



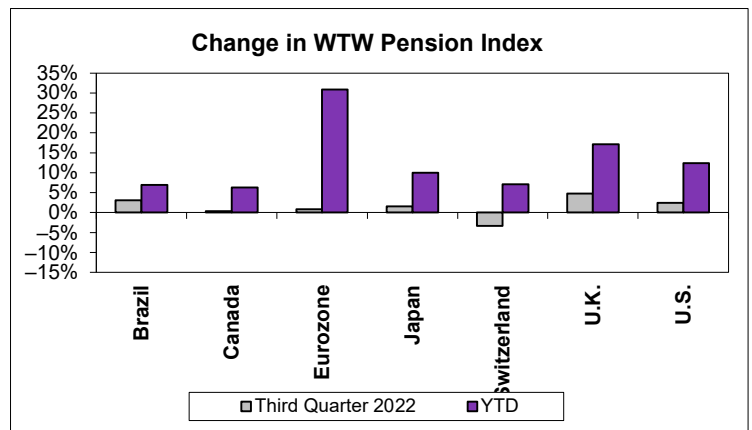
Global Pension Finance Watch – Third Quarter 2022

Improved Third Quarter Index Results

Q3 2022 was another volatile quarter, marked by rapidly rising global discount rates, poor asset performance across the globe, and continued inflationary pressures. While the sharp increase in discount rates drove positive third quarter pension index results for most regions, asset returns were negative for all regions, notably offsetting the liability gains. Inflationary pressures continued across all countries. The United Kingdom is the market with the strongest link of pensions to inflation, and while there were modest increases to the long-term expected inflation compared to last quarter and there was not a significant impact on the pension index. The overall impact of these changes resulted in positive pension index returns for all markets during Q3 apart from Switzerland where the negative asset returns outweighed the liability gains. In addition, multinational companies are facing shifts in exchange rates, with a notable strengthening of the U.S. Dollar.

While it is always the case that Global Pension Finance Watch captures results at the end of each quarter, we particularly want to highlight the point in time view of this publication in light of current volatility. WTW supports the daily monitoring of pension funded status and other key pension financial metrics for those organizations wishing to inform key business decisions.

Change in WTW Pension Index	Q3 2022	YTD
Brazil	3.1%	7.0%
Canada	0.4%	6.4%
Eurozone	0.8%	30.9%
Japan	1.6%	10.0%
Switzerland	-3.4%	7.1%
U.K.	4.7%	17.1%
U.S.	2.4%	12.4%



The WTW Pension Index is the ratio of the market value of assets to the projected benefit obligation (PBO) for a hypothetical benchmark plan.

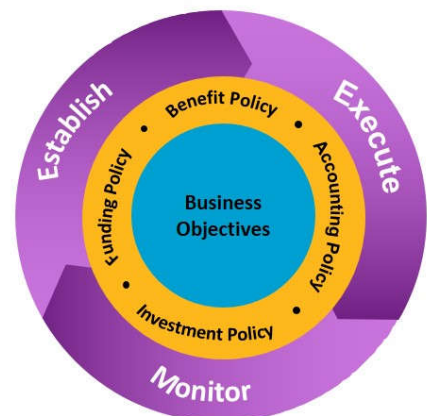
About this report

Global Pension Finance Watch, published quarterly, reviews how capital market performance affects defined benefit pension plan financing in major retirement markets worldwide, with a focus on linked asset/liability results. We cover defined benefit pension plans in Brazil, Canada, the Eurozone, Japan, Switzerland, the U.K. and the U.S. Specific plan results will vary, often substantially, based on liability characteristics, contribution policy, portfolio composition and management strategy among other factors. The passage of time since quarter end, may also have a significant impact on pension plan financing.

The impact of capital markets on these pension plans is twofold:

- Investment performance on fund assets
- Changes in economic assumptions on plan liabilities (as measured under international accounting standards)

If you have questions or comments about this report, please contact





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Role of monitoring as part of successful global pension risk management

Those organizations that monitor their global pension plans are prepared to act quickly when market conditions evolve and have been most successful in achieving their cost and risk management objectives. Monitoring for such conditions is most effective when done in real-time, tailored to the specific characteristics of each retirement plan and supporting assets.

Email our experts to talk about daily monitoring and risk reduction.



The Global Pension Finance Watch captures results for benchmark plans at the end of each quarter and can be a useful guide. For those organizations wishing to inform key business decisions for their own plans, WTW supports the daily monitoring of funded status and other key pension financial metrics via the [Cost and Risk Management Channel](#).

Broader risk management perspective



Beyond financial monitoring, we observe multinationals with the greatest success in managing their defined benefit pension risks exhibit a number of consistent characteristics. They:

- Take the time to understand the complex risks inherent in the plans and the levers available to managing that risk
- Establish a clear, central level of tolerable risk and strategy to managing within those metrics
- Employ a systematic, multi-local approach to evaluating and deploying risk management actions
- Monitor financial markets, changing practices, legislation, and trends.

