The Stock Market

Figures current as of October 2026

The equity market — how shares are priced, who owns them, the indices and the concentration inside them, passive investing, the plumbing, the 2026 listings, the world's markets, the crashes, and what the evidence says about investing.

MODULE 1 — Foundations: What a Share Is and What the Market Is

Goal: Define the instrument, size the market, and see who owns it.

A share as a claim on residual profit; market value; the $158 trillion world market and the American 44% of it; fifteen companies worth $1 trillion; who owns American shares; the forces that move prices; Apple's price read as an expectation — worked.

MODULE 2 — A Brief History

Goal: Trace the market from Amsterdam to 2026.

The Dutch East India Company, Buttonwood, the Dow, 1929 and the SEC, Black Monday, the dot-com bust, 2008, the flash crash, 2020, 2022, the tariff crash of 2025, and the war of 2026; three long cycles and a century of returns.

MODULE 3 — How a Stock Is Priced

Goal: Work from earnings to price.

Cash flow, growth, and the discount rate; multiples as shorthand, with every term defined; why price moves more than value; one company valued at a 5.2% Treasury yield — worked.

MODULE 4 — Valuation: The Measures and What They Predict

Goal: Read the ratios and know their limits.

Forward and trailing P/E, CAPE, price-to-sales, the market-to-GDP ratio, the dividend yield, and the equity risk premium in October 2026; what the CAPE has predicted at one year and at ten, computed from Shiller's data; the case for and against today's multiple.

MODULE 5 — The Indices

Goal: Understand how the market's scoreboards are built.

The S&P 500's rules and its refusal to fast-track SpaceX, the Dow's price weighting, the Nasdaq-100's new fast entry, the Russell 2000, equal weight, and MSCI's world and emerging-market indices; why joining an index moves a stock.

MODULE 6 — The Concentration

Goal: Measure how much of the market is seven companies.

The Magnificent Seven at 35% of the S&P 500 and the top ten at 40%, near the highest since at least the mid-1960s; earnings against weight; what past leaders did next; what an index fund actually owns — worked.

MODULE 7 — Passive Investing

Goal: Explain the largest change in how stocks are owned.

Bogle's 1976 fund to more than half of fund assets; the first $1 trillion ETF; the Big Three as the largest owners; the SPIVA evidence; whether index funds distort prices, argued both ways.

MODULE 8 — The Exchanges and the Plumbing

Goal: See how a trade actually happens.

Eighteen exchanges and the off-exchange half of volume, payment for order flow, T+1 settlement and round-the-clock clearing, the move to 23-hour trading, circuit breakers, and the 2010 flash crash; what a retail order costs and pays — worked.

MODULE 9 — Earnings, Dividends, and Buybacks

Goal: Follow the cash from the company to the shareholder.

The quarterly cycle and 2026's earnings surge, the proposal to allow half-yearly reports, a record-low dividend yield, record buyback announcements, and the 1% excise tax; what a buyback does to a share — worked.

MODULE 10 — IPOs and the Shrinking Public Market

Goal: Follow a company from private to public.

The IPO process and lockups; 2026's record proceeds, from SpaceX's $75 billion and SK hynix's $26.5 billion to Anthropic's planned listing; listed companies halved since 1996; dual-class control; SpaceX's price read as a forecast — worked.

MODULE 11 — Retail, Options, and the New Trading

Goal: Meet the market's newest participants.

Zero commissions and the retail share of trading, 71 million options contracts a day, same-day options and record expirations, the VIX, meme stocks, tokenized shares, prediction markets, and the evidence on trading.

MODULE 12 — The Institutions

Goal: Meet the holders who move the market.

Pension funds at 114.5% funded, hedge funds at a record $5.6 trillion, a record year for activists, Norway's fund, foreign holders, and Berkshire Hathaway's turn to buying.

MODULE 13 — Sectors, Styles, and Factors

Goal: Sort the market by what drives returns.

The eleven sectors, with technology at 40% of the S&P 500; value, size, momentum, quality, and low volatility; the AI, energy, and defense trades of 2026 and the small companies' return.

MODULE 14 — The World's Markets

Goal: Compare the markets outside America.

The memory boom in Korea and Taiwan, Japan's records, India's slide and record foreign selling, China and Hong Kong, Europe, Britain, and Canada; the valuation gap and the case for and against owning abroad.

MODULE 15 — Stocks and the Macro

Goal: Connect the market to rates, earnings, and shocks.

Rates and multiples, the Fed's September 16 rise and its October 27-28 meeting, the oil shock, the earnings surge, and the thin reward for equity risk; what a rise in rates does to a multiple — worked.

MODULE 16 — Bubbles, Crashes, and Bear Markets

Goal: Learn the anatomy of a fall.

The definitions and the record since 1929; Kindleberger's five stages tested against 2026; the April 2025 round trip and the 2026 war correction; what recovers, what does not, and why.

MODULE 17 — The AI Question

Goal: Weigh the argument that decides the next five years.

About $800 billion of capital spending in 2026, Nvidia's revenue, the labs' revenue and valuations, the paper gains inside index earnings, the financing at the edges, both cases, and where a turn would show first.

MODULE 18 — Investing: What the Evidence Says

Goal: Distill a century of data into what the evidence shows.

Long-run returns by asset, ten findings on costs, behavior, diversification, and valuation, the standard portfolios, and $10,000 compounding with and without fees — worked.

MODULE 19 — Where Things Stand, and What to Watch

Goal: Assemble the picture and name the dates.

The argument on a page; five contradictions no single module states; a dated watch list from October 21, 2026 into 2028; and a last word.

A note on the sources: the course's market data come from the index providers, chiefly S&P Dow Jones Indices (S&P DJI), FTSE Russell, and MSCI; its earnings figures from FactSet's weekly *Earnings Insight*; its ownership figures from the Federal Reserve's Financial Accounts of the United States (Z.1); and its rules and company figures from the Securities and Exchange Commission (SEC) and the companies' own filings. Prices are closing levels on Wednesday, October 14, 2026, unless another date is given.

