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Benchmarking Lifecycle Investment Strategies: Introducing the S&P/BMV Mexico Target Risk Indices

INTRODUCTION

As the largest source of in-retirement income for retirees in Mexico, the health of the pension investment system in Mexico undoubtedly is at the forefront of every discussion. Continuous dialogue on the needs of the retirement system have led to significant changes over time, with the expectation that the system will continue to evolve in the future. Nevertheless, there are major considerations that need to be taken into account regarding the pension system, including an appropriate asset class allocation mix for retirement accounts prior to retirement as well as developing an appropriate framework through which to assess and evaluate managers' performance.

With that facet, S&P Dow Jones Indices has introduced the S&P/BMV Mexico Target Risk Index Series, a series of multi-asset class indices that are designed to serve as benchmarks for the Mexican pension system. In developing these indices, we consulted with key market participants of the pension fund investment ecosystem. As such, the design and framework of these indices reflect market input on investability, liquidity, and replicability.

This paper is organized into four sections. In the first section, we chart the history of the pension system in Mexico, followed by a discussion on the need for an independent evaluation framework in assessing managers' performance. In the third and the fourth sections, we introduce the S&P/BMV Mexico Target Risk Indices and analyze the salient characteristics of the index series, including risk/return profiles.

HISTORY OF THE MEXICAN PENSION SYSTEM¹

As written into the Mexican Constitution, pension benefits must be provided for retired individuals. Following this, the Mexican Social Security Institute (IMSS) established the Mexican Pension System in 1943, which was structured as a defined benefit (DB) program like those commonly seen elsewhere in the world at that time. Like other DB programs, the financing of the pension system would come from paycheck contributions of the working population, who would then receive pension benefits once they retired.

After some time, it was realized that the benefits committed to pensioners under the initial system were too high relative to their contributions, calling into question the sustainability of the system in the long term. As a result, a restructuring of program benefits and contributions began to occur. In 1973, the pension benefit calculation was adjusted to be based on the average salary of the last five years before retirement and the total number of years of contribution into the pension system. Then, in 1990, contributions from workers increased to 6.5% of their pay.

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At the same time, changes were also occurring on the regulation front, including the establishment of individual bank accounts for participants in 1992 and the creation of the pension fund system regulator in 1997, also known as the Comisión Nacional del Sistema de Ahorro para el Retiro (CONSAR). These reforms set the stage for the pension system to move away from a DB system to a defined contribution (DC) system. With the change from a DB framework to a DC framework, individuals would no longer track their annual in-retirement pension benefits, but instead a retirement investment portfolio. Under the DC scheme, individuals place their assets under the management of one of the available pension fund managers, known as AFOREs, in Mexico.

CURRENT PENSION FUND INDUSTRY LANDSCAPE

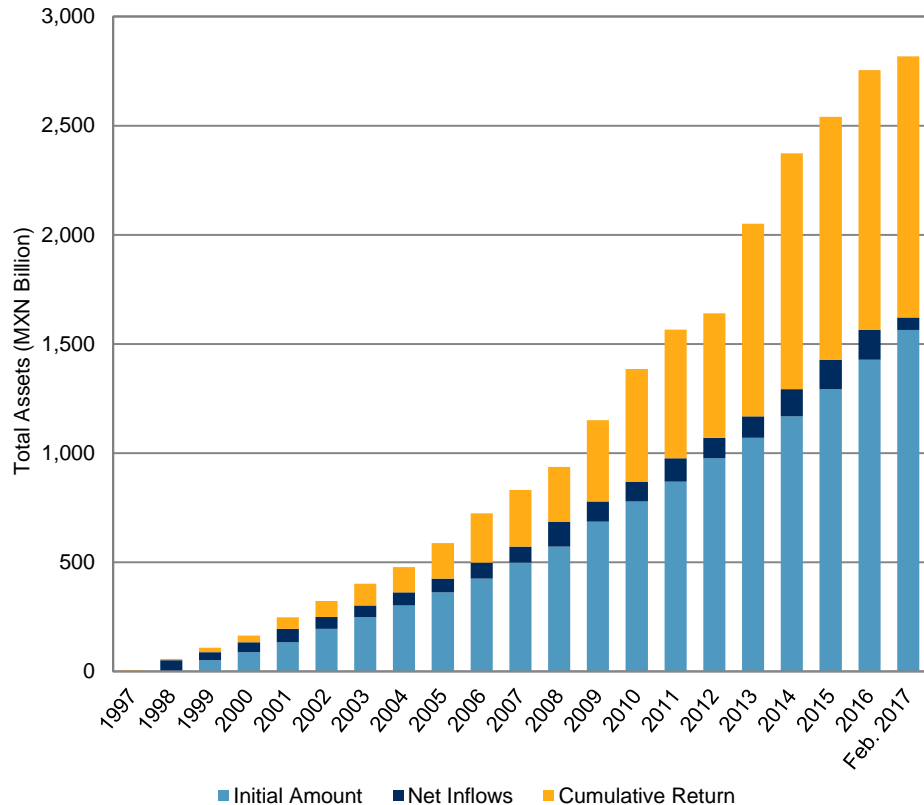
As of February 2017, there are 11 AFOREs in Mexico that manage a total of MXN 2.816 billion (~USD 141 billion) and over 54 million individual retirement accounts. Putting this in reference, this amount represents more than 14% of Mexico's gross domestic product (GDP), showing the importance of the system to the economy as a whole. The pension industry's total assets under management have seen significant growth, rising at an average annual rate of 14% over the last 10 years (see Exhibit 1).² This growth has been spurred by both an increase in

¹ CONSAR, "Diagnóstico del Sistema de Pensiones", June 2015; OECD, "OECD Reviews of Pension Systems", 2015; The World Bank, "The 1997 Pension Reform in Mexico", June 1998.

² CONSAR, "The SAR in numbers", 2017, https://www.gob.mx/cms/uploads/attachment/file/203829/el_sar_en_num_feb17.pdf

the working population³ and positive asset class performance; investment performance has been the main driver in growth of the two, as the average annual return of the entire pension system was 11.55% for the last 20 years.⁴

Exhibit 1: Mexican Pension System Asset Levels



Source: CONSAR. Data as of February 2017. Chart is provided for illustrative purposes.

The current pension system in Mexico is a multi-pillar system, partly modeled after the World Bank Pillars for Retirement (see Exhibit 2). CONSAR focuses on regulating and monitoring retirement savings, which primarily resides under pillars 2 and 3.

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Exhibit 2: World Bank Pillars for Retirement

Pillar 0	Pillar 1	Pillar 2	Pillar 3
Non-Contributory	Mandatory	Mandatory	Pension Savings
Federal Program: 65 and more Welfare State Programs	Benefit Defined	Individual Capitalization Defined Contribution	Voluntary

Source: World Bank. Data as of 2008. The World Bank Pension Conceptual Framework. World Bank Pension Reform Primer Series. Washington, DC. <https://openknowledge.worldbank.org/handle/10986/11139> License: CC BY 3.0 IGO. Table is provided for illustrative purposes.

³ Instituto Nacional de Estadística, Geografía e Informática (INEGI), June, 2017, <http://www.beta.inegi.org.mx/app/indicadores/?ag=00&ind=6200093960#divFV6200093960#D6200093960>

⁴ CONSAR, March 7, 2017, “Boletín de Prensa N°14/2017”, www.gob.mx/consar

In the current system, the working population is broken into five age-based portfolio buckets, known as Siefores. This essentially leads to four different investment portfolio strategies, Siefore Básicas 1 to 4, with different investment restrictions. The primary goals for the fifth and last Siefore, Siefore Básica 0, is to have maximum liquidity and minimal volatility, serving those participants who are closest to, or at, retirement. Exhibit 3 shows the age ranges applicable for each Siefore, along with the years to retirement based on an expected retirement age of 65.

Exhibit 3: Siefore Age Breakout

CATEGORY	SIEFORE BÁSICA 0	SIEFORE BÁSICA 1	SIEFORE BÁSICA 2	SIEFORE BÁSICA 3	SIEFORE BÁSICA 4
Age Group	60 and Older	60 and Older	46 to 59	37 to 45	36 and Under
Years to Retirement	0	0 to 5	6 to 19	28 to 20	29+

Source: CONSAR. Data as of June 1, 2017. Table is provided for illustrative purposes.

The broad investment approach undertaken in each Siefore follows "lifecycle investing" principles; younger individuals with a longer time horizon until retirement will have a higher exposure to risky assets such as equities, while older individuals will be allocated to more conservative assets such as short-term nominal and inflation-linked bonds.

