of investment in pre-production activities (research and development and headquarters) and post-production services (logistics, retail, marketing, consumer services). Western Europe and North America receive 42% and 20% of pre-production projects, respectively, these being the most knowledge-intensive. On the other hand, developing countries receive the bulk of investments in infrastructure and skills-related projects, as well as in production activities, which are the most labour-intensive. In fact, 41% of global investments in production-related activities are concentrated in Asia (see figure III.10).

Figure III.10
Digital technology-related foreign direct investment projects announced in the different segments of the value chain, by destination region, 2003–2020
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from fDi Markets.

The dynamics of investment in the digitalized economy pose some challenges for industrial and inward investment policies. Globally, knowledge generation in the digital ecosystem is concentrated in countries with advanced digital capabilities. This would indicate that, in order to attract knowledge-intensive investment, there is a need to develop basic enabling conditions, such as digital infrastructure and technical capabilities. This being so, shortcomings in the development of the digital ecosystem and its enabling conditions are a potential limiting factor for efforts to develop capabilities in the connected economy and the digital economy and so reap the benefits of digitalization.

2. Latin America and the Caribbean in the face of global change

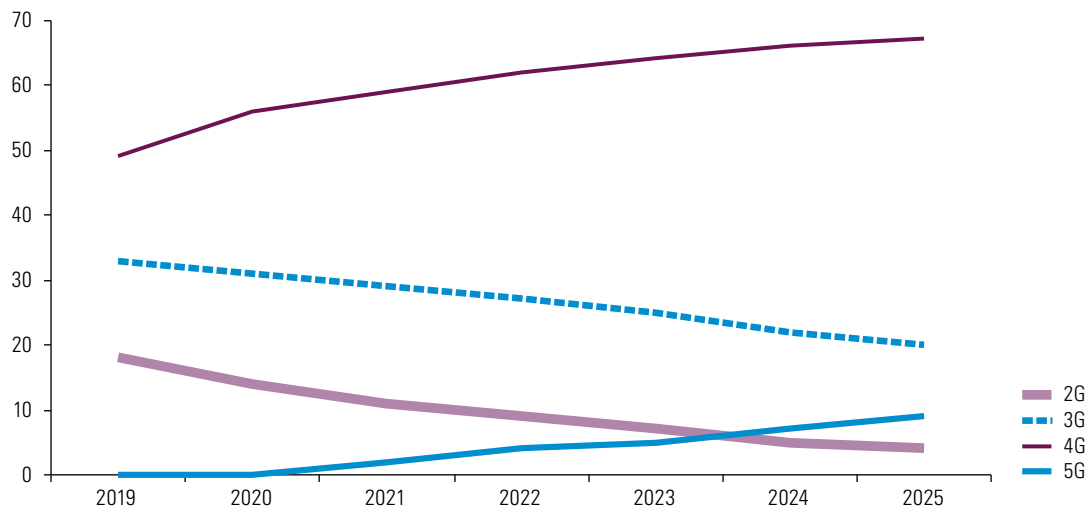
(a) Large companies face enormous challenges in strengthening the connected economy

In Latin America and the Caribbean, the main telecommunications operators have focused on expanding their customer base in order to scale up and increase synergies, mainly in the mobile telephony segment. As a result, the number of companies in the sector has shrunk considerably, with three large regional operators now dominant:

Telefónica (Movistar), América Móvil (Claro) and Millicom (Tigo). In this context, the fierce rivalry between these companies and the appearance of some alternative operators such as cable television companies and mobile virtual network operators (MVNOs) have made a significant contribution to increasing competition and introducing technological innovations in the areas of infrastructure, equipment, applications and marketing strategies.

In the region, as also, albeit to a lesser extent, in the advanced economies, there is uncertainty about the potential market for new advanced telecommunications services. However, as in other parts of the world, traditional business models are showing signs of exhaustion and operators have been forced to look for new sources of revenue. Under the pressure of competition, the leading operators, most of which are foreign, have opted to invest in convergent commercial offerings (telephony, video and Internet) and mobile data, developing the infrastructure necessary for this. This is the case, for example, with fibre optics on fixed platforms and 4G standards for advanced mobile communications. Investment peaked with the roll-out of mobile networks and then concentrated on following technological innovation cycles related especially to the development of advanced versions of 4G (LTE-A and LTE-A-Pro) and digital transformation. Currently, over 50% of total connections in the region are 4G, while 5G coverage could reach around 10% by 2025 (see figure III.11) (GMSA, 2020b). To achieve this, it is estimated that, despite the uncertainty caused by the COVID-19 pandemic, telecommunications operators could invest some US$ 99 billion in the development of network infrastructure in Latin America between 2019 and 2025 (GMSA, 2020b).

Figure III.11
Latin America: market share of mobile telecommunications technologies, by generation, 2019–2025
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from GMSA.

The months of the pandemic have seen unprecedented growth in data traffic, confronting telecommunications operators with the great challenge of facilitating the continuity of social and economic activities in the region. By late 2020, some 360 million people, or 57% of the Latin American population, were connected to the mobile Internet (GMSA, 2020b). However, although some 93% of the population have mobile broadband coverage available, substantial numbers of people are still unable to connect to this service. The situation has become more starkly evident with the pandemic, revealing the need to accelerate efforts to bridge the digital divide.

In the coming years, operators will probably concentrate on implementing upgraded versions of 4G technology, in order to prepare the way for 5G. The mobile communications industry is mature and consolidated, making it unlikely that new players will enter the market. Indeed, the trend appears to be towards greater concentration as some operators exit the market. Between 2019 and 2021, in fact, one of the two largest regional operators, Telefónica, announced that it was withdrawing from several Latin American markets and sold off some of its operations in Central America.[10] Scale is very important in this industry, so this process of consolidation around a few operators will not necessarily affect investment dynamics, particularly in the mobile segment. At the same time, some companies are implementing divestment strategies, particularly in certain physical infrastructure segments such as tower construction, to focus on their core competency as communications operators and on higher value added business segments with a view to taking advantage of opportunities that may open up through future investments, particularly in 5G technology, among other motives.

The first commercial 5G services in Latin America should be available in 2021. However, progress varies from country to country and depends not only on operators' plans but also on the availability of spectrum and domestic political and legal processes. In relation to the latter, legal certainty is vital, as is the quality of regulation and public policy. Nevertheless, there are two factors that could contribute to the proliferation of new commercial 5G networks in the region. The first is the increased availability of 5G-ready devices, especially for fixed wireless services. The second are government efforts to accelerate the launch of 5G networks, including spectrum allocation processes, 5G incubator projects, announcements of spectrum auctions and incentives for 5G trials (5G Americas, 2021). So far, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, Mexico, Peru and Uruguay have released spectrum in the 3.5 Gigahertz (GHz) range.[11]

Uruguay was the first country to start rolling out 5G network infrastructure, although this is still far from reaching end users, and it is very likely that the first applications will be for industrial use via fixed wireless access. Chile is the most advanced in this area, as it was the first to auction spectrum for 5G and has made more spectrum available for bidding (1,800 MHz) than any other South American country. In February 2021, the Chilean State raised US$ 453 million, a figure that far exceeds the US$ 74 million obtained in spectrum auctions in the country's entire history. The winning companies in this process (Movistar, Entel and WOM), which were awarded the 3.5 GHz band (50 MHz each), will be required to deliver high-speed mobile Internet to 366 locations and 199 hospitals (SUBTEL, 2021). Deployment of 5G networks will begin in Chile in May 2021, and the service should be operational in no more than three years, although 88% of regional capitals should be covered within 18 months. Brazil, meanwhile, is moving ahead with preparations for a spectrum auction in the second half of 2021 for the 3.5 GHz frequency bands, from which the government expects to raise some US$ 6.2 billion. In addition, companies will have to invest some US$ 14 billion over the next 20 years (Mari, 2021). The authorities expect all Brazilian state capitals to be 5G-enabled by mid-2022. Colombia and the Dominican Republic have also announced their intention to auction 5G network spectrum during 2021.

5G is the first communications network that is not meant for individual users, but mainly for businesses and the industrial sector. Thus, if the region is to follow the international trend, 5G technology should boost areas such as the Internet of Things.

[10] In 2019, Telefónica sold its operations in Panama and Nicaragua to Luxembourg-based operator Millicom and its Guatemala subsidiary to Mexico's América Móvil. In 2020, the Spanish operator transferred its Costa Rican assets to the United States company Liberty Latin America.

