

Appraising home bias exposure

Mexico

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Overview

Despite the increased integration of the world's economies and financial markets, studies show that pension funds worldwide continue to skew their portfolios to domestic securities. This paper examines the investment effects of home bias in the equity allocations of the Mexican pension fund market:

- Mexican pension funds have had a particularly large home bias in their equity allocations compared to other markets.
- An examination of the characteristics, performance and return-to-risk profiles of the equity market in Mexico from 2008 through September 2020 shows that maintaining a home bias has been costly for most countries in the study, including Mexico.
- The analysis also highlights the effects of a depreciating Mexican peso on returns.

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Executive summary

Despite the increased integration of the world's economies and financial markets, studies show that pension funds worldwide continue to skew their portfolios to domestic securities. There are several explanations for this persistent investor preference, including the desire to avoid exposure to exchange rate or political risk, the extra costs to hedge against these risks, regulatory barriers¹, brand-names familiarity and asset-liability matching needs².

In this paper, we examine the investment effects of home bias in the equity allocations of Mexican pension funds³ from 2008 through September 2020. We measure the extent of home bias and analyze the market characteristics and performance relative to the global equity index, in both local and Mexican peso terms. The conclusions show that the aggregate risk-adjusted performance for Mexico was not always negative—this can be seen in Chart 5, where Mexican equities outperformed global equities in local currency terms until 2017. However, the severe depreciation of the Mexican peso had a devastating impact, depressing Mexican equity returns relative to the global index for a Mexican investor. As a result, home bias was a significant opportunity cost for Mexican investors overall.

It is important to assess these results within the context of the recessionary environment and the extraordinary central-bank measures that were undertaken in response to the global financial crisis and the COVID-19 pandemic. We make the following observations:

- **Capital flows 2008-2012:** Emerging markets (especially Mexico) benefited from marked capital inflows up to 2012, as a result of easy monetary policy, the global search for yield and stronger growth prospects in emerging markets. During that period, both Mexican equities and the peso rose, resulting in the outperformance of Mexican equities versus global equities. However, the Fed's decision to wind down its bond-buying program and raise interest rates redirected capital flows away from emerging markets.
- **Oil price collapse.** As a net oil exporter, the collapse in global oil prices from mid-2014 severely affected Mexico; it led to the sharp and rapid depreciation of the peso and declines of Mexican equities.
- **US dominance.** The period reviewed was difficult for relative returns of most equity markets due to the overwhelming outperformance of US equities, which make up 53%* of the FTSE All-World Index. Our research⁴ found that the FTSE USA produced higher risk-adjusted returns than the FTSE All-World ex US in 10 (or more than 80%) of the past 12 years. *as of Dec. 31, 2018.

Table 1 summarizes the main findings for each region and evaluates the overall impact of a home bias from an investor's perspective.

¹ Pension Markets in Focus 2017, OECD.

² Liberalising Foreign Investments by Pensions Funds: Positive and Normative Aspects, OECD Working Paper 5.3.

³ CONSAR, <http://www.consar.gob.mx/gobmx/aplicativo/siset/Series.aspx?cd=59&cdAlt=False>

⁴ Appraising home bias, FTSE Russell <https://www.ftserussell.com/research/appraising-home-bias-exposure-using-ftse-global-equity-index-series>

Table 1: Summary of home-bias impact on investor outcomes

	From 2008 to 2019					From 2008 to 2020
	US (USD)	UK (GBP)	Japan (JPY)	Canada (CAD)	Australia (AUD)	Mexico (MXN)
Home-bias ratio (based on Chart 1)	1.2x	6x	4.3x	7x	26x	80x
Domestic vs overseas revenue source % of revenue generated by market constituents domestically (see Chart 3)	64%	23%	40%	51%	61%	70%
Relative outperformance in calendar years Number of years domestic equities outperformed overseas equities, in base currency (see Chart 12)	9/12yrs	3/12yrs	3/12yrs	3/12yrs	5/12yrs	3/13yrs
Currency impact in % and in calendar years Percentage & number of years base currency appreciation improved returns (see Chart 12)	75% (9/12yrs)	25% (3/12yrs)	58% (7/12yrs)	42% (5/12yrs)	42% (5/12yrs)	46% (6/13yrs)
Return/risk ratio in % and in calendar years Percentage & number of years domestic equities delivered higher risk-adjusted returns (see chart 14)	83% (10/12yrs)	17% (2/12yrs)	17% (2/12yrs)	25% (3/12yrs)	25% (3/12yrs)	23% (3/13yrs)
Conclusion Was home bias positive or negative?	Positive	Negative	Negative	Negative	Negative	Negative

Source: FTSE Russell to September 30, 2019 (Q3 2019), except for Mexico, which includes performance and risk data up to September 30, 2020. Past performance is no guarantee of future results. Please see the end for important legal disclosures. FTSE Russell data for US, UK, Japan, Canada and Australia is based on the 2019 paper “Appraising home bias exposure”: <https://www.ftserussell.com/research/appraising-home-bias-exposure-using-ftse-global-equity-index-series>.