For more insights on the common techniques multinational organizations have deployed to manage pension risk, we encourage you to read our article on [Mastering DB Risks Globally](#).

Trends in global retirement
Resources for multinational employers

- A broad look at global retirement
- Global market updates
- Global legislative updates

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Investment returns and liability growth

Most regions experienced negative investment returns in the third quarter.

Investment returns	Q3 2022	YTD
Brazil	9.3%	9.6%
Canada	0.6%	-14.1%
Eurozone	-4.4%	-14.1%
Japan	-1.0%	-3.0%
Switzerland	-3.3%	-14.1%
U.K.	-15.3%	-29.6%
U.S.	-4.8%	-15.7%

Note: All regional financial results are stated on a local currency basis.

Benchmark discount rates increased globally over the third quarter, except in Brazil

Benchmark discount rate*	Plan Duration	Sep. 2022	Jun. 2022	Mar. 2022
Brazil	12.7	9.99%	10.27%	9.87%
Canada	14.8	5.06%	4.99%	3.92%
Eurozone	21.3	3.74%	3.38%	1.80%
Japan	17.9	2.02%	1.85%	1.50%
Switzerland	15.1	2.07%	2.03%	1.14%
U.K.	22.0	4.91%	3.68%	2.68%
U.S.	13.8	5.53%	4.84%	3.93%

*Discount rates for the benchmark plans were determined using WTW's RATE:Link methodology in those countries where it is available. There is generally more than one acceptable approach for determining the discount rate in each country. The approach used for index purposes is one of several possible approaches; other acceptable methodologies may result in higher or lower discount rates.

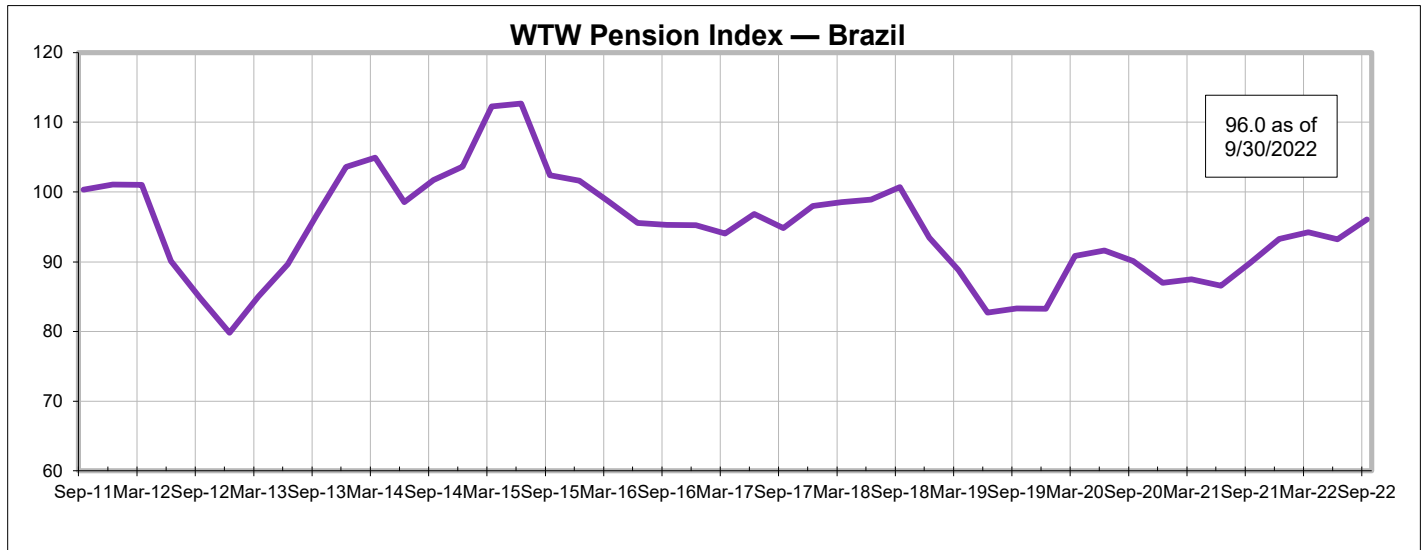
As a result of the discount rate movement, liability values continue decreasing over the third quarter for many regions.

Liability growth factor	Q3 2022	YTD
Brazil	6.1%	0.7%
Canada	0.2%	-19.2%
Eurozone	-5.2%	-34.4%
Japan	-2.5%	-11.8%
Switzerland	0.0%	-19.8%
U.K.	-19.1%	-39.9%
U.S.	-7.0%	-25.0%

Note: The liability growth factor reflects the net change in the benchmark plan's PBO due to interest accumulation and changes in financial assumptions.