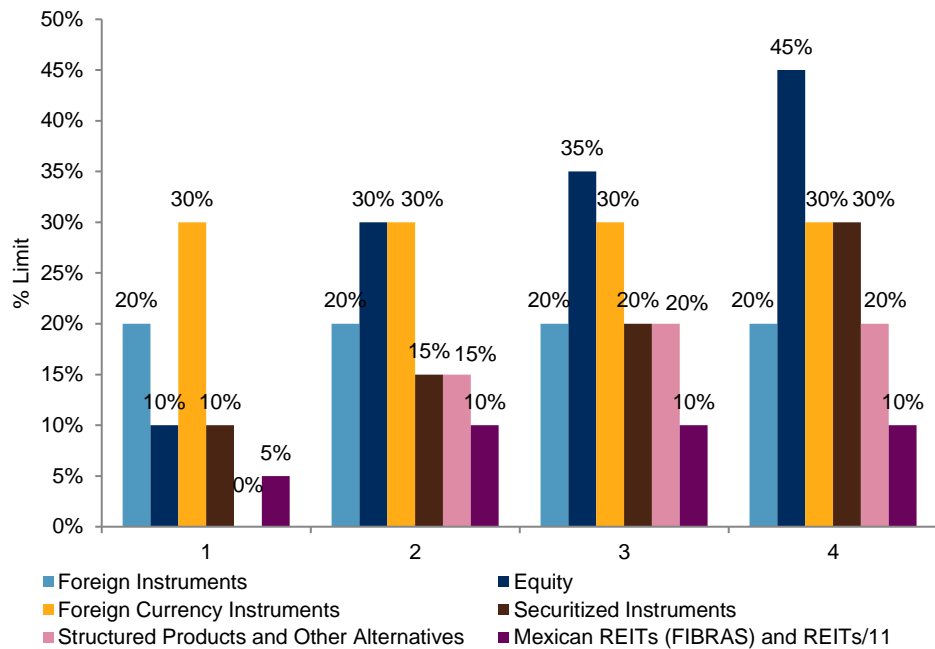
To ensure that investments are sensibly allocated, each Siefore has different investment limits on risky assets such as equities, foreign securities, currencies, and structured products (see Exhibit 4). It can be observed that the Mexican pension system is more conservative in allocating to equities than pension funds of other countries such as the U.S., where the average allocation to equities is 44%.⁵ Studies such as one published by the OECD in 2016⁶ showcase the potential benefit of increasing the total allowed investment limit in both domestic and international equities for increased return potential and diversification in a long-term, multi-asset framework.

It can be observed that the Mexican pension system is more conservative in allocating to equities than pension funds of other countries such as the U.S., where the average allocation to equities is 44%.¹

⁵ OECD, 2016, <http://www.oecd.org/daf/fin/private-pensions/Pension-Markets-in-Focus-2016.pdf>

⁶ OECD Reviews of Pension Systems: 2016 https://www.gob.mx/cms/uploads/attachment/file/61968/sistema_de_pensiones_2016.pdf

Exhibit 4: General Investment Limits of Each Siefore



Source: CONSAR, “DISPOSICIONES de carácter general que establecen el régimen de inversión al que deberán sujetarse las sociedades de inversión especializadas de fondos para el retiro”. Data as of Dec. 17, 2016. Chart is provided for illustrative purposes.

In addition to asset class investment guidelines, restrictions are placed on market risk and portfolio liquidity, using value at risk (VAR) as the measure for market risk and the liquidity ratio⁷ to measure the liquidity of a portfolio. The maximum VAR increases as the years to retirement increase, while the liquidity ratio remains the same across each Siefore.

Perhaps as a consequence, foreign debt exposure has decreased at the same time, which could lead one to believe that fund managers prefer equities over fixed income for international exposure.

Exhibit 5: Portfolio Risk Limits

MARKET AND LIQUIDITY RISK LIMITS	SIEFORE BÁSICA 1 (%)	SIEFORE BÁSICA 2 (%)	SIEFORE BÁSICA 3 (%)	SIEFORE BÁSICA 4 (%)
Value at Risk	0.70	1.10	1.40	2.10
Differential Conditional Value at Risk	0.30	0.45	0.70	1.00
Liquidity Ratio	80	80	80	80

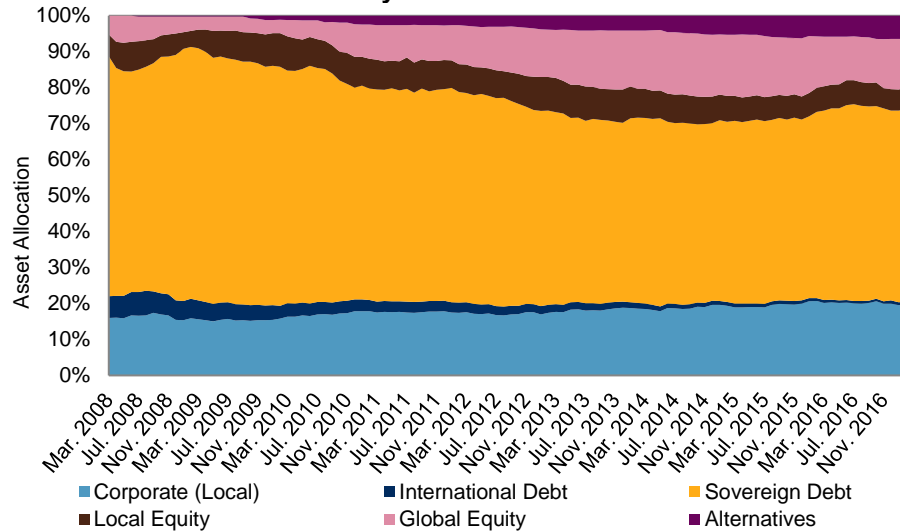
Source: CONSAR, “DISPOSICIONES de carácter general que establecen el régimen de inversión al que deberán sujetarse las sociedades de inversión especializadas de fondos para el retiro”. Data as of Dec. 17, 2016. Table is provided for illustrative purposes.

Over time, regulations have changed to allow more diversification in funds, and as a result there has been an increased shift into riskier assets with the expectation to achieve higher returns (see Exhibit 6). Following relaxed investment limits on equities in the last several years, total equity exposure (especially foreign equities), has increased, pointing to the possibility that the fund managers see a benefit in increased allocation to equities. Perhaps as a consequence, foreign

⁷ The ratio is defined as a percentage of the highly liquid assets of the SIEFORE. It is defined as the ratio between the value of the SIEFORE's reserves for derivatives exposure and the value of highly liquid assets. Highly liquid assets are identified with the information provided by the official price vendors PiP and Valmer.

debt exposure has decreased, which could lead one to believe that managers may prefer equities over fixed income for international exposure. In late 2016, CONSAR increased the total equity limit by 5% for all Siefores, so the shift in increased equity exposure may continue in the future.

Exhibit 6: Evolution of Industry Asset Allocation



Source: CONSAR. Data as of February 2017. Chart is provided for illustrative purposes.

One of the more recent debates among market participants is how fund managers are compensated, as the regulatory body sees the need for pension fund managers to focus on the long-term goals of the individual constituents, as opposed to focusing on short-term fund performance to meet short-term incentive objectives. Related to meeting long-term investment objects is how to appropriately allocate among different asset classes for people in different stages of their working careers.

Having an appropriate performance measure and evaluation framework is a major part of the investment management process.

The investment guidelines designated by the regulatory body must be strictly followed by fund managers. However, the industry currently lacks an independent benchmark for each Siefore to measure the effectiveness of their strategy.

NEED FOR INDEPENDENT PERFORMANCE EVALUATION FRAMEWORK

Having an appropriate measurement of performance and evaluation framework is a major part of the investment management process. Indices serve as yardsticks against which managers' performance can be compared and assessed based on the effectiveness of the strategy. Currently, pension fund managers use several tools to report their relative performance, including 1) comparing their performance relative to their peers and 2) comparing against custom blended benchmarks that are often created or maintained by the manager themselves.

The regulator, CONSAR, has recently required the AFOREs to have benchmarks that reflect their investment portfolios. In the current regime, each AFORE determines the benchmark asset allocation and also typically calculates the benchmark. Despite needing regulatory approval for benchmark design, this structure poses inherent conflict of interest for the AFOREs, given that the relative performance of managers is measured against the performance of benchmark indices.

Bailey and Tierney (1998)⁸ outlined the following properties as desirable characteristics that benchmarks used in the investment management process should possess.

- **Unambiguous:** The names and weights of securities comprising the benchmark are clearly delineated.
- **Investable:** The option is available to forgo active management and simply hold the benchmark.
- **Measurable:** The benchmark's return can be readily calculated on a reasonably frequent basis.
- **Appropriate:** The benchmark is consistent with the manager's investment style.
- **Reflective of current investment opinions:** The manager has current investment knowledge (be it positive, negative, or neutral) regarding the securities that constitute the benchmark.
- **Specified in advance:** The benchmark is constructed prior to the start of an evaluation period.
- **Accountable:** The manager accepts ownership and accountability for the composition and performance of the benchmark.

These attributes serve as best practice guidelines when constructing a benchmark, as they help ensure that it serves a transparent framework for managers and participants.

In Mexico, having appropriately designed lifecycle benchmarks provides the ability to evaluate managers by using performance measurement techniques such as portfolio attribution, tracking error, and information ratio. The risk-based measures in particular are helpful in identifying managers who may be taking an excessive amount of risk to meet their performance goals. An independent benchmark can help identify managers with skill as opposed to ones that simply shift away from baseline asset allocation.