For the purpose of this analysis, we use the FTSE All-World Index—a sub-index of the FTSE Global Equity Index Series (FTSE GEIS) that includes large and mid-cap developed and emerging companies—for its representation of the global universe of listed companies. An overview of the index is in the Appendix.

For a more comprehensive perspective of how home bias affects performance, it helps to understand the fundamental characteristics of the Mexican equity market. The next section provides more details of those findings.

Country analysis – Mexico

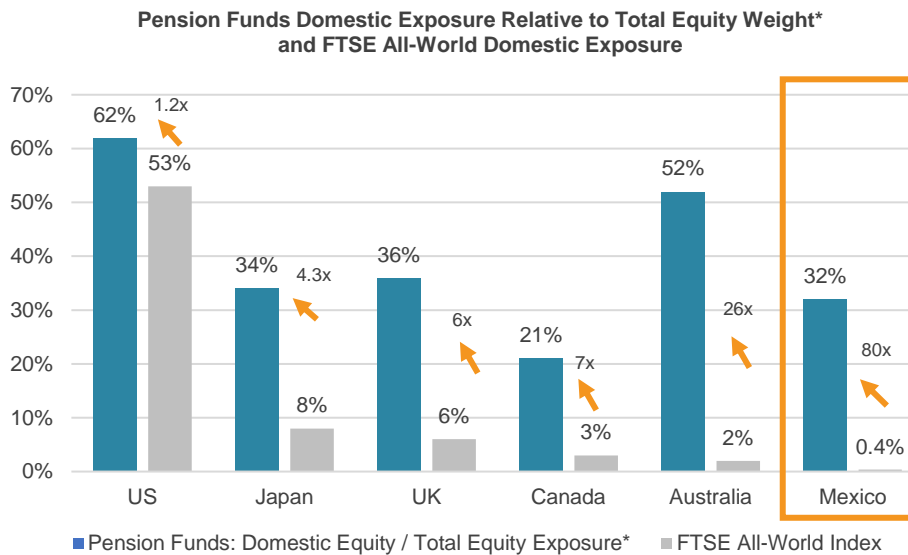
Domestic equity exposure

In Chart 1, we seek to gauge the size of home bias in each country. We do this by estimating the percentage of total equities allocated to domestic equities in 2018 (blue bar) and compare it with the weight of the regional index in the FTSE All-World Index (grey bar). The difference in weight is converted into a ratio.

As this analysis reveals, home bias is pervasive across global pension schemes. Mexico stands out for having the largest disparity between its allocation to domestic equities (32%) and its weight in the FTSE All-World Index (0.4%), which translates into a home-bias ratio of 80 times. This ratio is smallest for the US (although it mostly reflects the large US weight of the global index).

Chart 1: Pension funds estimated allocation to domestic equities relative to total equity exposure³ and country weight in the FTSE All-World Index

Mexico stands out for having a high home-bias ratio.



Source: FTSE Russell as of December 31, 2018, *Thinking Ahead Institute, Willis Towers Watson and Consar³, 2018.

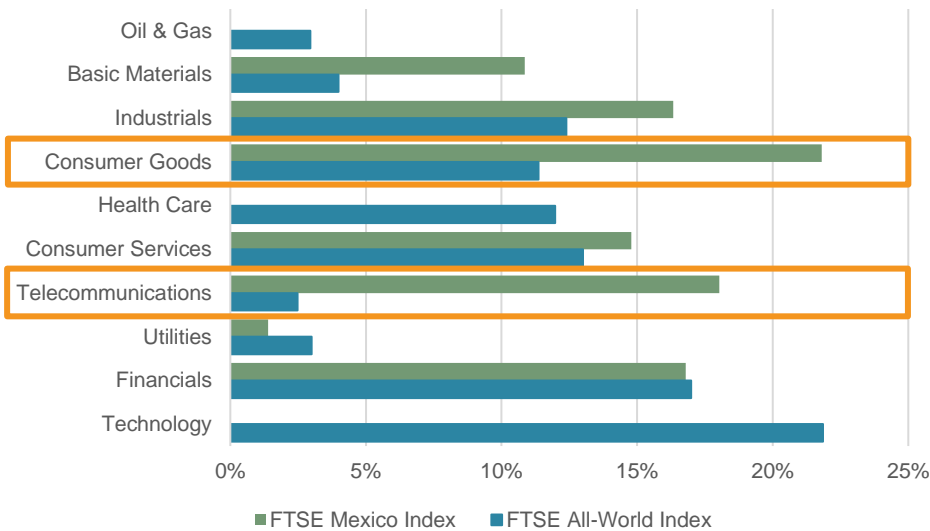
Understanding the Mexican equity market

Home bias carries inherent exposures. To better understand how it affects performance, it is important to examine both the industry group (ICB) exposures and the composition of corporate revenue sources.

