



The Mexican Decade:  
The 1<sup>st</sup> derivative is here

October 2023



TEMPEST CAPITAL  
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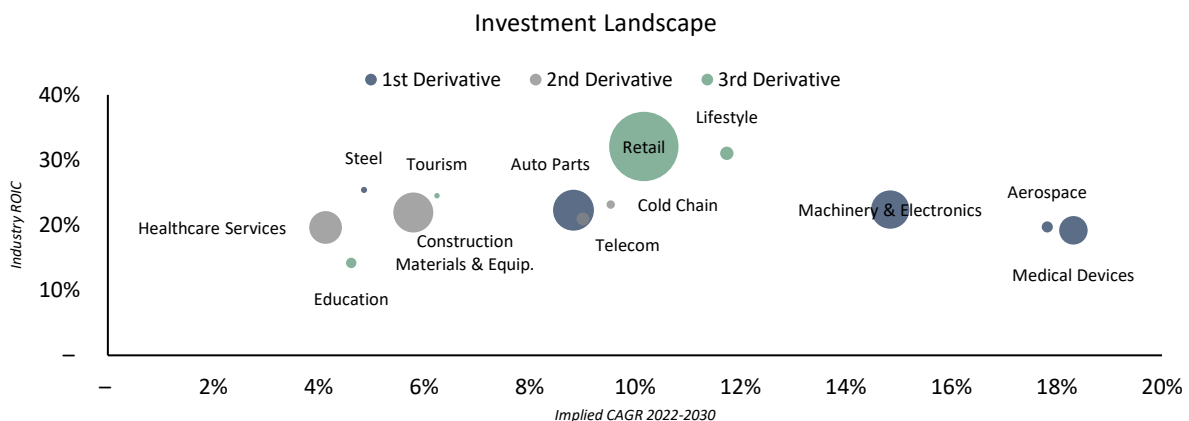
## Summary

Xi Jinping and Vladimir Putin have done more for promoting foreign investment into Mexico than any government program could ever dream. The shift from globalized supply chain efficiency to supply chain security is driving investment and giving rise to the “Super Peso”. Just over three years ago, we published our landmark article “The US-China Divorce: Rise of the Mexican Decade”<sup>1</sup> which garnered almost a million views. We led the article with the now infamous phrase that “when mommy and daddy fight children get toys”. Today Mexico is comfortably smug sitting at the back seat of the minivan as it is driven to the promised PlayStation 5.

Our original predictions were surprisingly accurate with a projected average annual increment of ~US\$ 13.3 billion in FDI for Mexico starting by 2023. New investments shifted FDI structure from an average 36% from 2016-2019 to nearly 50% in 2022, surpassing a 12-year average<sup>2</sup>. Our updated estimate envisions an annual increment of US\$ 14.4 billion in Mexican FDI that will drive GDP growth from its current 1.8% CAGR 2022- 2030 estimates to 4.4% CAGR.

Industrial parks have reached 97.5% occupancy with Northern State reporting near complete occupancy. Industries including transportation, electronics, and machinery are already subject to substantial amounts of foreign investment. Tesla recently announced the establishment of a US\$ 10 billion manufacturing plant in Nuevo Leon<sup>3</sup>. Meanwhile, Airbus announced increasing aerospace defense manufacturing capabilities in the Queretaro aerospace corridor, including production of the Super Puma. Foxconn is closely following suit.

We expect the flow of investments to create first, second, and third order of opportunities amounting to US\$ 400B. First derivatives opportunities directly benefit from the initial flow of investment. These include manufacturing and logistics sectors that are an immediate priority for Western economies (US\$ 136 B). Second derivative effects will accrue as result from the consumption needs of a growing Middle Class (US\$ 96 B). Third derivative will benefit from the emergence of significant disposable income (US\$ 170 B).



<sup>1</sup> [https://www.linkedin.com/posts/sebastianmiralles\\_the-us-china-divorce-the-rise-of-the-mexican-activity-6640336104128073728-DwpG?utm\\_source=share&utm\\_medium=member\\_desktop](https://www.linkedin.com/posts/sebastianmiralles_the-us-china-divorce-the-rise-of-the-mexican-activity-6640336104128073728-DwpG?utm_source=share&utm_medium=member_desktop)

<sup>2</sup> Secretaría de Economía (2023)

<sup>3</sup> Council on Hemispheric Affairs (2023)



<b>First Derivative Investment Opportunities</b>		<b>Investment Opportunity</b>
Automotive	Inflation Reduction Act and USMCA production requirements and rules of origin poised Mexico's to play a key role in onshoring the US auto industry.	US\$ 55 bn
Aerospace	Through high added value manufacturing and raw materials, Mexico can leverage on its highly qualified profile and preferential access to US markets to capture the new opportunities in niche markets.	US\$ 4 bn
Machinery & Electronics	CHIPs Act and the US's need for supply security on electronic components and machinery.	US\$ 48 bn
<b>Total</b>		<b>US\$ 136 bn</b>
<b>Second Derivative Investment Opportunities</b>		<b>Investment Opportunity</b>
Telecom	Critical sector deficits pose a catch-up opportunity in tower development, data centers, fiber optics, and 5G networks.	US\$ 6 bn
Construction Materials & Equipment	Lagging industrial and government infrastructure present attractive relative returns for associated services with ROIC's up to 35%.	US\$ 53 bn
Cold Chain	Refrigerated transportation infrastructure is favorably distributed as well as fragmented, posing an exciting potential to consolidate and distribute refrigerated high-added-value products across Mexico and into the US.	US\$ 2 bn
<b>Total</b>		<b>US\$ 96 bn</b>
<b>Third Derivative Investment Opportunities</b>		<b>Investment Opportunity</b>
Retail	The retail market in LATAM has saturated in its main geographies reaching ~10% vacancy rates. Opportunity to address capacity through innovative strategies.	US\$ 159 bn
Tourism	Increasing vacation periods and nearshoring's demographic redistribution poses an opportunity to source tourism towards emerging economic zones by integrating services and infrastructure.	US\$ 2 bn
Education	Arrival of international technical universities, proximity to US programs, and links to the private sector will drive opportunities in new industrial densifications.	US\$ 4 bn
<b>Total</b>		<b>US\$ 170 bn</b>