Another potential use for a benchmark is to function as a performance comparison tool across a peer universe. While a firm-specific benchmark is constructed to measure how well managers perform

The indices are intended to represent stock-bond allocation across a risk spectrum, ranging from conservative to aggressive, while taking into consideration the investment constraints placed by the pension system regulator in Mexico.

⁸ Bailey, J., and D. Tierney. "Controlling Misfit Risk in Multiple-Manager Investment Programs." Research Foundation of AIMR & Blackwell Publishers, 1998.

relative to their specific goals, a peer group benchmark attempts to reflect an overall industry. Since the target age range for each portfolio bucket is the same across the Mexican pension system, peer benchmarks that reflect general portfolio allocations can be constructed. These benchmarks could then give individual fund managers the ability to compare against their peers in the Mexican pension system.

Introducing the S&P/BMV Mexico Target Risk Indices

Identifying the need for having independent and appropriately designed benchmarks to service the pension fund industry in Mexico, S&P Dow Jones Indices has introduced a series of indices that follows a target risk-based asset allocation approach for retirement investing.⁹ The index series include four multi-asset class indices, each corresponding to a particular risk level. The indices are intended to represent stock-bond allocation across a risk spectrum, ranging from conservative to aggressive, while taking into consideration the investment constraints placed by the pension system regulator in Mexico.

S&P Dow Jones Indices has introduced a series of indices that follows a target risk-based asset allocation approach for retirement investing.

S&P/BMV Mexico Target Risk Conservative Index: Emphasize exposure to domestic short-term fixed income in order to avoid excessive volatility of returns.

S&P/BMV Mexico Target Risk Moderate Index: Offers significant exposure to short- to mid-term fixed income, while also increasing opportunities for higher portfolio returns by increasing exposure to equities.

S&P/BMV Mexico Target Risk Growth Index: Increases exposure to equities while providing mid- to long-term fixed income exposure.

S&P/BMV Mexico Target Risk Aggressive Index: Emphasizes exposure to equities within regulator limits, maximizing opportunities for long-term capital accumulation. It seeks to provide exposure to fixed income, with allocations placed in longer-term maturity bonds.

INDEX CONSTRUCTION PROCESS

The assigned risk level of each index is reliant on both the stock-bond allocation mix, as well as the allocation within each asset class. As the starting point, we conduct a feasibility test of which asset classes are to be included in the allocation mix. The study took into account considerations such as 1) regulatory limits, 2) feasibility of benchmarking the asset class in passive index form, 3) investability of the asset class, and 4) historical average allocations by the industry.

⁹ Methodology document available on our web site www.spdji.com.

Exhibit 7 summarizes the asset classes included and excluded in the index series. We have also provided rationale for including and excluding each asset class studied. Following the overview, we discuss the asset allocation for the index series.

Exhibit 7: Asset Class Inclusions and Exclusions in the Index Series	
INCLUSIONS	EXCLUSIONS
Domestic Equity	Derivatives
Global Equity	Commodities
Government Debt	REITs
Nominal	Structured Products
Inflation linked	Private Equity
Corporate Debt	-

Source: S&P Dow Jones Indices LLC. Table is provided for illustrative purposes.

Inclusions

EQUITY

Equities are considered to be the asset class that can provide the highest absolute returns over an extended time horizon, thereby serving as the principal capital growth component of a portfolio. As such, the asset class is one of the key building blocks of the index series. For diversification and expanded exposure, the series includes domestic Mexican equities and global equities. Returns attributed to domestic equity are represented by the S&P/BMV IRT, the total return version of the [S&P/BMV IPC](#), the leading broad-based equity index in Mexico.

The [S&P Global 1200](#) represents global equities in the index series, as it provides efficient exposure to the large-cap, global equity market. The S&P Global 1200 is constructed using regional S&P DJI benchmark indices, providing allocation to the U.S., Europe, Japan, Canada, Australia, Asia, and Latin America, therefore capturing approximately 70% of global equity market capitalization. Since the vast majority of the index constituents are non-Mexican equities, the index series is exposed to foreign companies and foreign currency.

FIXED INCOME

The fixed income asset class comprises the largest allocation in the portfolios, ranging from 95% allocation in the conservative portfolio to 68% allocation in the aggressive portfolio. As the more conservative asset class in the index series, fixed income has the capability of the preservation of a portfolio’s capital, while also providing diversification from equity risk. The index series breaks down the asset class into four sub-asset classes, including cash, nominal government bonds, inflation-linked government bonds, and corporate bonds.

Equities are considered to be the asset class that can provide the highest absolute returns over an extended time horizon.

GOVERNMENT DEBT

Local Mexican government debt is divided into three categories: cash, nominal, and inflation-linked. To ensure a reasonable level of liquidity in the portfolios, cash is allocated to all four portfolios and is represented by the [S&P/BMV Government CETES Bond Index](#). This index holds all government bonds with a maturity band greater than one month and less than one year. The conservative index portfolio has the highest cash allocation, as the individuals in the targeted age bucket are near retirement and have a greater need for portfolio safety and short-term liquidity.

Local Mexican government debt is divided into three categories: cash, nominal, and inflation-linked.

CORPORATE DEBT

Corporate debt plays a large role in the portfolio allocations in the AFORE industry (see Exhibit 6). In general, corporate-backed bonds tend to be riskier and lower rated than government-backed bonds, but they typically provide higher yields and higher return potential, which can be attractive to fund managers. In Mexico, corporate bonds are illiquid as there is little volume in the secondary market, since investors generally buy securities at the initial issuance and hold until maturity. Balancing the applicability of including corporate bonds in the index series and the inherent liquidity issues, a liquidity discount was applied, leading to allocations lower than the industry average.

Exclusions

Several reasons led to certain asset classes being excluded from index series (see Exhibit 7), including the need for the regulator to pre-approve asset classes and benchmarks, as well as little industry usage in pension fund portfolios. Alternative assets such as derivatives, private equity, real assets, fibras (securities akin to REITs), and commodities are all absent of approved benchmarks that can be used under current investment regime.

DERIVATIVES/STRUCTURED PRODUCTS

Only several AFOREs are approved to trade derivatives and structured products, leading to minimal industry relevancy and allocation. In addition, the investment vehicles are more difficult to benchmark, as the uses and structures can vary significantly.

REITs

Real estate is an important asset in Mexico, but the market lacks a suitable investable index for the publically traded firms. In addition, private real estate assets lack the market pricing needed to be included in a benchmark. At the end of 2016, there were just 11 publically listed fibras, causing hesitation to bring a fibra-focused benchmark to the

marketplace. Due to the low number of securities, the pension fund industry’s exposure to the sector is low, with total allocation at 1.8% as of May 2017.¹⁰

COMMODITIES

Commodities are often used in multi-asset portfolios, as they tend to be uncorrelated with other major asset classes. Despite low to negative correlations, commodities can be quite volatile and are often excluded from retirement-focused portfolios. In addition, just 0.2% of total industry assets were invested in commodities at the end of May 2017.¹¹

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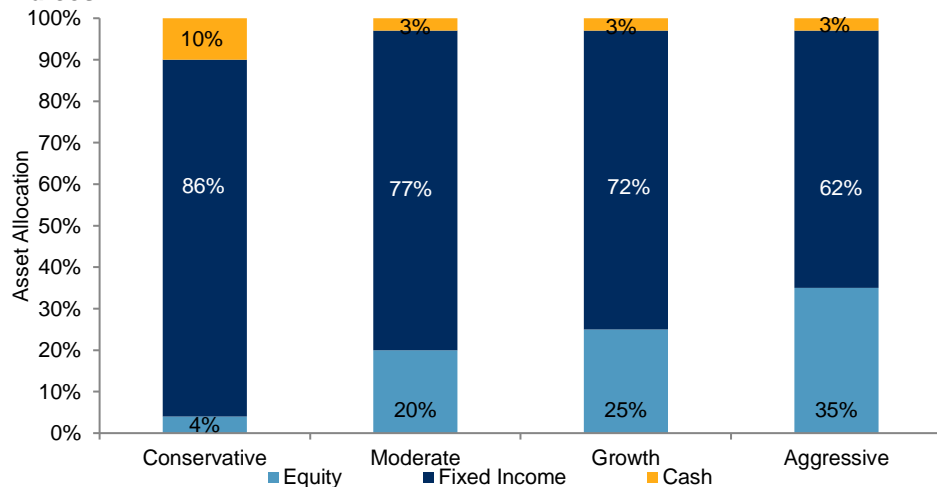
PRIVATE EQUITY

Like in other markets, private equity in Mexico lacks market-determined pricing, leading to the difficulty of constructing a proper benchmark.

ASSET ALLOCATION

The asset allocation for each index in the series is fixed, and target weights for each asset class and sub-asset class are determined mainly by proper portfolio diversification, Siefere-specific regulatory restrictions, and time horizon to retirement (see Exhibit 8). The indices rebalance semiannually, the frequency we find to be necessary in order to prevent significant divergence from the target weight, while limiting excessive turnover. This section goes over the asset class allocation for the index series first going over each asset class, then reviewing the final portfolio weights.