[11] 5G technology requires the low bands (below 1 GHz) and high bands (26, 28 and 40 GHz) of the spectrum, but mid-range frequencies are also a good alternative. The 3.3-3.8 GHz frequencies are already available in commercial networks, and more equipment is compatible with them. This frequency range is therefore expected to end up being the most common worldwide.

In this scenario, operators should explore new opportunities to increase their revenues by offering Internet of Things services for households, businesses and the public sector. Higher data transmission speeds should improve productivity in sectors that rely on massive machine-to-machine communications such as mining, logistics and manufacturing. These new options should help operators reverse the trend towards lower average revenue per user, which is also limiting their ability to invest. By 2025, it is estimated that the total number of Internet of Things connections in Latin America (1.3 billion) will represent 5% of global connections (GMSA, 2020c).

This changing situation poses new challenges for the regulatory framework. The perception among telecommunications operators is that regulation has not kept pace with the technology, new forms of competition or the entry of new players. This argues for the importance of analysing the obligations of the different market participants, looking in particular at the limitations on convergent service provision and the regulatory burden for services that may have close functional substitutes, such as text messaging and long-distance call services.

In fact, whereas telecommunications operators started out in a highly regulated environment, Internet companies have emerged in a context of limited restrictions. As a consequence, the relationship between these two groups of companies was initially uncooperative and to some extent adversarial. However, this relationship has changed and is evolving towards greater collaboration. There are now a number of projects being implemented jointly by these two groups of actors to speed up the adoption of digital technologies. In Latin America, for example, mention may be made of initiatives such as Internet for All, developed by Telefónica del Perú, Facebook, the Inter-American Development Bank (IDB) and the Development Bank of Latin America (CAF), or the Tannat undersea cable laid jointly by Google and the National Telecommunications Administration (ANTEL) of Uruguay.

Another regulatory barrier worth mentioning is inconsistency between the laws of the region's countries. This situation is generating high compliance costs for companies seeking to operate in different markets and also hindering integration initiatives such as the regional digital market.

(a) The digital economy in Latin America and the Caribbean

The importance of digital enterprises in Latin America and the Caribbean has increased significantly in recent years, and with the COVID-19 pandemic they have become crucial. One example of this dynamic has been the dramatic increase in the market value of the Argentine e-commerce company Mercado Libre (see figure III.12). By April 2021, Mercado Libre was the region's second-largest company by market value, behind the Brazilian mining company Vale but ahead of long-established companies such as Petrobras, Itaú and América Móvil.

With a potential market of 650 million people, including 387 million smartphone users, Latin America and the Caribbean has attracted the interest of the big global Internet companies. Today, the region has more Internet users than the United States, a GDP twice that of India and mobile device penetration of about 70%. These attributes have made the region the world's second fastest-growing mobile market, surpassed only by sub-Saharan Africa. However, it also faces some challenges such as low banking penetration, a situation that presents an attractive opportunity for the development of mobile financial applications. These opportunities are being taken advantage of by local start-ups or by the major international platforms. In recent years, the opportunities available for companies offering digital solutions have led many international platforms to enter regional markets, and start-ups are developing faster than ever before.

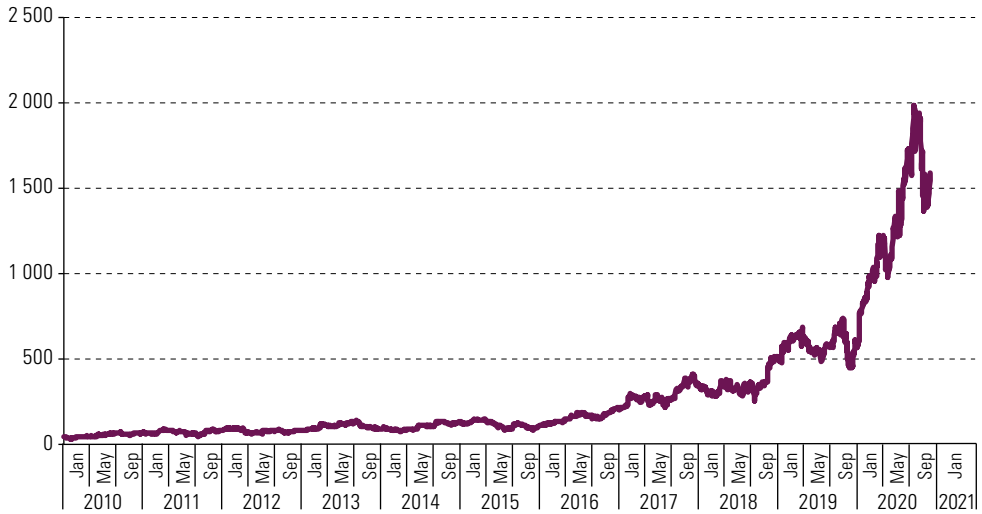
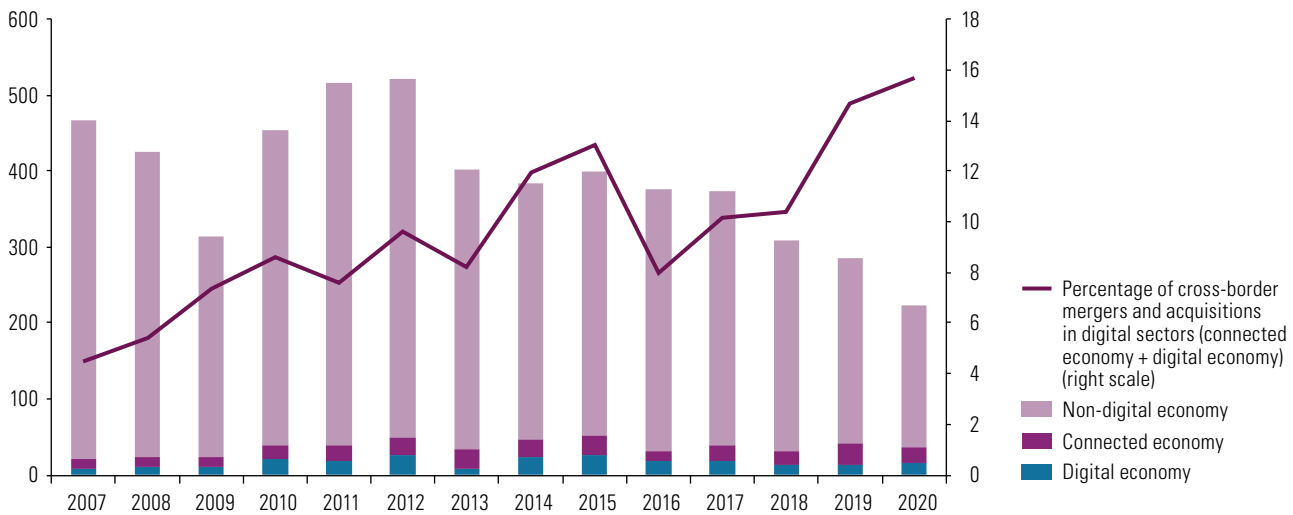


Figure III.12
Mercado Libre share price, January 2010–January 2021
(Dollars)

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Macrotrends [online] https://www.macrotrends.net/stocks/stock-screener.

This dynamic has led to an upsurge of investment in digital sectors (both the connected economy and the digital economy) in Latin America, particularly where mergers and acquisitions (M&As) are concerned. Between 2007 and 2020, the number of cross-border M&A transactions in digital sectors increased from 5% to 16% of the total. In value terms, however, these transactions are of less account, averaging 10% of the total for the period analysed. The importance of digital sectors in the total amount of cross-border M&As varies greatly from year to year, reflecting the weight of large operations associated with the telecommunications sector (see figure III.13).

