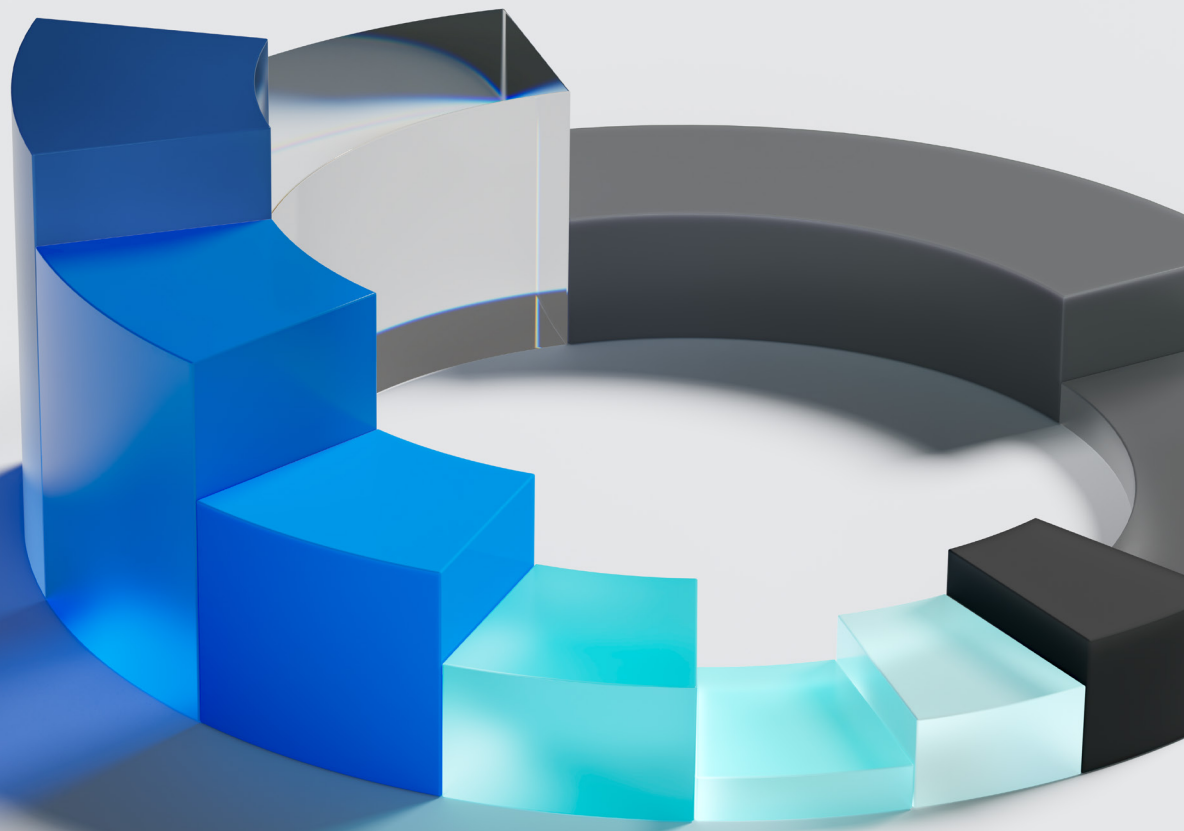


27th annual edition

2023 Long-Term Capital Market Assumptions

Time-tested projections to build
stronger portfolios

Assumption matrix: Brazilian real



Compound Return 2022 (%)																Compound Return 2023 (%)																
Annualized Volatility (%)					Brazilian Inflation	Brazilian Cash	Brazilian Local Govt Bonds	Brazilian Inflation-Linked Bonds	Brazilian Floating Rate Credit	Global Aggregate Bonds hedged	U.S. Long Corporate Bonds	U.S. High Yield Bonds	Emerging Markets Sovereign Debt	Emerging Markets Local Currency Debt	Emerging Markets Corporate Bonds	Brazilian Equity	U.S. Large Cap	European Large Cap	Japanese Equity	Chinese Domestic Equity	AC World Equity	AC Asia ex-Japan Equity	Emerging Markets Equity	Private Equity	U.S. REITs	Brazilian Hedge Funds (Multimercado)	Diversified Hedge Funds	Commodities	Gold			
Arithmetic Return 2023 (%)					Brazilian Inflation	Brazilian Cash	Brazilian Local Govt Bonds	Brazilian Inflation-Linked Bonds	Brazilian Floating Rate Credit	Global Aggregate Bonds hedged	U.S. Long Corporate Bonds	U.S. High Yield Bonds	Emerging Markets Sovereign Debt	Emerging Markets Local Currency Debt	Emerging Markets Corporate Bonds	Brazilian Equity	U.S. Large Cap	European Large Cap	Japanese Equity	Chinese Domestic Equity	AC World Equity	AC Asia ex-Japan Equity	Emerging Markets Equity	Private Equity	U.S. REITs	Brazilian Hedge Funds (Multimercado)	Diversified Hedge Funds	Commodities	Gold			
Compound Return 2023 (%)		Brazilian Inflation	Brazilian Cash	Brazilian Local Govt Bonds	Brazilian Inflation-Linked Bonds	Brazilian Floating Rate Credit	Global Aggregate Bonds hedged	U.S. Long Corporate Bonds	U.S. High Yield Bonds	Emerging Markets Sovereign Debt	Emerging Markets Local Currency Debt	Emerging Markets Corporate Bonds	Brazilian Equity	U.S. Large Cap	European Large Cap	Japanese Equity	Chinese Domestic Equity	AC World Equity	AC Asia ex-Japan Equity	Emerging Markets Equity	Private Equity	U.S. REITs	Brazilian Hedge Funds (Multimercado)	Diversified Hedge Funds	Commodities	Gold						
Fixed Income	Brazilian Inflation	4.60	4.61	1.15	4.30	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
	Brazilian Cash	8.40	8.40	0.93	7.10	0.04	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
	Brazilian Local Govt Bonds	10.20	10.25	3.24	10.10	-0.21	0.32	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Brazilian Inflation-Linked Bonds	10.40	10.60	6.69	9.40	0.01	0.14	0.80	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Brazilian Floating Rate Credit	9.40	9.42	1.84	8.10	0.10	0.27	0.60	0.78	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Global Aggregate Bonds hedged	10.20	10.26	3.51	8.10	-0.25	0.25	0.40	0.27	0.25	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	U.S. Long Corporate Bonds	7.60	9.08	18.18	3.10	-0.25	-0.06	-0.06	-0.20	-0.16	0.53	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	U.S. High Yield Bonds	8.60	9.45	13.70	4.60	-0.18	-0.13	-0.21	-0.29	-0.23	0.23	