Market Snapshot

The American stock market at the close of Wednesday, October 14, 2026

Measure	Level	Source
S&P 500 index of 500 large American companies	7,718.94; record close 7,818.93 on October 6; up 12.8% in 2026, after 16.4% in 2025 (17.9% with dividends)	S&P DJI, via FRED
Nasdaq Composite; Dow Jones Industrial Average	26,692.87; 51,621.48	Via FRED
Russell 2000 index of smaller companies	2,729.53; up 10.0% in 2026	FTSE Russell, via the Associated Press
S&P 500 Equal Weight, through the Invesco exchange-traded fund (ETF) that tracks it	Up 12.2% in 2026 to October 15, level with the market-weighted index	Invesco, via Chartrow
Cboe Volatility Index (VIX), the options market's expected volatility	16.87	Cboe, via FRED
Price to expected earnings (forward P/E) of the S&P 500	19.1 on October 9, equal to its ten-year average; 20.4 on June 30	FactSet
Price to the last twelve months' earnings (trailing P/E)	26.0 on October 9	FactSet
Cyclically adjusted price-earnings ratio (CAPE)	41.4; its record is 44.2 in December 1999	Robert Shiller's method, via multpl.com
Dividend yield of the S&P 500	1.05% on October 15, the lowest on record	Via multpl.com
Expected S&P 500 earnings growth	Third quarter of 2026 29.6%; calendar 2026 32.7%; 2027 15.8% (October 9)	FactSet
Share of the S&P 500 in seven technology companies; in the ten largest	34.9%; 40.4% (October 15)	Slickcharts
Ten-year Treasury yield; ten-year inflation-protected (real) yield	5.19%; 2.84%	Treasury
Federal funds rate target	3.75-4.00%, raised on September 16	Federal Reserve
Brent crude oil, front-month futures	About $106 a barrel	Intercontinental Exchange (ICE), via Trading Economics

The forward P/E divides the price by analysts' estimates of the next twelve months' earnings; the CAPE divides it by the average of the last ten years' earnings after inflation (Module 4).

Module 1 — Foundations

What a Share Is and What the Market Is

Recommended Reading / Reference

Book: Burton Malkiel, *A Random Walk Down Wall Street* (50th anniversary edition, 2023), the standard introduction

Reference: The Federal Reserve's *Financial Accounts of the United States* (Z.1), table F51.1, for who owns American shares

1a. A Claim on What Is Left

A share is a fraction of the ownership of a company and a claim on what is left after everyone else has been paid: suppliers, employees, lenders, and the tax authority. That residual is the profit, and the shareholder's return comes from it in two ways. One part is paid out as dividends or spent buying back shares; the other is kept and reinvested, and the market values it by moving the share price.

A bond is a promise of fixed payments, while a share promises nothing but the residual. That is why a share is riskier, why it has paid more over every long period on record (Module 18), and why its price moves so much more than the value of the business behind it (Module 3).

Multiplying the price by the number of shares gives the market capitalization, or market value: what the market says the whole company is worth that day. Nvidia's 24.1 billion shares at about $222 made it worth $5.34 trillion on October 15, 2026; a company with a billion shares at $50 is worth $50 billion. The arithmetic is the same, and the difference between the two is what investors believe about future profits.

1b. The Size of the Market

Measure	Figure	Note
World stock-market value	$157.8 trillion at the end of 2025	Listed companies worldwide, on the count of the Securities Industry and Financial Markets Association (SIFMA)
The American market	$68.9 trillion at the end of 2025, 43.7% of the world; about $75 trillion at the end of June 2026	On about a quarter of world output; the largest companies are American (Module 6)
Companies worth more than $1 trillion	15 in mid-October 2026	Nvidia, Apple, Alphabet, Microsoft, Amazon, Taiwan Semiconductor Manufacturing (TSMC), SpaceX, Meta, Broadcom, Saudi Aramco, Tesla, Berkshire Hathaway, Eli Lilly, Micron, and Samsung; twelve are American, and the last four sit close enough to the line to cross it on a bad day
Trading in American stocks	17.6 billion shares and $1.1 trillion a day in 2025, both records	Off-exchange trading passed half of all volume for the first time (Module 8)
Americans who own stock	62% of adults, directly or through funds and retirement accounts	The top 10% of households hold 88.1% of the stock that households own

SIFMA, *Capital Markets Fact Book*, 2026; Siblis Research (June 30, 2026); CompaniesMarketCap (October 15-16, 2026); Cboe; Gallup (April 2025); the Federal Reserve's distributional accounts (second quarter of 2026).

1c. Who Owns the Shares

Holder	Share of corporate equities	Note
Households and nonprofits	42.1% ($52.1 trillion)	Includes shares in private companies, which the Fed now counts in the total; on listed shares alone the households' share is lower
Mutual funds and exchange-traded funds	25.4%: mutual funds 15.1%, ETFs 10.3%	Mostly retirement money, more and more of it in index funds (Module 7)
Foreign investors	18.0% ($22.2 trillion)	European, Canadian, Japanese, and offshore funds (Module 12)
Pension funds	8.2% ($10.2 trillion)	Private, state and local, and federal plans
Everyone else	6.3%	Companies holding other companies, insurers ($1.5 trillion), hedge funds ($0.9 trillion), banks, and the government

Federal Reserve, Z.1, table F51.1, second quarter of 2026 (released September 11, 2026). The total, $123.7 trillion, counts every equity held by these sectors, including $15.6 trillion of private-company shares and $14.4 trillion of foreign shares held by Americans.

The table describes who holds the shares, and Module 12 describes how those holders behave. Ownership is broad and concentrated at once: most American adults own some stock, but the richest tenth of households owns nearly nine-tenths of the household total, which is why a record on the index and a gloomy public mood can coexist.