Brazil



Both domestic bonds and domestic equities showed positive returns over the quarter. Overall, the benchmark portfolio increased 9.3% over the quarter.

The nominal benchmark discount rate decreased 28 basis points over the quarter. This change combined with interest accumulation resulted in a liability increase of 6.1% over the second quarter.

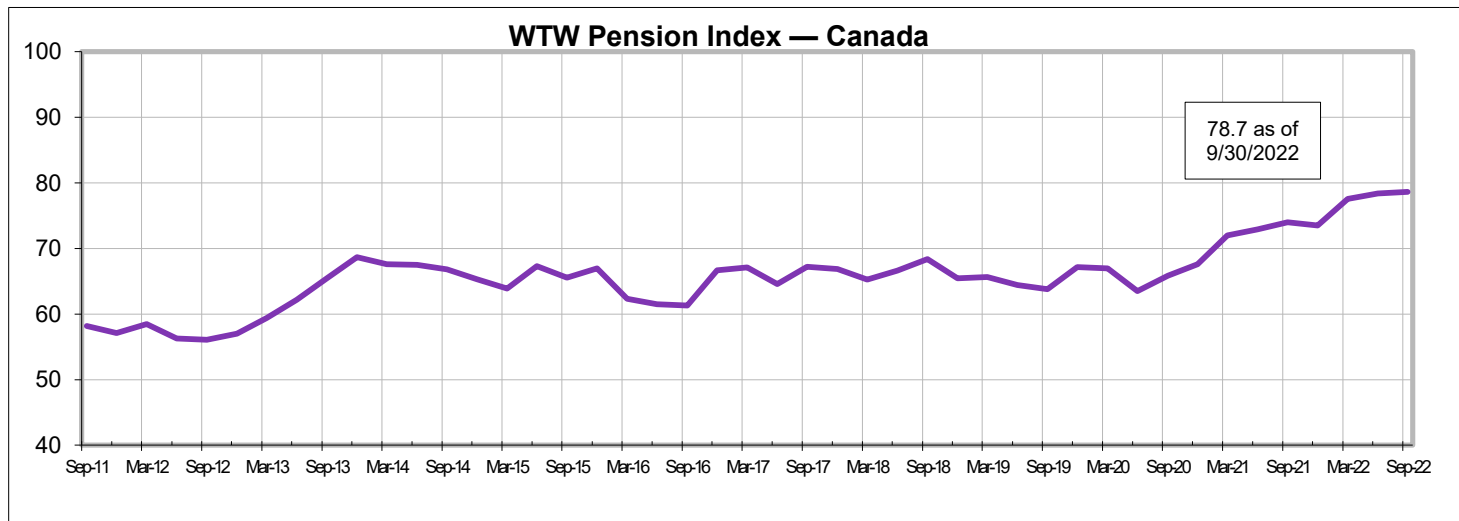
The combined asset and liability effect was a 3.1% increase in the pension index for the quarter.

Investment returns	Q3 2022	YTD
Domestic equity	9.0%	7.4%
International equity	NA	NA
Domestic fixed income	11.9%	6.5%
International fixed income	NA	NA
Benchmark portfolio	9.3%	7.5%

Interest rates	Sep. 2022	Jun. 2022	Mar. 2022
30-year govt. bond (real)	5.76%	6.03%	5.64%
10-year govt. bond (real)	6.59%	6.21%	5.31%
Three-month benchmark yield (nominal)	13.24%	13.47%	11.63%
Long-term AA-rated corporate bond	NA	NA	NA
Benchmark discount rate (nominal)	9.99%	10.27%	9.87%



Canada



Equities showed negative returns over the quarter while domestic fixed bonds exhibited positive returns. Overall, the benchmark portfolio increased 0.6% over the quarter.

