PGIM REAL ESTATE

THE CASE FOR INDUSTRIAL REAL ESTATE IN MEXICO

The Institutionalization of an Evolving Market

April 2022 | Investment Research

During the past two decades, Mexico's industrial base has evolved to become the preferred location for the manufacture of many products serving the United States, Canada and domestic markets. Proximity to those countries and competitive production costs are important factors for companies choosing to locate in Mexico. Institutional ownership of industrial property has grown to serve this multinational tenant base.

More recently, Mexico's export industry has pivoted towards higher value-add industries — including the new generation of electric and hybrid cars, medical devices and aerospace — with robust domestic supply chains and other supporting infrastructure. Mexico is also in the early stages of adopting e-commerce as an alternate way of shopping, which requires fulfillment centers located close to major population centers.

> **Mexico has become a preferred location for higher value-add industries with robust domestic supply chains and other supporting infrastructure.**

MEXICO IS AN ESSENTIAL LOCATION FOR NORTH AMERICA'S MANUFACTURING

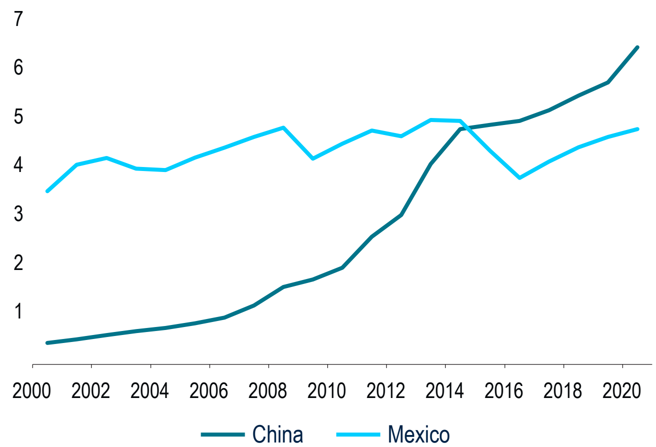
Momentum is building in the two-decade-long evolution toward a more-integrated North American supply chain, with manufacturing activity growing fastest in Mexico. Disruptions from COVID-19-induced factory shutdowns in China in early 2020 accelerated that transition, and production delays and unanticipated cost increases provided manufacturers with added incentives to minimize bottlenecks.

Specialized Labor and Competitive Costs

The more important structural factor, however, is that because of rising labor costs, China has become a more expensive place in which to manufacture. In 2011, average hourly wages in China were about half of those in Mexico. They are now about 35% higher. Manufacturing wages have more than doubled in China since then but have remained broadly flat in Mexico (Exhibit 1). Other countries, such as Vietnam and India, have lower labor costs than either China or Mexico and have grown their shares of imports into the United States as well; however, proximity to the United States, existing supply chains and infrastructure, and free-trade agreements give Mexico an advantage over every other emerging market.

Exhibit 1: Mexico Offers Skilled Manufacturing Labor at Costs Lower Than China

Manufacturing Labor Costs per Hour (USD)

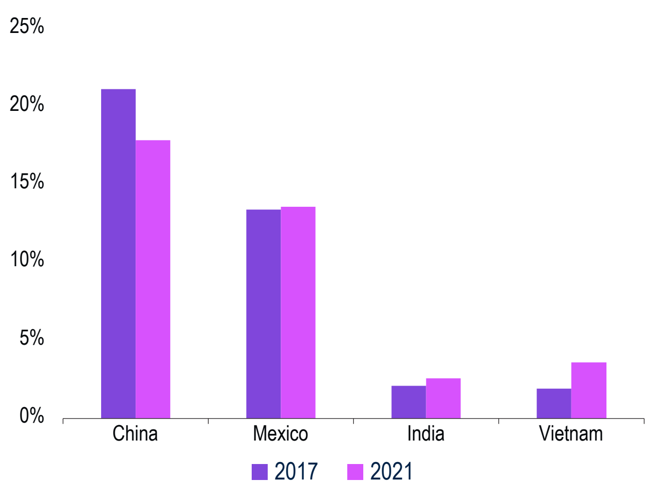


Sources: The Conference Board, International Labor Comparisons, PGIM Real Estate. As of April 2022.