1d. What Moves the Market

- **Earnings:** over decades, share prices follow profits: from 1950 to 2023 the S&P 500's earnings grew about 6% a year and its price about 8%, the gap being a rising multiple (Robert Shiller's data).
- **The multiple:** over years, what investors will pay for a dollar of earnings swings between about 10 and 30 times, driven by interest rates, inflation, and confidence, and most of any single year's return is the multiple moving rather than the earnings.
- **Interest rates:** a higher risk-free rate makes future profits worth less today and offers savers an alternative; the ten-year Treasury yield is the number the market watches most in 2026 (Module 15).
- **Flows:** who is buying and selling, from index funds (Module 7) and companies buying back their own shares (Module 9) to foreigners and individual traders (Modules 11 and 12), and in the short run flows move prices more than fundamentals do.
- **Shocks and stories:** tariffs in 2025 and war in 2026 (Module 16), and the build-out of artificial intelligence (AI), the story of this cycle as the internet was of the 1990s (Module 17).

Worked example — Apple's Price as an Expectation

Apple had about 14.6 billion shares in July 2026, so at $342 a share it was worth about $5.0 trillion. Its earnings over the latest twelve months were about $129 billion, or $8.73 a share, which makes its trailing P/E 342 ÷ 8.73 = 39, against 26 for the S&P 500 (Market Snapshot). It pays a dividend of $1.08 a share a year, a yield of 0.3%, and it spent $62 billion buying back its own shares in the nine months to June 2026, a pace of about 1.7% of its market value a year, so its total payout is close to 2%. Its earnings yield, the inverse of the P/E, is 1 ÷ 39 = 2.6%. A ten-year Treasury pays 5.19% with no growth at all, so an investor paying $342 is betting that Apple's earnings will grow fast enough, for long enough, to beat the bond. Every module that follows is a way of asking whether such bets are reasonable.

Module 1 Key Points

Foundations

• A share is a claim on the residual profit: riskier than a bond, better-paying over every long period on record.

• The world's listed companies were worth $157.8 trillion at the end of 2025, and 43.7% of that value was American.

• Fifteen companies were worth more than $1 trillion in mid-October 2026; twelve of them are American.

• Households hold 42% of American equities, funds 25%, foreigners 18%, and pensions 8%, on the Fed's accounts.

• Over decades prices follow earnings; over years the multiple decides; over months flows and shocks decide.

Module 1 Quiz

Check Your Understanding

1. What is a share a claim on?

A) Revenue before any costs
B) A fixed payment set when the share is issued, like a bond coupon
C) The profit left after everyone else is paid
D) The company's assets, with no claim on its profits at all

2. What share of the world's stock-market value was American at the end of 2025?

A) About 25%, its share of world output
B) About 10%, after a decade of losses
C) About 80%, the share Americans hold
D) About 44%, on about a quarter of world output

3. How many companies were worth more than $1 trillion in mid-October 2026?

A) Fifteen, twelve of them American
B) Seven, all of them American
C) Twelve, nine of them American
D) Five, the largest technology companies

4. Which group holds the largest share of American corporate equities on the Fed's accounts?

A) Foreign investors, at about 40%
B) Households, at about 42%
C) Pension funds, at about a third
D) Mutual funds and ETFs, at about 50%

5. In the worked example, why does Apple's 2.6% earnings yield make sense only if its earnings grow?

A) Apple's dividend beats the coupon
B) A Treasury pays 5.19% with no growth at all
C) Earnings yields ignore inflation
D) Buybacks are taxed more heavily than a bond's coupon

Module 2 — A Brief History

From Amsterdam to 2026

Recommended Reading / Reference

Book: John Kenneth Galbraith, *The Great Crash, 1929* (1955)

Reference: Robert Shiller's online data on the S&P 500's prices, dividends, and earnings since 1871

2a. The Timeline

Year	Event	What it established
1602	The Dutch East India Company issues transferable shares in Amsterdam	The first joint-stock company with permanent capital and a market in its shares; short selling was banned within a decade
1792	Twenty-four brokers sign the Buttonwood Agreement on Wall Street	The New York Stock Exchange's origin: a fixed commission and a closed club
1896	Charles Dow publishes the Dow Jones Industrial Average, twelve stocks	The first index of American industry; still weighted by price (Module 5)
1929-32	The Dow falls 89% from its September 1929 peak to July 1932	The Securities Act of 1933, the Securities Exchange Act of 1934 and the SEC, disclosure rules, and the separation of commercial and investment banking
1957	The S&P 500 begins, weighted by market value	The benchmark that index funds would later track
1971	Nasdaq opens as the first electronic quotation system	The home of the technology listings
1975	Fixed commissions abolished ('May Day')	Discount brokerage, and a fall in trading costs that reached zero in 2019
1976	Vanguard's First Index Investment Trust raises $11 million	The first index fund for individuals, mocked as 'Bogle's folly' (Module 7)
1987	Black Monday, October 19: the Dow falls 22.6% and the S&P 500 20.5%	Portfolio insurance's feedback loop; market-wide circuit breakers (Module 8)
2000-02	The dot-com bust: the Nasdaq falls 78%	Valuation without earnings; Enron and WorldCom; the Sarbanes-Oxley Act of 2002
2007-09	The financial crisis: the S&P 500 falls 57%	Leverage in housing and the banks; zero interest rates; the Dodd-Frank Act of 2010
2010	The flash crash of May 6: the Dow falls about 9% in fifteen minutes and recovers	Trading by machine can withdraw liquidity in seconds; single-stock pauses (Module 8)
2020	The pandemic: the S&P 500 falls 34% in 23 trading days	Zero-commission trading, millions of new accounts, and the Fed as backstop
2021	GameStop: individual traders squeeze the hedge funds that had sold it short	Options, social media, and the economics of free trading in the open (Module 11)
2022	Rising rates take the S&P 500 down 25% from its peak, and bonds fall too	The end of zero rates; the multiple's sensitivity to the discount rate (Module 15)
2025	The tariff crash: 18.9% from the February record to April 8, then a 9.52% rally in a day	Policy as the shock and the bond market as the check (Module 16)
2026	War with Iran cuts 9.1% by March 30; SpaceX's $75 billion listing in June; records in October	The AI-era market's tests: oil, rates, and the largest listings in history

2b. Three Long Cycles

The American market's history since the Second World War divides into three long cycles, each ending in a bear market that changed the rules. The first, from 1949 to 1968, was the postwar boom: earnings grew with the economy, and the price paid for a dollar of earnings rose from about 6 to about 18. The 'Nifty Fifty' growth stocks of the early 1970s then traded at multiples far above the market's, until the bear market of 1973-74 nearly halved the index.

