



Feature · Regular investing

Investing a share of the Shenzhen salary in US index funds: a 20-year study

10% of salary a month over the past 20 years: QQQ ¥1.92m, SPY ¥1.05m

The base is Shenzhen's average wage of ¥11,293 a month. 10%, 20%, 30% of it is invested monthly in SPY, QQQ or a 50/50 mix for 20 years, with all amounts in today's purchasing power. Over the past 20 years (2006-10 to 2026-09), investing 10% of salary (¥1,129) a month, ¥0.27m in total, would have grown to between ¥1.05m and ¥1.92m. Scenarios for the next 20 years at real returns of 4%–10% a year give ¥0.41m to ¥0.82m.

SPY (S&P 500)

¥1.05m

3.9x · real IRR 12.1%

QQQ (Nasdaq-100)

¥1.92m

7.1x · real IRR 17.0%

SPY + QQQ, 50/50

¥1.44m

5.3x · real IRR 14.7%

01

Key findings

Historical backtest: investing 10% of salary a month (¥1,129 in today's money) from 2006-10 to 2026-09, ¥0.27m in total, would have produced ¥1.92m in QQQ (7.1x), ¥1.44m in the 50/50 mix (5.3x) and ¥1.05m in SPY (3.9x). Real money-weighted returns in yuan were 17.0%, 14.7% and 12.1% a year.

Savings ratio: results scale with the amount invested. At 20% of salary the end values double, and at 30% they triple: ¥5.76m in QQQ and ¥3.15m in SPY.

Starting date: across 224 rolling 20-year windows starting monthly from 1988-02 (real US dollars), the median ratio of end value to amount invested was 1.90x for SPY and 2.59x for QQQ, with ranges of 0.98x–3.34x and 1.29x–6.27x. The latest window beat 99% of all windows; for the window ending at the financial-crisis low of 2009-02, SPY was worth less than the amount invested in real terms.

Forward scenarios: at base-case real returns of 6% for SPY and 7% for QQQ, 10% of salary a month grows to ¥0.51m in SPY, ¥0.58m in QQQ and ¥0.54m in the mix after 20 years, equal to 46–51 months of salary and well below the backtest.

02

Assumptions

Salary: Shenzhen's 2025 pension contribution base of ¥11,293 a month, which equals the city's average wage (contribution index 1.0).

Savings ratio: 10%, 20%, 30% of salary, i.e. ¥1,129, ¥2,259, ¥3,388 a month, invested on the first trading day of each month for 240 months.

Purchasing power: the monthly amount is constant in today's money, with no real wage growth. In the backtest, past contributions are deflated to the prices of the time by China's CPI, so end values are in today's yuan.

Funds: SPY tracks the S&P 500 and QQQ the Nasdaq-100, using total-return (dividends reinvested) prices. The mix invests half of each contribution in each fund and rebalances to 50/50 every December.

Exchange rate: purchases convert yuan at that day's USD/CNY rate; end values convert back at 6.7030 on 2026-09-30.

Wage growth: the main estimates assume no real wage growth; section 06 adds a sensitivity case with real wages rising 3% a year.

Not included: dividend withholding tax, conversion and trading costs, premiums on onshore QDII funds and income tax.