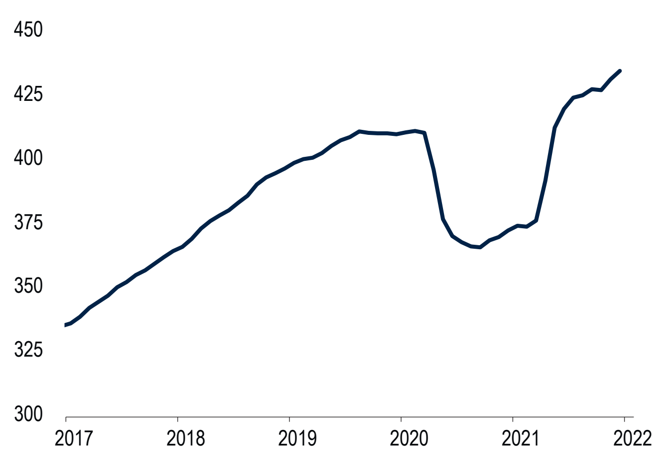
As recently as 2017, China accounted for 22% of all imports into the United States — nearly double Mexico's share. China's share has since fallen to 18%, and Mexico's share has risen to 14% (Exhibit 2). Many factors have contributed to those shifts, which, if maintained, would make Mexico the largest supplier of goods to the United States. Tariffs have been imposed on Chinese goods at various times during the past several years, and uncertainty about U.S. trade policy with China is a further incentive for businesses to expand in Mexico.

Exhibit 2: Share of Mexican Imports in the United States Rising at the Expense of Chinese Imports

U.S. Imports by Country (%)



Mexico Manufacturing Exports, 12-Month Sum (USD, billions)



Sources: U.S. Census Bureau, INEGI, PGIM Real Estate. As of April 2022.

Free Zone Along the U.S.–Mexico Border

In response to U.S. corporate tax cuts in 2017, Mexico implemented new income tax and value-add tax incentives for companies operating in the northern border region of Mexico, effectively reducing the corporate income tax rate from 30% to 20% and the value-add tax rate from 16% to 8%.

Industrial demand has since surged in those markets, and supply barriers — notably, the presence of the northern border — limit new construction. Despite temporary disruptions caused by COVID-19 shutdowns, industrial vacancies have fallen to all-time lows across Tijuana, Juárez and Reynosa, leading rents higher (Exhibit 3).

Industries Moving Higher Up Value-Add Chain

Certain areas of Mexico have developed manufacturing specializations, and they now benefit from scale advantages. For example, the Bajío region, which accounts for 22% of Mexico's manufacturing output, is the home of 32% of Mexico's transportation manufacturing production value. Industrial demand in the region has grown, with Mexico accounting for 33% of U.S. automotive imports — double its share in 2008.

Two examples — growth in electric vehicle production and medical device manufacturing — demonstrate how Mexico's industrial base is moving up the value chain.

