Foreign Direct Investments – Key Factors of the Technology Transfer to China*

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Abstract: As a result of the political measures adopted at a very early stage by the Chinese central authorities aiming to regulate and guide the inflow of foreign direct investments (FDI) in line with its own industrial modernisation strategies and then to guide outward direct investments (ODI) in accordance with the same national interests, in conjunction with the sustained efforts made in recent years towards supporting and stimulating research, development and innovation (RDI) to create a knowledge-based economy, China gradually bridged the gap that was separating it from the technological frontier, becoming one of the main contenders in the race for global supremacy in the technological field. In the conditions thus described, the analysis conducted in this article seeks to showcase the shift in direction that occurred in recent year in relation to the sectoral scope of Chinese FDI and ODI which, based on well "targeted" national policies seeks to support the new Chinese development model, based on cutting-edge technology and innovation.

Key-words: China, foreign direct investments (FDI), Chinese outward direct investments (ODI), technology transfer, technological progress
JEL Classification: F21, O14, O33, O38

1. China's transition towards the top of the global hierarchy in the field of science and technology

The generation and capitalisation of scientific knowledge – materialised in its applicability in the technological sector – represents a key resource for contemporary economies, a central element in the achievement and maintenance of a country's competitiveness, essentially reflected in national economic performances. If, traditionally, international technological development was led by the main developed economies[1] (in particular, the US and the European Union Member States), at present, through China's affirmation as a new powerhouse in science, technology and innovation (STI), we are witnessing a reconfiguration of the world leadership in this field. The stepping-up of scientific and technological progress, poignantly manifest over the last decades, along with its organic integration in the national economy has been a primordial objective of Chinese policies which, using a *top-down* approach, have always been centred on finding the optimum synergies between the acquisition of advanced technologies from abroad and the development of an own technological base.

China's spectacular journey over almost four decades, in its evolution from a country that was a net recipient of technology to the great technological powerhouse of today, having the declared objective of becoming a world leader in the field of innovation (by the 2050s) and of reducing its technological dependence[2], triggered worldwide concerns and controversies with regard to the

* This article is based on a more comprehensive research undertaken by the author within the study prepared by the Institute for World Economy in 2019 and entitled *China - strategii privind obținerea excelenței tehnologice și a dominației globale în sfera tehnologiilor viitorului (China- strategies for obtaining technological excellence and global dominance in the field of future technologies)*, coordinated by Sarmiza Pencea.

[1] Knowledge-based, technologically advanced economies.

[2] In the conditions in which, in the words of Chinese President Xi Jinping, China has made a goal of becoming the "master of its own technologies" by 2035 [Xi Jinping (2015) apud Atkinson, (2015)].

legislation, policies and practices implemented by the Chinese government in the field of technology, innovation and intellectual property (Atkinson & Foote, 2019). As such, in the opinion of a series of international observers (US Trade Representative, 2018), China has deviated from the traditional parth trodden by other Asian economies – e.g. South Korea, Japan, Singapore or Taiwan – in their transition from the status of *followers* to that of suppliers of new technologies, by using unfair practices in the technological transfer processes and/or when intellectual property rights are acquired by Chinese companies, as well as by applying opaque, discretionary and discriminatory measures in the approval of investments (White House, 2018).

1.1. Strategic actions meant to reconfigure the Chinese development model

As shown by international literature (e.g. Kim, 1997), the classic route that countries embark on in their economic development processes, i.e. the transition from the stage in which they bridge the technological gaps separating them from advanced economies, to the stage where they gain a top position in the field of innovation, entails the completion of a sequence of stages leading to the increase of their national technological capacity (Box 1).

Box 1.: Stages required for a country to become a leader in the field of technological innovation

Stage I	Stage II	Stage III	Stage IV
⇒ Technology transfer through FDI, licencing, or international trade[3];	⇒ Dissemination of the imported technology to the national industries; ⇒ Increase of the national economy's technological capacity;	⇒ Local efforts to assimilate, adapt and perfect imported technology in line with national neds, for the development of own technologies;	⇒ Acquiring the status of global innovation leader;

Source: Author's adaptation after Kim (1997).

Only after having obtained, assimilated and then perfected the technologies received from advanced economies, emerging and developing countries are able to build the required internal technological capacity to generate new technologies and acquire the necessary competitive force to approach the relevant external market. However, to achieve this objective, which implicitly entails the development of competitive advantages, China has created its own development strategy which, as it is characterised by a series of recent international reports, is based on mercantile political measures in the field of technological innovation[4], often in contradiction with international trade rules and traditional competition principles [Atkinson, (2012); Atkinson & Foote (2019); US Trade Representative (2018); White House (2018)].

As such, given the stages that need to be completed to advance in the international technological hierarchy, ***a first strategic action*** implemented by the Chinese authorities was to "open" the national economy to foreign investments – with the reform policy initiated by Deng Xiaoping at the end of the 1970s – and to apply measures seeking to attract multinational enterprise from developed counties (DMNEs) by stimulating them to transfer certain low- and medium-value manufacturing activities to