Exhibit 8: Asset Class Allocation of the S&P/BMV Mexico Target Risk Indices



Source: S&P Dow Jones Indices LLC. Data as of Nov. 1, 2016. Chart is provided for illustrative purposes.

¹⁰ CONSAR, May 2017, <http://www.consar.gob.mx/gobmx/aplicativo/siset/CuadroInicial.aspx?md=21>

¹¹ CONSAR, May 2017, <http://www.consar.gob.mx/gobmx/aplicativo/siset/CuadroInicial.aspx?md=21>

Equity

The regulatory limits placed on both international and total equity allocations are the main determinants of the final allocation in the index series (see the light blue portion of each column in Exhibit 8). With low correlation to the fixed income assets (see Exhibit A in the Appendix), the equity allocations are close to the maximum allowed limit within each Siefore. A buffer range from the maximum limit is incorporated to minimize the potential of equities breaching the limits in between rebalancing periods. Exhibit 9 breaks down the total equity allocation relative to the allowable regulatory limits.

With low correlation to the fixed income assets, the equity allocations are close to the maximum allowed limit within each Siefore.

Exhibit 9: Regulatory Limits and Equity Allocation

FACTOR	CONSERVATIVE	MODERATE	GROWTH	AGGRESSIVE
Total Equity (%)	4	20	25	35
Limit During Design Process (Absolute 5% Lower Than Current) (%)	5	25	30	40
Local (%)	1	8	10	20
Global (%)	3	12	15	15

Source: S&P Dow Jones Indices LLC. Table is provided for illustrative purposes.

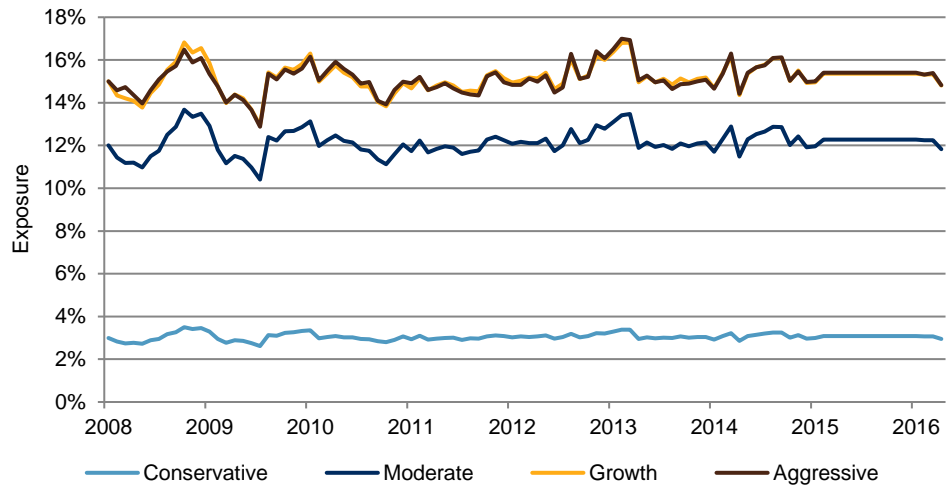
As shown in Exhibit A in the Appendix, international equities have historically shown negative correlation to all other assets, including domestic equities. Therefore, international equities can potentially provide diversification to a portfolio that is mainly composed of domestic investments. To take advantage of the diversification potential, international equities were given preference over domestic equities in the overall equity allocations. Exhibit 10 shows the relative allocation between domestic and international equities within each index. For the aggressive index portfolio, domestic equities have a larger relative weight due to the total foreign security limit of 20%. Exhibits 11 and 12 illustrate the historical international equity exposure and total equity exposure throughout time.

Exhibit 10: Relative Target Equity Weight Breakdown

ASSET CLASS	SUB-ASSET CLASS	COMPONENT INDEX (TR)	CONSERVATIVE (%)	MODERATE (%)	GROWTH (%)	AGGRESSIVE (%)
Equity	Domestic	S&P/BMV IRT	25	40	40	57
	International	S&P Global 1200 (MXN)	75	60	60	43
Total			100	100	100	100

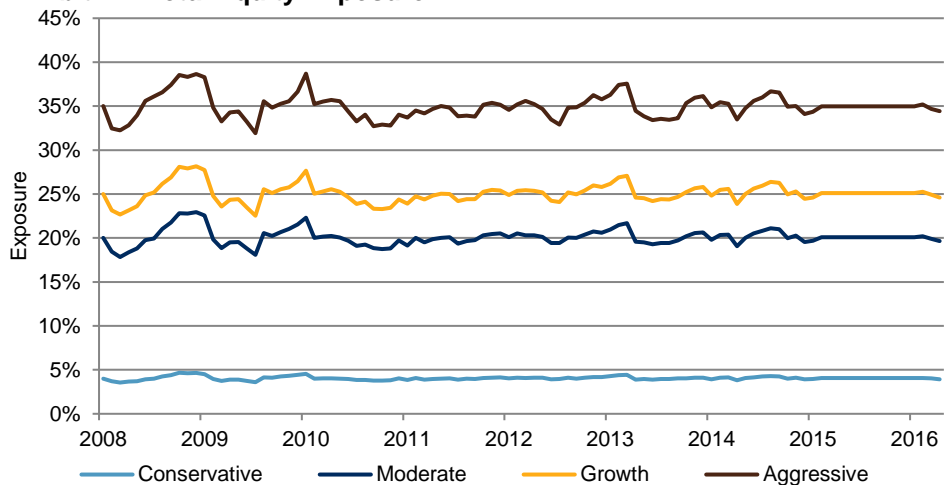
Source: S&P Dow Jones Indices LLC. Data as of Nov. 1, 2016. Table is provided for illustrative purposes.

Exhibit 11: International Equity Exposure



Source: S&P Dow Jones Indices LLC. Data from Dec. 31, 2008, to Dec. 31, 2016. Chart is provided for illustrative purposes.

Exhibit 12: Total Equity Exposure



Source: S&P Dow Jones Indices LLC. Data from Dec. 31, 2008, to Dec. 31, 2016. Chart is provided for illustrative purposes.

The percentage allocated to inflation-linked bonds is higher than their proportionate weight in the government bond market, given that there is a strong need for protection against inflation in retirement portfolios.

Fixed Income

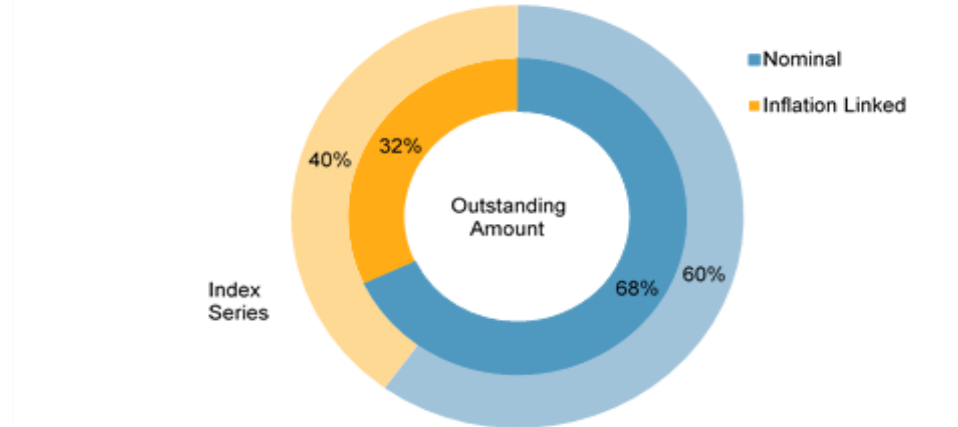
GOVERNMENT DEBT

In the government fixed income category, 60% of the total exposure is allocated to nominal bonds and the remaining 40% is allocated to inflation-linked bonds. The allocation split is driven by the breakdown of the type of total debt outstanding in the market (see Exhibit 13). The percentage allocated to inflation-linked bonds is higher than their proportionate weight in the government bond market, given that there is a strong need for protection against inflation in retirement portfolios. This principle is replicated for the moderate, growth, and aggressive indices, with the conservative index being an exception. The allocation

to inflation-linked bonds for the conservative index increases to 55%, with the minimum regulatory requirement of 51% for Siefore Básica 1.¹²

Matching bond maturities and years to retirement is an important step in the index construction, as to minimize duration mismatch.

Exhibit 13: Comparison of Breakdown of Government Bonds in the Market and Index Series



Source: S&P Dow Jones Indices LLC, Banco de México. Data as of April 24, 2017. Chart is provided for illustrative purposes.

Within each government bond category, the allocation is spread out across the maturity buckets. Matching bond maturities and years to retirement is an important step in the index construction, in an attempt to minimize duration mismatch. Thus, for each target risk portfolio, the majority of the allocation (60%) is in the maturity index that most closely matches the relevant age group. The target maturity is calculated by computing the range of years to retirement for each portfolio, assuming a retirement age of 65. To reduce concentration risk of full allocation into a single maturity bucket, secondary allocations are placed to adjacent maturity indices to the target maturity index.