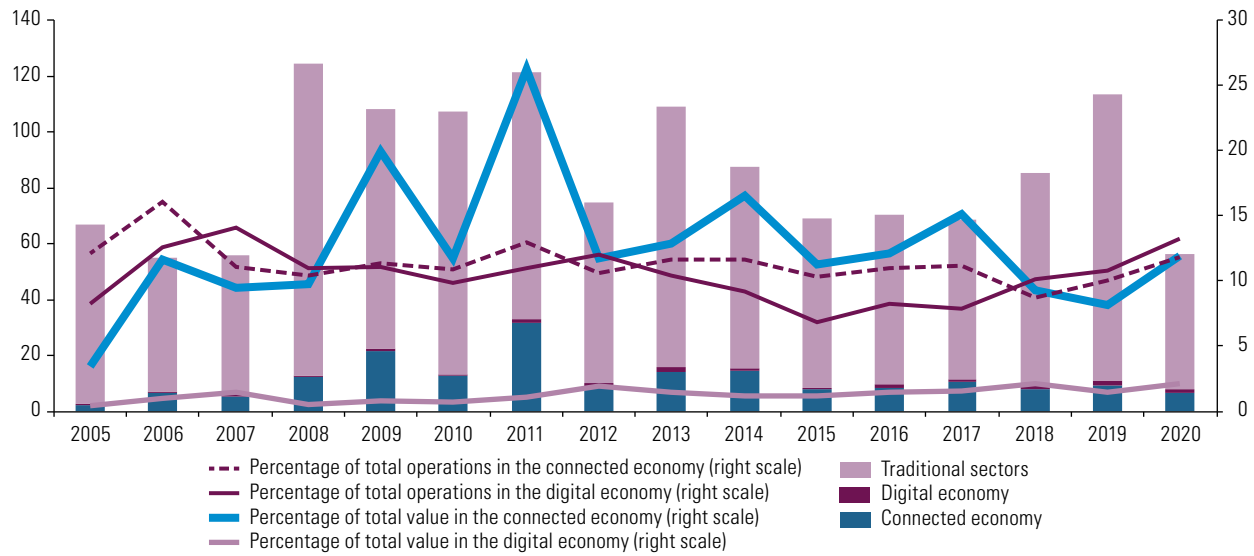
Figure III.13
Latin America: cross-border mergers and acquisitions, by sector of the acquired firm, 2007–2020
(Number of transactions and percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Bloomberg.
Note: The term "connected economy" refers to the core of the digital transformation, consisting in the implementation of broadband networks and mass Internet use. By "digital economy" is meant the use of global digital platforms as a business model.

On the other hand, announcements of new foreign investment projects have had a different dynamic, with the share of digital sectors holding steady in terms of both the value and the number of projects. In 2020, the connected economy (which includes telecommunications investments) and the digital economy registered similar number of operations, representing 12% and 13% of the total, respectively. In value terms, on the other hand, the connected economy accounted for 12% of all investment projects and the digital economy for only 2% (see figure III.14). These results clearly show the characteristics of investment in the digital economy. In fact, despite their growing importance in the domestic economies of the region's countries, transnational digital companies are making only fairly modest physical investments.

Figure III.14
Latin America: foreign direct investment projects announced, by sector, 2005–2020
(Billions of dollars and percentages of the total)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from fDi Markets.
Note: The term "connected economy" refers to the core of the digital transformation, consisting in the implementation of broadband networks and mass Internet use. By "digital economy" is meant the use of global digital platforms as a business model.

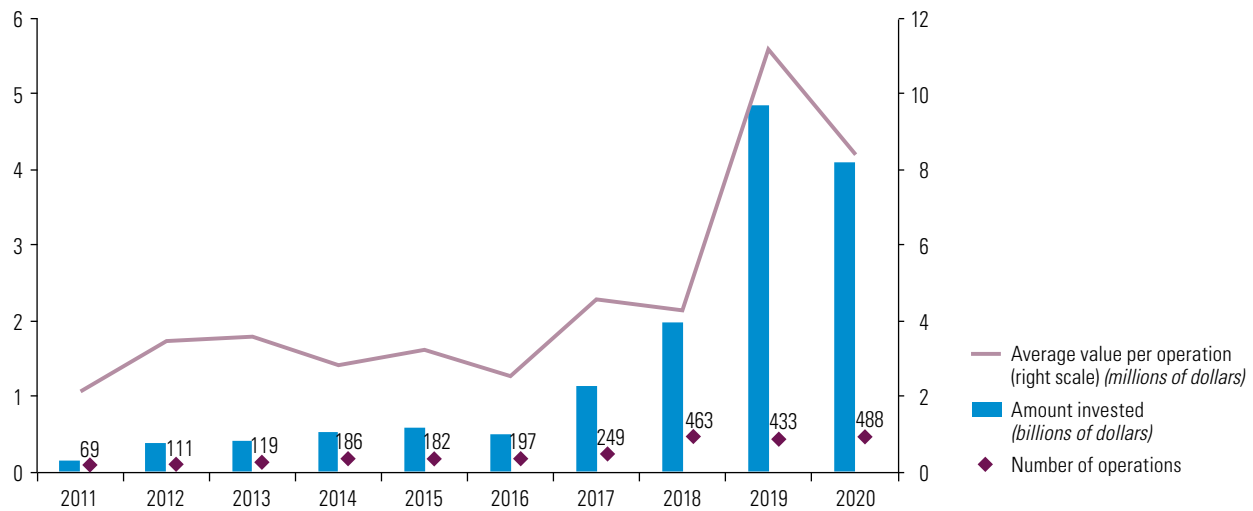
A striking new feature of the digital economy in the region is the growing importance of venture capital investment. In fact, because of the relative immaturity of the Latin American digital sector, investment in digital economy companies is not coming mainly through mergers and acquisitions, but often through venture capital.

There is general agreement on the contribution made by start-ups to a vigorous and healthy entrepreneurial environment. Broadly speaking, start-ups provide solutions to new and complex problems, introduce novel products and services, establish creative business models, generate new markets and, most especially, rejuvenate the business system and increase innovation skills. To generate innovative responses that impact the market, start-ups need access to finance. For new ventures that have a limited operational track record, venture capital financing is becoming an increasingly attractive, even essential alternative in the absence of access to traditional mechanisms.

In recent years, some major venture capital players have turned their attention to Latin America and the Caribbean. An interesting case is that of SoftBank, the Japanese telecommunications and Internet services company that created the largest technology fund in history focused exclusively on fast-growing regions. In 2019, SoftBank announced a US$ 5 billion investment in an innovation fund for Latin America. In addition to this investment of resources, SoftBank's interest in the region has sent a powerful signal to venture capitalists around the world (Lustig, 2020). By late 2020, SoftBank had invested more than US$ 2 billion in start-ups in the region, including: US$ 1 billion to accelerate the development of Rappi, a platform for intermediation between various types of users that originated in Colombia; US$ 300 million in Gympass, a Brazilian gym company; and US$ 318 million in Banco Inter, a Brazilian digital banking services operator. SoftBank also announced that the remaining US$ 3 billion of its Latin America fund would be focused on e-commerce, a sector that could see rapid growth in the region in the coming years (Latin America Reports, 2020).

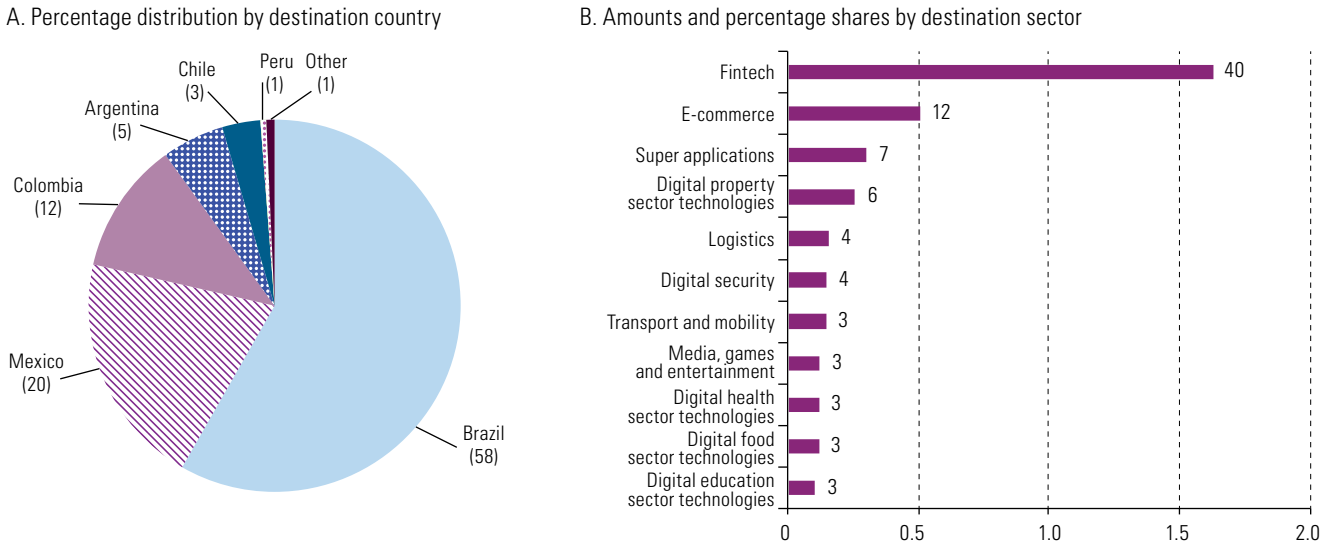
With the strengthening of start-ups and support institutions in the region, and with the arrival of key players like those mentioned, venture capital investments have increased rapidly. The amount of such investment more than doubled in Latin America between 2016 and 2019, and in 2020, despite the COVID-19 pandemic, it remained at a similar level to the previous year's (see figure III.15). In addition, the average value of venture capital transactions in the region has risen, which could be indicative of the increasing maturity of the sector. In 2020, Brazil captured 58% of venture capital investment (US$ 2.385 billion), followed by Mexico (US$ 831 million), Colombia (US$ 469 million), Argentina (US$ 222 million) and Chile (US$ 136 million). These resources were mainly focused on financial technology (fintech) (40%) and e-commerce (12%) (see figure III.16).