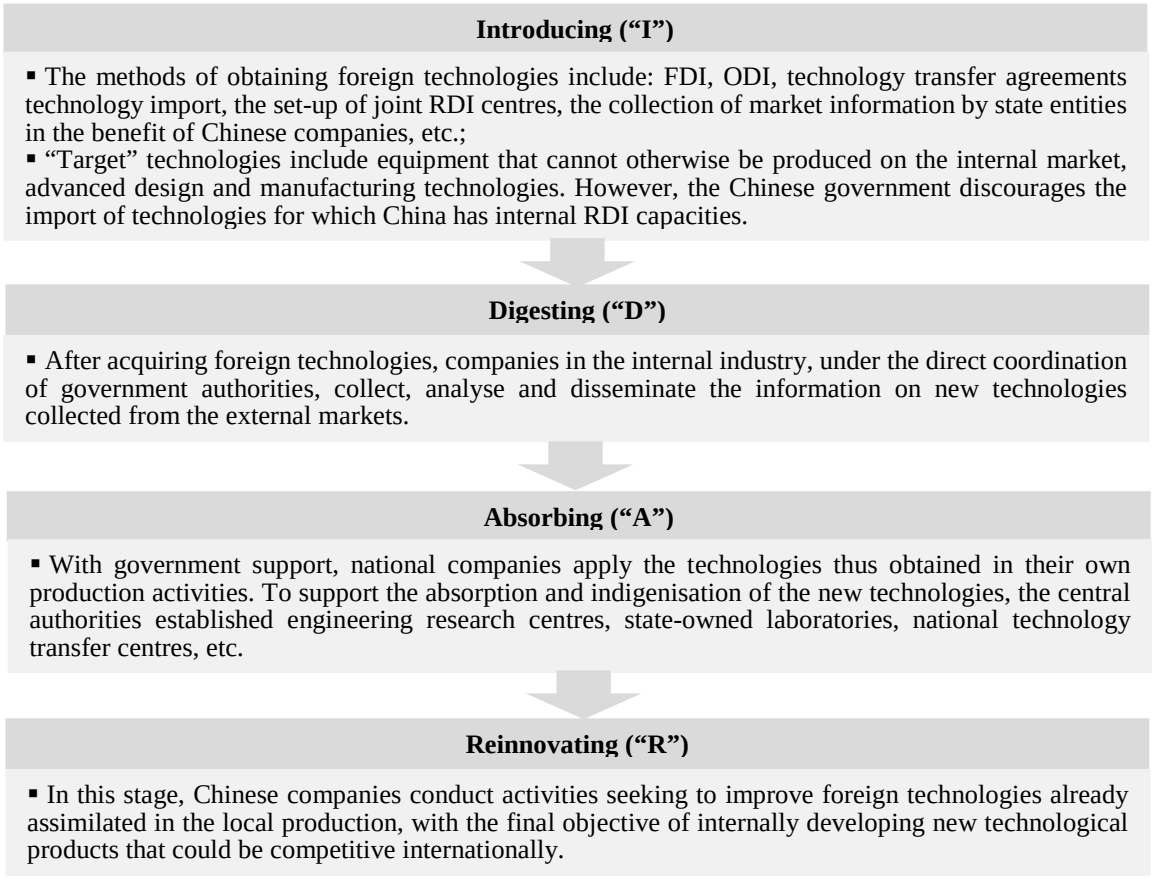
[3] Analyses conducted internationally showed that acquiring new technologies through the inflow of FDI is the most viable option, not only cost-wise, but also because, in general, these technologies are accompanied by a pool of resources that will be transmitted to the recipient economy: *know how*, the organisational and managerial skills specific to the investing company, etc. (Romer, 1993).

[4] In this context, in accordance with the reports cited, innovation mercantilism refers to the economic growth strategy applied by China, based on the reduction of imports and the increase of exports of high added value products, by using practices that contravene World Trade Organization (WTO) rules – unfair competition in the field of intellectual property rights (IPR), discriminatory measures against foreign companies, market restrictions, subsidies granted to large state-owned enterprises, etc. (Atkinson, 2012).

China and tap into the country's localisation advantages. By implementing the *Catalogue for guiding foreign investments*, the central government was assuming a key role in encouraging and directing investment flows towards strategic sectors, while at the same time limiting FDI inflows in other industries, either for national political security, or in order to protect from external competition the national industries that were still in their early stages of development. In order to increase the technological contribution of foreign companies, government authorities introduced a system for evaluating and certifying these companies – against a set of specific criteria including, among others, the capital allocated to R&D, the staff involved in R&D, the company's capacity to develop new products, etc., in conjunction with an incentivising policy seeking to grant preferential fiscal or financial facilities to enterprises classified favourably in terms of their potential to generate an inflow of new technologies in China (Liu, Serger-Schwaag, Tagscherer, & Chang, 2017).

Although at the beginning of the 21st century, Chinese decision-makers were still facing a dilemma concerning the optimum pace of assimilating and absorbing new foreign technologies – and the incorporated know-how – to achieve the maximum effectiveness of actions aimed at industrial modernisation and at bridging the gap separating China from Western countries, the line of action chosen by the central government authorities was to step-up the processes of learning/acquiring skills from external companies in order to rapidly develop national technological skills (Walsh, 2003).
Therefore, the ***second strategic action*** undertaken by China in its efforts to become a technologically advanced nation was to study and replicate the specific production techniques of foreign investing companies. This was a support-stage, meant to facilitate the transition towards the ***third dimension of China's technological development strategy***, in which local companies were aided in the process of acquiring new technical knowledge, whether tacit or explicit, of managerial, entrepreneurial, marketing skills and competences etc. (according to the "IDAR" scheme, presented as a synthesis in Figure 1).

Figure 1: Strategic stages in China's technological development process (the "IDAR" scheme)

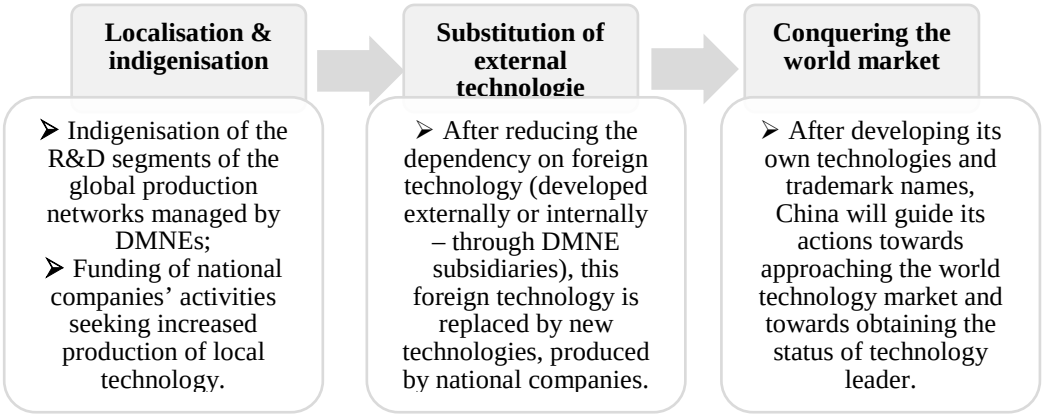


Source: Author's adaptation after State Council (2006a, b).

Articulated for the first time in the *Medium and Long Term Plan for National Science and Technology Development 2006-2020 (MLP)*, published by the Chinese government in 2006, the approach based on the "IDAR" scheme was the incorporated in all subsequent development plans, and was also reiterated at the *Third Plenary Session of the Chinese Communist Party (CCP)* of 2013, which set out the priorities of the new administration led by President Xi Jinping in relation to the China's future directions of economic growth, as well as the role assumed by government authorities to continue to guide and support national industry in its path towards furthering technological advances.