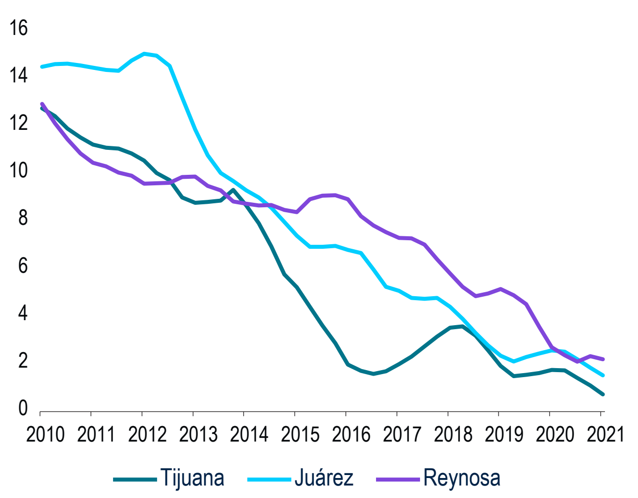
Evolution of the Auto Sector

Vehicle production tripled in Mexico from 2009 to 2019, as Mexico gained market share from other major exporters such as Japan and Germany. Most vehicle models produced in Mexico are destined for export to the United States, and historically have been models with thin profit margins for manufacturers.

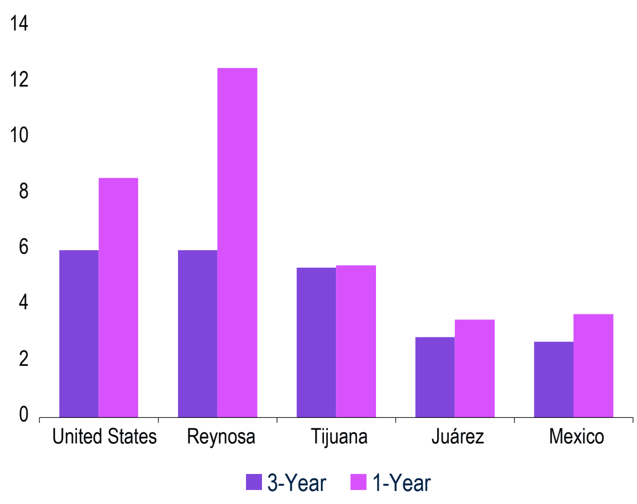
But Mexico's auto production is shifting toward higher-cost vehicles, with scope for further movement up the value chain caused by growing demand for electric vehicles. Many of the large automotive manufacturers are already producing electric vehicles at existing facilities, including Ford's new Mach-E, with electric vehicles produced in Mexico accounting for 33% of all electric vehicle imports to the United States in 2021 (Exhibit 4).

Exhibit 3: Strong Industrial Fundamentals in Mexico's Northern Border Region

Industrial Vacancy Rates (%)



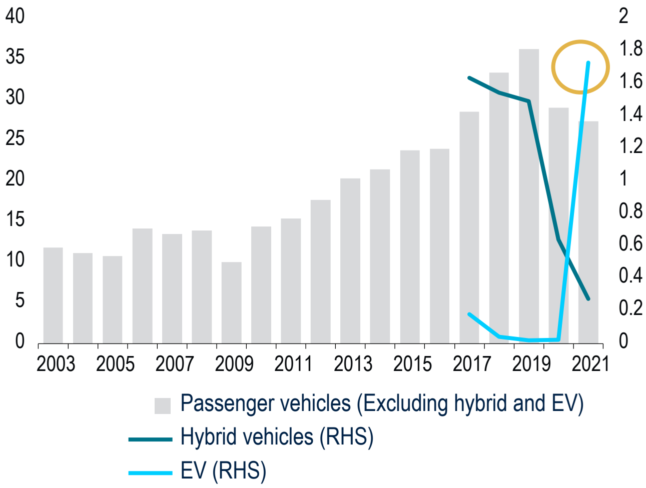
Industrial Rental Growth (%, compound annual growth rate)



Sources: CBRE, CoStar, PGIM Real Estate. As of April 2022.