Exhibit 14: S&P Mexico Target Risk Government Debt Breakdown

SUB-CLASS BREAKDOWN	CONSERVATIVE (%)	MODERATE (%)	GROWTH (%)	AGGRESSIVE (%)
Cash	100	100	100	100
NOMINAL				
1-5 Year	60	20	20	-
5-10 Year	40	60	20	20
10-20 Year	-	20	60	20
20+ Year	-	-	-	60
INFLATION-LINKED (UDIBONOS)				
3 Year	60	20	-	-
5 Year	40	60	20	-
10 Year	-	20	20	20
20 Year	-	-	60	20
30 Year	-	-	-	60

Source: S&P Dow Jones Indices LLC. Table is provided for illustrative purposes.

¹² Source: Comisión Nacional del Sistema de Ahorro para el Retiro, CONSAR, http://www.consar.gob.mx/gobmx/Aplicativo/Limites_Inversion/?lang=en

After deriving the allocations shown in Exhibit 14, we compute the years to maturity and the duration of the government bond sub-portfolios in Exhibit 15 as of March 2017. We can see that the years to maturity and the duration estimates of the four index portfolios increase as the years to retirement increase.

In the last row of Exhibit 15, the average years to maturity for each matching pension fund system portfolio is reported. Comparing the index series to the industry average, the years to maturity for the index series is more dispersed. Notably, the conservative index has lower years to maturity figure than the industry. Given that participants in Siefore Básica 1 are nearing retirement, restricting the allocation to fixed income securities with maturities of five years or less is done in an effort to reduce interest rate risk. The aggressive index has higher allocation to longer-term bonds than the industry, given that participants in Siefore Básica 4 have a minimum of 29 years until retirement.

Notably, the conservative index has lower years to maturity figure than the industry.

Exhibit 15: Average Years to Maturity and Duration of Government Fixed Income Sub-Indices

FACTOR	CONSERVATIVE	MODERATE	GROWTH	AGGRESSIVE
Age Group	60 and older	46 to 59	37 to 45	36 and under
Years to Retirement	0 to 5	6 to 19	28 to 20	to 29
Years to Maturity	2.9	6.1	11.5	19.0
Modified Duration	2.6	4.6	7.6	10.5
Industry Average Years to Maturity	7.2	10.0	10.8	11.6

Source: S&P Dow Jones Indices, CONSAR. Data as March 2017. Table is provided for illustrative purposes.

CORPORATE DEBT

As mentioned in the previous section, the Mexican corporate bond sector has low liquidity, with the secondary market trading in small volumes. For that reason, allocation to the corporate bond sector is lower than the industry average across all portfolios. Exhibit 16 compares the index series and industry averages as of February 2017, highlighting the differences.

Exhibit 16: Corporate Debt Comparison of Index Series Versus Industry Average

INDEX (SIEFORE)	CONSERVATIVE (SIEFORE BÁSICA 1) (%)	MODERATE (SIEFORE BÁSICA 2) (%)	GROWTH (SIEFORE BÁSICA 3) (%)	AGGRESSIVE (SIEFORE BÁSICA 4) (%)
Index	15	13	13	10
Industry Average	30	21	20	19
Difference	-15	-8	-7	-9

Source: S&P Dow Jones Indices LLC, CONSAR. Data as of February 2017. Table is provided for illustrative purposes.

The Mexican corporate bond sector has low liquidity, with the secondary market trading in small volumes.

Exhibit 17 gives a summary of the final allocations of each portfolio in the index series across all asset classes.

Exhibit 17: Final Composition

ASSET CLASS	SUB-ASSET CLASS	COMPONENT INDEX (TR)	CONSERVATIVE (%)	MODERATE (%)	GROWTH (%)	AGGRESSIVE (%)
Equity	Domestic	S&P/BMV IRT	1.0	8.0	10.0	20.0
	International	S&P Global 1200 (MXN)	3.0	12.0	15.0	15.0
Fixed Income	Cash	CETES	10.0	3.0	3.0	3.0
	Nominal (Sovereign)	1-5 Year Bond Index	9.6	7.6	6.8	
		5-10 Year Bond Index	6.4	22.8	6.8	6.0
		10-20 Year Bond Index	-	7.6	20.4	6.0
		20+ Year Bond Index	-	-	-	18.0
		1-3 Year Bond Index	33.0	5.3	-	-
	Inflation-Linked (Sovereign)	3-5 Year Bond Index	22.0	15.9	5.1	-
		5-10 Year Bond Index	-	5.3	5.1	4.4
		10-20 Year Bond Index	-	-	15.3	4.4
		20+ Year Bond Index	-	-	-	13.2
Corporate		CORPOTRAC Index	15.0	12.5	12.5	10.0

Source: S&P Dow Jones Indices LLC. Data as of Nov. 1, 2016. Table is provided for illustrative purposes.

The risk efficiency of the portfolios was highest in the conservative portfolio and decreased as the portfolios became more aggressive.

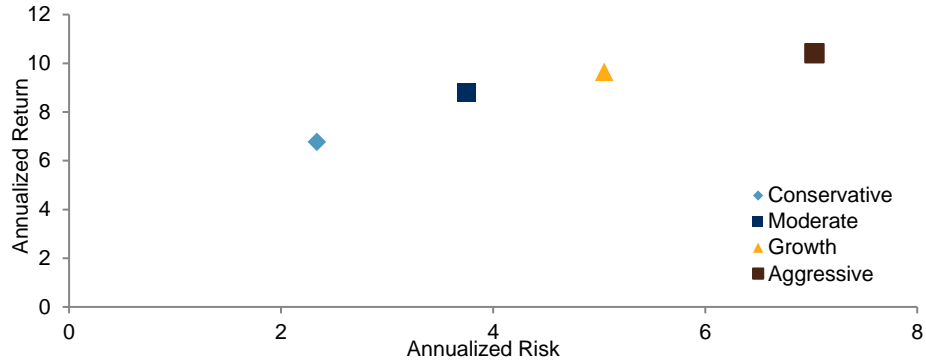
PERFORMANCE REVIEW

In this section, we review the historical performance of the index series since its inception on Dec. 31, 2008. For illustrative purposes, a performance comparison with the pension fund industry over the same time period is included as well.

Exhibit 18 compares the annualized returns and risk of the four indices over the back-tested period. As anticipated by index asset class allocations, the historically observed return and risk results are in line with the objectives of the strategies. The conservative index had the lowest volatility with the lowest returns, while the aggressive index had the highest returns and the highest risk.

The risk efficiency of the portfolios, defined as annualized return over annualized volatility, was highest in the conservative portfolio and decreased as the portfolios became more aggressive. While the aggressive index was not as risk efficient as the more conservative portfolios, risk is less of a focus compared to capital growth, since the portfolio has a longer investment horizon.

Exhibit 18: Risk Versus Return Scatter Plot



Source: S&P Dow Jones Indices LLC. Data from Dec. 31, 2008, to March 31, 2017. S&P Target Risk Conservative Index, S&P Target Risk Moderate Index, S&P Target Risk Growth Index, and S&P BMV Mexico Target Risk Aggressive performance based on total return in MXN. Past performance is no guarantee of future results. Chart is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

We can note that significant allocation to short-term fixed income securities provided downside protection to the portfolio.

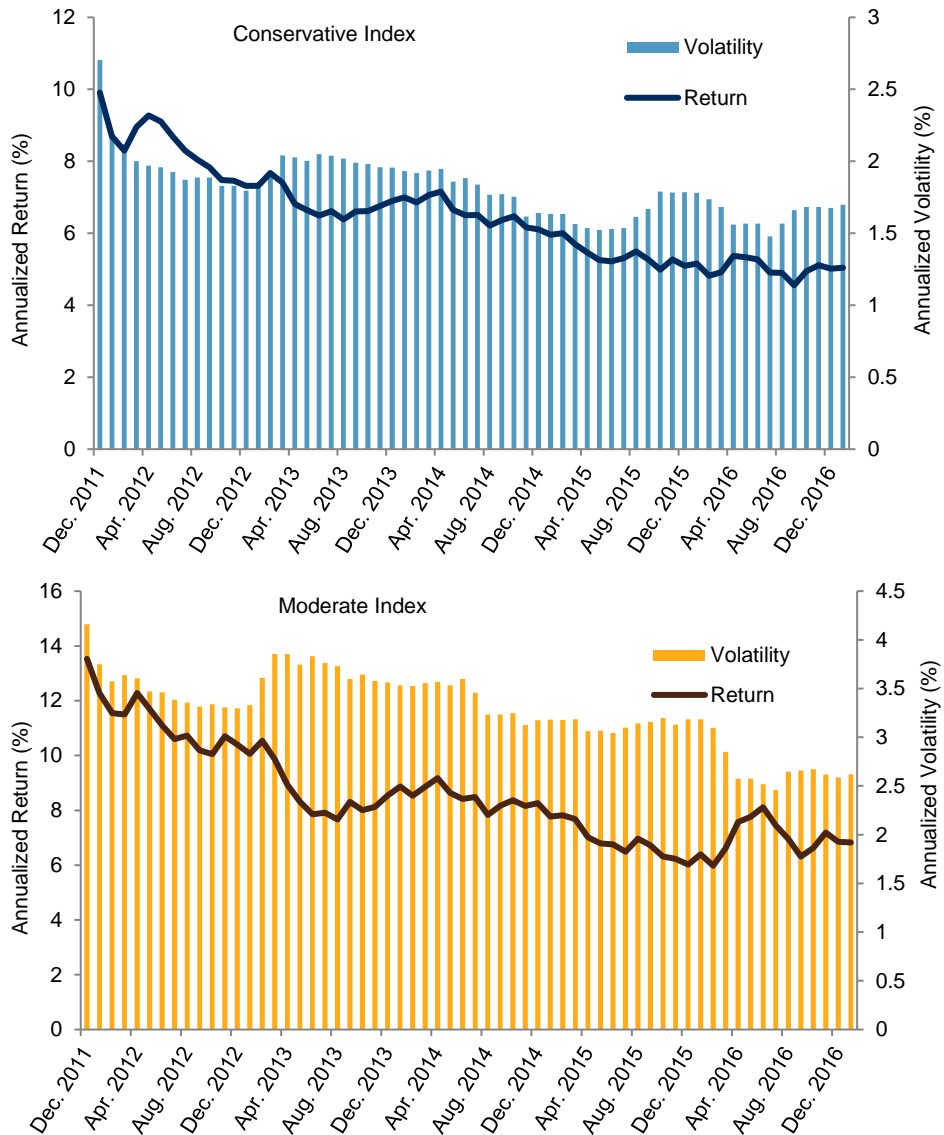
Exhibit 19 shows the risk/return profile of each index over various investment horizons. For the conservative index, the maximum drawdown during the back-tested period was -1.99%. We can note that significant allocation to short-term fixed income securities provided downside protection to the portfolio. The aggressive index, which holds long-term bonds and has the highest equity allocation, exhibited the largest maximum drawdown of -9.50%. Exhibit 20 shows the rolling 36-month annualized return and volatility for each index.