The implementation of MLP beginning in 2006 represented a change of paradigm for the Chinese economic growth model, which was until then based on attracting DMNE manufacturing facilities, by shifting towards a new local development stage, centred on internal innovation generated by national companies (Atkinson, 2012). As such, MLP is the ***fourth strategic action***, meant to build a domestic environment that could independently encourage the innovative process and promote the transformation of Chinese companies into the main organism generating technological progress. As it can be seen, this time the policy pursued by the central authorities no longer focused only on certain key fields in which China had pre-existing capacities, but it developed a comprehensive strategy that was to be applied to all of the country's sectors, industries and regions, in order to radically boost national competitiveness. The need to move the centre of gravity towards internal innovation was subsequently stated in several programme documents[5] that outlined the guiding principles meant to contribute to the achievement of the ambitious objective of substituting foreign technologies with new ones, resulting from local production (as per the succession of actions described in the scheme shown in Figure 2).

Figure 2: Key objectives of the new, innovation based Chinese development model



Source: Author's adaptation after Wübbeke et al. (2016).

To achieve the objective of technological self-sufficiency (in the first half of the 21st century) and of acquiring the status of leader in the field of cutting-edge technologies, the internal policy actions were to focus on strengthening the capacity to develop innovative products that would foster the creation of internationally renowned trademark names, as well as on accelerating the industrial modernisation process and the construction of new production capabilities, meant to help boost national competitiveness.

Despite the recent increase of the local technological production capacity – estimated to continue its growth over the near future – the Chinese government continues to pay increased attention to the

[5] Among which, of major relevance are the *12th and 13th Five-Year Development Plans* (for the period 2011-2015 and, respectively, 2016-2020), and the *Made in China 2025* initiative (MIC 2025), adopted in 2015, with the main objective to turn China into a world leader in the field of smart, technology-intensive production.

transfer of foreign technology, seen as a prerequisite for achieving national progress in this field and for reaching the ambitious objectives set. The absorption of technologies from developed countries is still indispensable in the knowledge-intensive industrial sectors, where we can see a series of gaps between the assumed political ambitions and the internal technological capacity (Wübbeke, Meissner, Zenglein, Ives, & Conard, 2016). This is why the selective strategic planning prioritises these sectors – also included in the MIC 2025 strategy – that will continue to benefit from government support for cross-border technological purchases. The support mechanisms considered by the central authorities and specified in the official documents include: the application of measures encouraging FDI and ODI in cutting-edge technology industries or in industries that are based on smart production, the creation of R&D centres in the developed Western economies, the recruitment of qualified staff from abroad, the conclusion of cooperation agreements with foreign companies specialising in high tech production, etc.

1.2. Foreign direct investments – a recent "bone of contention" between China and Western states

In light of the transforming policies adopted by China over the recent years and of the change in the country's development direction based on the strategic guiding principles comprised by these policies, ample dissentions emerged at international level in relation to the treatment applied by the Chinese national authorities to foreign investing companies. As such, several recent analysis reports published by the US and European bodies competent to monitor the global investment flows [e.g. European Commission, (2019); US Trade Representative (2018); White House (2018)] point out to the existence of regulations and barriers that limit the access of FDI on the Chinese market[6] – insufficient IPR protection in cutting-edge technology industries, quasi-monopolies held by large state-owned enterprises in sectors of strategic importance, a discriminatory treatment applied in public procurement procedures conducted in state-controlled fields, etc. – in order to guide the transfer of new technologies on the internal market in accordance with national interests. According to the investigations conducted in the reports referred to, while for EU investing companies one of the most significant limiting barriers is the differential treatment they are subjected to in comparison to Chinese companies, US companies see as the main obstacle (and even threat) the fact that the investment flow is conditional upon on the inflow of high technologies. Another limitation noted by both interested parties and, as a result, one which is mentioned in market investigations conducted by the European Commission and by the US government alike, is that in many sectors, foreign investors are not allowed to hold a majority interest in the capital of joint ventures. In these conditions, increased ground is gained by the opinion according to which the policy measures implemented by China are predominantly directed at supporting prioritised industries and at favouring "large national champions", while at the same time pursuing technological advance through the acquisition and re-innovation of foreign technologies (Atkinson & Foote, 2019).

As shown by these analyses, the main instruments the Chinese authorities resort to in order to guide FDI flows towards sectors of national interest or in order to boost the transfer of new technologies to these sectors can take various forms, from *i)* restrictions on the share of the foreign-held interests in joint ventures, to *ii)* the introduction of barriers and administrative burdens in the investment authorisation and approval processes. These two aspects reveal the non-transparent and discretionary nature of foreign investment approval procedures in China, which is against international practices agreed upon with the WTO[7].

Despite the fact that the treatment of foreign investment inflows has been gradually liberalised over the recent decades, China continues to have in place a detailed system for the monitoring, control and management of FDI, in which a central role is held by the *Catalogue for guiding foreign investments*. Depending on the potential of recipient industries, the Catalogue divides FDI into three groups (encouraged, restricted and prohibited), and as a result determines both different degrees of examination for approval, and distinct conditionalities or regulatory levels for those investments. From

[6] According to the OECD, China has the most restrictive treatment of foreign direct investments among the G20 countries (OECD, 2019).

[7] If before 2001 China was explicitly using the practice of making market access conditional upon the transfer or import of technology, once the country joined the WTO, national authorities undertook not to resort to such measures.

its very establishment to its last revision (in 2017), the document specifies the sectors in which external partnerships may be entered into (such as joint ventures) and the interest shares permitted to foreign companies so that the Chinese partner may hold control over the newly-created entities. At present, the class for which foreign capital is restricted comprises 35 economic sectors and sub-sectors (some of which are selectively shown in Box 2).

Box 2: Sectors with restricted access for foreign capital is restricted, and interest shares imposed for joint ventures

(as per the Catalogue guiding foreign investments, revised in 2017)

Activity sector	Specific requirements
Cultivation of new crop varieties and seed production	In the joint ventures created, the Chinese partner must hold a majority interest, enabling it to have control of the newly established company;
Exploration and exploitation of oil and natural gas	Limited and restricted access: no fully foreign-owned companies may be established, only partnerships with Chinese companies;
Automotive industry	- The Chinese share may not be less than 50%; - No more than two joint ventures may be established by the same investor;
Aviation industry	In the joint ventures created, the Chinese partner must hold a majority interest, enabling it to have control of the newly established company;
Construction and exploitation of nuclear plants	Same as above.
High added value telecommunication services *	The share of foreign investments may not exceed 50% of the capital of companies created in this field (e-commerce being excluded);
Basic telecommunication services	In the joint ventures created, the Chinese partner must hold a majority interest, enabling it to have control of the newly established company;
Banking	FDI from foreign financial institutions may not exceed 20% or 25% of the joint venture capital, depending on the investment structure;
Healthcare	Limited and restricted access: no fully foreign-owned companies may be established, only partnerships with Chinese companies;
Mapping services	In the joint ventures created, the Chinese partner must hold a majority interest, enabling it to have control of the newly established company;

Note: * According to the classification made by the Chinese authorities, this sector includes a wide range of technological and internet services.
Source: NDRC and MOFCOM (2017).