Figure III.15
Venture capital in Latin America: amounts allocated to technology investments, number of operations and average value per operation, 2011–2020
(Billions of dollars, millions of dollars and number of operations)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Association for Private Capital Investment in Latin America (LAVCA), *LAVCA's 2021 Review of Tech Investment in Latin America*, 2021 [online] https://lavca.org/industry-data/lavcas-2021-review-of-tech-investment-in-latin-america/.

Figure III.16
Latin America: venture capital invested, by destination country and sector, 2020
(Percentages and billions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Association for Private Capital Investment in Latin America (LAVCA), *LAVCA's Annual Review of Tech Investment in Latin America,* 2021 [online] https://lavca.org/industry-data/lavcas-2021-review-of-tech-investment-in-latin-america/.

(b) The digitalization of traditional firms

The digital transformation of traditional firms is advancing in Latin America and the Caribbean. Some of the most noteworthy features of this process will now be highlighted.

First, the technologies reported as being most widespread[12] are those that could be defined as mature, such as electronic messaging to interact with customers or suppliers, websites to promote a company's image and its products or services, contact with public support institutions, e-banking, e-commerce and social networks as a promotional or sales channel. In these areas, the results achieved by the countries of the region do not differ much from those recorded in the industrialized economies. The gaps between large and small enterprises are also relatively modest and comparable to those observed in the most advanced countries.

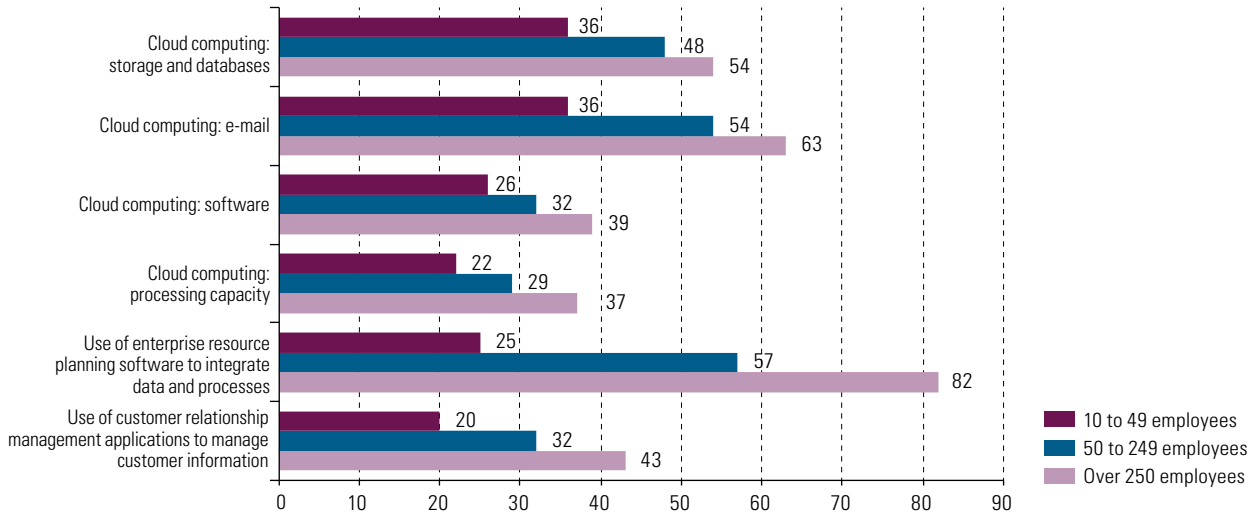
The picture changes dramatically when consideration is given to more complex ways of using these technologies, such as cloud computing, back-office systems, intranets or extranets, or technologies even closer to the frontier, such as big data management, 3D printing and robotics. For one thing, information is harder to come by[13] and to compare. However, the fragmentary documentation that does exist points to larger gaps between companies, to the detriment of smaller ones. In the case of Brazil, for example, there is a large gap between small and large firms in the use of advanced applications, ranging from 13 points for the penetration of cloud computing in software operation to 52 points for the use of enterprise resource planning (ERP)

[12] Only a few countries in the region have relatively recent official information from industrial surveys or censuses. Brazil and Mexico have information from 2019, Chile, Colombia, Costa Rica, Ecuador and Paraguay from 2018 and Uruguay from 2017.

[13] Relatively recent information on the use of more sophisticated technology is available for only four countries, namely Brazil, Chile, Ecuador and Mexico.

software[14] (see figure II.17). Similarly, according to information provided by the Chilean Ministry of Economy, Development and Tourism, the difference between small and medium-sized enterprises (SMEs) and large enterprises in the use of advanced digital technologies is 55 points for ERP software and 32 points for cloud computing.[15]

Figure III.17
Brazil: advanced Internet use in companies, by size, 2019
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Regional Centre for Studies on the Development of the Information Society (Cetic.br).

A second point of interest are the causes of these gaps. Recent ECLAC publications have dealt with the penetration of digital technologies in manufacturing SMEs in Argentina, Brazil and Chile (Motta, Morero and Ascúa, 2019; Carmona, Amato Neto and Ascúa, 2020; Maggi, Ramos and Vergara, 2020), providing information that may be useful for the design of policies to promote the spread of these technologies among smaller firms. The process whereby firms absorb digital technologies consists of different phases, namely acquisition, adaptation and assimilation, which are influenced by internal and external factors. Particularly important among the former are the digital skills that exist in the company, the readiness to change characterizing the corporate culture, and the ability of company management to visualize new business models associated with the incorporation of digital technologies. The main external factors are the strength of the demands imposed by the main market, the need for information systems that provide timely guidance on available technologies, the availability of suppliers and qualified personnel, the existence of institutions that can support companies in their digitalization, and connection quality.

On this last point, it should be recalled that although broadband Internet access rates in Latin America and the Caribbean are high for both SMEs and large companies, when it comes to quality (and specifically access speed) the region still has considerable gaps, both internally (between economic agents and territories) and externally (with respect to the most industrialized countries). For example, only 50% to 60% of large

[14] Any comparison between countries and technologies is difficult because the definitions of the different agents and modes of use are not homogeneous, but it is significant that the average gap between small and large enterprises in the use of e-mail to interact with customers and suppliers is 12 points in seven countries of the region: Argentina, Colombia, Guatemala, Paraguay, Peru, the Plurinational State of Bolivia and Uruguay.