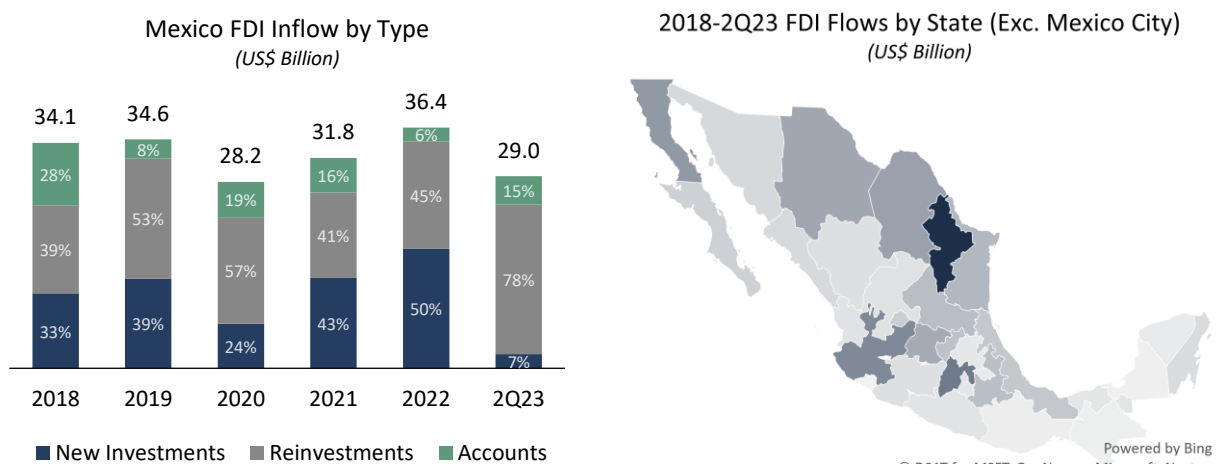
Challenges and risks are real, though overstated. These shall be overcome by the magnitude of the geopolitical tailwinds; too much is riding on nearshoring to succeed. While certain pundits point to "friendshoring", and "ally shoring" these acronyms only seek to hide that true security only comes from control of your supply chain. There is no substitute for geographic proximity, and Mexico is the only country that fits the bill for supply chain security. Politically, Mexico has matured into a highly vocal democracy with a Supreme Court that is arguably more predictable than the USA. Security remains challenging in specific troubled states but is showing improvements.



## The Mexican Decade is here

Our seminal 2020 paper “The US-China Divorce – Rise of the Mexican Decade” outlined the case for FDI<sup>4</sup> previously transacted amongst the US, CN, and the EU being redirected towards Mexico. This was the long-awaited catalyst for the transformation of Mexico into a developed economy. Other respected investment research houses have now produced similar projections<sup>5</sup>. Mexico’s positive nearshoring tailwinds were confirmed by the US’s FDI position with a US\$ 9.5 billion increase from 2020 to 2022 (36.5% CAGR), reaching over 68% share of New Investments in Mexico. Mexico is firmly entrenched as the United States’ largest trading partner.

According to the Mexican Association of Industrial Parks (AMPIP), vacancy rates have declined from 5.5% in 2019 to 2.1% in 2022<sup>6</sup>. Roughly 90% of demand for industrial parks has been fostered by the Northern region. According to AMPIP’s CEO Claudia Esteves, vacancy rates in this region have dropped to ~0%. Multiple high-profile companies have announced new investments or increased presence in Mexico including Tesla, Foxconn, Quanta, Airbus, GE, amongst others, with commitments of +US\$ 15 billion.



Over the past decade (2015-2019) new investments represented ~34% of FDI. These quickly outperformed pre-pandemic figures by over US\$ 117 million and reach 43% of FDI in 2021, followed by a 9-year high of +US\$ 18 billion at a 50% share in 2022. As of the 2Q of 2023, the structure changed once again, with a significant increase in international reinvestments, reporting an all-time-high of US\$ 22 billion<sup>7</sup>.

Manufacturing has been the foremost beneficiary, out of the US\$ 194 billion FDI (2018-2Q23) representing 45% of inflows; in second place, financial services reported 18%, followed by mining (6.7%), commerce (both wholesale and retail) with 6%, media and logistics with 5.3% respectively, and hospitality services with 4.5%. During this period Mexico City captured the largest share (25%), followed by Nuevo Leon (~11%), Edo de Mexico (~7%), Jalisco (~6%), and Baja California (~5%).

<sup>4</sup> Tempest Capital: The US-China Divorce (2020)

<sup>5</sup> Morgan Stanley & BBVA (2022)

<sup>6</sup> AMPIP (2023)

<sup>7</sup> Secretaria de Economía (2023)



### Opportunity Update

From 2015 to 2017, FDI flows from the US to CN, from CN to the US, and from the EU to CN reached, on average, over US\$ 50 billion per year<sup>8</sup>. Our previous estimates envisioned Mexico capturing roughly 30% of the total FDI volume amongst these countries on a 3-year moving average. The updated figures represent a US\$ 1.1 million increase from our 2020 estimate.

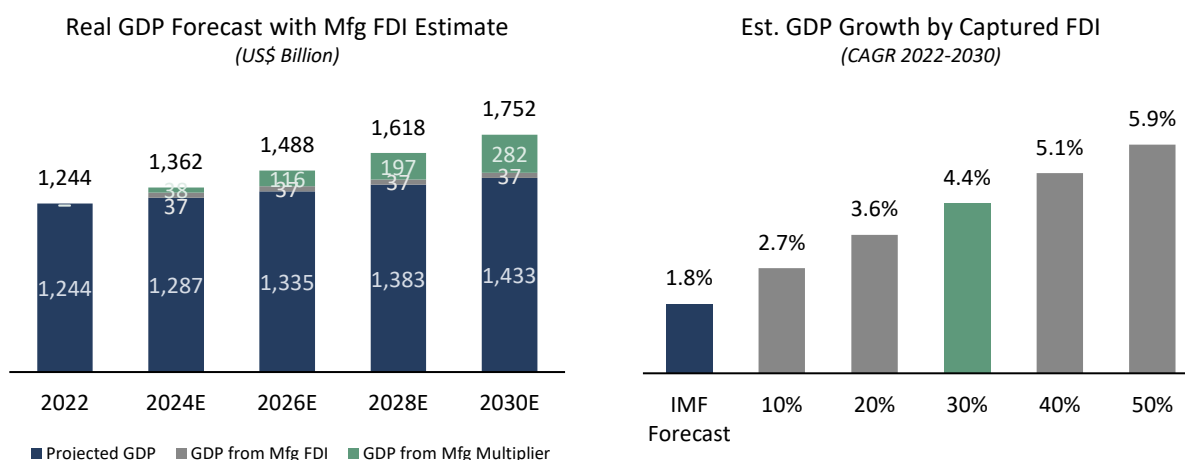
		Estimated FDI Mexican Opportunity (US\$ MM)				
		Annual FDI Reallocated to MEX (%)				
		10.0%	20.0%	30.0%	40.0%	50.0%
15 - 18 Avg. FDI Flows (US\$ MM)	38,860	3,886	7,772	11,658	15,544	19,430
	43,178	4,318	8,636	12,953	17,271	21,589
	47,976	4,798	9,595	14,393	19,190	23,988
	52,773	5,277	10,555	15,832	21,109	26,387
	58,051	5,805	11,610	17,415	23,220	29,025

Source: Tempest Estimates (2023)

Incremental investments already exceeded this estimate by 1.2x in 2022, however we temper our exuberance as this success was skewed by a series of high-profile investments that may not be entirely representative of a recurring base scenario.

Manufacturing is the clear catalyst of economic transformation due to its GDP multiplier effect of 2.6x on other economic sectors<sup>9</sup>.