It could be concluded that by promoting the inflow of capital in certain sectors at the same time with the limitation or total prohibition of such inflow in other sectors, Chinese authorities use the national framework for the treatment of foreign investments to channel FDI towards industries that represent the main pillars for the country's achievement of its political objectives (US Trade Representative, 2018). As such, as signalled in a report prepared by the US Chamber of Commerce (2017), restrictions applied by China in the field of FDI in particular affect foreign companies in the

industries targeted by the MIC 2025 initiative, by either blocking their access on the Chinese market[8], or by boosting the transfer of technology to the local partners as a condition for approving the inflow of capital. In any case, according to the same report, the pressure in terms of technology transfer was also felt by foreign companies operating in traditional sectors – not included in the objectives of the MIC 2025 strategy – in which China tried to obtain state-of the-art technologies by applying specific conditions to established joint ventures.

Also, another way in which national authorities – at central, municipal or local level – seek to boost technology transfer is the permanent revision of administrative formalities and of investment authorisation procedures that have to be completed by foreign companies in order to establish or expand operations in the Chinese market.

However, to maintain an objective analysis, several clarifications are required in relation to what has been shown above. First of all, it is very difficult and in certain cases even impossible to quantify the effects of applying limitations to FDI flows (Gros, 2019). As regards the limitations applied by the Chinese authorities on the inflows of capital, the compound index calculated by the OECD for measuring the degree of openness of national economies to FDI shows significant improvements over the last decade[9], even if for this indicator the country continues to be positioned at the bottom end of the hierarchy among the organisation's member countries (OECD, 2019). Also, the term "forced" – in the phrase *forced transfer of technology*, used in all reports prepared by the US authorities cited – suggests certain constraints that are incompatible with the economic definition of the investment act.
If in the past China was for the companies in the developed countries a destination where they could capitalise their property assets, such as superior technological and innovating capabilities, while competing local companies were in a position of inferiority, at present Chinese enterprises have become significant contenders in many sectors and fields of activity (Liu, Serger-Schwaag, Tagscherer, & Chang, 2017).

2. Elements of economic theory regarding foreign direct investments as vectors of technology transfer

2.1 Ways in which technology transfer is propagated through FDI

The role, position and potential that multinational enterprises (DMNEs) have worldwide in the process of creating, distributing and controlling technology designate them as main suppliers of advanced technologies and knowledge necessary and indispensable for host economies to be able to improve their own production base. As a result, they can play a significant part both in increasing the degree of technologization and competitiveness of the companies in the markets they penetrate, and in the process of mitigating the technological gaps between countries. Technology can be incorporated in the production process in various products (e.g. capital assets comprising embedded technologies) and usually involve cross-border flows of physical assets and/or of tacit or explicit technical knowledge, such as organisational, managerial or other skills.

Among the methods that allow countries to "import" this technology one way or another – namely FDI, licencing and international trade – the most viable option is represented by foreign direct investments, not only because of costs[10], but also because of other related benefits, which are not present with other types of transfer:
a) FDI comprises both the technology itself, and the full set of complementary resources necessary (managerial experience, entrepreneurial skills, etc.), which may be transferred and learned either

[8] In the sectors in which China has overcome the development gap separating it from developed economies and has already acquired technological self-sufficiency. The purpose of restrictive barriers in these cases is the protection of national industries from external competition.
[9] The index of China's restrictive treatment applied to FDI reached 0.251 in 2018, compared to 0.427 in 2009.
[10] Because in terms of costs and international trade it may represent a viable alternative.

through training programmes, or by hands-on learning, since direct investments are based on the explicit transmission of technology;
b) Many of the technologies and the technical knowledge entailed by their use are not available on the recipient market because they represent intangible assets held by DMNEs on an exclusive basis and offering them property advantages over the local competition;
c) Even in the event of market availability, certain technologies and the related *know-how* become more effective if applied by the company having developed them. This effect is visible in particular with technologies that DMNEs create precisely in order to achieve specific objectives, or when the human resources available to these companies have skills that enable the particularised use of those technologies;
d) Also, technology exchanges via FDI is accompanied by a complex "package" of features specific to multinational enterprises – such as, for example, marketing and sales experience, secured access to regional and global markets, trademark names, economies of scale, etc. – enabling a more efficient exploitation of the technologies thus received.

In light of the above, international studies conclude that FDI represents a major driver for technological exchanges, with a direct contribution to the efficient use of new technologies, resulting from the three main lines of action imposed on the host country's economy (shown synthetically in Box 3).

Box 3: Effects of foreign direct investments on the host country's technological progress

FDI		
Bringing in technologies that were not previously used in the beneficiary economy, thus determining the production and consumption of new goods.	FDI incorporating technological components that determine the introduction or development of new skills required for the respective technologies to become operational (with all related externalities).	The transfer of new ideas and knowledge stimulates the degree of internal innovation and the increase of national technological creativity, seen in the companies' capacity to generate new ideas driving increased productivity.

Source: Author's adaptation after Romer (1993).

As regards effects on national companies, they are propagated directly and voluntarily[11] in the relation with upstream companies, given the specificity of the parent company, i.e. the undeniable interest of transnational companies to benefit from highest-quality inputs from their suppliers (Javorcik, 2004).

A series of indirect effects also exist, and they appear in the interaction with local downstream companies (i.e. in related industries, enabling vertical integration), which may benefit from the high quality or low prices of intermediary assets they then include in their own production processes. Another category of indirect consequences occur in the process of technology dissemination via horizontal "links" (i.e. the links between the subsidiaries of multinational enterprises and the local competitors), also comprising the so-called "demonstration effect"[12] that results from the initiative of local competitors to adopt, through imitation, certain technologies successfully used by DMNE subsidiaries.

[11] A potential involuntary consequence of technological transfer is the tendency of local companies to imitate the specific technologies of transnational corporations present on the market. Although the reverse engineering practice is more frequently used in developed countries, certain analyses (Blomström, Kokko, & Zejan, 2000) show that this process may lead to the growth of the national technological level, favouring the production of high-quality goods.
[12] In the economic literature, the concept of "demonstration effect" describes the possible reaction of internal competitors who, being exposed to the superior technologies of transnational companies, will try to improve their own production methods, often by imitation (Saggi, 2000).