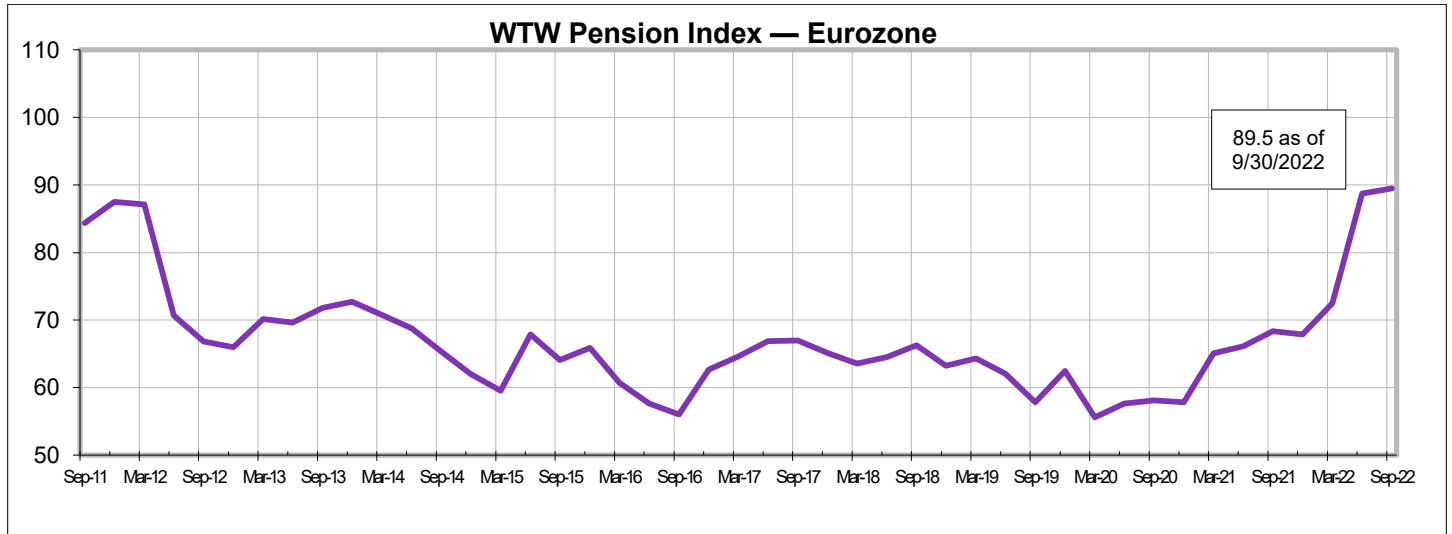
The benchmark discount rate increased by 7 basis points over the quarter, which taken together with interest accumulation, increased the liability by 0.2% over the quarter.

The combined effect of the asset and liability movements was a 0.4% increase in the pension index over the second quarter.

Investment returns	Q3 2022	YTD
Domestic equity	-1.4%	-11.1%
International equity	-0.5%	-18.8%
Domestic fixed income	1.5%	-21.0%
International fixed income	NA	NA
Benchmark portfolio	0.6%	-18.6%

Interest rates	Sep. 2022	Jun. 2022	Mar. 2022
30-year govt. bond	3.09%	3.14%	2.37%
10-year govt. bond	3.16%	3.23%	2.40%
Three-month govt. bond	3.64%	2.10%	0.71%
Long-term AA-rated corporate bond	4.25%	4.29%	3.38%
Benchmark discount rate	5.06%	4.99%	3.92%

Eurozone



Both equities and bonds showed negative returns and while steep, losses were less severe than prior month. Overall, the benchmark portfolio decreased 4.4% over the third quarter.

The benchmark discount rate increased by 36 basis points over the quarter, which combined with interest accumulation decreased the liability by 5.2% over the third quarter.

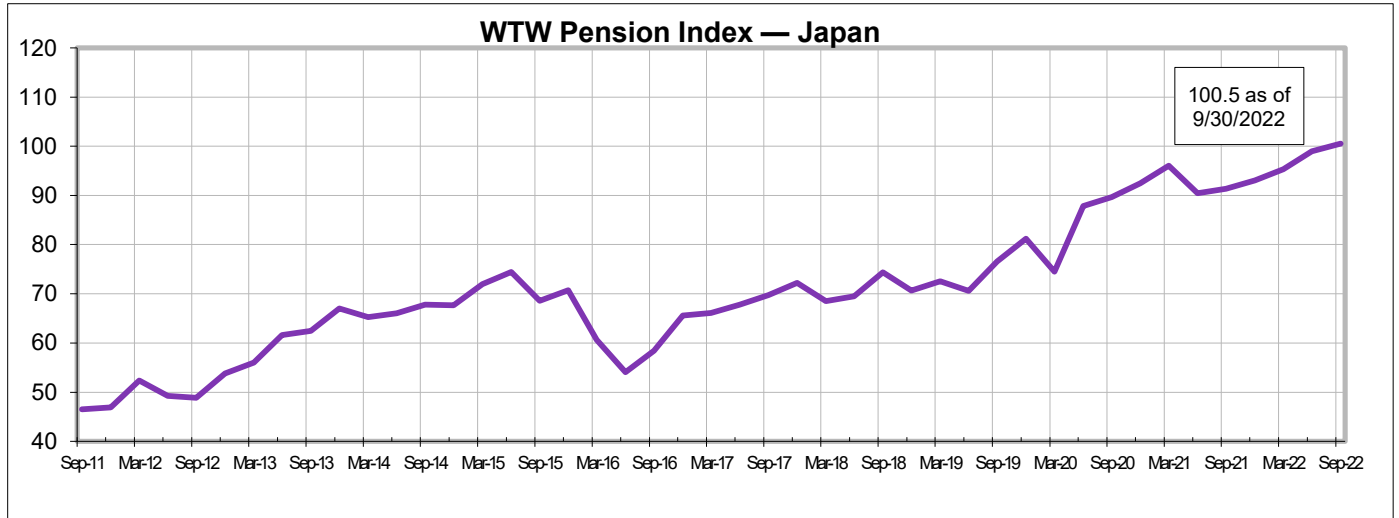
The combined effect of the asset and liability movements was a 0.8% increase in the pension index over the quarter.