This US\$ 14.4 billion per year would translate to a compounded US\$ 37.4 billion impact per year in GDP over the next 10 years<sup>10</sup>. This translates to a GDP growth opportunity of 4.4% CAGR 2022-2030. Mexico would end the decade with real GDP reaching US\$ 1.75 trillion.



<sup>8</sup> Rhodium Group (2021)

<sup>9</sup> NAM (2023)

<sup>10</sup> IMF, OCDE, NAM, Tempest Estimates (2023)



## First Derivative Opportunities

### Auto Parts

Mexico’s auto industry is the 7<sup>th</sup> largest producer of motor vehicles worldwide, comparable to South Korea and Germany, both within a 300-thousand-unit deficit in 2022<sup>11</sup>. It is also the fourth largest Auto Parts producer and the US’ main supplier with exports accounting for ~88% of the total production.

The Auto Parts industry has represented, on average, 1.2% share of GDP over the past decade (or ~8% of manufacturing GDP), growing at a 5.5% CAGR 2015-2022<sup>12</sup>. The industry has also been recipient of an average ~6.8% of FDI since 2012<sup>13</sup>. At an average 10-year ROE of 17% adjusted for Mexico’s EMBI spread of ~3.7%, the Mexican industry has a projected ROE of 22%. There is a 2.3x deficit in exports per capita when compared to some of the top global car exporters equivalent to US\$ 55 billion opportunity.

Mexico’s key role in US downstream auto production is a cornerstone for the onshoring of the US’ own automotive industry. The whole auto industry is expected to benefit from “The Mother of all CAPEX Cycles”<sup>14</sup> given its largely developed capabilities, the Inflation Reduction Act (IRA), and certain USMCA provisions regarding rules of origin. The IRA envisions a ramp up in energy production and manufacturing, where it seeks to source up to 40% of battery components from the US’ immediate trade partners. The USMCA, on the other hand, requires 75% of a vehicle’s content to be produced in North America. Jointly with Mexico’s highly capable and deeply rooted auto industry, this has potential to catalyze investment across Mexico’s downstream auto and Electric Vehicle (EV) production.

OEMs include Toyota (BCN), Ford (SON/CHH/GTO), GM (COA/MEX/SLP), Volkswagen Group (PUE), Nissan (AGS/MOR)<sup>15</sup>, BMW (SLP), and Tesla (NLE). Down the supply chain, Tier 1 and Tier 2 suppliers are located relatively close to these plants, mainly in the states of COA, CHH, NLE, GTO, QRO, PUE, TAM, and MEX.

Automotive & Autoparts Manufacturing Hubs



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Increasing demand for regionally manufactured products will float all boats; from OEMs to Tier 2 suppliers. This includes production equipment, materials, pre-assembled components, cold forging, aluminum die casting molds, tooling, cutting tools, automation process equipment, and raw materials, among other.

Auto Parts	
<b>Investment Opportunity</b>	US\$ 55 billion
<b>MOIC</b>	1.2x

<sup>11</sup> [OICA \(2022\)](#)

<sup>12</sup> INEGI (2023)

<sup>13</sup> Secretaría de Economía (2023)

<sup>14</sup> Morgan Stanley (2022)

<sup>15</sup> CPI (2022)



**Aerospace**

Mexico’s aerospace industry exports over 80% of its total production output to the US. The Aerospace ecosystem partially emerged due to firms seeking to exploit tariff exemptions<sup>16</sup>. This led to the harmonization of manufacturing standards between the US and Mexico and the attainment of global certifications. Today, the ecosystem is supported by technical schools and specialized universities offering high specialization complimentary studies.

Nearly 85% of the industry’s FDI comes from USMCA trade partners, 48% of which is attributable to the US and 36% to Canada. Investment volume reached 2.6x its 2018 value (or US\$ 306.8 million) in 2021<sup>17</sup>. The global aerospace and defense market reported revenues of US\$ 741 billion in 2022 (up 3% from 2021)<sup>18</sup> with a positive outlook mainly rendered by a global military buildup.

The industry’s impact as a percentage of GDP has a 17.6x catch up when compared to the US. Out of the implied US\$ 16 billion, we estimate Mexico will only be able to reach up to 25% of the opportunity over the decade given factors regarding its current industrial base and scalability. The US aerospace industry projects a 19.7% ROE derived from a 10-year average industry yield of ~16%<sup>19</sup> and a ~3.7% adjustment for Mexico’s EMBI spread.

Mexico will continue to act as the foremost destination for aerospace firms seeking to access qualified low-cost labor and raw materials. The opportunity set is expanded as firms expand capabilities to produce medium and large aircraft. Moreover, opportunities also cover fast-growing niche subsectors such as space, drones, MRO, and air transportation logistics, and even military-related supplies.



BCN has the largest number of firms (+125). QRO produces turbine systems (GE & Rolls Royce), jet wings (Fokker, Bombardier, Airbus), landing systems, and engine parts (Safran, GE), some of which announced commitments of +US\$ 120 million in June 2023. SON offers technical support in niche markets (drones, defense, others).

Aerospace	
<b>Investment Opportunity</b>	US\$ 4 billion
<b>MOIC</b>	1.7x

Growing manufacturing capabilities will leverage access to North American markets to establish a robust aerospace platform with harmonized production standards. Although demand in current manufacturing capabilities will continue to grow, more attractive returns can be found in niche sub-sectors such as drones, defense, MRO, and logistics.

<sup>16</sup> US Department of Commerce (2022)  
<sup>17</sup> Secretaría de Economía (2023)  
<sup>18</sup> PWC (2023)  
<sup>19</sup> Capital IQ (2023)



### Machinery & Electronics

Mexico’s second and third largest manufacturing sectors are machinery and electronics with 17.6% and 17.3% share, respectively<sup>20</sup>. In 2018, Mexico was the also the 8<sup>th</sup> largest exporter of electronics<sup>21</sup>, and the US’ #2 supplier for both electronics and machinery.

Geopolitical tailwinds present an additional of opportunity for Mexico through regional nearshoring-oriented policies such as the CHIPs & Science Act. These seek to catalyze investment in domestic semiconductor manufacturing and promote investment as well as the commercialization of innovative IT technologies. These include nanotech, AI, and quantum computing, amongst others<sup>22</sup>.

Machinery is expected to experience the highest growth rate at a ~4% CAGR 2022-2028, followed by Electronics and Electrical Equipment at a 2.9% CAGR over the same period. There is an implied 13x catch up opportunity in market size per capita compared to the US<sup>23</sup> equivalent to roughly US\$193.5 billion in incremental revenues; US\$48 billion realizable over the Mexican Decade.

The average industry ROE reported an 18.7% yield from 2012 to LTM. Adjusted for Mexico’s ~3.7% EMBI spread, the industry has a projected ROE of 22.4%.

Foxconn (the world’s largest contract electronics manufacturer) and Quanta Computer (the largest laptop Original Design Manufacturer) have announced investment of over US\$ 1 billion<sup>24</sup> commitments in NLE.