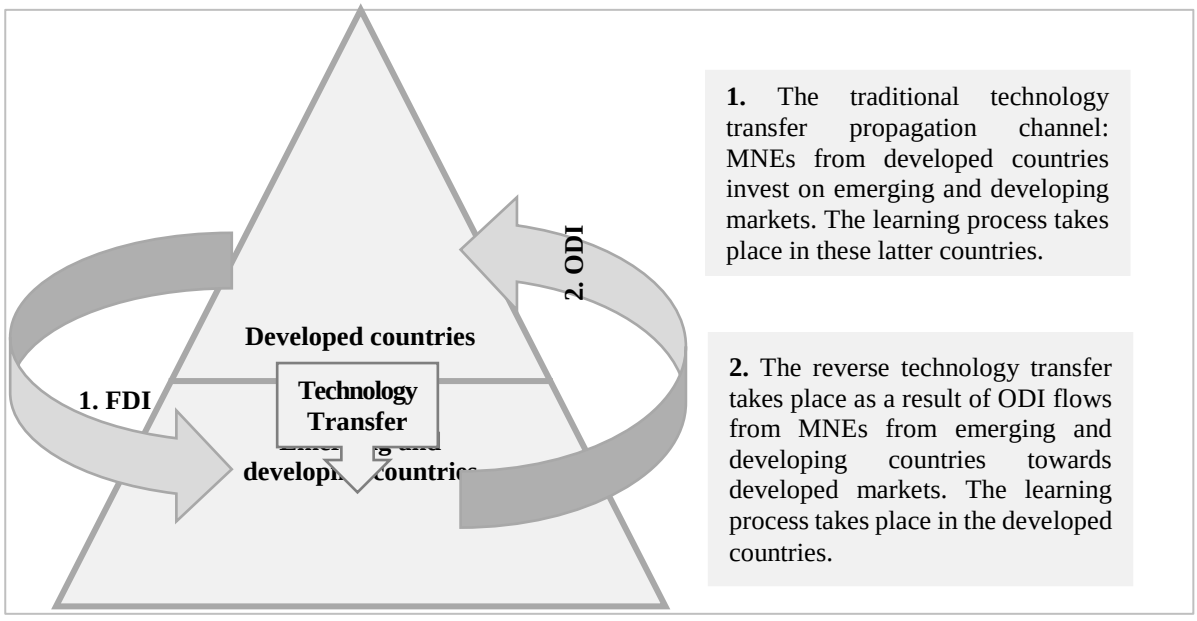
A catalyst for the propagation of technology exchanges is the emergence of regional industrial production systems (Slaughter, 2002). Within these, through the interaction established between the subsidiaries of multinational enterprises and local companies, the latter benefit from a facilitated access to a wide range of specialised intermediary inputs incorporating advance knowledge which, when acquired, increases the total factor productivity (TFP) of local manufacturing companies (Rodriguez-Clare, 1996). Also, national companies in the same industrial sector may receive and "learn" technological information from the DMNE local subsidiaries, as a result of informal connections.

As a consequence, with respect to the potential impact of technology transfer on receiving companies, most analyses are of the opinion that on the short term, these companies may benefit from increased productivity, from the diversification of production or from the decrease of production costs, while on the long term, the results obtained will depend on the individual ability to develop and improve own technological capacities.

2.2 ODI contribution to the inflow of technology

The growing tendency of investment flows from emerging and developing economies towards developed countries, manifested more poignantly during the last decade (UNCTAD, 2017) generated a worldwide need to study this phenomenon and the motivations behind it. As multinational enterprises from emerging markets (EMNEs) do not have technological resources similar to those of DMNEs – which makes it impossible to consider that their motivation for internationalisation is to exploit competitive advantages on external markets (as explained by classic theories) – the main determining factor for their decision to invest abroad is to obtain strategic assets. As a result, in order to acquire knowledge, EMNEs invest in economies that are rich in technological resources, from where they purchase strategic assets which they then use on their markets of origin (reverse technology transfer – Figure 3) (Huang & Zhang, 2017).

Figure 3: Ways in which technology transfer is propagated from developed economies towards



emerging economies: the traditional channel and reverse technology transfer

Source: Author's adaptation after Amann & Virmani (2014) and Govindarajan & Ramamurti (2011).

Most often, external investments in search of technology seek to gain explicit knowledge – as opposed to the tacit or observation-based methods of learning[13] – from developed economies, because it includes informal skills and competences the learning of which requires the presence in the host

[13] Which can be more easily acquired from technology markets (e.g. by licencing).

countries, with hands-on learning from the advanced skills and experience of the staff involved in research and development.

The reverse propagation of technology, through acquisition from the host (producing) country and transfer to the investing company's country of origin may take place through several mechanisms:

- The purchase of new technologies related to the EMNE's basic activity or to compensate technical disadvantages may take place through merges and acquisitions. External partnerships provide access to a wide range of knowledge resources;
- The conclusion of strategic alliances related to the innovation infrastructure with suppliers, distributors, customers and sometimes even with competing companies, as a specific method for companies in technology-intensive industries. Alliance partners may obtain resources through joint learning and sharing processes, thus reducing both the time required for creating a new product, and the costs generated by its development or the investments in the fixed assets required for production;
- The internationalisation of the EMNE research and development activity to benefit from the localisation advantages offered by the host country[14] in the field of science and technology. As such, through their subsidiaries, companies acquire diversified technological inputs, organise inter-cultural teams and obtain a series of other complementary resources enabling them to organise labour division at international level;
- The imitation of and learning from local companies, by means of interactions with the downstream and upstream companies in the host county.

The instrument that has a catalyst effect for knowledge transmission channels towards EMNEs is represented by the competition effects that encourage the innovation processes implemented by these companies both directly, and indirectly, through production techniques or management skills.

3. Particularities and recent trends in the evolution of investments received by China

As China advances in its new development cycle and in its reform process, the need to absorb FDI has been increasingly felt at national level – both in terms of financial capital, and in terms of advanced technologies, managerial expertise and quality production – as a way of facilitating the industrial development process and supporting the transition towards an innovation-intensive and consumption-dominated economy.

Given that there is an awareness of the need for foreign entrepreneurial capital to achieve all these objectives, at the launch of the *13th Five-Year Plan* – (2016-2020), the Chinese government proposed the development and launch of new policies to contribute to the "full openness" of the national economy and to stimulate FDI inflows, by facilitating their access to new economic sectors and by relaxing the restrictive barriers existing on the market (NDRC, 2016). Concrete actions in this direction were implemented by the national authorities one year later (2017), in two distinct stages: *i)* with the publication of the *Circular of the State Council on Several Measures Concerning the Expansion of Opening Up and Active Use of Foreign Capital* (State Council of the People's Republic of China, 2017a)*;* and *ii)* by enhancing FDI scope as a result of introduction of new *Measures to Boost the Growth of Foreign Investment* (State Council of the People's Republic of China, 2017b).