We compare the Mexican equity market (represented by the FTSE Mexico Index) with that of the global index (FTSE All-World Index). As Chart 2 shows, the consumer goods and telecommunications industries rank as the largest overweights relative to the global index, accounting for just short of 40% of the total market capitalization of the Mexican market. (Also, we note the under-

representation of the oil industry in the Mexican market. Even though Mexico is a net oil exporter, its state-owned petroleum company, Pemex, is not publicly listed, and therefore is not included in the oil & gas ICB weighting.)

Chart 2: Mexico and overseas industry exposure (%)

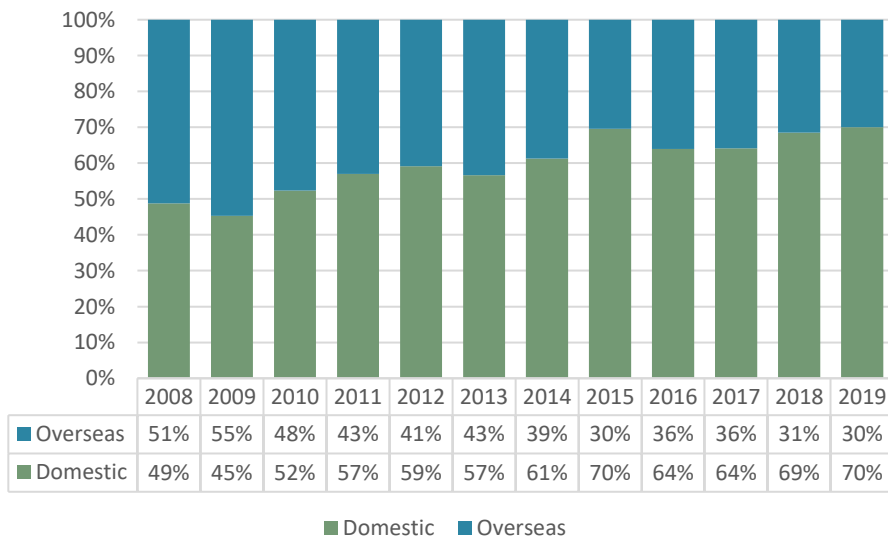


Relative to the global equity index, the FTSE Mexican Index has a higher exposure to consumer goods and telecommunications.

Source: FTSE Russell; Industry Classification Benchmark data using FTSE Mexico Index and FTSE All-World Index as of September 30, 2020.

Segmenting Mexican companies by domestic and overseas revenues sources in Chart 3 reveals that FTSE Mexico’s listed companies have generated nearly 70% of their revenues domestically. Interestingly, this domestic slant has been gradually increasing from 49% in 2008.

Chart 3: Breakdown of the FTSE Mexico Index by domestic and overseas revenues (%)

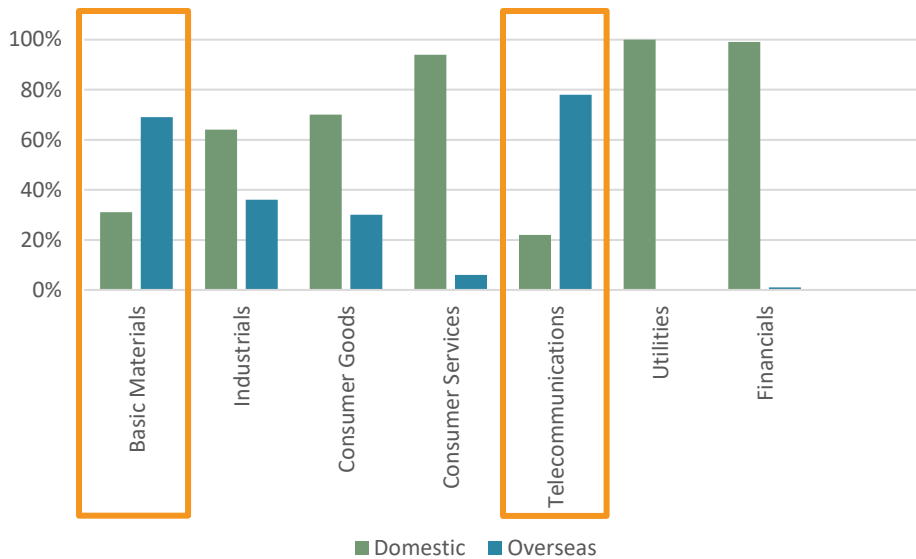


FTSE Mexico derives about 70% of its revenues domestically.