The second cycle, from 1982 to 2000, was the great bull market. Inflation fell from double digits to about 2%, long-term interest rates from about 15% to about 6%, and the multiple rose from 8 to 28 as the baby boomers' retirement money poured into mutual funds, until the dot-com bust ended it.

The third, from 2009 to the present, is the era of cheap money and technology: zero interest rates for most of a decade, then the smartphone and cloud platforms, then the AI build-out. The forward multiple rose from about 10 in early 2009 to the low 20s in 2025, and the largest companies grew to a third of the index (Module 6).

Each cycle's bull market rested on something real: growth, falling inflation, and new technology. Each also carried the multiple to a level that the next shock corrected. The question the rest of the course asks is where the third cycle stands, in a year in which the forward multiple has fallen to 19.1 because earnings rose faster than prices (Module 9).

2c. The Long Record

Period	S&P 500 total return a year	Inflation a year	Real return a year	What happened
1926-2025	About 10%	About 2.9%	About 7%	The century's average, the number most plans use
1949-1968	About 15%	About 2%	About 13%	The postwar boom
1969-1981	About 5.5%	About 7.8%	About −2%	Inflation: the market lost ground for thirteen years after inflation
1982-1999	About 18%	About 3.3%	About 14%	The great bull market
2000-2009	About −1%	About 2.5%	About −3%	The lost decade: two crashes
2010-2025	About 14%	About 2.6%	About 11%	Cheap money and technology

Total return includes reinvested dividends. Ibbotson's series via the CFA Institute Research Foundation (September 2026) for 1926-2025; Robert Shiller's data for 1949-2009; S&P DJI's yearly returns and the Bureau of Labor Statistics for 2010-2025. All are approximate.

The average hides the path. An investor who bought in 1969 waited until the 1980s to be ahead after inflation, and one who bought in 2000 had less at the end of 2009 than at the start. The same index paid about 18% a year to the investor who began in 1982. The starting point, and the multiple paid at it, mattered as much as the decades of growth that followed (Module 4).

Module 2 Key Points

A Brief History

• The market's rules were built by its crashes: the SEC after 1929, circuit breakers after 1987, Sarbanes-Oxley after Enron, Dodd-Frank after 2008.

• Three postwar cycles each carried the multiple to a level that the next shock corrected.

• The century's average is about 10% a year, 7% after inflation, with two long losing stretches inside it.

• Trading costs fell from fixed commissions in 1975 to zero in 2019, and index funds grew from one fund in 1976.

• In 2025-26 the market fell 18.9% on tariffs and 9.1% on war, and recovered both within months.

Module 2 Quiz

Check Your Understanding

1. What did the crash of 1929-32 produce in law?

A) Circuit breakers
B) The Sarbanes-Oxley Act's audit rules
C) The SEC and disclosure rules
D) Dodd-Frank and the rules on bank capital

2. How far did the Nasdaq fall in the dot-com bust?

A) 22.6% in a day
B) 34% in 23 trading days
C) 57% over about a year and a half
D) 78%

3. What did the S&P 500 return after inflation from 1969 to 1981, on the module's table?

A) About −2% a year, a loss for thirteen years after inflation
B) About 12% a year, the best stretch of the century
C) About 7% a year, the century's average
D) About 3% a year, below the average

4. What happened in the tariff crash of 2025?

A) The index fell 18.9% from its February record, then rose 9.52% in a day
B) The index fell 57% over seventeen months as the banks failed
C) The index fell 34% in 23 trading days as the economy shut down
D) The index fell 25% over nine months as interest rates rose

5. Why does the module say the century's average hides the path?

A) The average is computed before dividends and so overstates what investors earned
B) The index changed its members
C) The starting point decided the decades that followed
D) Inflation was always the same

Module 3 — How a Stock Is Priced

From Earnings to Price

Recommended Reading / Reference

Book: Aswath Damodaran, *The Little Book of Valuation* (2011; updated edition 2024)

Reference: Damodaran's data pages at New York University, which estimate the market's implied equity risk premium each month

3a. The Three Ingredients

A stock's fair value is the present value of the cash it will return to its owners, and three ingredients set it: how much cash the company will generate, how fast that cash will grow, and the rate at which future cash is discounted to today. The first two are the company's story. The third, the discount rate, is the market's: the risk-free rate plus a premium for bearing the risk of owning shares.

Change any of the three and the value moves. Because the discount rate compounds over decades, small changes in it produce large changes in value: a company whose cash flow grows 10% a year for a decade and 3% after that is worth about 45% more at an 8% discount rate than at 10%. That is why the Federal Reserve's decisions can move the whole market more than any one company's earnings.

Ingredient	What it is	Where it comes from	What moves it
Cash flow	The cash available to shareholders after the company reinvests what it needs: free cash flow, or earnings as a stand-in	The income and cash-flow statements; analysts' estimates for the next two years	Sales, profit margins, capital spending, taxes
Growth	The rate at which that cash flow rises	Analysts' estimates near term; a fade toward the economy's nominal growth, about 4%, in the long run	Competition, the size of the market, reinvestment, the business cycle
Discount rate	The return investors require: the risk-free rate plus the equity risk premium, adjusted for the company's own risk	The ten-year Treasury yield (5.19% on October 14) plus a premium, which Aswath Damodaran estimated at 4.2% on October 1, 2026	The Fed, inflation, the appetite for risk, the company's debts

3b. Multiples as Shorthand

Almost no one values a stock by discounting cash flows every day; the market uses multiples as shorthand for the same calculation. A price-earnings ratio (P/E) of 20 says the buyer pays $20 for each $1 of a year's earnings, an earnings yield of 1 ÷ 20 = 5%. The multiple is high when growth is expected to be fast or rates are low, and low when growth is slow or rates are high.