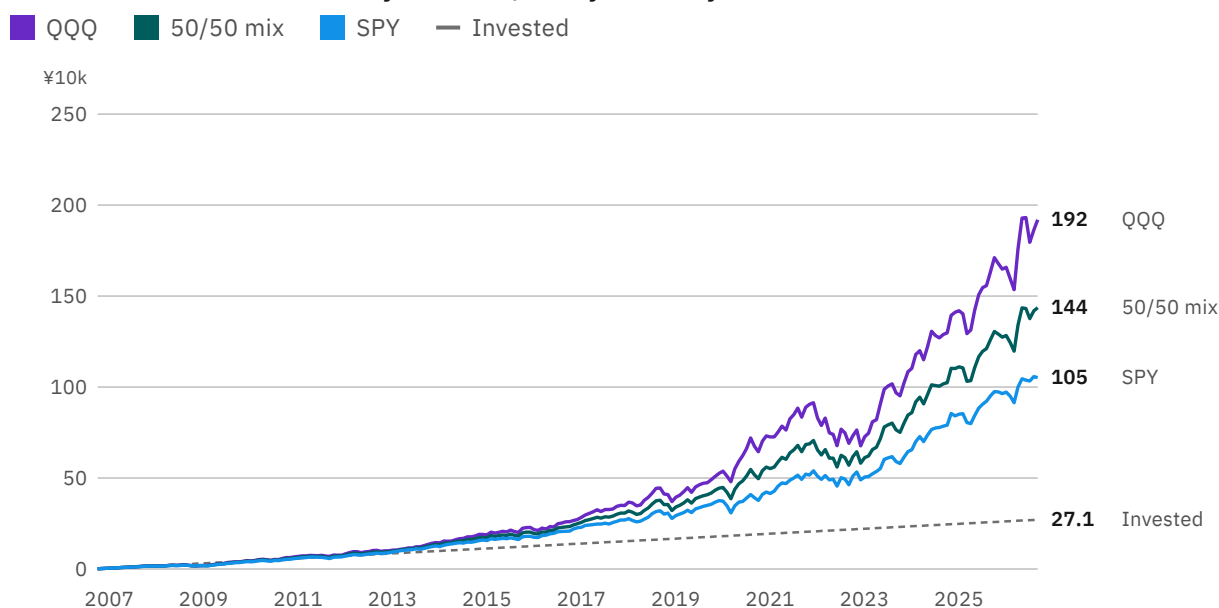
03

Backtest over the past 20 years (2006-10 to 2026-09)

10% of salary a month (¥1,129 in today's money). All amounts in today's yuan. The largest paper loss is the deepest shortfall of account value below the amount invested so far, with the month it occurred.

Option	Invested	End value	Months of salary months	Multiple	Real IRR money-weighted	Largest paper loss
QQQ (Nasdaq-100)	¥0.27m	¥1.92m	170	7.1x	17.0%	-42% 2008-11
SPY + QQQ, 50/50	¥0.27m	¥1.44m	127	5.3x	14.7%	-44% 2009-02
SPY (S&P 500)	¥0.27m	¥1.05m	93	3.9x	12.1%	-46% 2009-02

Account value (10% of salary a month, today's money)



Early contributions coincided with the 2008 financial crisis, and all three options showed paper losses of more than 40% around 2009-02. The long advance that followed determined the end result.

Exchange rate: the yuan rose from 7.90 to 6.70 per dollar over the period, but purchase rates ranged from 6.04 to 7.90, averaging 6.75, and 75% of contributions were made below 7.0. Had the rate stayed at 7.90 throughout, end values would differ by no more than 0.2%. Regular purchases spread the conversion dates, so the exchange rate had little effect in this period.

04

Results by savings ratio

Results are proportional to the monthly amount; multiples and returns do not change with the ratio. The table shows end values from the 20-year backtest (today's money).

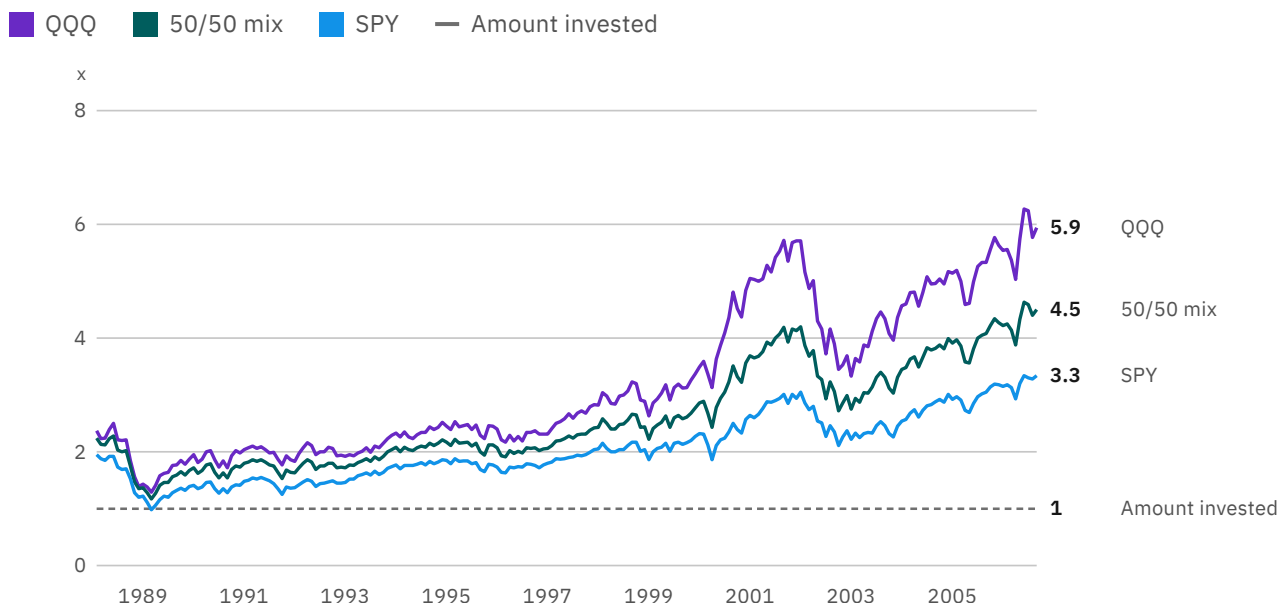
Ratio	Monthly	Invested	QQQ	50/50 mix	SPY
10% of salary	¥1,129	¥0.27m	¥1.92m	¥1.44m	¥1.05m
20% of salary	¥2,259	¥0.54m	¥3.84m	¥2.87m	¥2.10m
30% of salary	¥3,388	¥0.81m	¥5.76m	¥4.31m	¥3.15m