#### Machinery & Electronics Manufacturing Hubs



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The “Tequila Valley” (Guadalajara, JAL) has clustered the semiconductor production and design due to its large high-tech and high value add manufacturing supported by universities with close links to the private sector. The region hosts several research development centers for companies such as Intel, IBM, and Siemens VDO.

Electronics & Machinery	
<b>Investment Opportunity</b>	US\$ 48 billion
<b>MOIC</b>	2.0x

Through nearshoring-oriented policies, Mexico has the potential to feed the expansion of US electronics manufacturing. Large ecosystems with links to the private sector will boost manufacturing 4.0. This will be overrepresented by the Tequila Valley.

<sup>20</sup> Secretaría de Economía (2023)  
<sup>21</sup> UNCTAD (2019)  
<sup>22</sup> White House (2022)  
<sup>23</sup> Statista, Census.gov and World Bank (2023)  
<sup>24</sup> Reuters (2023)



## Others

### Steel

In 2022, Mexico produced 19.7 million tons<sup>25</sup> of steel, +70% of which are exported to the US. Compared to the global industry, Mexico offers steel manufacturing efficiencies of 38% in energy consumption and CO<sub>2</sub> emissions with a 54% raw material intake from recycled materials.

Aluminum, iron, and steel reported growth rates in the range of 10.3% to 14.8% CAGR from 2018-2022; compared to construction with a 10.3% CAGR over the same period<sup>26</sup>. The US steel industry reported a 10-year average 21% ROE; adjusted 25% ROE projected for the Mexican industry<sup>27</sup>.

NLE is the largest steel producer with roughly 50% of the nationwide output and home to the largest national manufacturer (Ternium) with nearly 2x its nearest competitor revenue volume in 2019 (US\$ 105 billion), as well as other large companies (Deacero and Grupo Simec). COA is the 2<sup>nd</sup> largest steel manufacturer and host to Altos Hornos de Mexico, one of the largest integrated national steel producers.

Ternium, following a 2022 investment of US\$ 2.2 billion, recently announced a US\$ 1 billion increment investment to expand capacity in the state of Nuevo Leon<sup>28</sup>. Additionally, DeAcero announced a +US\$650 million investment in 2022 to grow operations by procuring machinery, equipment, and working capital.

There is an implied 1.8x catch up opportunity in finished steel product consumption per capita compared to the average North America; 1.6x compared to the US and 2.1x compared to Canada. Basic Metals represent a total investment opportunity of US\$ 1.3 billion at an implied 2.9x MOIC.

### Medical Devices

FDI in medical devices has reached over US\$ 200 million in three years since 2010, with two of them within the past 5 years. The US industry's ROE profile recorded a 10-year average of ~16%, an adjusted 19% projected for the Mexican industry.

In terms of market size per capita, Mexico poses a US\$ 54 billion catch up opportunity compared to the US derived from a 9.8x deficit. We estimate a US\$ 27 billion (50%) catch up to be realizable over the Mexican Decade<sup>29</sup>.

Through the emergence of manufacturing hubs and the convergence of manufacturing standards in regions with foreign interest, the North and Northwestern regions will witness the greatest growth in medical device manufacturing.

Manufacturers include Roche (MEX/CMX), Johnson & Johnson (CHH), Medtronic (SON), and other national businesses in Baja California's cluster (border city Tijuana). This location will drive the standardization of manufacturing capabilities since the ecosystem shares ties to US through universities.

<sup>25</sup> CANACERO (2023)

<sup>26</sup> Secretaría de Economía (2022)

<sup>27</sup> Capital IQ & Tempest Estimates (2023)

<sup>28</sup> Forbes (2023)

<sup>29</sup> Statista (2023)



## Second Derivative Opportunities

### Telecommunications

The telecom industry outpaced Mexico’s GDP with double digit growth (avg 15.3%) during the first decade of the 2000s reaching an average of US\$ 12.8 billion (2010-2017)<sup>30</sup>. Ending year 2018, the industry caught up with potential externalities from the US-China trade war and once again outpaced GDP growth (4.5% CAGR 2018-2022) at a 5.5% over the same period.

US telecom equipment companies yield an average 17% ROE in the past 10 years. In terms of the Mexican industry, this is adjusted by a ~3.7% EMBI to yield an average 21% ROE<sup>31</sup>.

By 2025 Mexico’s mobile coverage is expected to reach 78% of the population (from 71% in 2021) and 5G technology is expected to extend to a 14% market share (from <1% in 2021)<sup>32</sup>. The Mexican government currently promotes the telecom coverage through concessions in its development plan “Internet Para Todos”<sup>33</sup>. These seek the installation of up to 50,000 kilometers of fiber optics; an estimated US\$ 310 MM deployment opportunity<sup>34</sup>.

Establishing a robust fiber optics network would support the integration of 5G technologies. These require high-speed data transmission technologies often found in the backbone of LTE and fiber optics infrastructure, which will consequently require faster data processing units (or data centers).

Presently operating within the industry, direct and indirect opportunities were identified to extend infrastructure and provide complimentary services to carriers. These primarily include the following catch-up opportunities to the OECD:

1. Tower deficit of 99 thousand sites<sup>35</sup>
2. 4.3 million people without fiber optics<sup>36</sup>
3. Data center deficit of over 660<sup>37</sup>

Telecom Towers	
<b>Investment Opportunity</b>	US\$ 6 billion
<b>MOIC</b>	3.4x

The expected telecom penetration of 78% of Mexico’s population (14% in 5G coverage) by 2025 entail several catch-up milestones in tower, fiber, and data processing infrastructure. Moreover, the industry poses high-return opportunities across equipment and services at a low operational and financial risk.

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<sup>30</sup> INEGI (2022)  
<sup>31</sup> Capital IQ (2023)  
<sup>32</sup> GSMA (2022)  
<sup>33</sup> CIAPEM (2022)  
<sup>34</sup> Tempest Estimates (2022)  
<sup>35</sup> Towerxchange (2022)  
<sup>36</sup> OECD (2022)  
<sup>37</sup> Statista (2022)



### Construction Materials & Equipment

Construction materials refer to the manufacturing of concrete, gypsum, clay, glass, and lime, amongst other materials. Construction equipment encompasses manufactured metals for the most part. These include screws, springs, wire, locks, boilers, tanks, metal finishings, and forgings, amongst others.

The productive output of construction materials and equipment is nearly fully dependent on construction activity. Mexico’s construction industry is expected to grow at a 4.4% CAGR (2022 – 2026) with growth rates of +6% in the first years<sup>38</sup>. Moreover, there is currently a 1.8x deficit in private spending per capita for the construction industry compared to the US. This is equivalent to roughly US\$ 237 billion of additional private spending to close the gap<sup>39</sup>, US\$ 52 billion of which we expect to be reached in this decade.