Exhibit 19: Return/Risk Profile

CATEGORY	CONSERVATIVE	MODERATE	GROWTH	AGGRESSIVE
ANNUALIZED RETURN (%)				
1 Year	4.66	5.65	7.30	8.14
3 Year	5.04	6.82	7.65	8.58
5 Year	5.56	7.10	7.85	8.48
Since Inception	6.78	8.80	9.65	10.42
ANNUALIZED VOLATILITY (%)				
3 Year	1.70	2.62	3.42	4.69
5 Year	1.67	2.93	4.05	6.01
Since Inception	2.34	3.75	5.05	7.03
RETURN/RISK				
3 Year	2.97	2.60	2.24	1.83
5 Year	3.32	2.42	1.94	1.41
Since Inception	2.90	2.34	1.91	1.48
STATISTICS (CUMULATIVE, MONTHLY RETURNS)				
Max. Drawdown	-1.99	-3.44	-5.23	-9.50
Average Return	0.59	0.75	0.81	0.87
Max. Return	3.53	4.14	5.39	6.86
Min. Return	-1.99	-3.02	-4.52	-6.59

Source: S&P Dow Jones Indices LLC. Data from Dec. 31, 2008, to March 31, 2017. S&P Target Risk Conservative Index, S&P Target Risk Moderate Index, S&P Target Risk Growth Index, and S&P BMV Mexico Target Risk Aggressive performance based on total return in MXN. Past performance is no guarantee of future results. Table is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

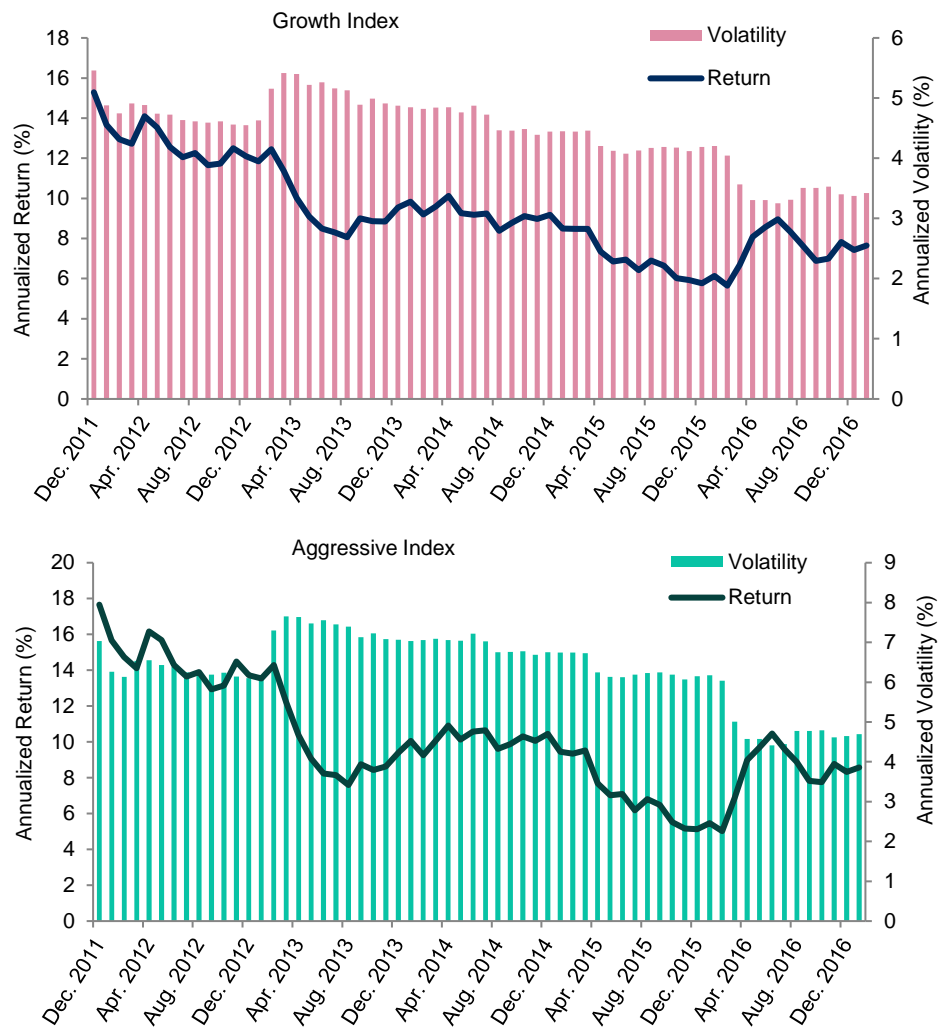
Exhibit 20: 36-Month Rolling Annualized Returns and Volatility



We can note that significant allocation to short-term fixed income securities provided downside protection to the portfolio.

Source: S&P Dow Jones Indices LLC. Data from Dec. 31, 2008, to Jan. 31, 2017. S&P Target Risk Conservative Index, S&P Target Risk Moderate Index, S&P Target Risk Growth Index, and S&P BMV Mexico Target Risk Aggressive performance based on total return in MXN. Past performance is no guarantee of future results. Charts are provided for illustrative purposes and reflect hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

Exhibit 20: 36-Month Rolling Annualized Returns and Volatility (cont.)



Source: S&P Dow Jones Indices LLC. Data from Dec. 31, 2008, to Jan. 31, 2017. S&P Target Risk Conservative Index, S&P Target Risk Moderate Index, S&P Target Risk Growth Index, and S&P BMV Mexico Target Risk Aggressive performance based on total return in MXN. Past performance is no guarantee of future results. Charts are provided for illustrative purposes and reflect hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

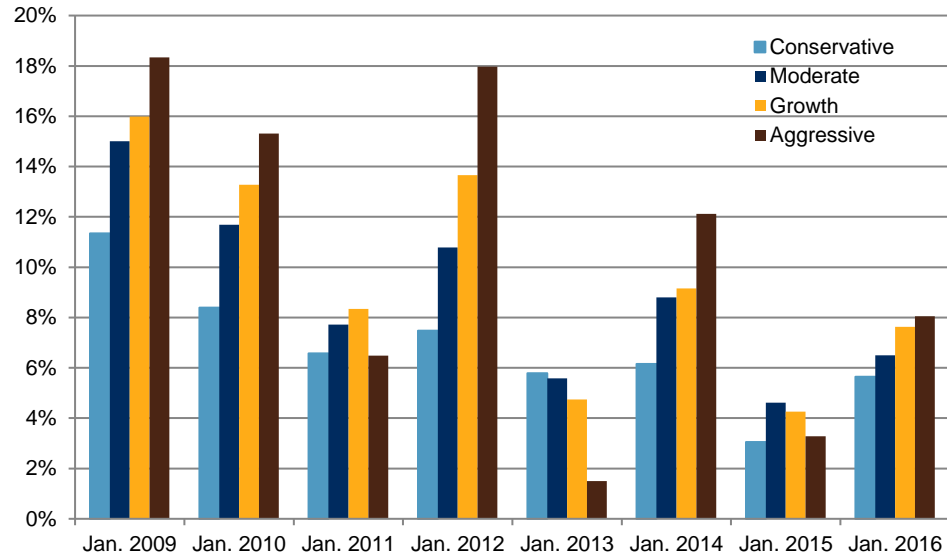
The aggressive index underperformed the other portfolios by a large margin in 2013.