05

Different 20-year starting points

A new 20-year plan starts every month from 1988-02 to 2006-09, 224 windows in all, measured in real US dollars (adjusted by US CPI) and excluding exchange-rate effects. Before SPY's launch (1993-01) the S&P 500 total-return index is used, and before QQQ's launch (1999-03) the Nasdaq-100 price index. The multiple is end value over amount invested.

End multiple of 20-year plans by starting month (real US dollars)



Option	Lowest	Median	Median IRR real	Highest	Latest window share of windows beaten
QQQ (Nasdaq-100)	1.29x 1989-03	2.59x	8.7%	6.27x 2006-06	5.94x 99%
SPY + QQQ, 50/50	1.17x 1989-03	2.24x	7.5%	4.63x 2006-06	4.50x 99%
SPY (S&P 500)	0.98x 1989-03	1.90x	6.0%	3.34x 2006-09	3.34x 100%

Outcomes depend mainly on the end date. The lowest values come from the window that began in 1989-03 and ended in 2009-02, at the low of the financial crisis, where SPY returned 0.98x in real terms, below the amount invested. The highest come from windows that began in 2005–2006. The latest window (starting 2006-09, nearly the same period as the backtest in section 03) outperformed 99% of all windows. The windows overlap, so there are far fewer independent observations than 224.

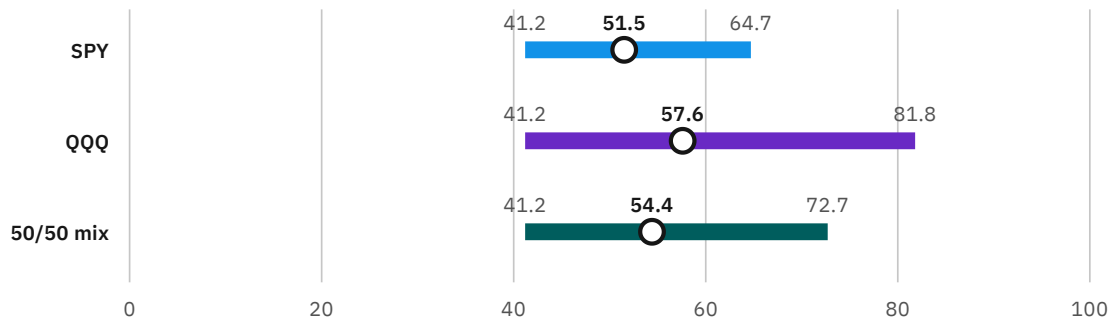
06

Scenarios for the next 20 years

Scenarios assume real annual returns after fees, consistent with this site's pension comparison: SPY 4.0%/6.0%/8.0%; QQQ 4.0%/7.0%/10.0%; 50/50 mix 4.0%/6.5%/9.0% (conservative/base/optimistic; the mix uses the average of the two).

The conservative case uses the same 4% for all three, so the results are identical. For reference, the median real return across the 224 historical windows in section 05 was QQQ 8.7%, 50/50 mix 7.5%, SPY 6.0%, close to the base case. These are assumptions, not forecasts.

Account value after 20 years (10% of salary a month, today's money)



Dots show the base case; bands run from conservative to optimistic.