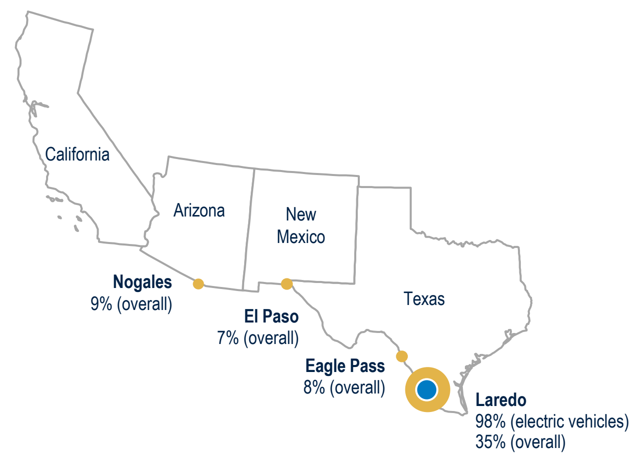
Exhibit 4: Auto Production in Mexico Shifting Toward Higher-Cost Vehicles

U.S. Passenger Vehicle Imports from Mexico (USD, billions)



Sources: U.S. Census Bureau, PGIM Real Estate. As of April 2022.

U.S. Passenger Vehicle Imports from Mexico by Port of Entry, 2021



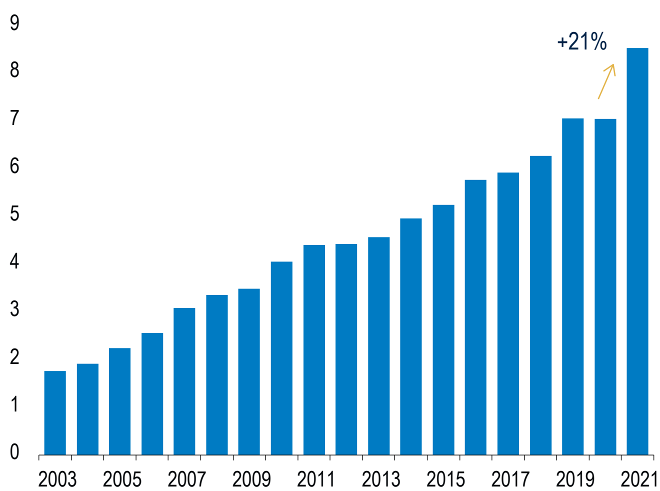
Meeting Demand for Medical Devices

Mexico's medical exports to the United States doubled in the past decade, with a notable shift upward in 2021, as demand for supplies spiked in response to COVID-19 outbreaks. The imports include consumable supplies, such as intravenous tubing and syringes, wherein Mexico has a cost-of-production advantage over the United States. But manufacturers also have established production centers for higher-value medical devices such as oxygen delivery systems and X-ray devices (Exhibit 5).

Tijuana and the Baja California region have become the largest medical-device manufacturing hubs in North America, with most of their production exported to the United States and Canada. As a result of the rapid growth in medical device exports and supply constraints caused in part by topography, Tijuana's industrial rents are now higher than Mexico City's, and Tijuana's vacancy rate stood below 1% as of the end of 2021.

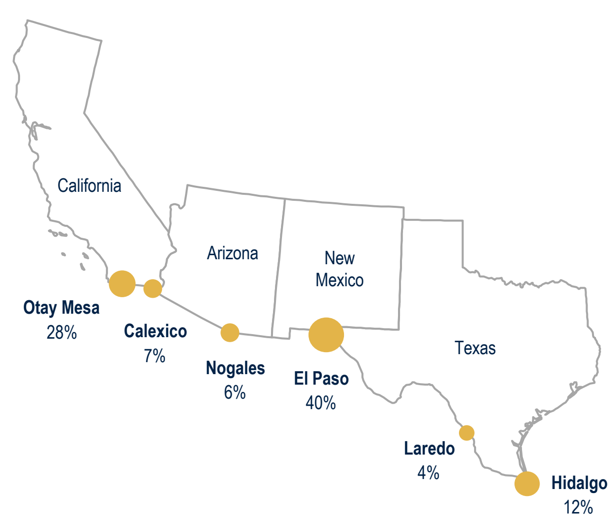
Exhibit 5: Robust Demand for Medical Device Manufacturing

U.S. Medical Device Imports from Mexico (USD, billions)



Sources: U.S. Census Bureau, PGIM Real Estate. As of April 2022.