Exhibit 21 shows the calendar year returns for each index. The aggressive index has the highest total returns for most of the years, with the exception of 2011 and 2013. In particular, the aggressive index underperformed the other portfolios by a large margin in 2013. In May 2013, the U.S. Federal Reserve announced that it would begin reducing its quantitative easing program, which alarmed global markets. The announcement negatively affected the Mexican fixed income market, especially the long-term categories, as the 30-year benchmark bond yield increased by 120 bps in just over one month.¹³ Nominal and

¹³ Source: FactSet Interest Rates. Figure is the change in the 30-year Mexico benchmark bond yield from May 21, 2013, to June 28, 2013.

inflation-linked long-term bonds suffered from increased volatility and negative performance for the year (see Exhibit 22), detracting from the overall performance of the aggressive index.

Exhibit 21: Calendar Year Returns



Source: S&P Dow Jones Indices LLC. Data from Dec. 31, 2008, to Dec. 31, 2016. S&P Target Risk Conservative Index, S&P Target Risk Moderate Index, S&P Target Risk Growth Index, and S&P BMV Mexico Target Risk Aggressive performance based on total return in MXN. Past performance is no guarantee of future results. Chart is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

Exhibit 22: Long-Term Fixed Income Index Performance from May 21, 2013, to June 28, 2013

INDEX	TOTAL RETURN PERFORMANCE (%)
S&P/BMV Sovereign MBONOS 10-20 Year Index	-8.35
S&P/ BMV Sovereign MBONOS 20+ Year Index	-12.14
S&P/ BMV Sovereign UDIBONOS Inflation-Linked 20+ Year Index	-8.24
S&P/ BMV Sovereign UDIBONOS Inflation-Linked 30-Year Index	-15.05

Source: S&P Dow Jones Indices LLC. Data from May 21, 2013, to June 28, 2013. S&P Target Risk Conservative Index, S&P Target Risk Moderate Index, S&P Target Risk Growth Index, and S&P BMV Mexico Target Risk Aggressive performance based on total return in MXN. Past performance is no guarantee of future results. Table is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

In order to differentiate between before-fee and after-fee performance of the AFOREs, the percent rank was compared against the net returns and gross returns.

As we noted in the previous section, a benchmark serves as a yardstick to measure the effectiveness of a strategy or a manager. With that in mind, we assess the performance of the indices in the series against their actively managed counterparts by comparing the percentile rank of the returns of the indices for each calendar year, as well as cumulatively, to the industry average—formed by taking an equal-weighted average of the industry returns. In order to differentiate between before-fee and after-fee performance of the AFOREs, the percent rank was compared against the net returns and gross returns. The net returns incorporate

fees and would be the resulting performance experienced by an individual participant in a specific AFORE portfolio.

Based on an average ranking over the past eight calendar years, each portfolio in the index series outperformed the majority of the active funds in the industry. On a cumulative basis, each index in the target risk series sat at the 92nd percentile return. Comparing the index series to gross industry returns, each index sat near the average return of the industry, with average yearly return percentiles ranging from 49%-59%.

Cumulatively, the index series fared better than the majority of the industry, with the exception of the conservative portfolio. One possible reason for this lag may be due to the index having a higher allocation to short-term debt (see Exhibit 15). In bull fixed income periods, longer-term debt generally outperforms shorter-term debt.

Cumulatively, the index series fared better than the majority of the industry, with the exception of the conservative portfolio.

Exhibit 23: Returns Versus Pension Industry

YEAR	PERCENT RANK VERSUS INDUSTRY NET RETURNS (%)			
	CONSERVATIVE	MODERATE	GROWTH	AGGRESSIVE
2009	92	92	92	85
2010	38	46	62	85
2011	38	92	92	77
2012	15	31	31	69
2013	92	92	77	38
2014	23	46	46	77
2015	92	92	92	92
2016	85	85	85	85
Average Rank	60	72	72	76
Cumulative Rank	92	92	92	92
YEAR	PERCENT RANK VERSUS INDUSTRY GROSS RETURNS			
	CONSERVATIVE	MODERATE	GROWTH	AGGRESSIVE
2009	85	85	77	77
2010	15	31	31	31
2011	15	54	77	46
2012	15	15	31	38
2013	92	77	69	23
2014	15	23	23	54
2015	92	92	85	54
2016	62	69	77	77
Average Rank	49	56	59	50
Cumulative Rank	31	69	77	69

Source: S&P Dow Jones Indices LLC, CON SAR. Data from Dec. 31, 2008, to March 31, 2017. S&P Target Risk Conservative Index, S&P Target Risk Moderate Index, S&P Target Risk Growth Index, and S&P BMV Mexico Target Risk Aggressive performance based on total return in MXN. Past performance is no guarantee of future results. Table is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

CONCLUSION

By introducing the S&P/BMV Mexico Target Risk Index Series, we aim to provide the Mexican pension fund industry rules-based, transparent, and replicable lifecycle investment benchmarks that can be used by all market participants to make informed decisions. We highlight the importance of having appropriately designed benchmarks that are reflective of current investment views in the marketplace. After extensive consultation with market participants, the S&P/BMV Mexico Target Risk Indices have been designed with the objective of meeting the regulatory investment guidelines while delivering appropriate risk/return profiles through a diversified asset class mix.

APPENDIX

Exhibit A: Five-Year Correlations

	A	B	C	D	E	F	G	H	I	J	K	L	M
A	--	-7.0%	22.9%	16.7%	19.2%	16.2%	17.6%	-1.4%	2.8%	16.7%	23.8%	18.1%	18.4%
B	--	--	-28.6%	-35.8%	-37.3%	-37.7%	-35.3%	-12.4%	-12.7%	-17.6%	-24.0%	-24.6%	-39.0%
C	--	--	--	51.1%	40.5%	38.1%	35.5%	32.2%	29.1%	26.0%	32.7%	26.3%	48.1%
D	--	--	--	--	86.6%	75.4%	70.4%	22.0%	44.6%	51.5%	49.3%	53.1%	90.2%
E	--	--	--	--	--	96.1%	92.6%	20.9%	50.9%	69.6%	72.9%	79.4%	98.3%
F	--	--	--	--	--	--	98.4%	15.7%	44.1%	68.4%	79.0%	86.2%	92.6%
G	--	--	--	--	--	--	--	11.9%	42.1%	69.3%	80.1%	89.1%	88.8%
H	--	--	--	--	--	--	--	--	80.1%	54.4%	34.0%	24.3%	21.0%
I	--	--	--	--	--	--	--	--	--	84.2%	58.9%	53.1%	50.8%
J	--	--	--	--	--	--	--	--	--	--	83.5%	83.7%	66.0%
K	--	--	--	--	--	--	--	--	--	--	--	90.8%	67.7%
L	--	--	--	--	--	--	--	--	--	--	--	--	73.9%
M	--	--	--	--	--	--	--	--	--	--	--	--	--

Source: S&P Dow Jones Indices LLC. Five-year correlations based on monthly returns ending on March 31, 2017. Table is provided for illustrative purposes.

Key

A S&P/BMV IRT
B S&P Global 1200 (MXN)
C S&P/BMV Government CETES Bond Index
D S&P/BMV Government MBONOS 1-5 Year Bond Index
E S&P/BMV Government MBONOS 5-10 Year Bond Index
F S&P/BMV Sovereign MBONOS 10-20 Year Bond Index
G S&P/BMV Sovereign MBONOS 20+ Year Bond Index
H S&P/BMV Sovereign UDIBONOS 1-3 Year Bond Index
I S&P/BMV Sovereign UDIBONOS 3-5 Year Bond Index
J S&P/BMV Sovereign UDIBONOS 5-10 Year Bond Index
K S&P/BMV Sovereign UDIBONOS 10-20 Year Bond Index
L S&P/BMV Sovereign UDIBONOS 20+ Year Bond Index
M S&P/BMV CORPOTRAC Index

Exhibit B: Risk/Return Profile of Asset Classes for Each Index

Risk/Return Profile: Conservative									
PERIOD	CONSERVATIVE	FI	SHORT TERM	NOMINAL BONDS	INFLATION-LINKED BONDS	CORPORATES	EQ	DOMESTIC	INTERNATIONAL
ANNUALIZED RETURN (%)									
1 Year	4.66	3.97	4.54	0.69	4.88	3.61	21.60	7.83	25.90
3 Year	5.04	4.55	3.74	4.08	4.66	5.11	17.01	8.00	19.86
5 Year	5.56	5.15	3.99	4.98	5.23	5.74	15.49	5.99	18.53
Since Inception	6.78	6.42	4.53	6.96	6.49	6.76	15.11	11.66	16.05
ANNUALIZED VOLATILITY (%)									
3 Year	1.70	1.84	0.32	3.35	2.33	1.97	8.86	2.81	2.69
5 Year	1.67	1.79	0.28	3.38	2.16	2.02	7.71	2.89	2.48
Since Inception	2.34	2.39	0.40	3.75	3.08	1.89	10.28	3.56	2.81
RETURN/RISK									
3 Year	2.97	2.47	11.76	1.22	2.00	2.60	1.92	2.85	7.37
5 Year	3.32	2.87	14.24	1.47	2.42	2.85	2.01	2.07	7.49
Since Inception	2.90	2.69	11.30	1.86	2.11	3.58	1.47	3.28	5.71
STATISTICS (CUMULATIVE, MONTHLY RETURNS)									
Max. Drawdown	-1.99	-1.84	0.00	-3.89	-2.72	-1.58	-12.28	-20.68	-10.77
Target Allocated Weight (%)	96.00	10.42	16.67	57.29	15.63	4.00	25.00	75.00	

Source: S&P Dow Jones Indices LLC. Data from Dec. 31, 2008, to March 31, 2017. Index performance based on total return in MXN. Past performance is no guarantee of future results. Table is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance. Average and cumulative ranks are for the same time period.