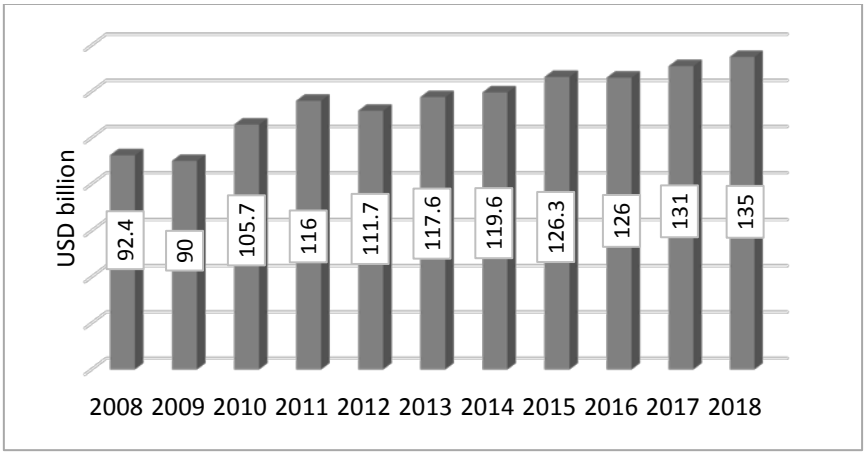
The two documents comprise a package of measures aimed at improving the tax framework, the tax support policies and the national business environment, and at developing platforms to strengthen China's cooperation with other countries. Later on, the same year, at the 19th CCP National Congress, the Chinese policy-makers emphasized the major role FDI has in stepping up technological modernisation and in obtaining the status of a country with an innovation-based economic growth,

[14] Localisation advantages result from the use of an investing company's property advantages in foreign country, where the assets (regardless of their nature) are specific to that location and are available to all companies participating in that market (country-specific advantages).

reiterating at the same time the need of implementing additional measures meant to contribute to: *a)* the increased openness of the services sector; *b)* the defence of the rights and interests of foreign investors; *c)* the stimulation of foreign investments in the Western part of the country; *d)* the offering of more autonomy to free trade areas; e) the application of a non-discriminatory treatment to foreign companies. Through the change of paradigm and the gradual evolution of national policies and of the national legislation on investment inflows, from restrictions to the encouraging of FDI inflows and the promotion of an active selection, funding from foreign investors became both a major vector in supporting China's technological and industrial modernisation, and a favourable factor for maintaining a dynamic competition environment.

Given its immense market potential, the relatively low cost of labour and the increasingly comprehensive policy encouraging foreign investment inflows applied by the national authorities over the recent years, FDI flows grew gradually since 2012 (with the exception of 2016, when they stalled), with China now being the second largest recipient of FDI worldwide, after the US[15] (UNCTAD, 2019).

Graph 1: Evolution of FDI flows received by China in the period 2008-2018*



Note: * The latest available data in the database cited.
Sources: Statistical Yearbook drawn up by NBSC (various years).

As a result of the favourable evolution of flows over the recent years, in 2017 (the latest data published by the Chinese National Statistics Office in an international language), China's foreign direct investment stock exceeded the USD 2,000 billion ceiling, totalling approximately USD 2,011 billion (MOFCOM, 2018).

The active policy led by the Chinese government for promoting the development of modern services and state-of-the art production techniques, in order to improve the structure of national industry, was reflected accordingly in the FDI flows. As such, in the period 2008-2017, foreign direct investments in the processing industry registered a negative average growth rhythm (-1.5%), while the average rhythm in the tertiary sector was of 12% (Table 1). Also, as it can be seen from the analysis of the data presented, after 2015 (the year when the MIC 2025 strategy and the related policy measures were adopted), the share of FDI in the IT&C sector saw spectacular increases.

Table 1: FDI growth rhythm in the main economic sectors in China in 2008-2017 (%)

	Processing industry	**Total services**	**Real estate transactions**	**Education**	**Finance**
2008	22.1	24.7	8.8	12.2	122.5
2009	-6.3	-1.6	-9.7	-63.0	-20.3

[15] Beginning in 2013, China was permanently among the first countries receiving FDI. In 2017, it overcame the United Kingdom which held the second position in this top.

2010	6.0	29.5	42.8	-39.4	146.3
2011	5.1	18.7	12.1	-51.7	70.0
2012	-6.2	-0.3	-10.3	770.1	11.0
2013	-6.8	17.0	19.4	-4.0	10.0
2014	-12.3	13.2	20.2	15.1	79.5
2015	-1.0	10.2	-16.3	38.0	258
2016	-10.2	3.7	-32.2	224.1	-31.3
2017	-5.6	5.0	-14.2	-17.9	-26.7
Average 2008/2017	-1.5	12.0	2.0	84.1	61.9
	Transport, storage and postal services	**Scientific research and technical services**	**Wholesale and retail**	**Information technology and communications**	**Leasing and commercial services**
2008	42.1	64.2	65.6	86.8	25.9
2009	-11.4	11.2	21.6	-19.0	20.2
2010	-11.2	17.5	22.4	10.7	17.3
2011	42.2	25.0	27.7	8.6	17.6
2012	8.9	26.0	12.3	24.4	-2.0
2013	21.4	-11.2	21.7	-14.2	26.2
2014	5.7	18.3	-17.8	-4.4	20.5
2015	-6.5	39.2	27.1	39.2	-19.5
2016	21.6	44.0	32.0	120.1	60.5
2017	9.8	5.0	-27.7	147.8	3.8
Average 2008/2017	12.3	23.9	18.5	40.0	17.1

Source: NBSC, Statistical Yearbook (various years).

These trends indicate that FDI flows are being redirected from traditional production towards technology-intensive manufacturing process and towards modern services. Foreign companies therefore adapted the sectoral structure of their investment flows in China to be able to tap into the new industrial development trends and into the growth generated by these changes, focusing their investments towards high added value industries, to enhance the profitability of their operations on the Chinese market.

Also, of all foreign companies that invested in China in 2017, around 40% (14,000) operate in high tech industries, the value of investments made reaching around USD 719 million and accounting for approximately 27.4% of all annual flows.

Table 2: Statistics on FDI flows in the field of high technologies in 2017

	Number of investing companies		**Investments made**	
	No.	**%**	**Value** (USD mil.)	%
TOTAL, of which:	35,662	100	1,310	100%
High tech industries	7,022	19.7	359.6	26.4

High tech production	1,032	2.9	98.9	7.3
High tech services	5,990	16.8	260.7	19.1

Source: MOFCOM (2018).