Source: FTSE Russell as of December 31, 2019.

Examining the revenue breakdown by industry shows that basic materials and telecommunications companies are the most dependent on overseas business (Chart 4).

Chart 4: FTSE Mexico Index domestic and overseas revenue breakdown by industry



Mexican basic materials and telecommunications companies are the most dependent on overseas business.

Source: FTSE Russell as of December 31, 2019 using Industry Classification Benchmark.

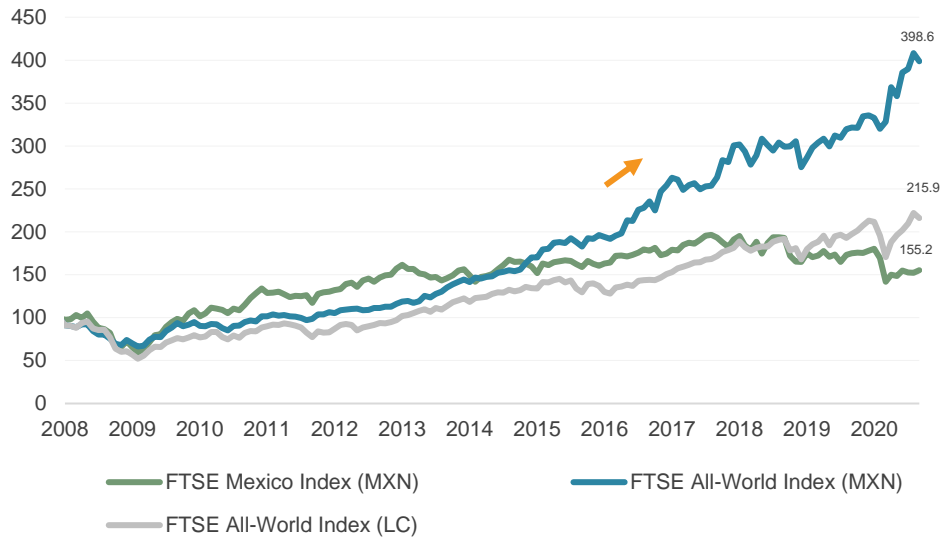
Assessing the effect of Mexico home bias: performance

Charts 5 and 6 compare the performance of Mexican equities with that of overseas equities in Mexican peso, and in local-currency terms (to remove the currency effect). A depreciating currency improves the overseas returns in pesos of a Mexican-based investor (and vice versa).

On a cumulative basis, Mexican equities outperformed the global equity index in local currency terms for much of the period under review (green vs grey lines) and it was not until the latter part of the period that global equities began to outperform Mexican equities as the surge in US equities from 2017 drove the returns of the global equity index. Overall, global equities (local currency) ended up outperforming Mexican equities during the full period.

However, the greatest challenge for the Mexican equity market was the sharp depreciation of its currency. The collapse in the oil price in 2014-2015 had a profound impact on the Mexican market's relative performance against the global equity index in Mexican peso terms, shown by the diverging blue line in Chart 5.

Chart 5: Cumulative total returns of the FTSE Mexico Index and the FTSE All-World Index (MXN & local currency), rebased – Absolute

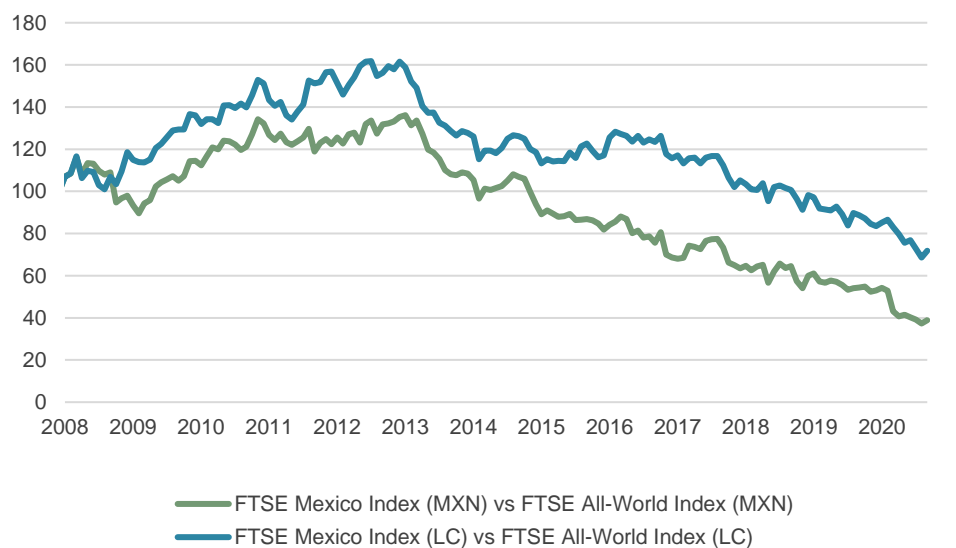


On a cumulative basis, Mexican equities have had a much smaller underperformance against the global index in local currency than in Mexican peso terms.