Risk/Return Profile: Moderate									
PERIOD	MODERATE	FI	SHORT TERM	NOMINAL BONDS	INFLATION-LINKED BONDS	CORPORATES	EQ	DOMESTIC	INTERNATIONAL
ANNUALIZED RETURN (%)									
1 Year	5.65	2.35	4.54	-0.05	4.75	3.61	18.95	7.83	25.90
3 Year	6.82	4.71	3.74	4.53	4.78	5.11	15.27	8.00	19.86
5 Year	7.10	5.44	3.99	5.48	5.32	5.74	13.64	5.99	18.53
Since Inception	8.80	7.26	4.53	7.76	7.02	6.76	14.50	11.66	16.05
ANNUALIZED VOLATILITY (%)									
3 Year	2.62	3.33	0.32	5.17	3.03	1.97	7.74	2.81	2.69
5 Year	2.93	3.61	0.28	5.50	3.07	2.02	6.97	2.89	2.48
Since Inception	3.75	3.97	0.40	5.90	3.50	1.89	10.33	3.56	2.81
RETURN/RISK									
3 Year	2.60	1.41	11.76	0.88	1.58	2.60	1.97	2.85	7.37
5 Year	2.42	1.51	14.24	1.00	1.73	2.85	1.96	2.07	7.49
Since Inception	2.34	1.83	11.30	1.32	2.01	3.58	1.40	3.28	5.71
STATISTICS (CUMULATIVE, MONTHLY RETURNS)									
Max. Drawdown	-3.44	-4.46	0.00	-7.71	-3.09	-1.58	-13.96	-20.68	-10.77
Target Allocated Weight (%)	80.00	3.75	47.50	33.13	15.63	20.00	40.00	60.00	

Source: S&P Dow Jones Indices LLC. Data from Dec. 31, 2008, to March 31, 2017. Index performance based on total return in MXN. Past performance is no guarantee of future results. Table is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance. Average and cumulative ranks are for the same time period.

Risk/Return Profile: Growth									
PERIOD	GROWTH	FI	SHORT TERM	NOMINAL BONDS	INFLATION-LINKED BONDS	CORPORATES	EQ	DOMESTIC	INTERNATIONAL
ANNUALIZED RETURN (%)									
1 Year	7.30	3.36	4.54	-0.10	7.62	3.61	18.95	7.83	25.90
3 Year	7.65	5.09	3.74	4.93	5.32	5.11	15.27	8.00	19.86
5 Year	7.85	5.86	3.99	6.00	5.83	5.74	13.64	5.99	18.53
Since Inception	9.65	7.87	4.53	8.22	8.24	6.76	14.50	11.66	16.05
ANNUALIZED VOLATILITY (%)									
3 Year	3.42	4.62	0.32	6.42	5.06	1.97	7.74	2.81	2.69
5 Year	4.05	5.31	0.28	6.95	6.27	2.02	6.97	2.89	2.48
Since Inception	5.05	5.80	0.40	7.35	7.15	1.89	10.33	3.56	2.81
RETURN/RISK									
3 Year	2.24	1.10	11.76	0.77	1.05	2.60	1.97	2.85	7.37
5 Year	1.94	1.10	14.24	0.86	0.93	2.85	1.96	2.07	7.49
Since Inception	1.91	1.36	11.30	1.12	1.15	3.58	1.40	3.28	5.71
STATISTICS (CUMULATIVE, MONTHLY RETURNS)									
Max. Drawdown	-5.23	-7.39	0.00	-10.27	-8.79	-1.58	-13.96	-20.68	-10.77
Target Allocated Weight (%)	75.00	4.00	45.33	34.00	16.67	25.00	40.00	60.00	

Source: S&P Dow Jones Indices LLC. Data from Dec. 31, 2008, to March 31, 2017. Index performance based on total return in MXN. Past performance is no guarantee of future results. Table is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance. Average and cumulative ranks are for the same time period.

Risk/Return Profile: Aggressive									
PERIOD	AGGRESSIVE	FI	SHORT TERM	NOMINAL BONDS	INFLATION-LINKED BONDS	CORPORATES	EQ	DOMESTIC	INTERNATIONAL
ANNUALIZED RETURN (%)									
1 Year	8.14	3.84	4.54	-0.47	9.54	3.61	15.85	7.83	25.90
3 Year	8.58	5.99	3.74	5.66	6.94	5.11	13.24	8.00	19.86
5 Year	8.48	6.72	3.99	6.90	7.04	5.74	11.49	5.99	18.53
Since Inception	10.42	8.34	4.53	8.74	8.83	6.76	13.75	11.66	16.05
ANNUALIZED VOLATILITY (%)									
3 Year	4.69	6.82	0.32	9.13	7.87	1.97	7.15	2.81	2.69
5 Year	6.01	8.56	0.28	10.51	10.80	2.02	6.92	2.89	2.48
Since Inception	7.03	8.69	0.40	10.63	11.08	1.89	10.93	3.56	2.81
RETURN/RISK									
3 Year	1.83	0.88	11.76	0.62	0.88	2.60	1.85	2.85	7.37
5 Year	1.41	0.78	14.24	0.66	0.65	2.85	1.66	2.07	7.49
Since Inception	1.48	0.96	11.30	0.82	0.80	3.58	1.26	3.28	5.71
STATISTICS (CUMULATIVE, MONTHLY RETURNS)									
Max. Drawdown	-9.50	-14.60	0.00	-16.99	-18.89	-1.58	-15.88	-20.68	-10.77
Target Allocated Weight (%)	65.00	4.62	46.15	33.85	15.38	35.00	42.86	57.14	

Source: S&P Dow Jones Indices LLC. Data from Dec. 31, 2008, to March 31, 2017. Index performance based on total return in MXN. Past performance is no guarantee of future results. Table is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance. Average and cumulative ranks are for the same time period.

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PERFORMANCE DISCLOSURE

The S&P/BMV Mexico Target Risk Conservative Index, S&P/BMV Mexico Target Risk Moderate Index, S&P/BMV Mexico Target Risk Growth Index, and S&P/BMV Mexico Target Risk Aggressive Index were launched on November 1, 2016. Charts and graphs are provided for illustrative purposes. Past performance is not an indication or guarantee of future results. The charts and graphs may reflect hypothetical historical performance. All information presented prior to the launch date is back-tested. Back-tested performance is not actual performance, but is hypothetical. The back-test calculations are based on the same methodology that was in effect when the index(es) was officially launched. However, it should be noted that the historic calculations of an Economic Index may change from month to month based on revisions to the underlying economic data used in the calculation of the index. Complete index methodology details are available at www.spdji.com. It is not possible to invest directly in any index.

S&P Dow Jones Indices defines various dates to assist our clients in providing transparency on their products. The First Value Date is the first day for which there is a calculated value (either live or back-tested) for a given index. The Base Date is the date at which a given index is set at a fixed value for calculation purposes. The Launch Date designates the date upon which the values of a given index are first considered live: index values provided for any date or time period prior to the index's Launch Date are considered back-tested. S&P Dow Jones Indices defines the Launch Date as the date by which the values of an index are known to have been released to the public, for example via S&P Dow Jones Indices' public website or its datafeed to external parties. For Dow Jones-branded indices introduced prior to May 31, 2013, the Launch Date (which prior to May 31, 2013, was termed "Date of introduction") is set at a date upon which no further changes were permitted to be made to the index methodology, but that may have been prior to the index's public release date.

Prospective application of the methodology used to construct the index(es) as well as revisions to economic data may not result in performance commensurate with the back-test returns shown. The back-test period does not necessarily correspond to the entire available history of the index(es). Please refer to the index methodology for the particular index in question, available at www.spdji.com, for more details about such index, including the manner in which it is rebalanced, the timing of such rebalancing, criteria for additions and deletions, as well as all index calculations.

Another limitation of using back-tested information is that the back-tested calculation is generally prepared with the benefit of hindsight. Back-tested data and/or information reflects the application of the index methodology and selection of index constituents in hindsight. No hypothetical record can completely account for the impact of financial risk in actual trading. For example, there are numerous factors related to the equities, fixed income, or commodities markets in general which cannot be, and have not been accounted for in the preparation of the index information set forth, all of which can affect actual performance.

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