U.S. Medical Device Imports from Mexico by Port of Entry, 2021



Demand Growth as Nascent E-Commerce Sector Expands
Rising amounts of online shopping are creating demand for logistics in larger cities in Mexico, with low current e-commerce adoption rates providing plenty of runway for future tenant demand growth.

Logistics properties located in Mexico City and other metropolitan areas with large affluent populations, including Guadalajara and Monterrey, will remain in high demand as e-commerce penetration rises. Meeting the needs for same-day or next-day delivery, however, comes up against limited available supply in built-up urban areas, which points to ongoing faster rental growth and capital value growth than growth of industrial properties in outlying areas that meet the needs of export-oriented manufacturers.

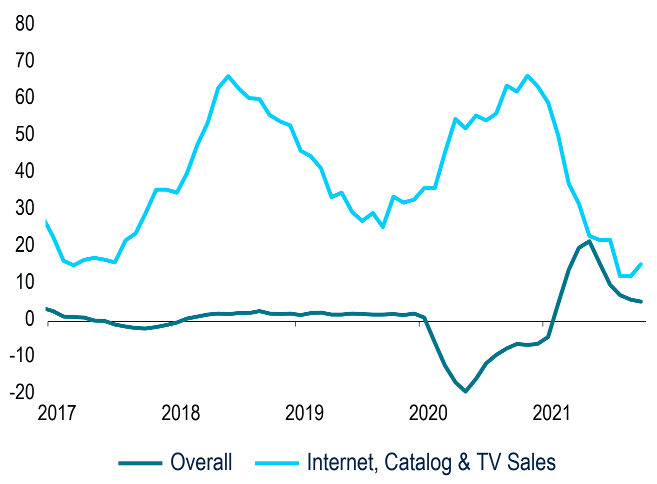
Internet sales in Mexico surged in 2020 both in absolute terms and as a share of total retail sales during a year when overall consumption suffered, leading to strong demand by logistics tenants. With some of that growth caused by shoppers temporarily avoiding physical store locations amid lockdown restrictions, many of the new habits will become permanent. The current retail share of e-commerce sales in Mexico — amounting to 4% — is low in comparison with the U.S. share of 14% and the global share of 18%.

Despite the economic slowdown in Mexico, rents are rising for industrial properties in Mexico City, particularly in the logistics sector, and in other metropolitan areas with large affluent populations, including Guadalajara and Monterrey. That represents a break from history, such as the mild consumption downturn in 2017, when rents stagnated or fell, which pointed to resilience as long as e-commerce demand rises (Exhibit 6).

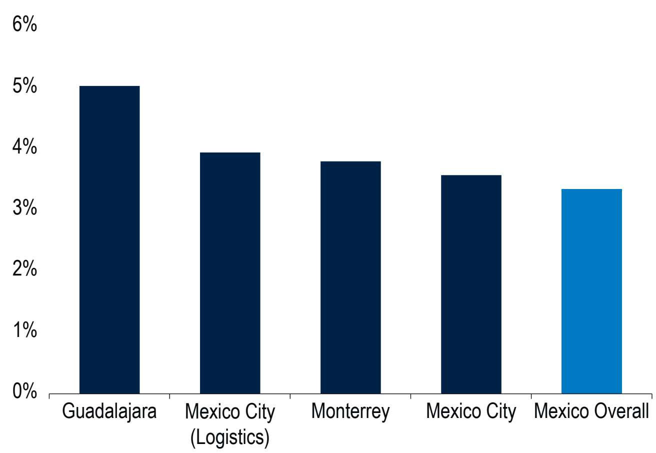
> **Rising amounts of online shopping are creating demand for logistics in larger cities in Mexico, with low current e-commerce adoption rates providing plenty of runway for future tenant demand growth.**

Exhibit 6: Rising Online Shopping Leading to Strong Demand for Logistics Properties

Annual Retail Sales Growth by Type (%)



Industrial Rent Growth (4-year compound annual growth rate)



Sources: INEGI, PIM Real Estate Valuations, PGIM Real Estate. As of April 2022.