Investment returns	Q3 2022	YTD
Domestic equity	-4.1%	-16.9%
International equity	NA	NA
Domestic fixed income	-4.9%	-16.5%
International fixed income	NA	NA
Benchmark portfolio	-4.4%	-16.4%

Interest rates	Sep. 2022	Jun. 2022	Mar. 2022
30-year govt. bond	2.05%	1.60%	0.64%
10-year govt. bond	2.08%	1.37%	0.51%
Three-month govt. bond	0.00%	0.00%	-0.17%
Long-term AA-rated corporate bond	3.74%	3.22%	1.74%
Benchmark discount rate	3.74%	3.38%	1.80%



Japan



With the exception of international equities, other instruments showed modest negative returns over the quarter. This resulted in a 1.0% decrease in the overall benchmark portfolio over the quarter.

The benchmark discount rate increased by 17 basis points over the quarter. That combined with interest accumulation decreased the liability by 2.5% over the quarter.

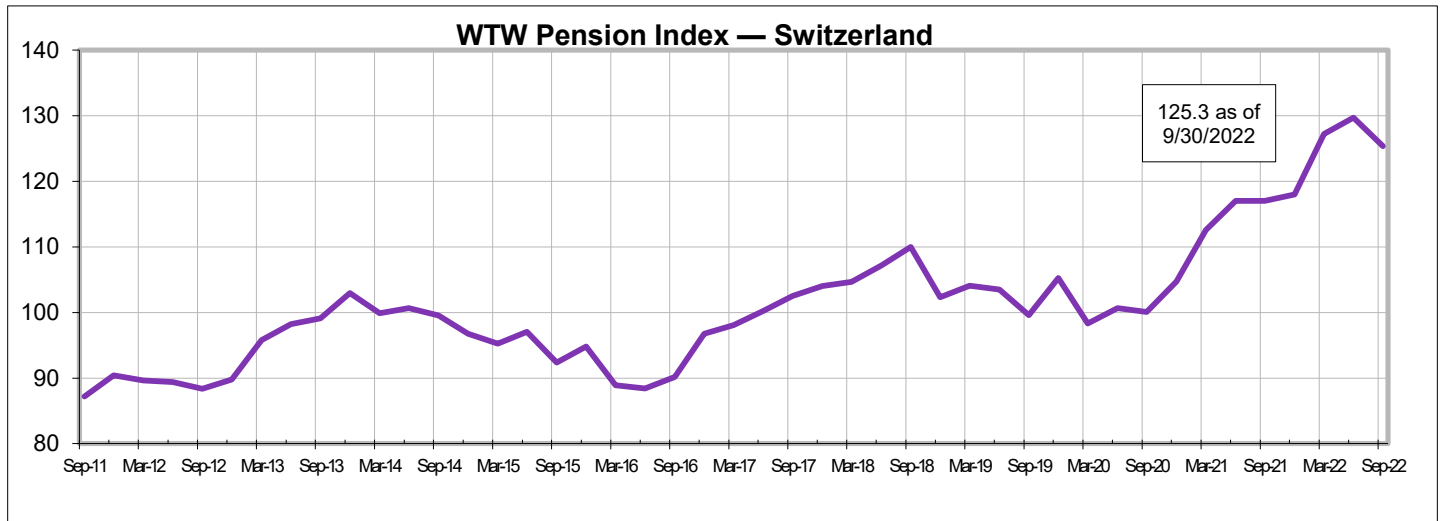
The combined effect of the asset and liability movements was a 1.6% increase in the pension index over the quarter.

Investment returns	Q3 2022	YTD
<i>Domestic equity</i>	-1.2%	-5.9%
<i>International equity</i>	0.1%	-5.9%
<i>Domestic fixed income</i>	-0.9%	-4.6%
<i>International fixed income</i>	-1.6%	-1.1%
<i>Benchmark portfolio</i>	-1.0%	-4.2%

Interest rates	Sep. 2022	Jun. 2022	Mar. 2022
30-year govt. bond	1.46%	1.28%	0.93%
10-year govt. bond	0.29%	0.30%	0.21%
Three-month govt. bond	-0.24%	-0.14%	-0.10%
Long-term AA-rated corporate bond	NA	NA	NA
Benchmark discount rate	2.02%	1.85%	1.50%



Switzerland



Both equities and bonds returns were negative. Overall, the benchmark portfolio decreased 3.3% over the quarter.

The benchmark discount rate increased 4 basis points over the quarter. This change combined with interest accumulation kept liabilities steady over the quarter.