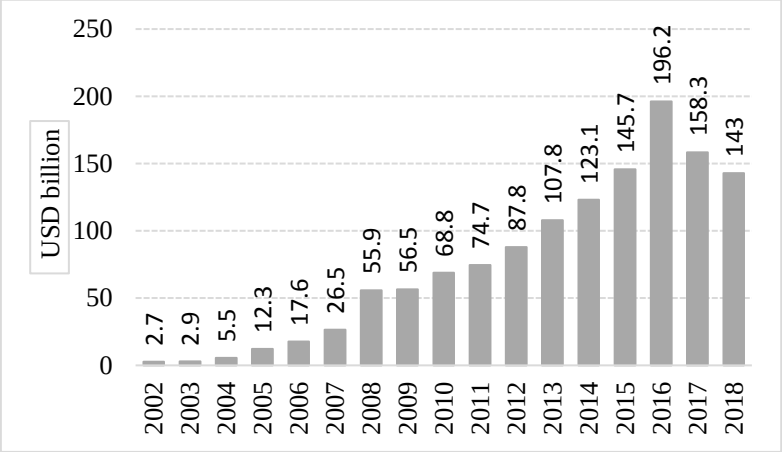
4. Chinese external investments: points of reference, influencing factors and recent trends

Strategic motivations that supported the advance of Chinese external investments evolved gradually, from the simple concern for ensuring the natural resources required by national industries and the access to new outlets for the local production, to the finding of new RDI resources, capable of favouring the rapid absorption of cutting-edge technologies and higher national standards in terms of skills and competences, determining the increased international competitiveness of national companies. In other words, two imperatives – a higher degree of production sophistication and obtaining a high position in the global value chains – became strong incentives for the internationalisation by means of ODI of the activity of Chinese companies which in this way were able to access a series of intangible assets impossible to replicate, such as intellectual property, internationally renowned trademark names or human resources with global operating skills, etc. (Rosen & Hanemann, 2009).

At present, based on the new strategic direction of economic development adopted by China – focused on innovation in all production fields and on increased quality as opposed to quantity – as well as based on the sustained efforts made by the Chinese authorities to achieve these objectives, the country's internationalisation policy entered a new stage. At the same time, the increased market power of national companies not only supports the global distribution of Chinese capital, but also China's industrial transformation process from a follower to a future high-end technology and innovation leader. As such, over the recent years, outward Chinese investments were mainly channelled towards high added value production activities or towards those that encompass the entire production chain, thus being able to generate a reverse technology transfer resulting in the modernisation of the related industries in the national economy (EY, 2019).

After 2000, with the launch of the outward openness policy, according to which government authorities launched an ample action of encouraging and supporting the internationalisation of local companies, China rapidly became a major source of global investments. As such, Chinese outward investment flows significantly increased for 14 consecutive years (Graph 2), and in 2018 the country achieved the performance of accounting for around 13% of global ODI flows[16] (compared to the share of only 0.5% it had in 2002).

Graph 2: Chinese outward investment flows in the period 2002 -2018*



Notes: * The latest data available in the database cited; the Department for the Collection of Foreign Investment Data within China's National Bureau for Statistics (NBSC) was established only in 2002 – until then the data were not centralised at

[16] In 2018, total ODI flows worldwide amounted to USD 1,014 billion (UNCTAD, 2019).

national level. In accordance with the statistical methodology used by the NBCS and the MOFCOM, until and including 2006 the data related to outward investment flows and stocks did not comprise FDI in the financial sector (MOFCOM, 2011).
Sources: Statistical Yearbook prepared by the NBSC (various years).

Furthermore, in this interval, China achieved two major performances: *i)* in 2014 the country managed for the first time to obtain the status of net investor – a status that it still holds today – with a value of investments generated higher than that of investments received (Graph 1 and Graph 2); and *ii)* in 2016, it outperform Japan and for the first time ranked second in the hierarchy of world investors after the US. China lost this position in 2017, being again outperformed by Japan (UNCTAD, 2018), but regained it in 2018, this time ranking after Japan who ranked first in the top of main worldwide investing economies (UNCTAD, 2019).

As shown by the data presented in Graph 2, in 2018, Chinese investment flows slowed down by around 10% compared to the preceding year, a trend that was determined by the aggregated action of both internal, and external factors:

- *First of all*, beginning with the second half of 2016, Chinese authorities applied new regulatory measures in order to persuade national companies to manage in a more "reasonable" way their investments on external markets, by prioritising strategic fields. In August 2017, the central government adopted a document comprising a series of additional restrictions aimed at foreign investments in assets from the real estate sector, the hotel industry, entertainment, etc., encouraging in exchange the cooperation with foreign companies in the field of high-end technologies and the "judicious" expansion of investment flows targeting the services, commerce and logistics fields (State Council of the People's Republic of China, 2017c).
- *Secondly,* a stricter regulatory framework and the introduction of more comprehensive procedures for the monitoring and verification of investments in economies that were traditional favourites for Chinese ODI (e.g. in the US, the EU, Japan), caused the reduction of the number of Chinese mergers and acquisitions in these countries;
- *Thirdly*, uncertainties persistent worldwide weakened the confidence of Chinese companies in the international business environment, lowering their investment appetite (EY, 2017).

In 2017 (the last year for which China's National Bureau for Statistics published data in an international language), mergers and acquisitions continued to be the main method chosen by the Chinese companies for accessing foreign markets[17]. In accordance with the national statistical data (MOFCOM, 2018), the 431 transactions operated by Chinese companies targeted 56 countries (regions), and M&A totalled USD 119.6 billion, decreasing by around 11.6% compared to the preceding year on account of the effects of the factors listed above (Table 3).

Table 3: Value of Chinese mergers and acquisitions in the period 2015-2017*

	Value of mergers and acquisitions (USD bn.)	Annual changes (%)	Share** in total ODI flows (%)
2015	54.4	-4.3	25.6
2016	135.3	148.6	44.1
2017	119.6	-11.6	21.1

Notes: *The last year for which the Chinese National Bureau for Statistics published data in an international language; **Beginning with 2012, the NBSC calculates the total value of mergers and acquisitions by including the financing of foreign companies (through the increase of their capital), and therefore the share refers to the share of direct investments in total ODI flows.
Sources: MOFCOM (2018).

[17] The prevalence of mergers and acquisition over "greenfield" projects is a trend that has been visible since as early as 2008 in relation to Chinese ODI flows (with the exception of year 2014), indicating that Chinese companies aligned themselves to the worldwide trend in terms of internationalisation through ODI, and also that the country's investment model reached a level of maturity (KPMG, 2018).