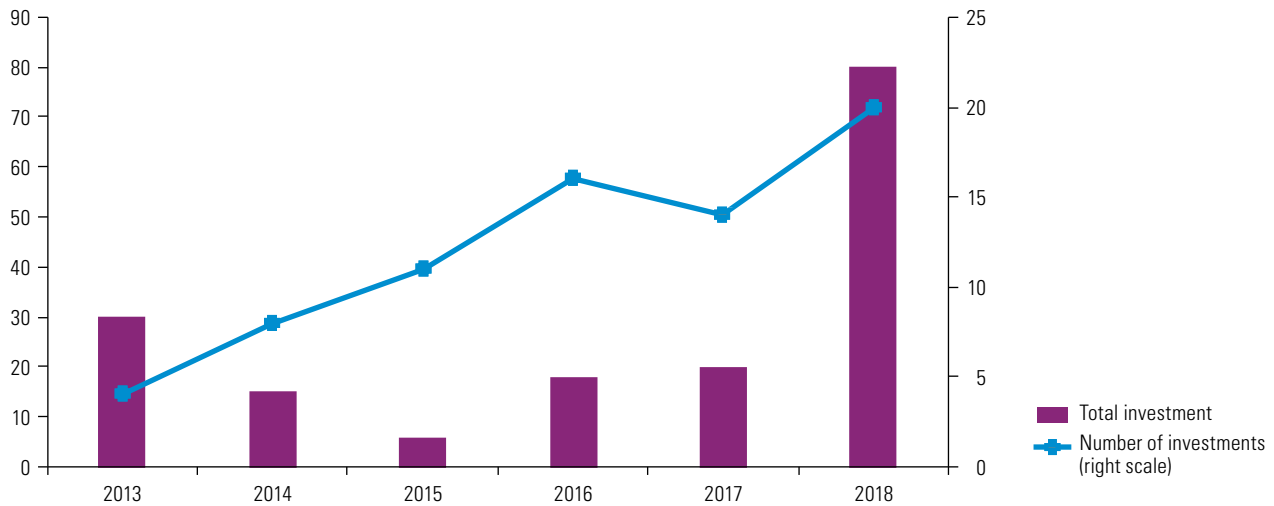
[15] The data are for 2018.

companies in the region have download speeds of over 30 MB/s, while for SMEs the percentages are between 20% and 30%, in contrast to figures of 85% to 90% of SMEs and 95% of large companies in countries such as Spain and Germany.

Apart from company size, the level of adoption of new technologies varies from one productive activity to another. Some sectors, such as the agricultural and automotive sectors, have long been incorporating digital technologies into their production chains, with positive results for productivity and sustainability, and have changed their production ecosystems for the better by boosting innovation. In the agricultural sector, for example, great progress has been made on efficiency through the adoption of digital technologies such as sensors for precision agriculture, smart georeferencing by means of satellite systems and drones to monitor crops, and the use of applications or web-based software to make forecasts related to crops and weather variation.

Brazil's agricultural sector has been incorporating new technologies into its production processes to maintain its international competitiveness. Brazil has become the leader in Latin America and the Caribbean in the development of digital agritech; it currently has 1,574 start-ups and registered 40% growth in 2020 despite the pandemic (EMBRAPA, 2021) (see figure III.18). More than a third of these start-ups specialize in farm management solutions, data integration systems, marketing platforms, and logistics and traceability.[16]

Figure III.18
Brazil: total value and number of investments in digital technology start-ups for the agricultural sector (agritech), 2013–2018
(Millions of dollars and number of transactions)



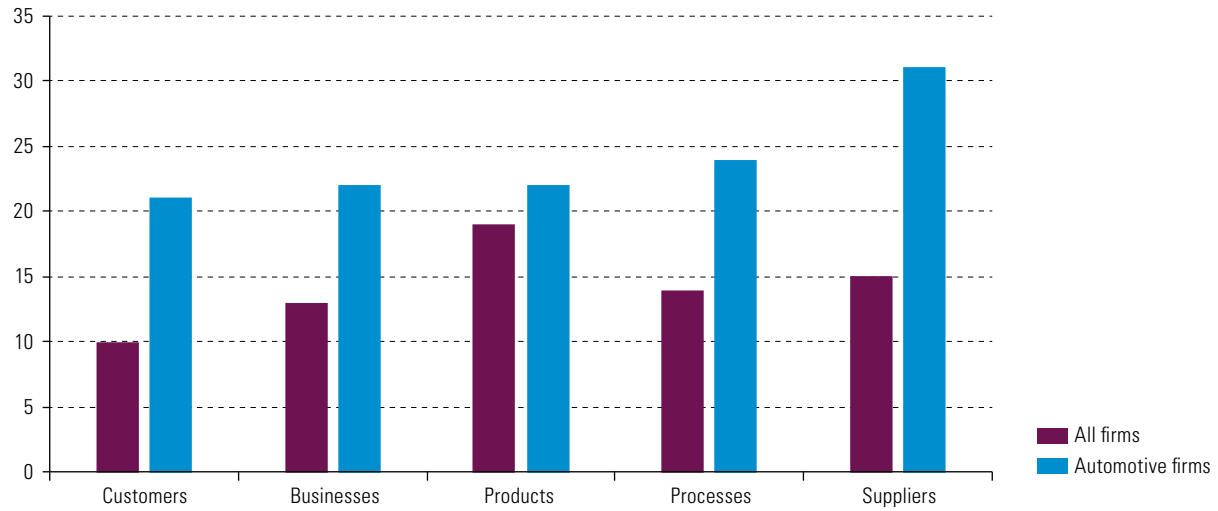
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of SP Ventures, Homo Ludens and Brazilian Agricultural Research Corporation (EMBRAPA), *Radar Agtech Brasil, 2019: mapeamento das startups do setor agro brasileiro*, 2019.

In the automotive industry, the use of automation and of digital technologies to monitor production processes are increasing labour efficiency and transforming the production chain. In Argentina, the vehicles per worker and hours per vehicle indicators improved from 18.8 and 73, respectively, between 2000 and 2009, to 20.4 and 55.9 between 2010 and 2018. In 2018, furthermore, the automotive sector accounted for 3.3% of private sector investment in research and development, this being geared towards the development of innovations in pursuit of product customization through the provision of associated services.

[16] See [online] https://radaragtech.com.br/agtechs-em-numeros/.

At the same time, the adoption of Industry 4.0 technologies has generated spillover effects for auto parts companies, which have had to adopt new technologies in order to be competitive in the supply chain. Thus, the ecosystem of more than 1,500 auto parts companies has been modernizing in parallel with vehicle manufacturing plants (see figure III.19). Some 31% of companies in the automotive sector have implemented the use of digital technologies to improve interoperability with suppliers (interaction, information technology support, inventory, traceability and logistics), while 24% have implemented these technologies to improve the efficiency of their production processes.

Figure III.19
Argentina: proportion of firms using digital technologies, by production stage, automotive companies compared to all companies, 2018
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of International Labour Organization (ILO), *El futuro del trabajo en el mundo de la Industria 4.0,* Buenos Aires, 2020.

In Brazil, this industry is leading the implementation of advanced technologies such as robotics, 3D printing, artificial intelligence and the Internet of Things, and this is creating demand for qualified personnel. Jobs related to Industry 4.0 are expected to grow by 8.5% between 2019 and 2023, and specialized higher education programmes and research centres emphasizing Industry 4.0 have been created accordingly. At the same time, spillover effects in supply chains and logistics have resulted in the creation of a specialized sector of companies providing Industry 4.0 solutions in the automotive sector. According to a survey conducted in 2019, 26% of companies surveyed that are suppliers to the supply chain of this industry invest in adopting and implementing advanced technologies to improve production systems, offer new services and create new technological products. Lastly, the sustainability advances enabled by these technologies have reduced emissions both in the manufacturing process (by up to 32%) and through the adoption of electric and hybrid vehicles in the Brazilian market. According to the Brazilian Electric Vehicle Association (ABVE), the number of electric vehicles sold in the country exceeded 19,700 in 2020.[17]

This suggests that there is no one optimal trajectory for planning the penetration of digital technologies in companies, and that such trajectories are neither linear nor

[17] See [online] http://www.abve.org.br/abril-bate-recorde-abve-preve-28-mil-ves-em-2021/.

one-directional. In this context, support policies have to consider the objective conditions characterizing each productive territory, the particular features of the technologies to be disseminated and the specificities of the associated industries and companies in terms of production and management capacities and connection with their local setting.

C. Legal and regulatory implications

The intensive and rapid digitalization of the economy is straining policy and regulatory frameworks at different levels. Legal certainty, the quality of regulatory frameworks and public policies are crucial when it comes to attracting investment. These factors require an institutional framework that can ensure close coordination between the different levels of government responsible for managing the new challenges the digital economy brings with it, from the necessary infrastructure to the creation of a national digital strategy. Accordingly, it is important to prioritize public policies that foster an innovation ecosystem, that properly appreciate the complexities and benefits of technological platforms and that guarantee market access for innovative companies.

The increasing datafication of the economy makes it necessary to address the challenges associated with regulation and anti-trust efforts. This entails the design of a new kind of governance that takes into account ever-increasing levels of data sharing and data flows, the creation of infrastructure commensurate with the new needs, and a review of market mechanisms so that the anti-competitive practices stemming from some of the new business models can be countered.