Source: FTSE Russell from December 31, 2007 to September 30, 2020 (Q3 2020). Past performance is no guarantee of future results. Please see the end for important legal disclosures.

The relative performance in Chart 6 shows very clearly the outperformance of the FTSE Mexico Index against the global index (in Mexican peso) between 2008-2012—a period of strong inflows in emerging markets. Also evident is the inflection point in 2014-15, when Mexican equities underperformed their global peers as the oil price collapse led to the rapid depreciation of the peso (see Charts 7-8). The COVID-19 sell-off and renewed declines in the oil price further widened the performance gap between the relative returns in local currency and peso terms.

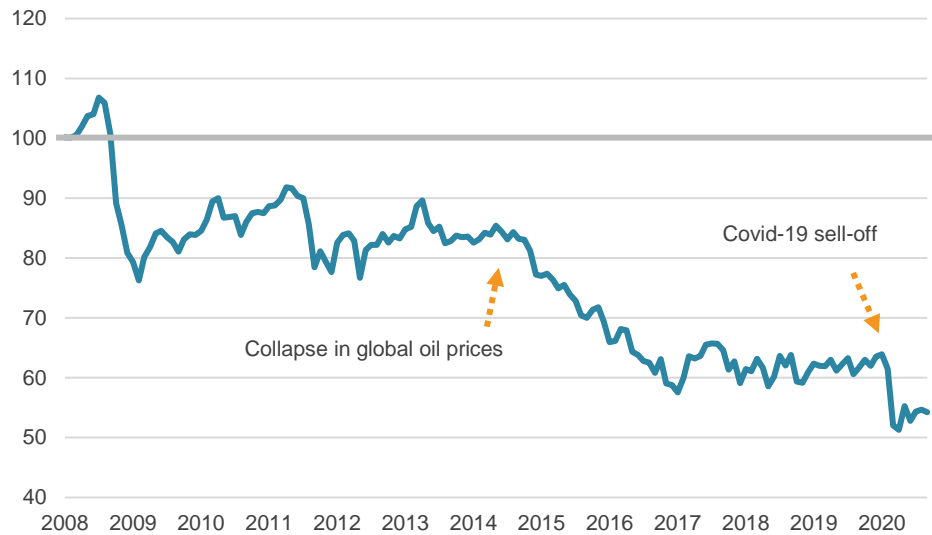
Chart 6: Relative total returns of the FTSE Mexico Index relative to the FTSE All-World Index (MXN & local currency), rebased



Source: FTSE Russell from December 31, 2007 to September 30, 2020 (Q3 2020). Past performance is no guarantee of future results. Please see the end for important legal disclosures.

We can examine the shifts in the Mexican peso since 2008 in Chart 7. Post the global financial crisis, the peso initially recovered some ground against a basket of foreign currencies. However, concerns over rising interest rates in the US, the collapse in global oil prices, trade tensions with the US and the impact of the Coronavirus pandemic had a devastating effect on the currency, leading to the multi-year depreciation of the currency.

Chart 7: Trade-weighted MXN Index, rebased



The collapse in global oil prices had a profound effect on the Mexican peso, which led to its multi-year depreciation.

Source: Refinitiv from December 31, 2007 to September 30, 2020; the trade-weighted MXN Index is a measure of the value of the Mexican peso relative to a basket of foreign currencies.

The weakness in the Mexican peso mirrors the decline in the oil price. Chart 8 shows the falls of the oil price in 2008, 2014, 2019 and 2020.