With vacancy rates at nearly 0% in Northern states (2.2% nationally), new developments of industrial parks obtained funding worth approximately US\$ 2.5 billion in 2022<sup>40</sup>. Moreover, some government infrastructure initiatives in South and Southeastern states seek a private commitment of at least 50%. These will entail the construction of at least 10 new parks<sup>41</sup>.

Construction Materials and Equipment companies in the US average 18% 10-year ROIC (2012-LTM). Adjusted for Mexico’s 3.7% EMBI, the industry projects a 22% yield<sup>42</sup>.

Construction Materials & Equipment



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While NLE hosts the largest construction materials provider in Mexico (CEMEX), other states have wide recognition in sub-sector manufacturing processes. SLP is known for its fluorite and gypsum production, JAL for its glass manufacturing industry, PUE for its lime and clay, and MEX for its concrete blocks, bricks, and tiles.

Construction Materials & Equipment	
<b>Investment Opportunity</b>	US\$ 53 billion
<b>MOIC</b>	3.0x

The necessary increase in public and private infrastructure projects will drive demand for both construction materials and equipment, the former representing the highest return sub-sector. Additional to the outstanding opportunities, public initiatives in southern states will also drive demand for complimentary and connecting infrastructure led by the private sector.

<sup>38</sup> US Department of Commerce (2022)  
<sup>39</sup> INEGI, Census.gov & World Bank (2022)  
<sup>40</sup> AMPIP (2022)  
<sup>41</sup> El Economista (2023)  
<sup>42</sup> Capital IQ (2023)

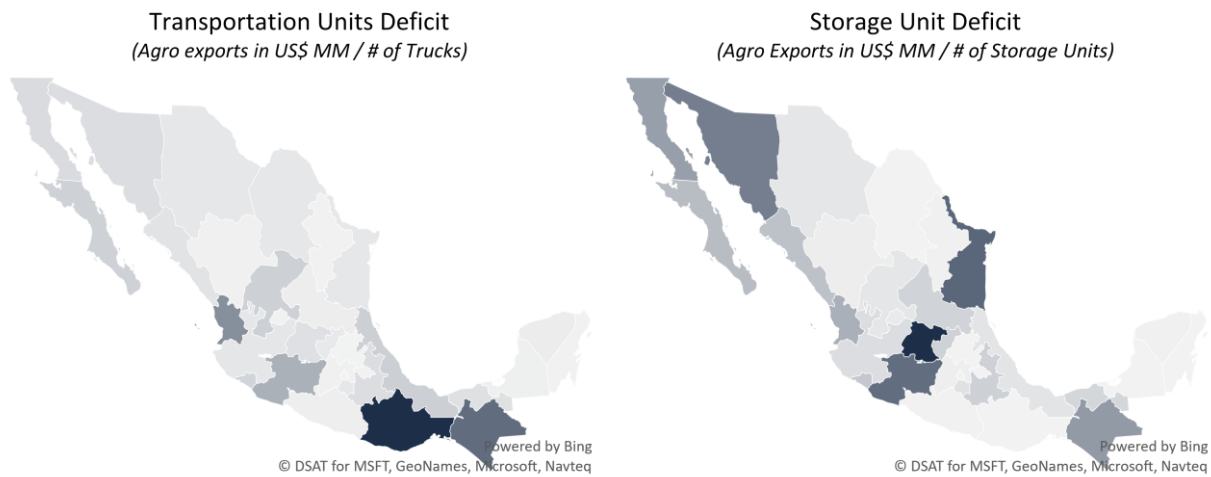


**Cold Chain**

Establishing leading cold chain infrastructure could directly address the total food loss by lack of adequate or absence of refrigerated transportation. This is estimated to be 14% of production and even higher in developing countries<sup>43</sup>. Currently, there is a catch-up opportunity in refrigerated warehouse capacity of 4.0x compared to the US, Canada, South Korea, and the UK equivalent to 42 million m<sup>3</sup> of storage capacity.

There are currently about 14 million cubic meters (m<sup>3</sup>) of refrigerated storage capacity per urban resident in Mexico<sup>44</sup>. Compared to the average capacity of the US, UK, South Korea, and Canada, Mexico is at a 4.0x deficit. At an average US\$ 112.5 price per m<sup>3</sup>, this represents a ~US\$ 4.7 billion catch up opportunity<sup>45</sup>, 50% of which we envision to be fulfilled during the Mexican decade due to cost and logistic factors.

Mexico currently generates a significant surplus in refrigerator and freezer exports. It is the second largest provider in the world behind China with ~US\$ 6.1 billion exports in 2021<sup>46</sup>. It is also the world’s largest exporter of tractor trucks. Together, these supporting industries may provide reduced Maintenance, Repair and Overhaul costs.



MIC, responsible for over ~28% of agricultural exports in 2022<sup>47</sup>, merely holds from 5-6 percent of the fleet, operation bases, and storage units. Similarly, the states of BCN, CHP, COL, GTO, NAY, SIN, SON, and TAM, responsible for ~49% of agricultural exports, also have infrastructure deficits in storage units. The industry projects a 23% ROE derived from a 10-year average yield of 19% adjusted for Mexico’s 3.7% EMBI.

Resolving cold chain capacity could address a 14% loss in unrealized food exports supported by a largely developed complimentary industry for reduced MRO costs.

Cold Chain	
<b>Investment Opportunity</b>	US\$ 2 billion
<b>MOIC</b>	4.2x

<sup>43</sup> FAO (2022)  
<sup>44</sup> GCCA (2020)  
<sup>45</sup> CN-Beyond (2022)  
<sup>46</sup> OEC (2021)  
<sup>47</sup> INEGI (2023)



## Others

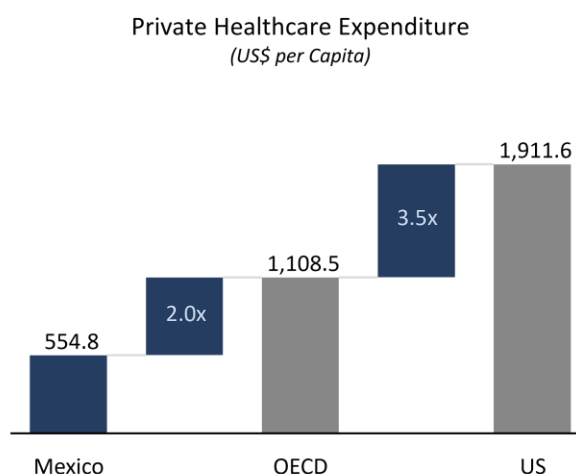
### Healthcare Services

The Mexican healthcare system is served by three components. First and foremost, the employment-based social insurance scheme, followed by public assistance services for the uninsured, and a private sector composed of service providers, insurers, pharmaceutical and medical distributors.