MEXICO INDUSTRIAL OFFERS RISK-ADJUSTED RETURN PREMIUM OVER U.S. INDUSTRIAL

Cap Rates Compensate for Country Risk Premium and Lower Rent Growth

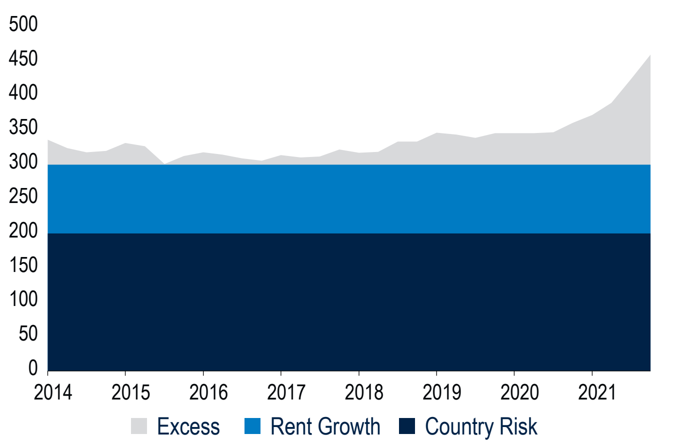
As with all major logistics markets globally, industrial cap rates in Mexico have trended lower since 2015. But cap rates in other countries, notably in the United States, have declined far faster, leaving a spread wider than can be explained by country risk and supply constraints.

A risk premium is justified for Mexico over more developed industrial markets such as the United States, particularly for non-domestic investors. While institutional ownership has increased over the past two decades, trading volume is thin and liquidity is low particularly during market downturns. Mexico's industrial base is also highly reliant on exports, since domestic demand is constrained by low incomes and, more recently, anemic growth in non-export sectors of the economy. This dependence on exports makes the industrial sector vulnerable to recessions in the United States and Canada. Further, while the signing of the United States-Mexico-Canada agreement in 2020 provided more certainty on regional trade policy after a tumultuous four years, manufacturers making long-term investments in Mexico need to weigh risks of future changes in trade policies.

Yet we believe today's industrial pricing incorporates these risks. Assuming the country risk of Mexico is 200 basis points — a level consistent with Mexican sovereign bonds relative to U.S. bonds — Mexico's risk-adjusted cap rate spread is 260 basis points today. In many locations, land and other supply constraints are lower in Mexico than in the United States, requiring an additional premium that we estimate at 100 basis points, to compensate for lower rental growth. Historically, Mexico industrial has traded close to that combined 300-basis-point premium over the United States. Today the spread is 460 basis points, leaving room for Mexico's cap rates to eventually compress further from today's levels (Exhibit 7).

Exhibit 7: Cap Rates Compensate for Country Risk Premium and Lower Rent Growth

Mexico Versus U.S. Cap Rate Spread Attribution (basis points)



Sources: PGIM Real Estate Valuations, NCREIF, PGIM Real Estate. As of April 2022.

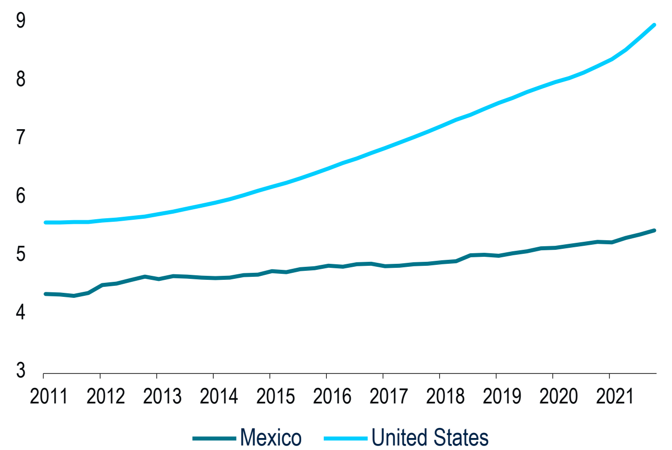
Rents Are Now Half of U.S. Levels Despite Similar Tenancy and Credit