0.82	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Emerging Markets Sovereign Debt	8.90	10.00	15.65	5.90	-0.24	-0.07	-0.06	-0.19	-0.12	0.42	0.91	0.89	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Emerging Markets Local Currency Debt	8.90	9.55	11.99	6.60	-0.30	-0.05	0.05	-0.13	-0.09	0.38	0.79	0.74	0.86	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Emerging Markets Corporate Bonds	8.80	10.07	16.85	5.50	-0.19	-0.09	-0.16	-0.28	-0.21	0.29	0.89	0.91	0.96	0.82	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Equities	Brazilian Equity	12.50	14.65	22.53	9.00	-0.11	-0.08	0.37	0.51	0.35	0.05	-0.42	-0.34	-0.38	-0.24	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
U.S. Large Cap		9.70	11.01	17.22	4.80	-0.15	-0.20	-0.21	-0.25	-0.19	0.13	0.63	0.78	0.71	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
European Large Cap		11.60	12.91	17.36	7.10	-0.16	-0.21	-0.11	-0.14	-0.11	0.15	0.51	0.67	0.60	0.65	0.58	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Japanese Equity		12.20	13.48	17.22	7.40	-0.16	-0.18	-0.16	-0.25	-0.21	0.15	0.66	0.74	0.69	0.69	0.70	-0.16	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Chinese Domestic Equity		13.60	17.51	31.08	8.90	-0.15	-0.02	-0.02	-0.06	-0.06	0.10	0.40	0.44	0.43	0.42	0.46	-0.01	0.44	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AC World Equity		10.30	11.41	15.84	5.70	-0.17	-0.22	-0.15	-0.17	-0.15	0.16	0.60	0.75	0.69	0.69	0.67	0.03	0.97	0.94	0.82	0.48	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AC Asia ex-Japan Equity		11.80	13.10	17.28	7.70	-0.25	-0.17	-0.06	-0.05	-0.06	0.20	0.49	0.60	0.54	0.63	0.54	0.15	0.68	0.77	0.63	0.63	0.80	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Emerging Markets Equity		11.90	13.01	15.92	7.60	-0.25	-0.18	-0.02	0.02	-0.04	0.19	0.40	0.54	0.48	0.60	0.47	0.30	0.67	0.79	0.60	0.56	0.80	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Alternatives	Private Equity	11.70	13.46	20.23	8.80	-0.06	-0.26	-0.39	-0.32	-0.17	-0.10	0.49	0.76	0.67	0.58	0.70	-0.06	0.85	0.80	0.70	0.48	0.86	0.73	0.71	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
	U.S. REITs	8.60	10.02	17.85	6.40	-0.07	-0.10	-0.09	-0.11	-0.06	0.25	0.54	0.67	0.60	0.60	0.55	-0.09	0.77	0.69	0.57	0.21	0.75	0.54	0.52	0.59	1.00	1.00	1.00	1.00	1.00	1.00	
	Brazilian Hedge Funds (Multimercado)	11.00	11.04	2.95	10.50	0.10	0.19	0.43	0.55	0.56	0.12	-0.20	-0.17	-0.17	-0.16	-0.21	0.54	-0.07	0.05	-0.08	-0.02	0.01	0.04	0.11	0.00	-0.08	1.00	1.00	1.00	1.00	1.00	
	Diversified Hedge Funds	6.80	8.14	17.17	4.30	-0.07	-0.12	-0.37	-0.45	-0.33	0.03	0.78	0.84	0.82	0.68	0.89	-0.58	0.68	0.51	0.68	0.44	0.62	0.45	0.36	0.75	0.46	-0.28	1.00	1.00	1.00	1.00	1.00
	Commodities	4.90	5.88	14.52	3.30	0.10	-0.25	-0.36	-0.25	-0.23	-0.25	0.18	0.36	0.28	0.24	0.35	-0.15	0.33	0.35	0.28	0.13	0.36	0.27	0.28	0.49	0.22	-0.04	0.41	1.00	1.00	1.00	1.00
	Gold	5.30	7.08	19.79	3.70	-0.09	-0.05	0.02	-0.10	-0.08	0.25	0.58	0.48	0.58	0.55	0.59	-0.34	0.27	0.20	0.30	0.31	0.26	0.25	0.19	0.27	0.23	-0.14	0.57	0.42	1.00	1.00	