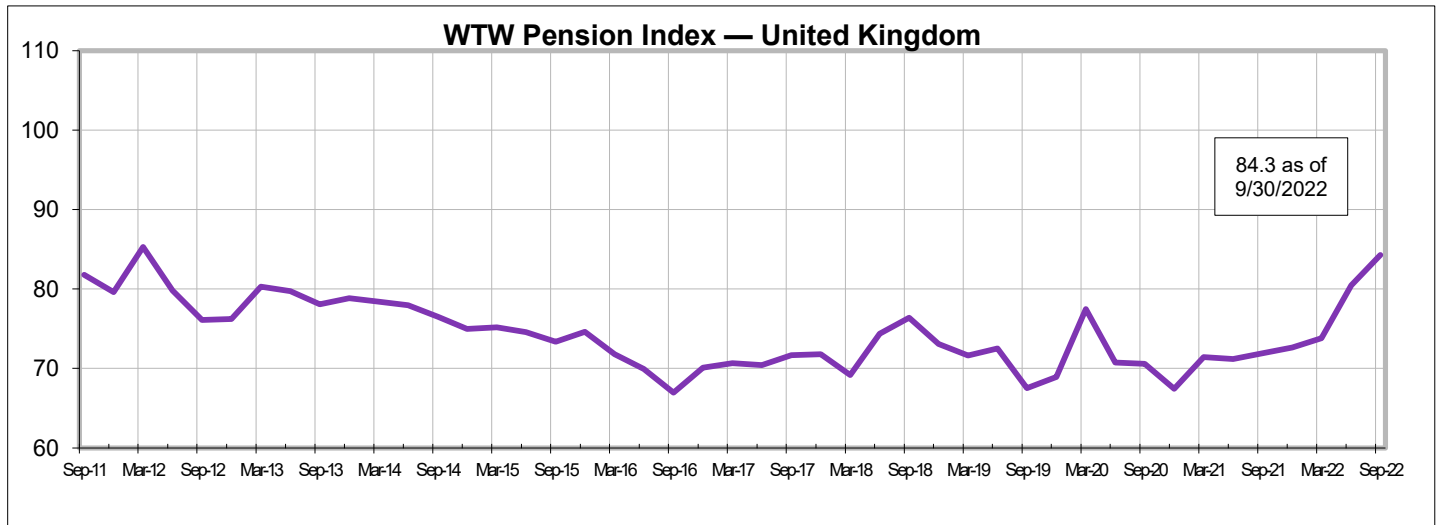
The combined effect of the asset and liability movements was a 3.4% decrease in the pension index over the quarter.

Investment returns	Q3 2022	YTD
Domestic equity	-4.8%	-19.9%
International equity	NA	NA
Domestic fixed income	-1.6%	-11.6%
International fixed income	NA	NA
Benchmark portfolio	-3.3%	-16.1%

Interest rates	Sep. 2022	Jun. 2022	Mar. 2022
30-year govt. bond	0.91%	1.32%	0.63%
10-year govt. bond	1.20%	1.04%	0.59%
Three-month govt. bond	NA	NA	NA
Long-term AA-rated corporate bond	NA	NA	NA
Benchmark discount rate	2.07%	2.03%	1.14%



United Kingdom



Domestic bonds drop during the quarter while domestic equities showed moderate decrease and international equities recover with positive returns during the third quarter. Overall, the benchmark portfolio decreased 15.3% over the quarter.

The benchmark discount rate increased 123 basis points over the quarter. Overall, this change combined with interest accumulation and allowance for inflationary changes decreased the liability by 19.1% over the first quarter.

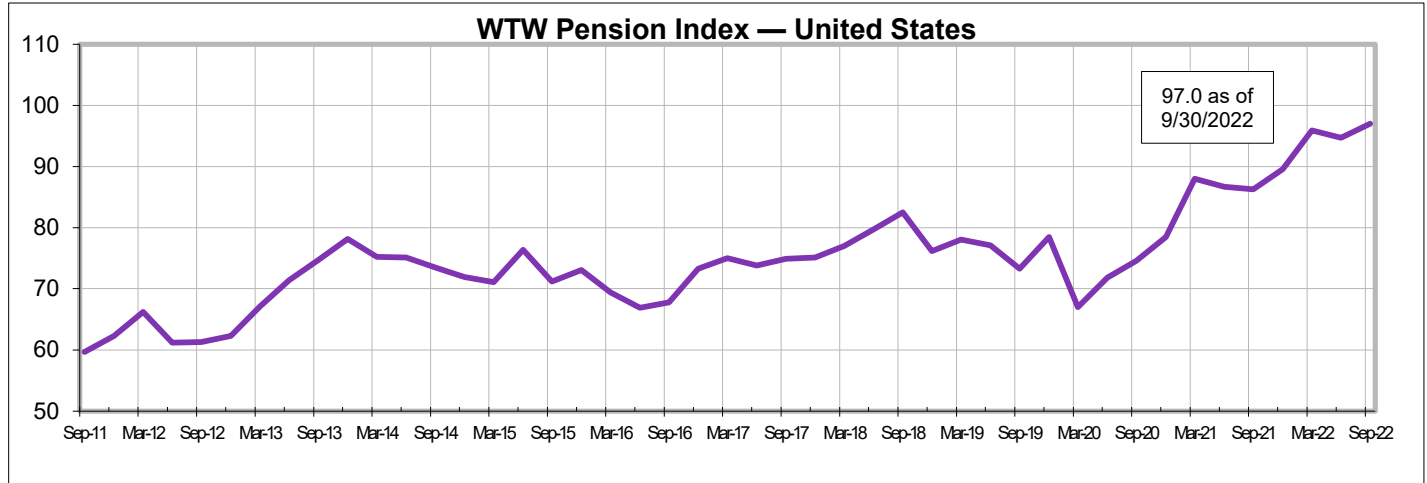
The combined effect of the asset and liability movements was a 4.7% increase in the pension index over the quarter.