Along with cap rates, the rents of Mexican industrial assets are now far lower than those in the United States, even though most industrial leases are denominated in U.S. dollars and many tenants are multinational corporations with institutional credit ratings.

As recently as 2015, industrial rents across Mexico were 20% lower on average than industrial rents across the United States. With U.S. rents rapidly rising, that gap has widened. Average rents in Mexico are now nearly 50% below those in the United States (Exhibit 8).

Exhibit 8: Rents Are Half of U.S. Levels Despite Similar Tenancy and Credit

Industrial Rent (USD per square foot)

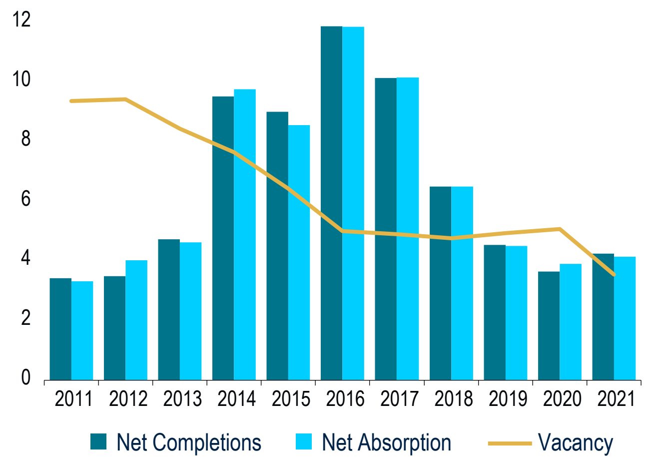


Sources: CBRE, CoStar, PGIM Real Estate. As of April 2022.

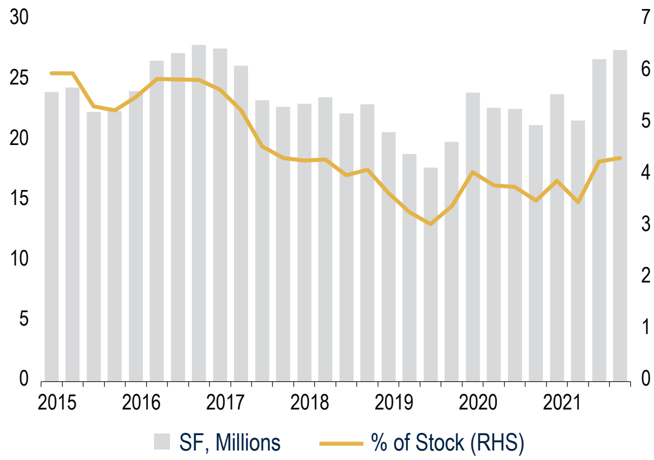
Mexico's industrial market has grown to keep up with demand, and industrial inventory has doubled since 2008. However, industrial vacancies have continued to trend lower, falling below 4% at the end of 2021 despite supply additions averaging 7% per year during the past decade (Exhibit 9). Supply-side risks remain low for now, but higher occupancies and higher rents alongside strong investor demand could lead to an increase in new development, particularly in low-supply-constraint markets.

Exhibit 9: Industrial Vacancies Continue to Trend Lower and Supply-Side Risks Are Low for Now

Mexico Industrial Net Absorption, Net Completions (% of stock) and Vacancy



Mexico Industrial Inventory Under Construction (Square feet, millions and %)



Sources: CBRE, PGIM Real Estate. As of April 2022.

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