For a company that pays out all its earnings, the relationship is roughly: fair P/E ≈ 1 ÷ (r − g), where r is the discount rate and g the long-run growth rate of earnings, both as decimals. At a 9% discount rate and 4% growth, the fair multiple is 1 ÷ 0.05 = 20; at 9% and 6% growth, 1 ÷ 0.03 = 33; at 11% and 4%, 1 ÷ 0.07 = 14. The formula is crude and its inputs are guesses, but it explains why fast-growing technology companies trade at 30 or more times earnings and slow-growing utilities at about 15. The common multiples, and what each one hides:

Multiple	Definition	Best for	Weakness
Trailing P/E	Price ÷ the last twelve months' earnings per share	Mature, profitable companies; comparing with history	Looks backward; distorted by one-time gains and losses
Forward P/E	Price ÷ the next twelve months' expected earnings per share	The market's standard measure for the index	Depends on forecasts, which a year ahead usually run high
Price/earnings-to-growth (PEG) ratio	Forward P/E ÷ the expected growth rate of earnings, in percent	Growth companies	Long-run growth estimates are the least reliable input
Price-to-sales	Market value ÷ a year's revenue	Companies without profits	Ignores margins: a 10% margin and a 40% margin look alike
EV/EBITDA	Enterprise value (EV), the market value plus debt minus cash, ÷ earnings before interest, taxes, depreciation, and amortization (EBITDA)	Comparing companies that carry different debts	Ignores capital spending, which for a builder of data centers is the whole story
Price-to-book	Market value ÷ net assets at their value in the accounts	Banks and insurers	Meaningless for companies whose assets are software, patents, and brands
Free-cash-flow yield	Free cash flow ÷ market value	The closest measure to what an owner receives	Lumpy from year to year
Dividend yield	Annual dividend per share ÷ price	Income investors; the oldest measure	Understates a market that pays out mostly through buybacks: the S&P 500 yields 1.05%

3c. Price Against Value

Value changes slowly, as a company's earning power shifts over years, while price changes every second, because it is set by the marginal trade: whoever is most eager to buy or sell at that moment. Benjamin Graham's image still holds: in the short run the market is a voting machine, and in the long run a weighing machine. Over a year, price and value can diverge by half, and over a decade they tend to converge as the earnings arrive and the multiple returns to a normal range.

The consequences are practical. A stock can belong to a good company and still be a bad investment: Cisco, bought at its March 2000 peak, first closed above that price again on December 10, 2025, about 25¾ years later, although its business grew for most of that time. A badly run company can be a good investment at a low enough price. The return an investor earns depends as much on the multiple paid as on what the company goes on to do.

The equity risk premium is the number that ties price to value. It cannot be observed, only estimated, and Module 4 shows how far apart the estimates are in October 2026.

Worked example — Valuing One Company

Take a company with $10 billion of free cash flow this year, expected to grow 12% a year for five years and 4% a year forever after. Discount at 9.4%: the ten-year Treasury's 5.2% plus Damodaran's 4.2% premium. The cash flows in years one to five are $11.2, $12.5, $14.0, $15.7, and $17.6 billion, worth $10.2, $10.5, $10.7, $11.0, and $11.2 billion today, a total of $53.7 billion. The terminal value at year five, the worth of all the cash after it, is $17.6 billion × 1.04 ÷ (0.094 − 0.04) = $339 billion, worth $217 billion today. Fair value is $54 billion + $217 billion = $270 billion, about 27 times this year's cash flow. Now change one input at a time. At a 10.4% discount rate the value falls to $227 billion, 16% less. With 15% growth for five years instead of 12%, it rises to $305 billion, 13% more. With 3% long-run growth instead of 4%, it falls to $235 billion, 13% less. Four-fifths of the value lies beyond year five, where no one knows much, and one point on the discount rate moves it more than three points of growth for five years.

Module 3 Key Points

How a Stock Is Priced

• A stock is worth the present value of the cash it will return: cash flow, growth, and the discount rate.

• A fair P/E is roughly 1 ÷ (r − g): at a 9% discount rate and 4% growth, about 20.

• Each multiple hides something: forecasts run high, sales ignore margins, and EBITDA ignores capital spending.

• Price moves every second and value over years; Cisco took about 25¾ years to regain its March 2000 price.

• In the worked example, one point on the discount rate moves value more than three points of growth.

Module 3 Quiz

Check Your Understanding

1. Which input moves the company's value most, per point of change, in the worked example?

A) The first year's cash flow
B) The growth rate in years one to five
C) The dividend payout ratio
D) The discount rate

2. At a 9% discount rate and 4% long-run growth, what fair P/E does the shorthand give?

A) About 9, the discount rate itself
B) About 20, which is 1 ÷ 0.05
C) About 36, four times the discount rate
D) About 14

3. What does the price-to-sales multiple ignore?

A) The growth of revenue over the past five years
B) The number of shares the company has outstanding
C) The profit margin, so a 10% and a 40% margin look alike
D) The debts the company owes to its lenders

4. In the worked example, how much of the company's value lies beyond year five?

A) About a tenth
B) About a third
C) About half of the total value
D) About four-fifths

5. Why did Cisco take about 25¾ years to regain its March 2000 price?

A) The price paid in 2000 was too high
B) Its earnings collapsed and never came back
C) It stopped paying a dividend
D) It left the S&P 500 and lost its index buyers

Module 4 — Valuation

The Measures and What They Predict

Recommended Reading / Reference

Book: Robert Shiller, *Irrational Exuberance* (third edition, 2015)

Reference: Robert Shiller's online data, with monthly prices, dividends, earnings, and the CAPE since 1871