Chart 8: Crude Oil price, \$/Bbl

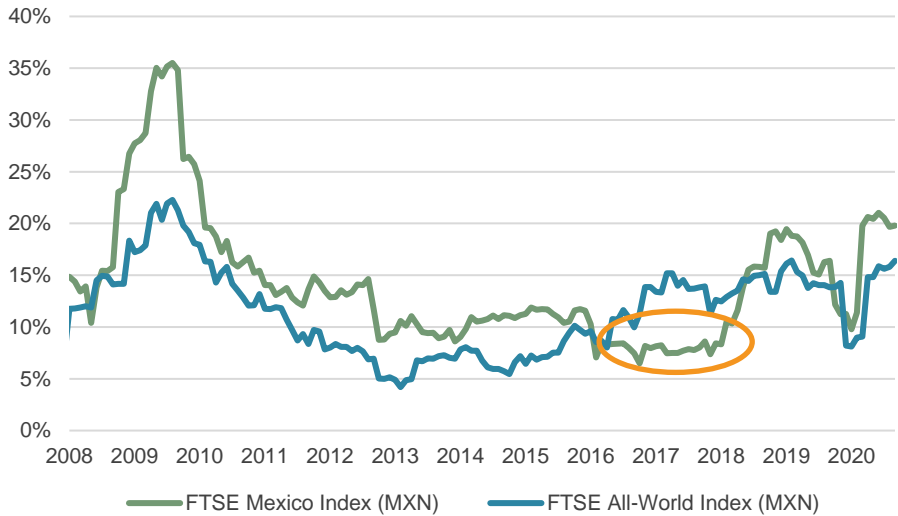


Source: Refinitiv from December 31, 2007 to September 30, 2020. Data from Crude Oil BFO M1 Europe FOB \$/Bbl.

Assessing the effect of Mexican home bias: risk and return

Chart 9 highlights that, except for 2016-2017, Mexican equities have exhibited higher levels of volatility than overseas equities over the past 13 years.

Chart 9: 1Y rolling annualized volatility of the FTSE Mexico Index and the FTSE All-World Index (MXN) – Absolute



On a relative basis, the volatility difference between Mexican and global equities has remained within a close range for most of the post-GFC period, until COVID-19.

Source: FTSE Russell from December 31, 2007 to September 30, 2020 (Q3 2020).

Chart 10 provides a better view of the magnitude of the differences in volatility. Although generally higher, Mexican equity volatility has converged with that of international equities post GFC, remaining within a +/- 5% range, until COVID-19 fears pushed volatility above 10% before settling back to about 5%.

Chart 10: 1Y rolling annualized volatility difference of the FTSE Mexico Index and the FTSE All-World Index (MXN) – Relative

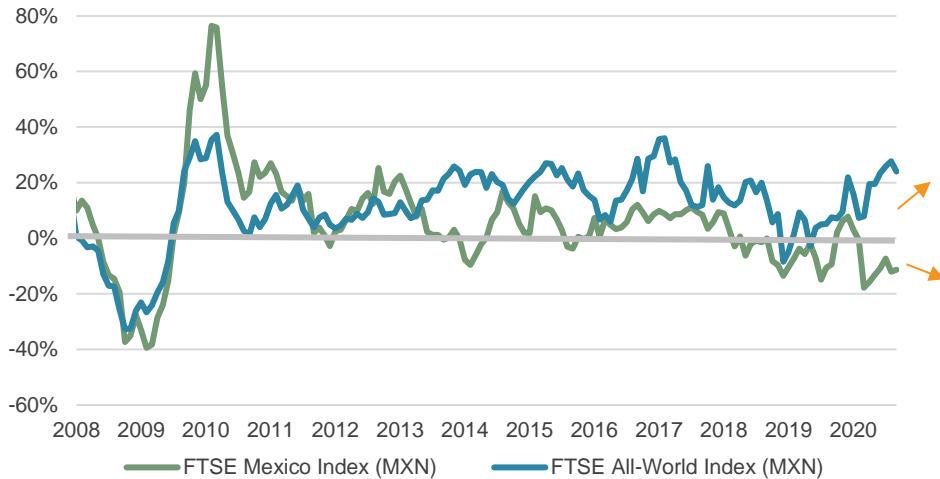


The Mexican equity market has been more volatile than the global equity market, except in 2016-2017.

Source: FTSE Russell from December 31, 2007 to September 30, 2020 (Q3 2020).

The rolling returns highlights the brief outperformance of Mexican equities after the global financial crisis and the multi-year underperformance thereafter (Chart 11). The COVID-19 sell-off in 2020 widens sharply the difference in performance between Mexican equity and global equity returns.

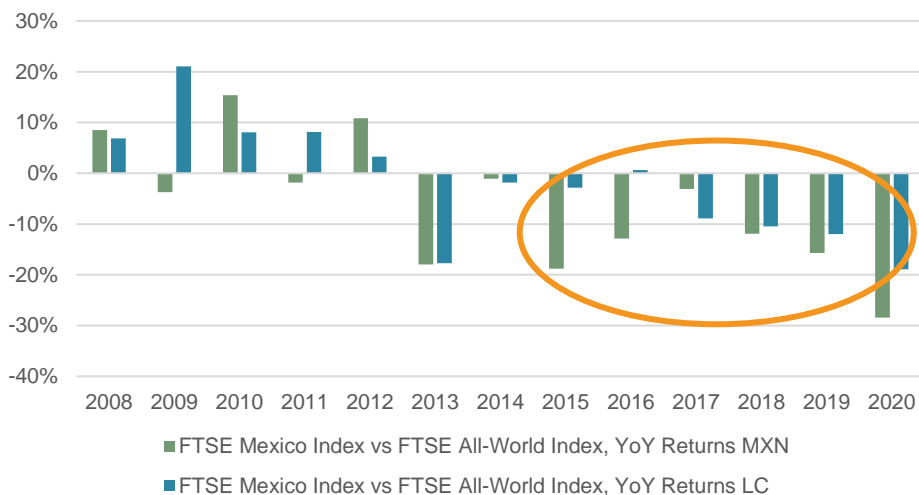
Chart 11: 1Y rolling returns of the FTSE Mexico Index and the FTSE All-World Index (MXN) – Absolute