1. Competition policies under strain

The challenges entailed for legal and regulatory frameworks in ensuring free competition have been exacerbated by the increasing digitalization of the economy. At the heart of these challenges is control over access to and use of data, which are essential for innovation in a digital economy. Moreover, the business strategies of the big technology companies (Amazon, Apple, Facebook, Google and Microsoft), which make intensive use of algorithms, information technologies, artificial intelligence, machine learning and big data, lie behind the disruptive innovations that have become increasingly common.

Moreover, as mentioned above, the big technology companies have pursued an active M&A strategy over the last decade, and this has been of concern to competition authorities all over the world. In fact, their rapid growth and high levels of concentration in some markets have prompted some leading institutions and actors, such as the United States Federal Trade Commission (Quartz, 2020) and Democratic Senator Elizabeth Warren (*The Economist*, 2019), to raise the possibility of breaking them up, i.e., separating off some of their activities into different firms. This problem also exists in Latin America and the Caribbean. To date, however, the regulatory response to digital platforms has been heterogeneous.[18]

The traditional antitrust approach aims to protect consumer welfare. In the area of digital platforms, this approach has been used to ensure that the market structure does not lead to pricing above competitive levels. However, this approach has not proven efficient

[18] A questionnaire sent by ECLAC to the authorities in charge of regulating digital platforms in the Pacific Alliance countries (Chile, Colombia, Mexico and Peru) shows that these countries have different approaches to the development of a national digital strategy. In particular, it was found that Colombia and Peru implemented further-reaching coordination agendas and actions than Chile or Mexico.

in an increasingly datafied digital economy. In fact, digital platforms, as aggregators of economic power and information, can exert a strong influence on business dynamics without the traditional metrics used to gauge consumer welfare revealing any wrongdoing.

At the same time, monopolies can affect consumers in a number of ways: high prices, reduced product choice, lack of diversity or poorer quality. In a digital economy, however, competitive prices become more difficult to calculate. Higher prices may be due to faster response times (using algorithms that reduce search times), personalized offers tailored to consumers' preferences or improvements in the quality of the products or services offered as a result of the large scale and network economies that the major digital platforms benefit from. Today, the increasingly pervasive presence of platforms and data monopolies means that deadweight loss or allocative inefficiency models are unable to determine the actual detriments to consumers. Thus, while market power in the traditional economy is reflected in prices that are kept systematically high, in the digital economy it can be reflected in low standards of data protection, privacy and cybersecurity.

As mentioned above, the platform business model, based on the matching of supply and demand, is very likely to be the most important revolution generated by the digital economy. Digital platforms are transforming the way cross-border business is done by reducing the cost of international interactions and transactions, creating markets and user communities on a global scale and providing companies with a huge potential customer base and effective ways of interacting to offer their goods and services (Presidential Council for Economic Affairs and Digital Transformation/DNP, 2020).

The platform model is more complex to assess when the pillars of competition are directly affected. In this context, the traditional criteria by which free competition is supervised, such as relevant market, notification thresholds, price levels or vertical and horizontal integration, are no longer applicable and need to be reviewed. This being so, it is necessary to monitor the control that large technology companies exert over market dynamics, especially through mergers and acquisitions.

In the technology field, mergers and acquisitions have basically been of two types: predatory (killer acquisitions) and data-driven (Da Silva and Núñez, 2021). The former threaten the rate of innovation and pursue potential competitors that attract the attention of incumbent firms. Where the latter are concerned, the debate is more complex, as these operations are not necessarily anti-competitive; their objective is to acquire databases or take over established networks. In fact, some transactions do generate anti-competitive effects that may be difficult for regulatory authorities to detect in advance, as the value and future use of the acquired data are unknown. In short, when a single company brings together a number of services or combines databases through mergers and acquisitions, its market power increases. This phenomenon is largely due to the great increase in its ability to capture user preferences via the acquired companies' data. Thus, the power of platforms is revealed by the value assigned to them by the market.

Some of the difficulties faced by competition authorities are the management of large and important markets and the spillover effects of data ownership. These difficulties have allowed dominant firms to make acquisitions that, by creating a data monopoly and thence barriers to entry, prevent potential entrants from generating processes of creative destruction in markets. In this way, mergers and acquisitions can threaten the level and pace of innovation and thus become a problem for consumers and the economy as a whole.

2. Data marketplaces: a new tendency

As the Internet of Things expands, many companies are storing unused data that could generate value for other companies. Thus, the existence of data marketplaces would allow a large amount of information to be put to better use. An interesting example are data collected by sensors in the CPP data-marketplace platform.[19]

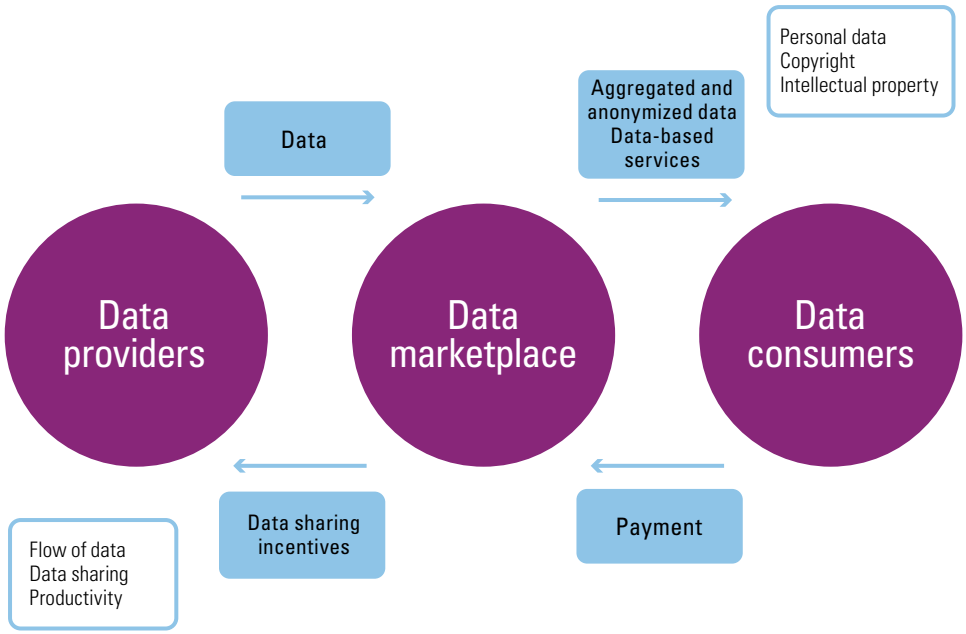
The importance of sharing, exchanging and reusing data is revealed by the observation that often the value of data arises not in their primary use, but when they are reused (Mayer-Schönberger and Cukier, 2014). Large technology companies have demonstrated the ability to make acquisitions and extract value from the data of acquired companies. In the coming years, productivity improvements and innovation will increasingly depend on sharing, exchanging and reusing data. Thus, even as global value chains for the production of physical goods appear to be shortening, data and information flows seem be expanding and driving globalization (Lund and Bughin, 2019). In health care, there is an interesting project called the Machine Learning Ledger Orchestration for Drug Discovery (MELLODDY), which relies on the free flow of data to aid drug discovery. The purpose of MELLODDY is to build a platform that uses the combined databases of 10 companies in the pharmaceutical industry for the purpose of training an artificial intelligence algorithm to develop solutions for the production of antibiotics. In this project, the use of blockchain technology ensures data security.

At present, even if they are not quite sure of the value of data, companies perceive that the collection and use of these is essential for their survival. They are also convinced that they do not have the individual capacity to accumulate the data necessary to survive in the market. Given this situation, proposals are beginning to emerge for the creation of data cooperatives and data marketplaces as a solution that would particularly benefit smaller companies. The data sharing mechanism, known as the give-and-take model, has attracted many SMEs, both technological and non-technological, marking a trend in the digital economy. These new modes of action will require specific regulatory frameworks to interact in the different data marketplaces. Some countries are trying to adapt their regulatory structures, while others, such as those in the European Union, are making progress on developing regional initiatives. In this situation, harmonization of regulatory frameworks is essential to facilitate market access for different actors, as is national and international coordination.