Brazilian real assumptions

Note: All estimates on this page are in Brazilian real terms. Given the complex risk-reward trade-offs involved, we advise clients to rely on judgment as well as quantitative optimization approaches in setting strategic allocations to all of these asset classes and strategies. Exclusive reliance on this information is not advised. This information is not intended as a recommendation to invest in an particular asset class or strategy or as a promise of future performance. These asset class and strategy assumptions are passive only for liquid assets and industry averages (median managers) for alternatives. The assumptions do not consider the impact of active management. Reference to future returns are not promises or even estimates of actual returns portfolio’s may achieve. Assumptions, opinions and estimates are provided for illustrative purposes only. Forecasts of financial market trends that are based on current market conditions constitute our judgement and are subject to change without notice. We believe the information provided herein is reliable, but to not warrant its accuracy or completeness. This materials is not intended to provide and should not be relied upon for accounting, legal or tax advice.

Source: J.P. Morgan Asset Management; as of September 30, 2022. Alternative asset classes (including hedge funds, private equity, real estate, direct lending, transportation, infrastructure and timberland) are unlike other asset categories shown above in that there is no underlying investible index. The return estimates for these alternative asset classes and strategies are estimates of the industry average – median manager, net of manager fees. The dispersion of return among managers of these asset classes and strategies is typically significantly wider than that of traditional asset classes. Correlations of value-added and core real estate in their local currencies are identical since value-added local returns are scaled versions of their corresponding core real estate local returns. This year, we have updated the raw data source for Europe and U.K. Real Estate and this may result in a change in correlation forecasts. For equity and fixed income assumptions we assume current index regional weight in composite indices with multiple countries/regions. All returns are nominal. The return forecasts of composite and hedged assets are computed using unrounded return and rounded to the nearest 10bp at the final stage. In some cases this may lead to apparent differences in hedging impact across assets, but this is purely due to rounding. For the full opportunity set, please contact your J.P. Morgan representative.

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