4a. Where the Measures Stand

Measure	October 2026	Comparison	Reading
Forward P/E	19.1 (October 9)	Ten-year average 19.1; five-year 19.8	At its average, because earnings estimates rose faster than prices; it was 20.4 on June 30
Trailing P/E	26.0 (October 9)	Ten-year average 23.6; five-year 24.4	Above average; recent earnings include large gains on investments (Module 9)
Cyclically adjusted P/E (CAPE)	41.4 (October 14)	Average 17.4 since 1881 and 26.5 since 1990	Exceeded only in 1999-2000, when it peaked at 44.2
Price-to-sales	3.82 (October 15)	Year-end highs of 3.04 in 2021 and 3.35 in 2025	A record; profit margins at a record 17% explain part of it
Dividend yield	1.05% (October 15)	Average 4.2% since 1871	The lowest on record; buybacks have replaced dividends (Module 9)
Market value of American companies ÷ GDP	218% (first quarter of 2026)	Fourth-highest reading on record	Partly structural: American companies earn much of their profit abroad
Forward earnings yield minus ten-year Treasury yield	0.05 points (5.24% − 5.19%)	Thinnest since about 2004 on one broker's measure	The bond pays almost as much as the stock's expected earnings
Damodaran's implied equity risk premium	4.20% (October 1)	A cash-flow model that builds in expected growth	On this measure investors are still paid well for the risk of shares

FactSet *Earnings Insight*, October 9, 2026; multpl.com; averages of the CAPE computed from Robert Shiller's data; Advisor Perspectives, from Federal Reserve data (July 2026); Hana Securities, via the Herald Business (October 1, 2026); Aswath Damodaran.

The measures disagree, and the disagreement is the story of 2026. Measures built on next year's expected earnings look ordinary, because analysts expect the S&P 500's earnings to grow 32.7% in 2026 (Module 9). Measures built on sales, dividends, or ten years of earnings look as stretched as in 1999-2000. Damodaran's estimate looks normal because it assumes the expected growth arrives.

4b. What Valuation Predicts, and What It Does Not

The most important fact about valuation is the horizon over which it works. The course's own calculation on Shiller's data, taking every month from 1881 to 2013 as a starting point, finds that the starting CAPE explains about 5% of the variation in the next year's return after inflation, and about 30% of the variation in the next ten years' return. Over a year, valuation predicts almost nothing; over a decade, it predicts a good deal.

The two facts are not in conflict. Valuation is not a timing tool, because a high multiple can go higher for years, as it did from 1996 to 2000. It is a guide to expected returns, because over a decade the multiple tends to return toward its range, and the return in between is what the starting price allows. The Federal Reserve's financial-stability report of May 2026 put it plainly: 'Measures of equity valuations have remained high.'

Starting CAPE	Next ten years' return after inflation, a year	Months in the sample	When the market started there
Under 10	About 11%	227	1917-25, 1931-33, 1942, 1949, 1974-84: the great buying points
10-15	About 7.5%	463	Much of 1907-54, the mid-1970s, the late 1980s, and early 2009
15-20	About 6%	514	Much of 1885-1907, the 1950s, 1989-94, and 2008-11
20-25	About 4.5%	246	1898-1903, the 1960s, 1992-96, and 2002-13 at times
25-30	About 4.5%	83	1901, 1928-30, 1995-97, and 2001-07 at times
30-35	About 1%	23	1929, 1997-98, and 2001-02
Above 35	About −3%	34	Only 1998-2001; 2021-22 and 2024-26 are too recent to score

Computed by the course from Robert Shiller's monthly data, January 1881 to June 2013 starting points, with dividends reinvested and returns after inflation. Medians and means are close except where the sample is small. The table describes the past, not a forecast for any year.

4c. The Argument About Today's Multiple

- **The case that the price is justified,** as bullish strategists make it: the forward P/E is no higher than its ten-year average, because earnings are growing at a pace not seen since 2021. Technology is now 40% of the index (Module 13) and earns far higher margins than the industrial companies of past decades. The CAPE's ten years of earnings include the pandemic and miss much of today's earning power, and analysts' targets add up to an index about 20% higher in a year (FactSet, October 9).
- **The case that it is not,** as valuation-minded investors make it: the CAPE, price-to-sales, and dividend yield are at or near records, and a risk-free Treasury pays almost as much as the stock market's expected earnings. Part of 2026's earnings are paper gains on stakes in private AI companies that can reverse (Module 9), and profit margins at records have always fallen back.
- **The evidence:** the history in the table says that decades starting from a CAPE above 30 have paid little after inflation, though never on a predictable schedule. The forecasts behind the forward P/E are usually too high a year out, yet in 2026 analysts have been raising them during the quarter, which is rare. Margins excluding the investment gains are still at records.

The course's reading: on next year's forecasts the market is fairly priced, and on a normal decade's earnings it is as expensive as in 1999. Which description proves right depends on whether 2026's earnings are a new level or a peak, so the market is priced for the earnings boom to last, with a thin cushion if it does not.

Module 4 Key Points

Valuation

• In October 2026 the forward P/E sits at its ten-year average, while the CAPE, at 41.4, trails only 1999-2000.

• The dividend yield of 1.05% and price-to-sales of 3.82 are records; the Treasury yields almost the stock market's expected earnings.

• On Shiller's data, the starting CAPE explains about 5% of the next year's return and about 30% of the next decade's.

• Decades that began with a CAPE above 35 returned about −3% a year after inflation.

• The course's reading: the market is priced for the earnings boom to last, with a thin cushion if it does not.