In concrete terms, of this total value, direct investments amounted to USD 33.5 billion (accounting for 28% of the annual value of mergers and acquisitions and 21.1% of annual ODI flows in 2017), while approximately USD 86.2 billion (72% of the annual value of mergers and acquisitions) were allocated to the financing of foreign companies (through capital increases), which again saw a historic high.

As regards the M&A distribution at sector level, both in terms of value of transactions, and in terms of number of projects, the processing industry was the most attractive sector for Chinese investors in 2017 (Table 4).

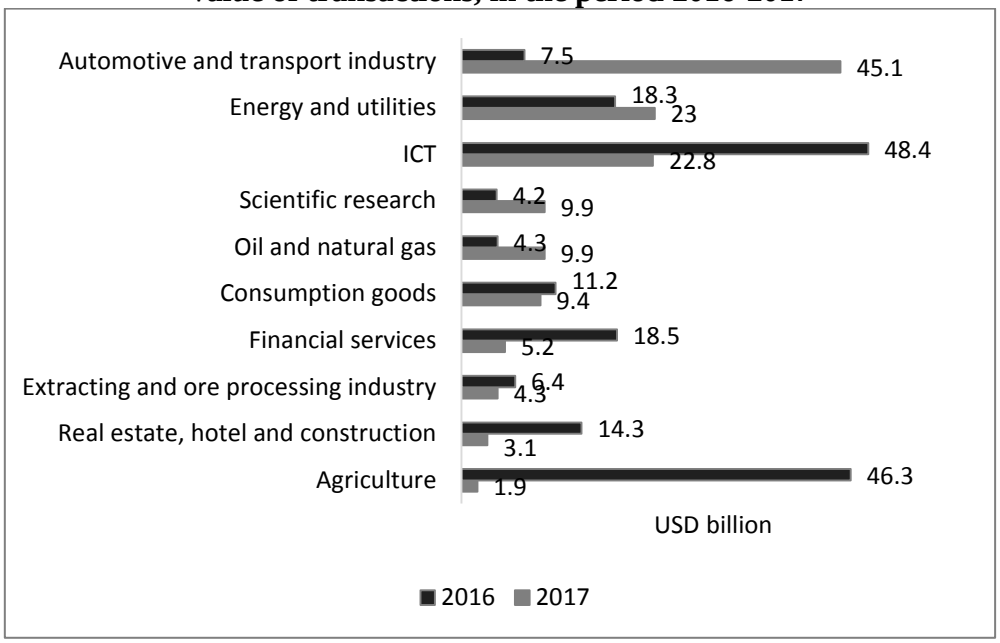
Table 4: Sectoral focus of Chinese mergers and acquisitions in 2017

According to the value of transactions	According to the number of transactions
1. Processing industry: USD 60.7 bn (50.8% of the total)	**1.** Processing industry: 163 projects (37.8% of the total)
2. Mining industry: USD 11.4 bn (9.5% of the total)	**2.** Wholesale and retail: 45 projects (10.4%)
3. Production and distribution of electricity, gas and water: USD 10.2 bn (8.5% of the total)	**3.** ITC, software and IT services: 42 projects (9.7%)

Source: MOFCOM (2018).

According to the statistical information published by international databases (MergerMarket, 2019), which enable a more detailed breakdown, in 2017, the transactions with the highest value were concluded in the following sectors: *i)* automotive and transport; *ii)* production and distribution of energy and utilities; and *iii)* technology, media and communication (TMC), the three accounting for over 75% of the China's total external mergers and acquisitions (Graph 3).

Graph 3: Sectoral distribution of China's external mergers and acquisitions according to the value of transactions, in the period 2016-2017



Source: MergerMarket (2019).

As shown by the data presented in Graph 3, the increased depth of structural adjustments and reforms implemented by government authorities over the recent years contributed to an adjustment of

the preferences of Chinese investing companies, whose interest focus more on foreign companies that have the capacity to support the national economy's modernisation process and, implicitly, its advancement in the global value chains.

In fact, in accordance with the data published in the national statistics, in 2017, ODI flows focused on four sectors that cumulated around 70% of total Chinese external investments: leasing and business services (34.3%), processing industry (18.6%), wholesale and retail (16.6%) and the financial brokerage sector (11.9%). An atypical evolution was seen in terms of ODI flows towards the extracting industry, which not only decreased by around 3% compared to 2016, but for the first time had negative values, as a result of a divestment process that was started in this sector. Significant reductions were also noted in the case of Chinese investment flows in the IT&C sector (of approximately 76%) and real estate transactions (around 56%), caused in the first case by the increased difficulty in concluding transactions in this field as a result of measures implemented by the EU and the US and, in the second case, by the perceived effects of new regulations imposed by China to limit "irrational" real estate acquisitions.

5. Conclusions

For approximately two decades, foreign direct investments in China were mainly motivated by the localisation advantages resulting from the low cost of production factors, and were mainly focused on industrial and processing sectors located at the bottom end of the global value chain. With the improvement of the economic structure and, implicitly, of the advantages held, investing companies changed their approach both in terms of sectors of destination, and in terms of how the investments were carried out.

At the same time, foreign companies established collaboration relations with the central and local authorities, both in order to better satisfy the requirements of the internal market, and to be able to adjust their traditional production model – "Made in China" and "Made for China" – towards one that could better fit with the current economic reality, namely "Made with China". The current change of paradigm was materialised not only through the quantitative increase of foreign investments in China, but also through a qualitative increase, in the sense that investments were reoriented towards high value added sectors, research and development, trademark names, robotics, etc. This new trend is also reflected in the decisions of certain large multinational enterprises to transfer their regional offices – or even global offices in certain cases – to China, placing investments in the Chinese economy at the core of their global operational and investment strategy.

Although Chinese companies gradually adapted to the processes required by the carrying out of operations on external markets, they have now began making more rational assessments of their investments, placing increased focus on the need to acquire international high-quality assets. This change in the reason for investment was manifested in the shift of interest towards new regions and economic sectors which had the resources required for the fulfilment of the strategic objectives proposed.

"Focus on quality" was the main strategic target of the Chinese government policies, in particular after the 18th CCP National Congress (2012), when the development model based on cutting-edge technologies and innovation was introduced as a central element of the national medium- and long-term approach. Since then, the central authorities published a series of policies meant to guide investment flows towards accessing high-quality operational resources which are able to facilitate the country's industrial modernisation, the improvement of the local innovation capacity, in order to better contribute to a higher quality of consumption. By approaching external markets, Chinese investing companies acquire new technological capacities, which will enable them to advance in the global value chains.

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