Data marketplaces are platforms for sharing databases from different sources, typically stored in the cloud (see diagram III.4). Consolidating data marketplaces can make it easier to visualize the potential of companies and generate a new market for many others. These markets generate additional value through the construction of networks or systems of interconnected digital businesses, create new monetization opportunities, allow for information sharing, contribute to interoperability and increase data quality (Deichmann and others, 2016). Open data marketplaces are a source of knowledge spillovers (Koutroumpis, Leiponen and Thomas, 2020). Indeed, some non-digital companies that own databases, primarily customer databases and those generated by the Internet of Things, could start to earn revenue from selling information in such marketplaces. At the same time, buyers will have access to new databases, potentially providing them with enormous opportunities for innovation. Countries that have moved in this direction have made significant efforts to ensure the privacy and anonymity of the data shared.

[19] CCP data-marketplace is an open platform for connected vehicles and smart buildings that handles the brokering of data from the different Internet of Things devices, allowing data consumers to create new products and services based on business-to-business (B2B) and business-to-consumer (B2C) data. This platform makes it possible to monetize large volumes of data that come directly from owners of connected vehicles and devices in smart buildings by sharing them with cross-sectoral data consumers interested in accessing harmonized vehicle and home datasets (see [online] https://www.cross-cpp.eu/big-data-marketplace).

Diagram III.4
Representation of a data marketplace



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of J. Deichmann and others, "Creating a successful Internet of Things data marketplace", McKinsey & Company, 7 October 2016 [online] https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/creating-a-successful-internet-of-things-data-marketplace.

Nevertheless, it is strange that there is still no global data sharing platform that promotes interoperability and access for economic agents. This is probably because businesses do not yet see the potential benefits or because there is not yet sufficient trust for them to agree to share their data. Certainty about the use, protection and privacy of information is undoubtedly a consideration for government authorities seeking to promote initiatives relating to the free flow of data or a data marketplace. Increasingly, countries, industries and individuals are demanding legal certainty about what information is extracted from their digital activity and how it is used.

A large-scale platform could allow data to be shared between companies, research centres, governments and individuals, generating economies of scale and scope, fostering innovations and driving market dynamism. Despite its benefits, such a mechanism could also throw up a number of problems, such as illegal data gathering, the collection of information of dubious quality or a lack of guarantees regarding the reliability of data (Koutroumpis, Leiponen and Thomas, 2020).

To address this situation, some countries have proposed the establishment of a market maker (see box III.3). A market maker is an intermediary or facilitator who establishes patterns of behaviour for participants in accordance with certain security, privacy and competition requirements, matching data buyers with data providers and setting a value on transactions. Data marketplaces are an emerging trend and the authorities should review regulatory and natural market barriers in order to deliver their benefits to the economy and society.

Box III.3
Progress in creating a data marketplace: the experience of the European Union

The European Union has strict rules on the handling of data, such as those in the General Data Protection Regulation.[a] In this framework, it is pursuing three initiatives to promote data sharing and re-use: the Support Centre for Data Sharing, the Open Data initiative and the proposed Data Governance Act (European Commission, 2020). The Support Centre for Data Sharing is an initiative funded by the European Commission to further support the development of a Digital Single Market. The Centre facilitates transactions where data held by the public and private sectors are made available for use and re-use by other organizations (public or private). The 2019 Open Data initiative establishes a common framework for sharing and releasing public data on the basis of two principles: transparency and fair competition. This mechanism guarantees free access for businesses, academia, citizens and government institutions to high-value geospatial, earth and environmental observation, meteorological, statistical, business, mobility and other databases.

The governance proposal calls for public sector data to be made available for re-use; for data to be shared between companies for a fee; and for the use of personal data to be allowed with the help of a "personal data broker". This proposal presents significant challenges in terms of transparency and competition. However, it does offer an alternative model to the current data handling practices of large technology platforms (European Commission, 2020).

A data marketplace is a central element of the governance proposal. The market maker would operate in it on the basis of exchange mechanisms, agreements and technical standards, but would not be able to profit from intermediation. The proposal allows a great deal of information that was covered by intellectual property or data protection laws (such as medical data) to be shared in the interests of innovation. Despite the efforts made, there are still barriers to the creation of a data marketplace. The heterogeneity of regulatory frameworks at the global, regional and local levels,[b] doubts about the genuineness of data sources and a lack of confidence among agents in the benefits of sharing information in data marketplaces have resulted in low participation.

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of European Commission, "Proposal for a Regulation of the European Parliament and of the Council on European data governance (Data Governance Act)" (COM(2020) 767 final), Brussels, 25 November [online] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=COM:2020:767:FIN; and "Speech by Executive Vice-President Margrethe Vestager on the Data Governance Act and the Action Plan on Intellectual Property", Brussels, 25 November 2020 [online] https://ec.europa.eu/commission/commissioners/2019-2024/vestager/announcements/speech-executive-vice-president-margrethe-vestager-data-governance-act-and-action-plan-intellectual_en.

[a] *Official Journal of the European Union*, "Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) [online] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R0679.

[b] For example, the General Data Protection Regulation, while setting standards for data protection, allows European Union member States to regulate for specific data. In the case of the United States, each state has its own regulations.

Proper valuation of data is important for detecting potential harm to consumers and creating a basis for the creation of some form of digital taxation. The valuation of companies' digital assets is also important in acquisitions or in the event of an initial public offering[20] and, indeed, in investment decisions (Mayer-Schönberger and Cukier, 2014). Asset pricing is a common task for large companies; however, other stakeholders such as users, shareowners, the market and regulators do not know the value or the potential of these assets. In general, data are assets, but it is not easy to assign a value to them through traditional economic accounting systems, whence the importance of supporting the development of growing data marketplaces.

[20] Facebook's initial public offering in 2012 is an example of the need to price data. Facebook, following traditional accounting manuals, reported that its assets were valued at US$ 6.3 billion prior to the initial public offering. However, the market assigned it a total valuation of US$ 104 billion. The gap of almost US$ 100 billion between the company's reported value and that assigned by the market represents the value of its main intangible asset: data (Mayer-Schönberger and Cukier, 2014).

3. Digital taxes: closing competitiveness gaps

The business models of the digital economy pose challenges for tax systems. The fact that businesses are not physically present and that the services they offer transcend geographical boundaries creates a situation that is difficult to capture with traditional instruments. The great complexity of transactions and the difficulty of categorizing the type of economic activity and associated revenues are some of the challenges that arise. In this context, the traditional technical criteria on which value added tax (VAT) and income tax are based have proven difficult to apply, and no consensus has yet been reached about the need for a new international tax framework (ECLAC, 2019b).

The peculiarities of digital businesses have resulted in a disparity in tax payment and created a problem of competition between digital businesses that sell their services in one country and are taxed in another and local businesses that are subject to national tax rules and obliged to pay the full amount of taxes that those rules provide for. The tax advantage enjoyed by such digital companies creates a distortion that is not consistent with a neutral tax policy. In addition, regulatory regimes that provide them with tax benefits such as research and development incentives and rapid depreciation of their assets exacerbate tax inequalities. While the goals behind these benefits are to stimulate innovation and attract investment in new technologies, the lower tax burden resulting from the incentives has created a gap between the taxation of digital firms and those in other sectors.

Given the difficulty of applying direct taxes to digital businesses, many countries have opted to apply indirect taxes such as VAT to digital services (Asen, 2021),[21] i.e., a kind of consumption tax on the supply of certain digital services, to be levied on gross revenues (ECLAC, 2019b). As of January 2020, 77 countries had introduced such taxes, of which 12 were in Latin America and the Caribbean.[22] With regard to direct taxes on digital services, several countries have adopted interim unilateral tax measures[23] while comprehensive multilateral solutions are agreed, despite the risk of double taxation.

China argues that digital businesses should be taxed on data, just as traditional industry is taxed on the raw materials it uses (SCMP, 2020). The European Union, the United Nations (2020) and the Organization for Economic Cooperation and Development (OECD, 2020) have proposed a 3% tax on revenues from activities where users play an important role in value creation and where traditional taxes are difficult to apply. These include, for example, the online sale of advertising space, digital intermediation and sales of data generated from user-supplied information.

In Latin America and the Caribbean, a different approach has been taken from that seen in many countries around the world (see table III.2). Instead of creating a new tax, which may be temporary, several countries in the region, such as Argentina, Barbados, Chile, Colombia, Costa Rica, Ecuador, Mexico, Paraguay and Uruguay, decided to adapt VAT to the context of digital businesses. At the same time, Peru and Uruguay decided to implement a tax on the income of these companies, at rates of 30% and 12%, respectively (ECLAC, 2019b).

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21 About half the European countries in the Organization for Economic Cooperation and Development (OECD) have announced, proposed or implemented a digital services tax levied on the gross revenue streams of large technology platforms as a temporary measure (Asen, 2021).