Source: FTSE Russell from December 31, 2007 to September 30, 2020 (Q3 2020). Past performance is no guarantee of future results. Please see the end for important legal disclosures.

The histogram in Chart 12 illustrates this difference in performance more clearly. Although Mexican equities outperformed international equities in local currency terms (blue bars) in six of the 13 years examined, they outperformed in only three years in pesos (green bar). This means that for 77% of the period, Mexican investors would have been worse off for having a bias to Mexican equities. These disparities in relative returns (between blue and green bars) were starkest in 2009 and 2015-2016.

Chart 12: Year-on-year returns of the FTSE Mexico Index and the FTSE All-World Index in MXN and LC – Relative

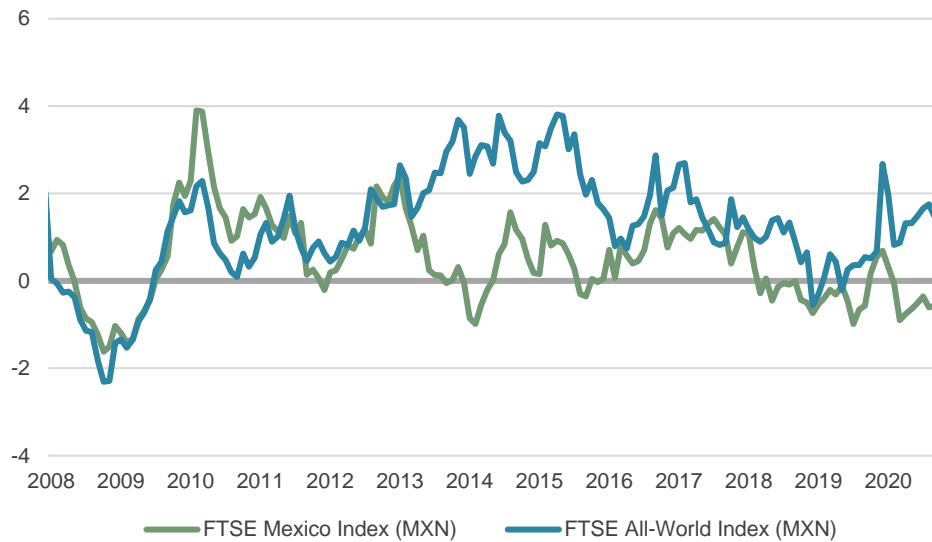


The relative performance shows Mexican investors being worse off for having a bias to Mexican equities in 10 of the 13 years examined (in Mexican peso terms).

Source: FTSE Russell to September 30, 2020 (Q3 2020). Past performance is no guarantee of future results. Please see the end for important legal disclosures.

Combining volatility and returns in Chart 13 shows international equities have delivered higher return/risk ratios than Mexican equities since the Global Financial Crisis.

Chart 13: 1Y rolling return/risk ratio of the FTSE Mexico Index and the FTSE All-World Index – Absolute

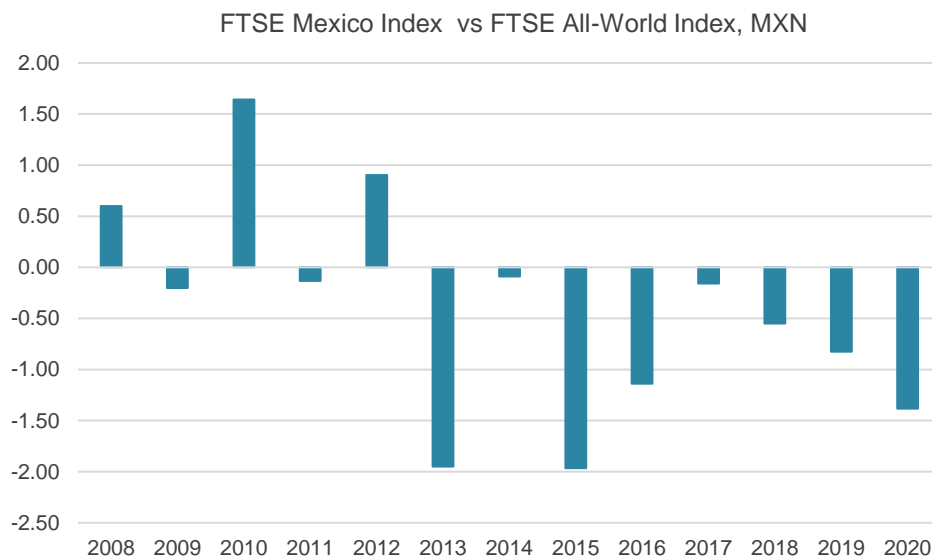


International equities have delivered a higher risk-adjusted return ratio than Mexican equities post-GFC.