Public healthcare services account for 70 to 80 percent of all Healthcare Services nationwide. On the other hand, public institutions cover ~25 to 30 percent, with an overlap of over 30 million people. In 2017, The Institute of Health for Welfare (INSABI – successor to the Seguro Popular) the main financial protection scheme for the uninsured and the unemployed, covered up to 43.5% of the population<sup>48</sup>. Following, the Mexican Social Insurance Institute (IMSS) covered about 33% of the population through private sector employees and the Institute for Social Security and Services for State Employees (ISSSTE) covered 7.4% through federal government employees. Finally, private health insurance coverage of ~8%. The industry projects a 19.6% ROE derived from a 10-year average yield of ~16% adjusted for Mexico’s EMBI.

Government expenditure has gone from 5.3 to 6.2 percent of GDP from 2018 to 2020, Mexico’s total private healthcare expenditure, but remains 2.0x below the OECD’s average<sup>49</sup> and 3.5x below the US. To close this gap, private investment in healthcare should increase by US\$ 71 billion to reach the OCDE and US\$ 173 billion to reach the US.

Healthcare Services	
<b>Investment Opportunity</b>	US\$ 35 billion
<b>MOIC</b>	2.9x



The largest concentration of hospital beds (36.6%) is in the Central and Central East regions of Mexico (CDMX, MEX, PUE, HGO, TLA & VER), where the largest population density (+37% of population) is also found. Infrastructure across the Bajío, Northwest, and Southern regions of Mexico is also in line with their population densities. Northeastern states (COA, NLE, SLP, and TAM), on the other hand, have a national deficit with 9.6% of hospital beds and over 12% of the population. Nationally, there is a 2.6x deficit in hospital beds equivalent to +280 thousand beds for both private and public civilian establishments<sup>50</sup>.

Catch up opportunities in healthcare infrastructure and private spending will be mainly focused on Northeastern states. These represent an infrastructure deficit per capita located in the region with largest minimum wage and share of private spending (41% of bed infrastructure vs 25% national average). We expect 50% of the catch up is spending to be realizable over the Mexican Decade.

<sup>48</sup> WHO (2020)

<sup>49</sup> OCDE (2021)

<sup>50</sup> INEGI, DGIS, Tempest Estimates (2023)



### Third Derivative Opportunities

#### Retail

Mexico is the largest retail market in LATAM. It represents 9.5% of Mexico's GDP<sup>51</sup> and 3.0% of historical FDI<sup>52</sup>. A growing middle-class and a broad addressable market make the industry a compelling opportunity. Mexico's complex and broad socio-economic spectrum presents a dual trend. First, modern retail stores and multinational franchises are constantly growing targeting middle and upper class through lifestyle marketing strategies. Second, the traditional hyper-local retailer "tienda de abarrotes" / "bodega"; which is intrinsic to the Mexican community, especially in the lower, and lower middle class.

Some of the main retail destinations (Mexico City (CDMX), Guadalajara (JAL), and Monterrey (NLE)) have already reached vacancy rates of ~10%<sup>53</sup>. North and Northwestern states are also expected to drive demand through emerging economic zones. Finally, digital channels pose an opportunity for bigger investments in digital platforms, D-to-C operations, and last-mile delivery services. The industry projects a 19.6% ROE estimated through the EMBI-adjusted 10-year average yield of ~16%.

In terms of impact on GDP, there is a 7.5x deficit to the US industry roughly equivalent to US\$ 635 billion. It took roughly 50 years for US retail to go from US\$ 98 billion (current value for Mexico's retail) to the current US\$ 1.9 trillion reported in 2022. Assuming the same timeframe for Mexico, and an accelerated growth during the first decade due to nearshoring, we've estimated that 25% of the trajectory will be made within the first decade, implying a US\$ 159 billion initial catch up opportunity.

Opportunity to innovate in a broad and welcoming environment shaped by shifting consumer trends. Retail poses a US\$ 159 billion investment opportunity over the current decade at an implied 1.9x MOIC.

#### Internal Tourism

Mexico is an international tourism powerhouse. Tourism represents 8.5% of GDP and has received up to 5% of FDI. Tourism fills in the second-biggest employer base in Mexico with over 20 million tourists per year in recent years<sup>54</sup>. However, this is largely arising from international tourists. The national tourist market remains underdeveloped.

Internal tourism, and ancillary services will continue growing as the Mexican middle class expands. There is a 3.8x deficit to Canada regarding tourism expenditure per capita equivalent to US\$ 39 billion. In 2023, labor reforms increased the number of vacations days 2.0x, which directly impacts the availability of time to travel, and time spent on site.

Investment opportunities are found in hospitality services surrounding the main touristic destinations (JAL, VER, OAX, QRO, GRO). Additionally, saturation of the traditional tourist destinations will catalyze new destinations, and experiences. The industry has a projected ROE of 24.5% obtained through an average 10-year yield of 20.8% adjusted for Mexico's ~3.7% EMBI spread. Total investment opportunity in Tourism of US\$ 9.8 billion over the current decade at an implied 1.1x MOIC.

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<sup>51</sup> INEGI (2023)

<sup>52</sup> Secretaría de Economía (2023)

<sup>53</sup> SIILA (2023)

<sup>54</sup> Secretaría de Turismo (2022)



## Education

The Mexican education system reported revenues of over US\$ 30 billion in 2022 with a total 255,537 institutions. 40,435 of these are private<sup>55</sup>. The 10-year average industry ROIC reported a 10.5% yield. Adjusted for Mexico's ~3.7% EMBI spread, the industry projects a potential 14.2% ROE.

Demand for a qualified and specialized workforce will require the creation of education centers surrounding manufacturing hubs. Opportunities for all education levels will emerge, however, higher education may provide larger returns due to added-value education programs linked to the private sector.

STEM universities, technical universities, and private sector linked education programs will drive opportunities surrounding industrial clusters. Manufacturing clusters in the North, Northwest, and Center states will require the strengthening of knowledge centers.

Compared to the US, there is a +US\$ 10 billion deficit in private spending. This, however, is skewed since tertiary education in the US is mainly provided by private institutions and is not representative of a standardized structure. When compared to Canada, a much more representative system, this deficit is of 1.7x; +US\$ 7 billion. We estimate a catch-up of 50% for the industry over the current decade.

Education poses an implied investment opportunity of US\$ 4 billion at an a 1.9x MOIC.

## Others

### **Lifestyle & Luxury**

Lifestyle refers to added value (including luxury) products and services attained through discretionary spending. In 2022, Lifestyle represented 2.1% share of GDP and ~0.3% of FDI.

The 10-year average industry ROIC is +27%. Adjusted for Mexico's ~3.7% EMBI spread, the industry projects a 31% yield.

As disposable incomes increase, the share of wallet will trend towards Lifestyle-oriented products and services. Revenues for luxury goods per capita were recorded at US\$ 23 in Mexico, whereas the US reported US \$208, a 9.1x deficit. In terms of total revenue, this represents a US\$ 24 billion in incremental revenue for the Mexican market, 25% of which we expect to be realizable over the current decade.

The overall market is expected to grow in accordance with its drivers with the largest opportunities remaining to North, Northwestern, and Central states, where income level will first increase, and where wealth densification is already occurring.

The Lifestyle and Luxury market represents a US\$ 6 billion investable opportunity at an implied 1.1x MOIC.