22 Tax proposals are based on excise taxes, digital services taxes, tax preferences for digital businesses, digital permanent establishment rules and gross withholding taxes on digital services.

23 Such as charging taxes on revenue instead of profits.

Table III.2
Digital taxation around the world, 2020
(Percentages)

Digital services tax		Adapted value added tax (VAT)	
Country	**Rate**	**Country**	**Rate**
Austria	5	Argentina	21
Belgium[a]	3	Australia	10
Brazil[a]	1–5	Barbados	17.5
Canada	3	Bolivia (Plurinational State of)[a]	13
Czechia[a]	7	Chile	19
Chile[a]	10	Colombia	19
Spain[a]	3	Costa Rica	13
France	3	Ecuador	12
Hungary	7.5	United States	Set by each state
India	2–6	Iceland	22.5
Israel	3–5	Israel	16
Italy	3	Japan	10
Kenya[a]	1.5	Mexico	16
Mexico[a]	3	New Zealand	15
New Zealand	2–3	Norway	25
Paraguay	4.5	Paraguay	10
Poland	1.5	Peru[a]	18
United Kingdom	2	Republic of Korea	10
Tunisia	3	Switzerland	7.7
Turkey	7.5	Turkey	18
		Uruguay	22

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of D. Bunn, E. Asen and C. Enache, *Digital Taxation around the World*, Washington, D.C., Tax Foundation, 2020 [online] https://files.taxfoundation.org/20200527192056/Digital-Taxation-Around-the-World.pdf; and ECLAC, *Fiscal Panorama of Latin America and the Caribbean, 2019* (LC/PUB.2019/8-P), Santiago, 2019.

[a] Bill not yet enacted.

There are currently a variety of problems with the establishment of a digital tax:

- Although digital companies pay taxes on their earnings in the country where their headquarters are located, they do not do so in the country where sales are made or where their users are located, as they have no physical residence in these countries. What is proposed to deal with this is a localization system that looks beyond the physical presence of companies to include a digital location, i.e., a taxable digital presence (European Commission, 2018), in order to reduce the tax inequalities between digital and local companies.
- International corporation tax rules depend on the concept of value creation. In the digital economy, value is created through the interaction between algorithms, users, sales tools and knowledge. As companies are only taxed in the country where their headquarters are located, the value contributed by users of social media platforms or e-commerce sites is not considered as part of corporate income (European Commission, 2018). An economic challenge is to assign value to users and their behaviour.

D. Conclusions

Digital transformation has accelerated sharply during the COVID-19 pandemic. In this context, Latin America and the Caribbean presents ambivalent characteristics: on the one hand, consumption has developed strongly; on the other, the region plays only a very marginal role in production. The region has more Internet users than the United States and is the world's second fastest-growing mobile communications market; at the same time, there is great heterogeneity between its territories and productive actors when it comes to access to high-speed connections. The gaps affecting rural areas and MSMEs in particular in the take-up of more advanced digital technologies are widening in the face of rapid digitalization in urban areas and by larger companies, including those of foreign origin.

Digitalization as an enabling tool for economic growth and social inclusion presents unprecedented opportunities. However, its impact cannot be considered apart from development processes, and the structural conditions in Latin America and the Caribbean limit its potential benefits. Without proper consideration and attention to these structural conditions, digitalization could widen existing gaps and lead to greater exclusion and distributive inequality.

In view of this, measures to accelerate the adoption and incorporation of digital technologies must be embedded in and consistent with comprehensive development plans. However, such measures cannot be based on uniform recipes. There is no one optimal path for the penetration of digital technologies in companies, and in the heterogeneous situation presented by the region it is essential to strengthen public institutions so that they can adapt support programmes for digital transformation to the needs and potential of the different actors and territories. From this perspective, action needs to be sharply focused according to the priorities of each country: to address the low or non-existent connectivity of various segments of the population, it may be important to pursue differentiated territorial programmes; the stagnation of productivity may require special attention to the issues of innovation and technological diffusion, through the promotion of business networks and collective goods in specific sectors; the high percentage of informality in the economy suggests the need to enhance linkages with more dynamic sectors; while the poor development of digital skills in the population can be addressed with comprehensive policies to strengthen education.

The strategic approach followed in this chapter to analyse these issues focuses on the production chain and the relationships between its main links. In this area, the chapter highlights changes in the competitive behaviour of firms in the connected economy, the digital economy and traditional sectors. An increase in concentration has characterized the evolution of the region's digitalized economy (especially in the case of telecommunications operators), which has been forced to undertake intensive innovations supported by major planned investments (in advanced 4G and 5G technologies) to defend its competitive position and profitability. Meanwhile, the explosive growth of digital platforms has strongly impacted many traditional sectors, either because they have brought new value propositions to their products or services, or because they are competing on a wholly new basis in established markets, such as long-distance calling or text messaging.

An important aspect that emerges from this analysis is that the foreign direct investment (FDI) dynamics of firms are different in the digital economy. In particular, the development of digital platforms has allowed these companies to achieve a substantial international presence with very small amounts of FDI. At the same time, it is clear that global firms' investment decisions are increasingly influenced by the availability of suitable digital infrastructure and skilled personnel, so that a policy that stimulates the development of these assets can have very significant cross-cutting productive effects.

At the heart of these processes is growing datafication of the economy, fuelled by the ability to transmit and analyse large amounts of data at high speeds. The repercussions this has had on the production sector have also generated unprecedented challenges for the regulatory framework, which has been somewhat slow to adapt, while there is also a lack of consistency in the regulatory criteria for the different sectors that will have to dealt with by the regulatory bodies of the region's countries. At the same time, this process poses problems whose solutions will require a shared vision and a capacity for joint action at the regional level, especially with regard to the establishment of a consistent legal and regulatory framework to facilitate economic and productive interaction in the digital sphere.

In addition, the rise of digital platforms and new business models based on the management of large amounts of information and cross-border data movements make it necessary to rethink and update the principles and tools of competition policies, as the indicators and methodologies traditionally used to detect and control monopolistic behaviour or abuse of dominant positions are proving ineffective.

In particular, big technology companies can exert control over market dynamics through mergers and acquisitions. In this situation, it may be useful for public institutions to help foster the development of a data marketplace by making explicit the mechanisms used to create value from data. Part of the value of data relates to their protection and privacy, a factor that may become a barrier to entry for new companies seeking to participate in the sector. Other solutions that are being studied or experimented with and that may be useful to analyse from a regional perspective are the creation of data sharing platforms, the establishment of operators specializing in the creation of data marketplaces and the promotion of data cooperatives. Lastly, business models in the digital economy pose significant challenges to countries' tax policy. This has made it necessary to adapt traditional tax arrangements and to launch what are still incipient initiatives for the creation of ad hoc forms of digital taxation, the presence of which has increased in countries of the region.

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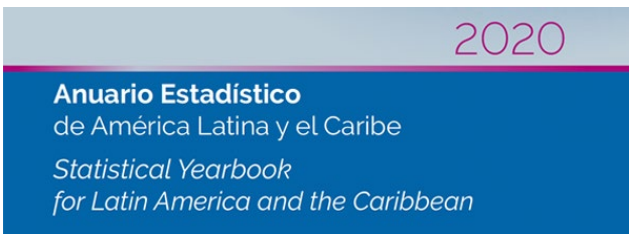

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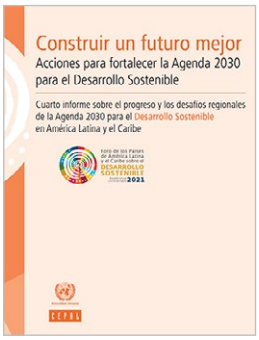

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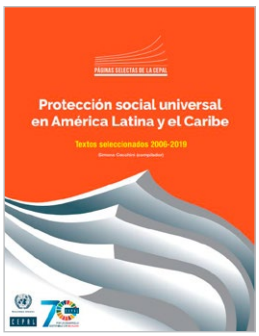

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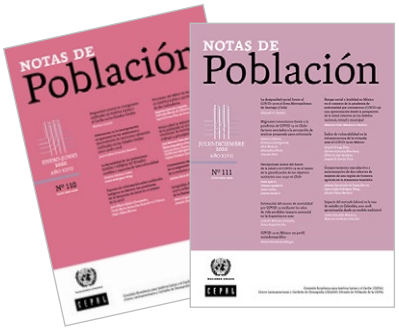

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