Module 4 Quiz

Check Your Understanding

1. How does the forward P/E of 19.1 compare with its own history in October 2026?

A) Far above, at a record for the measure
B) At its ten-year average
C) Far below, at its lowest since 2009
D) Above its dot-com peak of about 25

2. On Shiller's data, how much of the next decade's return after inflation does the starting CAPE explain?

A) About 5%
B) About 30% of the variation
C) All of it, exactly
D) About 90%, nearly all the variation

3. What did decades that began with a CAPE above 35 return after inflation?

A) About 11% a year, as from the cheapest starts
B) About 7% a year, the century's average
C) About 1%
D) About −3% a year

4. What is the course's reading of the market's valuation in October 2026?

A) Priced for the earnings boom to last, with a thin cushion if it does not
B) Cheap on every measure, because the forward P/E is at its average
C) Certain to crash within a year, because the CAPE is above 40
D) Impossible to judge, because no measure has ever predicted anything

5. Which measure stands at the lowest level on record in October 2026?

A) The forward price-earnings ratio
B) The ratio of market value to GDP
C) The dividend yield
D) The cyclically adjusted P/E

Module 5 — The Indices

How the Scoreboards Are Built

Recommended Reading / Reference

Reference: S&P Dow Jones Indices, *S&P U.S. Indices Methodology*, and its annual survey of assets indexed to its benchmarks

Reference: FTSE Russell, *Russell US Equity Indices construction and methodology*; MSCI, *Global Investable Market Indexes methodology*

5a. The Major Indices

Index	Members	Weighting	Rules	Money that follows it
S&P 500	503 share classes of 500 companies	Market value of the shares available to the public (float-adjusted)	American companies; a committee chooses; profitable in the latest quarter and over the last four combined; at least twelve months of trading after a listing	$23.4 trillion indexed or benchmarked at the end of 2025, about $16 trillion of it indexed
Dow Jones Industrial Average	30	Share price	A committee chooses large, established companies	About $120 billion; the most-quoted and least-followed index
Nasdaq-100	The 100 largest non-financial Nasdaq stocks (104 for a time in 2026)	Market value, with caps on the largest weights	Since May 1, 2026, a very large new listing joins after fifteen trading days	Invesco's QQQ fund alone holds about $500 billion
Russell 2000	The 1,001st to 3,000th largest American companies	Market value	FTSE Russell's rules; since May 2026 very large listings join the broad Russell indices after five trading days	The benchmark for smaller companies
Total-market indices	About 3,500 companies	Market value	Nearly every listed American company; the index of the Center for Research in Security Prices (CRSP), owned by Morningstar since February 2026, underlies Vanguard's total-market fund	Total-market funds
S&P 500 Equal Weight	503	About 0.2% each, reset every quarter	The same members, each weighted equally	Invesco's equal-weight ETF and others
MSCI All Country World Index (ACWI)	2,414	Market value	Developed and emerging markets; the United States is 64.2% of it (September 30, 2026)	Global funds
MSCI Emerging Markets	1,165	Market value	Taiwan 28.9%, South Korea 21.4%, China 19.8%, India 10.7% (September 30, 2026)	Emerging-market funds

S&P DJI, *Indexed Assets Survey* (as of December 31, 2025), which counts futures and options on the index among indexed assets; Nasdaq; FTSE Russell; Morningstar; MSCI factsheets.

5b. Market-Value Weighting and What It Means

The S&P 500 weights each company by the market value of its shares available to the public, so a company worth $5 trillion counts a hundred times as much as one worth $50 billion. The market is therefore not 500 equal slices. The ten largest companies were 40.4% of the index on October 15, 2026 (Module 6), and the smallest 250 together were a small fraction of that.

Weighting by market value has a logic. It holds each company in proportion to what investors say it is worth, it needs no trading when prices move, and it is the only weighting that every investor could hold at once. It also has a cost: it puts the most money into whatever has already risen, so an index fund held its largest weights in the leaders of each era, energy and materials in 1980 and technology in 2026.

The Dow's price weighting is an accident of 1896 arithmetic that survives on habit, since a $500 stock moves it ten times as much as a $50 stock of the same size. Equal weighting is the main alternative: the same companies at about 0.2% each, which tilts toward smaller and cheaper firms. It trails badly in years when the largest companies lead and gains when the rest of the market catches up.

Year	S&P 500 (market-value weighted)	S&P 500 Equal Weight	Gap (points)	What led
2020	18.4%	12.8%	+5.6	The pandemic's technology winners
2021	28.7%	29.6%	−0.9	A broad recovery
2022	−18.1%	−11.5%	−6.6	Rising rates hit the largest growth stocks hardest
2023	26.3%	13.9%	+12.4	The largest technology companies
2024	25.0%	13.0%	+12.0	The largest technology companies again
2025	17.9%	About 11%	About +7	Communication services and technology
2026, to mid-October	12.8% (price)	12.2% (price, through the ETF)	About +0.6	Smaller companies led in the first half; the leaders caught up

Total returns, except where marked. S&P DJI; Invesco, via Chartrow, for the equal-weight ETF in 2025 and 2026; the index's own 2025 return is slightly above the ETF's.

The equal-weight index trailed by twelve points in 2023 and again in 2024. In 2026 the gap closed as smaller companies rallied (Module 13).

5c. Why Joining an Index Moves a Stock

Because trillions of dollars follow the S&P 500 and most of that money must own every member in proportion, joining the index is an event: index funds must buy the stock on the day it enters, whatever its price. Tesla's addition in December 2020 is the extreme case. The stock rose about 70% between the announcement in November and its entry on December 21, as funds prepared to buy tens of billions of dollars of its shares in a single session.

SpaceX tested the rules at a new scale. It listed on Nasdaq on June 12, 2026, in an initial public offering (IPO) (Module 10), and the index providers split over how fast to admit it. Nasdaq had changed its rules on May 1 so that a very large listing could join the Nasdaq-100 after fifteen trading days, and SpaceX entered on July 7; FTSE Russell added it after five. S&P DJI, after consulting the market, said on June 4 that exceptions 'should not be granted solely based on market capitalization'. It kept the twelve-month wait and

the profit test, so SpaceX, which lost $541 million in the second quarter, cannot join the S&P 500 before June 2027, and then only if it is profitable.

The inclusion effect is the clearest evidence that index funds move prices: that flows, and not only fundamentals, set the marginal price. It is the seed of the argument in Module 7 about what passive investing has done to the market.

Module 5 Key Points

The Indices

• The S&P 500 weights 503 share classes by market value; $23.4 trillion was indexed or benchmarked to it at the end of 2025.

• Weighting by market value needs no trading and puts the most money into whatever has already risen.