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<sup>55</sup> SEP (2022)



## Bottlenecks and Speedbumps

Notable challenges to overcome to fully achieve its potential include the scarcity and quality of its energy grid, transportation infrastructure, and security. The 2024 election is a matter to monitor but should progress with few surprises with all political parties aligned on supporting the nearshoring opportunity.

### Infrastructure

*Transmission Lines* – The Federal Energy Commission (CFE) has transmission lines of 1,325,080 km. 50.0% of the lines are low voltage (under 230 kv), and less than a quarter of the lines serve for high voltage transmission (400 kv). The electrical system is significantly congested. The deficit of transmission capacity is already generating an estimated US\$ 1.8 billion in annual losses.<sup>56</sup> The expansion of industrial capacity in Mexico is clearly conditional on successfully resolving transmission, and generation challenges.

Investment has been focused on the low voltage lines, which grew at a 57.6% CAGR from 2012 to 2022. High voltage and medium voltage (230 kv) transmission lines, on the other hand, only grew at 1.2% and 1.1% CAGR (2012 – 2022), respectively. The current demand has been estimated to require an annual investment of over US\$ 1.2 billion in additional infrastructure. Moreover, an additional US\$ 2.5 billion is required for the installation of 5,000 km to strengthen the infrastructure.<sup>57</sup>

*Energy Generation* – As of 2022, CFE gross energy generation was close to 238,092,668 megawatts per hour. Roughly 72.1% of it comes from thermoelectrical (steam, turbo-gas, and internal combustion) sources, followed by hydroelectrical sources representing 14.3% of the total energy generated.

The general lack investment has resulted to a real decrease of 8.6% in energy generation capacity (2012-2022). To meet the growing national demand for energy, resolving the deficit of transmission capacity and distribution network saturation requires the annual installation of an avg 4,400 megawatts per year. This is roughly equivalent to an annual investment of up to US\$ 5 B per year.<sup>58</sup>

*Logistics* - There is a pressing need to extend the freight rail network to the United States with a lesser but still pressing need to upgrade Mexico's deepwater port capacity in both the Pacific and the Gulf. Partly as a consequence of this, Mexican highways are notoriously crowded with freight traffic. The National Logistics Network consists of 77 airports, 65 of which are international<sup>59</sup>, 103 ports and 15 load/unload terminals<sup>60</sup>, about 26,914 kilometers (km) of railway<sup>61</sup>, and 176,984 km of paved roads<sup>62</sup>. Since 2018, the current government has announced infrastructure projects for over US\$ 50 billion for the recovery, modernization, construction, or repurposing of vital infrastructure including all transportation methods. Out of these commitments, nearly US\$ 16 billion has been subject to co-investment from the private sector.

<sup>56</sup> Consejo Coordinador Empresarial (2021)

<sup>57</sup> El Economista (2021)

<sup>58</sup> El Economista (2021)

<sup>59</sup> US Department of Commerce (2022)

<sup>60</sup> Secretaría de Marina (2022)

<sup>61</sup> ARTF (2022)

<sup>62</sup> IMT (2022)



## Politics

In a world dominated by geo-political turbulence, Mexico has become the “least dirt shirt”. Talking about Lopez Obrador’s populist presidency is outdated. The current government is firmly in its lame duck year. Looking forward, MORENA’s main presidential candidates are center left. They have universally signaled their support for the nearshoring opportunity and seem to understand the importance of supporting foreign and national investment. This is simple political self-interest. There is no benefit in them sabotaging the economic opportunity that would bolster their political capital. Of much more relevance will be the composition of Congress, state gubernatorial races, and composition of the Supreme Court.

## Security

Mexico is the 10<sup>th</sup> safest country in the Americas (2022). Netflix crime series notwithstanding, violent crimes and assaults are Moderate by international standards. Mexico scores a high note on safety walking during daylight. Crime rates in Mexico are high for robbery, vandalism, and bribery.

The safest city in Mexico (Merida with +921 thousand inhabitants and a 74.8 safety index score) is safer than Canada’s second safest city (Oakville with a +193 thousand inhabitants and a 74.1 safety index score). Both cities are well above the US safest city, Salt Lake City which scores 66.5 in the safety index with a +199 thousand inhabitants.

Tijuana (with +1.8 million inhabitants) scores the lowest in the safety index with a 27.9. Howbeit, Tijuana is safer than Baltimore (scored 24.4) and Detroit (scored 26.1) this is despite Tijuana being a complex border city with almost twice the population of either these US cities.<sup>63</sup>

Crime is skewed to more poverty related offenses. Out of the existing violence, however, roughly 80% of homicides in Mexico are estimated to be gang on gang violence and executions. Without minimizing the deep challenges faced, Mexico is not nearly as dangerous as depicted by Fox News.<sup>64</sup>

Apart from certain risks misconceived by the international investing environment, namely politics and safety, infrastructure needs pose the largest challenges (and opportunities). Since the previous government administration, primary investment has been constantly targeting the quality and capacity of infrastructure largely supported by the private sector. Despite the upcoming elections of 2024, this trend is likely to continue given a political alignment of interests and prioritization of international investment.

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<sup>63</sup> Numbeo (2023)

<sup>64</sup> Semaforo Delictivo (2021)



## Mexico is a compelling investment case

Logistics	<p>Mexico's privileged proximity to the US offers a substantial decrease in overhead and transportation costs when compared to China.</p> <ul style="list-style-type: none"> <li>• ~80% reduction in shipping time</li> <li>• 60% reduction in natural gas costs</li> <li>• 40% reduction in lease rates</li> <li>• 4% less energy costs</li> </ul>
Trade	<p>Mexico has trade relationships with 46 countries through 13 multilateral trade agreements. It also accounts for 32 agreements in the promotion and reciprocal protection of investments with 33 countries, 9 limited scope agreements within the framework of the Latin American Integration Association (ALADI) and is member of the Trans-Pacific Partnership Agreement.</p> <p>Some of the key trade agreements that will play a key role in the economic fallout of the US-China Divorce include the USMCA and the EU-Mexico Free Trade Agreement.</p>
Workforce	<p>Mexico's projections estimate an increase in the work force of ~7.9 million people by 2030, where approximately 67% of the population will be within the working age.</p> <p>Moreover, Mexico is the 8<sup>th</sup> country with the most engineering graduates per year; #1 in LATAM and only second to the US in North America. Mexico graduates nearly half as many graduates than the US despite having less than twice the population.</p> <p>Bilateral education programs that work alongside international institutions have supported the creation of a specialized workforce. Universities and technical schools collaborate with local businesses to create ecosystems throughout different states and sectors.</p>
Wages	<p>Contrary to the conventional perception of cheap Chinese manufacturing, Mexico's wages are more competitive. Higher productivity, lower manufacturing wages, and favorable exchange rates constitute this advantage.</p> <p>Based on the Manufacturing Labor Costs<sup>65</sup> ("MLC") Mexico offers greater manufacturing efficiencies at a lower cost by nearly 20%<sup>66</sup>. Also, Chinese MLCs are also increasing at a faster rate of 6.8% CAGR 2016-2020, compared to Mexico's MLC growth of 6% CAGR over the same period.</p>
Ease of Doing Business	<p>Mexico ranked as a more compelling manufacturing destination than China in 9 out of the 14 factors evaluated through a series of US surveys<sup>67</sup>. One key area of concern for US and EU businesses in China is Intellectual Property (IP) rights.</p>

The inability to onshore US manufacturing has made Mexico the US' natural option to secure the western supply chain as per its capable workforce, policies, logistical advantages, and costs. These competitive advantages will be the main drivers for investment in key industries.