Source: FTSE Russell from December 31, 2007 to September 30, 2020 (Q3 2020). Past performance is no guarantee of future results. Please see the end for important legal disclosures.

The histogram in Chart 14 underscores these findings in more detail, with the discreet periods highlighting that Mexican equities have delivered better risk-adjusted returns in only three (in 2008, 2010 & 2012) of the period examined.

Chart 14: Year-on-year return/risk ratios of the FTSE Mexico Index and the FTSE All-World Index – Relative



Source: FTSE Russell to September 30, 2020 (Q3 2020). Past performance is no guarantee of future results. Please see the end for important legal disclosures.

Conclusion

With Mexican equities trailing their overseas peers on a risk-adjusted basis for 77% of the period examined, an 80-times home bias has represented a significant opportunity cost for Mexican-based investors during the 13 years analyzed, with COVID-19 fears and sell-off exacerbating that trend.

Appendix

The FTSE Global Equity Index Series (GEIS) covers about 99% of the global equity market. The Series provides a flexible building-block approach to meet the needs of market participants.

FTSE GEIS							
Data-driven classification at a granular level. The confluence of top-down and bottom-up analysis							
MARKET STATUS		SIZE		STYLE		SECTOR (ICB®)	
Developed	Advanced Emerging	Large	Mid	Growth	Value	Industries	Sectors
Secondary Emerging	Frontier	Small	Micro	Defensive	Dynamic	Supersectors	Subsectors

FTSE GEIS is divisible into modular subcomponents, such as the large and mid-cap FTSE All-World Index and the FTSE Global Small Cap Index, which combine into a large, mid and small-capitalisation index, the FTSE Global All Cap Index.

A wide range of other sub-indexes that further segments the market by size (including micro-cap), sectors, regions, and individual countries are also available, a sample of which is listed below:

Index	FTSE Global Total Cap	FTSE Global All Cap	FTSE All-World	FTSE Global Small Cap	FTSE Global Micro Cap
Include cap segments	Large, Mid, Small, Micro	Large, Mid, Small	Large, Mid	Small	Micro
% of FTSE Global Total Cap Index	100%	98%	87%	11%	2%
Net Mcap (USDt)	53.7	52.6	47.0	5.6	1.1
Number of constituents	17,170	8,938	3,954	4,992	8,224

Source: FTSE Russell, data as of September 30, 2019.

Summary of the FTSE Global All Cap Index features

Charts 14 and 15 show the size and regional breakdown of the FTSE Global All Cap Index and Table 2 provides more granular segmentation, including the number of constituents. For the FTSE Global All Cap Index, 73% of the index is made up of large companies and 64% is classified as Developed.

Chart 14: FTSE Global All Cap Index – percentage of total market cap by size

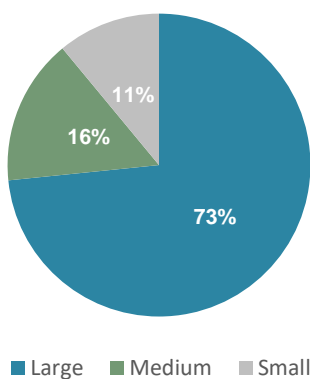
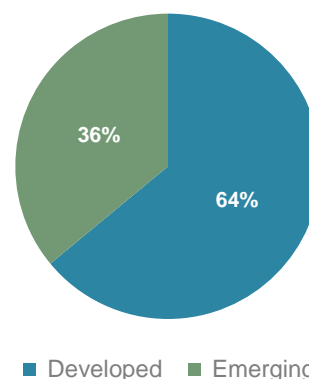


Chart 15: FTSE Global All Cap Index – percentage of total market cap segmented by Developed and Emerging companies



Source: FTSE Russell as of September 30, 2019.

Source: FTSE Russell as of September 30, 2019.

Table 2: Further size and constituent numbers breakdown by Developed and Emerging

FTSE Global All Cap Index Composition Breakdown		
Index	%	Constituent numbers
Developed (of which)	64	5,692
Large	73	899
Medium	16	1,271
Small	11	3,522
Emerging (of which)	36	3,246
Large	80	891
Medium	11	889
Small	9	1,466
Total	100%	8,938

Source: FTSE Russell as of September 30, 2019

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