Investment returns	Q3 2022	YTD
Domestic equity	-2.8%	-3.8%
International equity	1.6%	-9.5%
Domestic fixed income	-18.8%	-38.9%
International fixed income	NA	NA
Benchmark portfolio	-15.3%	-33.3%

Interest rates	Sep. 2022	Jun. 2022	Mar. 2022
30-year govt. bond	3.83%	2.56%	1.76%
10-year govt. bond	4.09%	2.23%	1.61%
Three-month govt. bond	2.48%	1.19%	0.56%
Long-term AA-rated corporate bond	5.14%	3.82%	2.73%
Benchmark discount rate	4.91%	3.68%	2.68%



United States



Equities and bonds showed negative returns during the third quarter. Overall, the benchmark portfolio decreased 4.8% over the quarter.

The benchmark discount rate increased 69 basis point for the quarter. This change combined with interest accumulation decreased the liability by 7.0% over the quarter.

The combined effect of the asset and liability movements was a 2.4% increase in the pension index for the quarter.

Investment returns	Q3 2022	YTD
Domestic equity	-4.5%	-23.9%
International equity	-9.3%	-27.1%
Domestic fixed income	-4.1%	-12.7%
Benchmark portfolio	-4.8%	-19.8%

Interest rates	Sep. 2022	Jun. 2022	Mar. 2022
30-year govt. bond	3.79%	3.14%	2.44%
10-year govt. bond	3.83%	2.98%	2.32%
Three-month govt. bond	3.33%	1.72%	0.52%
Long-term AA-rated corporate bond	5.24%	4.48%	3.59%
Benchmark discount rate	5.53%	4.84%	3.93%



General comments

In order to obtain a general indication of pension plan performance in various countries, we defined a benchmark pension plan that is intended to be representative of the pension liabilities and plan assets (including asset mix) that are typically found in each global market. Note that certain simplifying assumptions are made about cash contributions made to the benchmark plan and other characteristics.

Liability measurement

Pension plan liabilities under many commonly used international accounting standards (including ASC 715, CICA 3461, CVM 371, FRS 17 and IAS 19) are measured using a discount rate that is set based on yields available on high-quality corporate bonds as of the date that liabilities are measured.

While the discount rate is the most commonly quoted assumption, liability and expense calculations depend on a number of additional assumptions, both economic (such as expected salary increases and expected benefit increases) and demographic. Other financial assumptions are adjusted so as to remain consistent with changes in the discount rate.

Asset smoothing

ASC 715 and CICA 3461 allow plan sponsors to use smoothing mechanisms to buffer the effects of year-to-year investment performance. Plans using these approaches will see the effect of investment return experience spread over a period of years.

Currency effects

The results presented in this document are in local currency. Changes in relative currency values may have a significant impact on asset and liability measurements. The effect of currency movements depends on the company's reporting currency and its global allocation of assets and liabilities. The accompanying table shows the value of foreign currency that equates to one U.S. dollar at various measurement dates.

Exchange rates (currency per US\$1)	Sep. 2022	Jun. 2022	Mar. 2022
Brazil	5.39	5.24	4.68
Canada	1.37	1.29	1.25
Eurozone	1.03	0.95	0.92
Japan	144.51	136.4	123.84
Switzerland	0.98	0.95	0.93
U.K.	0.91	0.82	0.76

Local regulatory requirements

This update reviews financial results for pension plans based on measurements defined by international accounting standards. Local accounting or funding requirements may be based on significantly different types of asset or liability measures in some locations.

Eurozone benchmark plan

The results shown for the Eurozone are based on typical funded plans found in Belgium and the Netherlands.