Ratio	SPY	QQQ	50/50 mix
	base (cons.–opt.)	base (cons.–opt.)	base (cons.–opt.)
10% of salary	¥0.51m ¥0.41m – ¥0.65m	¥0.58m ¥0.41m – ¥0.82m	¥0.54m ¥0.41m – ¥0.73m
20% of salary	¥1.03m ¥0.82m – ¥1.29m	¥1.15m ¥0.82m – ¥1.64m	¥1.09m ¥0.82m – ¥1.45m
30% of salary	¥1.54m ¥1.24m – ¥1.94m	¥1.73m ¥1.24m – ¥2.45m	¥1.63m ¥1.24m – ¥2.18m

Real returns over the past 20 years (12.1%–17.0%) exceeded every scenario assumption, including the optimistic one. If returns revert to long-run averages, the same contributions would be worth about 49% of the backtest result for SPY and 30% for QQQ after 20 years.

Sensitivity: real wage growth

If real wages rise 3% a year and the savings ratio stays at 10%, the monthly amount grows from ¥1,129 to ¥2,040 in year 20, and the total invested rises from ¥0.27m to ¥0.37m. The table shows base-case end values; against the year-20 monthly salary of ¥20,396, they equal 32–36 months of salary.

Option	Flat wages base	Wages +3% a year base	Invested
QQQ (Nasdaq-100)	¥0.58m	¥0.74m	¥0.37m
SPY + QQQ, 50/50	¥0.54m	¥0.70m	¥0.37m
SPY (S&P 500)	¥0.51m	¥0.66m	¥0.37m

07

Risks and limitations

Market drawdowns

All three options showed paper losses of more than 40% during the backtest, and QQQ, concentrated in large technology stocks, is more volatile than SPY. Late in a long plan the balance is large, so a decline of the same size costs more in absolute terms.

Exchange rate

Returns in yuan depend on the USD/CNY rate. In this backtest most contributions were made below 7.0 and the effect was under 1%, but if the rate at the end is well below the average purchase rate, returns in yuan fall accordingly.

Regulation and access

Mainland residents have an annual foreign-exchange purchase quota of US\$50,000, which may not be used for overseas securities investment. Onshore QDII funds and ETFs tracking the S&P 500 and Nasdaq-100 are available, but quotas are limited and listed ETFs often trade at a premium.

Taxes and costs

The estimates exclude US dividend withholding tax (generally 10% under the China–US tax treaty), QDII fund fees, conversion spreads and trading costs, so actual returns would be lower.

Model assumptions

Scenario returns are assumptions. Contributions are constant in today's money, ignoring real wage growth, income interruptions and withdrawals. The rolling windows start in 1988 and

overlap, so they do not cover every historical environment.

08

Method and sources

Prices and FX: Yahoo Finance (SPY and QQQ adjusted closes, CNY=X), as of 2026-09-30.

China CPI: World Bank FP.CPI.TOTL (annual, to 2025), placed at mid-year and interpolated geometrically by month, held flat after the latest year; it rose 49.0% over the backtest.

US CPI: FRED CPIAUCSL (to 2026-08), used for real dollar values in the rolling windows.

Indices for the rolling windows: S&P 500 total-return index (^SP500TR, from 1988-01) and Nasdaq-100 price index (^NDX, excluding dividends, which slightly understates returns before 1999), spliced proportionally at the launch dates of SPY and QQQ.

Salary: the 2025 pension contribution base published by the Shenzhen Human Resources and Social Security Bureau; the 2026 base had not been published as of 2026-09.

Returns: money-weighted (XIRR) on actual cash-flow dates. Scenarios compound monthly with contributions at the start of each month.

This report presents estimates and research based on public data and stated assumptions. It is intended for a general audience, does not address any individual's financial circumstances and does not constitute investment advice. Past returns are not indicative of future results, and investments carry risk.

Data as of 2026-09-30 · 雅虎财经（行情与汇率）；世界银行（中国 CPI）；FRED（美国 CPI）；深圳市人社局（计发基数）

AlphaScope · alphascope.cc/en/reports/salary-dca-20y · Generated 2026-10-02

Financial data are taken from original SEC EDGAR filings. Market data are delayed, and the sources are stated in each report.

Ratings represent our research opinions, are intended for all readers and do not constitute personal recommendations to buy or sell. Investing involves risk, and investment decisions remain the responsibility of the reader.