<sup>65</sup> Wages adjusted for productivity.

<sup>66</sup> IVEMSA (2022)

<sup>67</sup> Morgan Stanley (2022)



## Annex I: Opportunity Estimate Methodology

### FDI Opportunity

Tempest conducted a comprehensive analysis of US Foreign Direct Investment (FDI) in China over the past decade, China's FDI in the US for the same duration, and the European Union's FDI in China since 2015. The total FDI per year was derived by averaging FDI figures over three years, 2015 to 2018 for US and Chinese flows, excluding 2015 for the EU due to irregular flows. The sum of the moving average of funds for each country was then multiplied by a 30% that represents our estimate for FDI reallocated to Mexico.

$$((FDI\ US\ to\ China\ 15-18\ Avg) * FDI\ Reallocated\ to\ Mexico) + ((FDI\ China\ to\ US\ 15-18\ Avg) * FDI\ Reallocated\ to\ Mexico) + ((FDI\ EU\ to\ China\ 16-18\ Avg) * FDI\ Reallocated\ to\ Mexico)$$

Year	US FDI in China	China FDI in US	EU FDI in China
2010	12,660	6,910	
2011	13,450	4,870	
2012	15,360	7,190	
2013	14,610	14,500	
2014	14,620	15,270	
2015	13,830	15,590	11,000
2016	14,000	48,480	7,500
2017	14,140	36,810	6,900
2018	12,530	7,990	7,000
2019	13,080	6,250	
2020	8,690	7,200	

The total opportunity was then sensitized to different proxies of FDI reallocation to Mexico ranging from 10% to 50% of the cumulative moving averages.

		Estimated FDI Mexican Opportunity (US\$ MM)				
		Annual FDI Reallocated to MEX (%)				
		10.0%	20.0%	30.0%	40.0%	50.0%
15 - 18 Avg. FDI Flows (US\$ MM)	38,860	3,886	7,772	11,658	15,544	19,430
	43,178	4,318	8,636	12,953	17,271	21,589
	47,976	4,798	9,595	14,393	19,190	23,988
	52,773	5,277	10,555	15,832	21,109	26,387
	58,051	5,805	11,610	17,415	23,220	29,025


**Estimated FDI Mexican Opportunity (US\$ MM)**

		US FDI Reallocated to MEX (%)				
		10.0%	20.0%	30.0%	40.0%	50.0%
15 - 18 Avg. US FDI in China (US\$ MM)	11,036.25	1,103.6	2,207.3	3,310.9	4,414.5	5,518.1
	12,262.50	1,226.3	2,452.5	3,678.8	4,905.0	6,131.3
	13,625.00	1,362.5	2,725.0	4,087.5	5,450.0	6,812.5
	14,987.50	1,498.8	2,997.5	4,496.3	5,995.0	7,493.8
	16,486.25	1,648.6	3,297.3	4,945.9	6,594.5	8,243.1

**Estimated FDI Mexican Opportunity (US\$ MM)**

		US FDI Reallocated to MEX (%)				
		10.0%	20.0%	30.0%	40.0%	50.0%
15 - 18 Avg. China FDI in US (US\$ MM)	22,046.18	2,204.6	4,409.2	6,613.9	8,818.5	11,023.1
	24,495.75	2,449.6	4,899.2	7,348.7	9,798.3	12,247.9
	27,217.50	2,721.8	5,443.5	8,165.3	10,887.0	13,608.8
	29,939.25	2,993.9	5,987.9	8,981.8	11,975.7	14,969.6
	32,933.18	3,293.3	6,586.6	9,880.0	13,173.3	16,466.6

**Estimated FDI Mexican Opportunity (US\$ MM)**

		US FDI Reallocated to MEX (%)				
		10.0%	20.0%	30.0%	40.0%	50.0%
16 - 18 Avg. EU FDI in China (US\$ MM)	5,778.00	577.8	1,155.6	1,733.4	2,311.2	2,889.0
	6,420.00	642.0	1,284.0	1,926.0	2,568.0	3,210.0
	7,133.33	713.3	1,426.7	2,140.0	2,853.3	3,566.7
	7,846.67	784.7	1,569.3	2,354.0	3,138.7	3,923.3
	8,631.33	863.1	1,726.3	2,589.4	3,452.5	4,315.7

**Industry Opportunity**

US\$ Million	Current Size (2022)	Total Unadjusted Opportunity	Catch Up	Years	Target Size	CAGR 2022-2032	Implied Adj. Opportunity
Auto Parts	41,484	55,238	100%	10	96,722	8.8%	55,237.9
Machinery & Electronics	16,180	193,557	25%	10	64,569	14.8%	48,389.4
Aerospace	983	16,344	25%	10	5,069	17.8%	4,086.1
Steel	2,057	1,666	75%	10	3,306	4.9%	1,249.2
Medical Devices	6,120	53,571	50%	10	32,906	18.3%	26,785.6
Telecom	3,988	10,932	50%	10	9,455	9.0%	5,466.1
Construction Materials & Equip.	17,097	528,124	25%	25	69,909	5.8%	52,812.4
Cold Chain	1,575	4,685	50%	10	3,918	9.5%	2,342.5
Healthcare Services	70,741	70,597	50%	10	106,040	4.1%	35,298.4
Retail	97,147	634,850	25%	10	255,859	10.2%	158,712.4
Tourism	1,179	39,042	25%	10	10,940	25.0%	9,760.4
Education	6,272	7,156	50%	10	9,850	4.6%	3,577.9
Lifestyle	2,896	23,574	25%	10	8,789	11.7%	5,893.6



## ROE

	US\$ Million	US ROE (Cap IQ)	EMBI Mexico	Adj. ROE
Auto Parts		18.6%	3.7%	22.3%
Machinery & Electronics		18.7%	3.7%	22.4%
Aerospace		16.0%	3.7%	19.7%
Steel		21.7%	3.7%	25.4%
Medical Devices		15.5%	3.7%	19.2%
Telecom		17.2%	3.7%	21.0%
Construction Materials & Equip.		18.2%	3.7%	21.9%
Cold Chain		19.4%	3.7%	23.2%
Healthcare Services		15.9%	3.7%	19.6%
Retail		28.3%	3.7%	32.1%
Tourism		20.8%	3.7%	24.5%
Education		10.5%	3.7%	14.2%
Lifestyle		27.3%	3.7%	31.0%



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