Definition of terms

Bond yields

- Government bond yields are based on published information. Government bond yields for the Eurozone are based on German government bonds. Due to the lack of marketable securities, Brazilian government bond yields are real rates, except for the three-month government bond yield, which is a nominal rate (i.e., includes inflation).
- Corporate bond yields reflect the FTSE TMX Corporate Bond Index for Canada, iBoxx EURO Corporates AA 10+ for the Eurozone, iBoxx 15+ AA Corporate Bond Index for the U.K. and ML 10+ High-Quality Index in the U.S.
- Benchmark discount rates are determined for the average plan based on yields available on high-quality corporate bonds as of the date that liabilities are measured. Discount rates for Canada, the Eurozone, Japan, Switzerland, the U.K. and the U.S. are based on our RATE:Link methodology. Discount rates for Brazil are a proxy for the yield on corporate bonds, developed from the real yield on 30-year government bonds with an adjustment to account for liquidity characteristics and the addition of a long-term inflation assumption. Higher or lower discount rates might be appropriate for other plans.

Benchmark investment returns

- Benchmark investment returns reflect the combined effect of price changes and interest or dividend income. This will typically differ from the daily results published in financial journals, which are based solely on price changes.
- Investment returns have been based on commonly quoted local benchmarks, as detailed below:
 - For Brazil, domestic equity returns are based on the FTSE All-World Brazil index, and domestic fixed-income returns on the iBoxx GEMX Brazil index.
 - For Canada, domestic equity returns are based on the S&P/TSX Composite, international equity returns on 10% S&P 500 (in Canadian dollars), 20% S&P TSX Composite (in Canadian dollars), 10% MSCI EAFE Total Return Index Net Dividends (in Canadian dollars) and domestic fixed-income returns on 60% FTSE TMX Long Bond Total Return.
 - For the Eurozone, domestic equity returns are based on the MSCI Eurozone market index, international equity returns on the MSCI World ex-EMU total return index and domestic fixed-income returns on the iBoxx EUR Overall index.
 - For Japan, domestic equity returns are based on the FTSE All-World Japan index, international equity returns on the MSCI World (ex-Japan) Index with net dividends reinvested, domestic fixed-income returns on the FTSE Japan Government Total index and international fixed-income returns on the FTSE Global Government Bond index.
 - For Switzerland, portfolio returns are based on the Pictet Index 2005 BVG-40+ index.
 - For the U.K., domestic equity returns are based on the FTSE All Share, international equity returns on the FTSE All-World ex-U.K. and domestic fixed-income returns on the FTSE Over 15 Years Gilts.
 - For the U.S., domestic equity returns are based on 80% S&P 500 Index and 20% Russell 2500, international equity returns on the MSCI EAFE Index, and domestic fixed-income returns on 87.5% Barclays Capital Aggregate Bond Index and 12.5% three-month T-bills.
- Benchmark portfolio returns have been based on a typical diversified portfolio in each country that has not yet been secured via an insurance policy. Benchmark portfolio returns for this quarter have been based on the following asset allocations:
 - Brazil: 10% domestic equity and 90% domestic fixed income
 - Canada: 40% equity (20% domestic, 20% international) and 60% domestic fixed income
 - Eurozone: 40% domestic equity and 60% domestic fixed income
 - Japan: 30% equity (20% domestic, 10% international) and 70% fixed income (50% domestic, 20% international)
 - Switzerland: 30% equity (10% domestic, 20% international), 50% fixed income (30% domestic, 20% international), 10% real estate and 10% other assets (5% hedge funds, 5% private equity)
 - U.K.: 20% equity (10% domestic, 10% international) and 80% domestic fixed income
 - U.S.: 60% equity (50% domestic, 10% international) and 40% domestic fixed income

WTW Pension Index

- The WTW Pension Index is a measure of the PBO funded ratio, or the ratio of the market value of assets to the PBO for a benchmark plan. Asset values change from quarter to quarter based on the investment performance of the benchmark portfolio, assumed contributions and benefit payments. Liability values change with accumulated service cost and interest, benefit payments and the effect of any changes in financial assumptions. Contributions are assumed to be equal to the service cost for each benchmark plan, so that the Index captures the impact of capital market results.



- Pension Finance Watch is designed to support our clients in the ongoing financial management of their global retirement plans. The report tracks the value of the WTW Pension Index in a series that was initiated in 1990. The index reflects the asset/liability performance of a hypothetical benchmark pension plan, and it provides an indicator of capital market effects on pension plan financing. Individual plan results will vary based on such factors as portfolio composition, investment management strategy, liability characteristics and contribution policy.

About WTW

At WTW (NASDAQ: WTW), we provide data-driven, insight-led solutions in the areas of people, risk and capital. Leveraging the global view and local expertise of our colleagues serving 140 countries and markets, we help you sharpen your strategy, enhance organizational resilience, motivate your workforce and maximize performance.

Working shoulder to shoulder with you, we uncover opportunities for sustainable success—and provide perspective that moves you.

For more information on *Global Pension Finance Watch*, visit [wtwco.com](https://www.wtwco.com).