• The equal-weight index trailed by twelve points in 2023 and 2024, then drew level in 2026 as smaller companies rallied.

• Nasdaq and Russell fast-tracked SpaceX in 2026; S&P kept its twelve-month wait and its profit test.

• Joining an index moves a stock because funds must buy it: Tesla rose about 70% before its 2020 entry.

Module 5 Quiz

Check Your Understanding

1. How is the S&P 500 weighted?

A) By float-adjusted market value
B) By share price, as the Dow is weighted
C) Equally, at about 0.2% per company
D) By revenue, reset once a year by the committee

2. How much money was indexed or benchmarked to the S&P 500 at the end of 2025?

A) About $1 trillion, mostly in a single fund
B) About $5 trillion, half of it in futures
C) About $23 trillion, about $16 trillion of it indexed
D) About $50 trillion, more than the index's value

3. What does the Dow's price weighting do?

A) Gives every member exactly the same weight in the average
B) Lets a $500 stock count ten times a $50 one
C) Weights each member by its yearly revenue
D) Caps the largest member at a quarter of the whole average

4. How did the index providers treat SpaceX after its June 2026 listing?

A) All three admitted it within a week of its listing
B) All three refused it until it has a full year of profits behind it
C) S&P admitted it at once; Nasdaq refused it
D) Nasdaq and Russell admitted it quickly; S&P kept its rules

5. What did Tesla's December 2020 entry into the S&P 500 show?

A) That funds' forced buying can move a stock
B) That entry has no effect
C) That the committee admits unprofitable firms
D) That the Dow and the S&P 500 move together

Module 6 — The Concentration

Seven Companies and a Third of the Market

Recommended Reading / Reference

Book: Michael Mauboussin and Alfred Rappaport, *Expectations Investing* (revised edition, 2021)

Reference: J.P. Morgan Asset Management, *Guide to the Markets*, updated each quarter, for the largest companies' weight, earnings, and valuation

6a. The Seven

Company	Market value, mid-October 2026	Weight in the S&P 500	What it sells, and what it spends
Nvidia	$5.34 trillion	7.45%	Chips for AI (Module 17)
Apple	$5.01 trillion	7.10%	The iPhone and its services; heavy buybacks (Module 9)
Alphabet	$4.20 trillion	6.04%	Search, YouTube, and Google Cloud; $195-205 billion of capital spending planned for 2026
Microsoft	$3.96 trillion	5.70%	Azure cloud, Office, and a stake in OpenAI; about $175 billion of capital spending planned
Amazon	About $2.7 trillion	About 3.9%	Retail, Amazon Web Services, and advertising; about $220 billion of capital spending planned
Meta	About $1.9 trillion	About 2.6%	Advertising across its apps; $130-145 billion of capital spending, with no cloud business to rent it out
Tesla	About $1.4 trillion	About 2.0%	Electric cars and energy storage; the robotaxi and robot ambitions
Total	About $24.5 trillion	34.9%	A third of the index, and the ten largest are 40.4%

Slickcharts and CompaniesMarketCap: October 15 for the first four companies and the totals, October 16 for the rest; the companies' capital-spending guidance of July 2026. Broadcom, Berkshire Hathaway, and Eli Lilly complete the ten largest.

6b. How Concentrated, in History

S&P DJI's research on the index's history puts the ten largest companies at about 38% of its value in 1965, when AT&T, General Motors, IBM, and Standard Oil led it. Their share then fell below 20% by the mid-1980s and stayed low through the decades of broad growth, before climbing back to about 38% by mid-2025. At 40.4% on October 15, 2026, the top ten's share is near its highest since at least the mid-1960s.

Each peak had its own leaders: the 'Nifty Fifty' growth stocks of the early 1970s, the oil companies of 1980, and the technology and telecom stocks of 2000, led by Microsoft, General Electric, Cisco, and Intel. Each group was made of real, profitable, growing companies. In the bear markets that followed, each fell much further than the index, and some took decades to regain their peaks, as Cisco's 25¾ years show (Module 3).

6c. Earnings Against Weight

The defense of the concentration is that it reflects earnings. J.P. Morgan's figures for September 30, 2026 put the ten largest companies at 40.6% of the index's value and 36.1% of its earnings, and at 20.9 times expected earnings against 17.9 for the rest. That is a premium, but a modest one by the standard of 2000, when the leaders' share of value ran far ahead of their share of profits.

The earnings have been extraordinary. FactSet's analysts expected the seven's earnings to grow 34.9% in 2026 against 17.9% for the other 493 companies (May 2026), although in April, without Nvidia, the seven were expected to grow more slowly than the rest. Yet the seven did not outrun the market in 2026: J.P. Morgan found both groups up about 12% to the end of September.

What is new in 2026 is the correlation. The seven share one exposure: four of them buy the chips and build the data centers for AI, Nvidia sells the chips, Microsoft, Amazon, and Alphabet hold stakes in the AI laboratories, and Tesla's valuation rests on a story of autonomy. An index fund's third is therefore closer to one bet than to seven.

6d. The Consequences

- **For the index-fund holder:** the diversification that 503 names promise is thinner than it looks.
- **For the market's returns:** when the seven lead, the index pulls away from the average stock, as in 2023 and 2024 (Module 5); when they fall, the index falls further than the average stock, as in 2022.
- **For active managers:** a fund that did not hold the seven at their full weight has struggled to keep up, which is part of why 78.8% of active large-company funds trailed the S&P 500 in 2025 (Module 7).
- **For the economy:** four of the seven plan $720-745 billion of capital spending in 2026, the main support of the index's earnings forecasts (Module 17).
- **For the next bear market:** a fall in the seven would be a fall in the index by arithmetic, whatever the other 493 did; equal-weight funds, smaller companies, and foreign stocks are the usual hedges.

Worked example — What an Index Fund Actually Owns

An investor puts $100,000 into an S&P 500 index fund in October 2026. By weight, about $34,900 goes to the seven: about $7,450 to Nvidia, $7,100 to Apple, $6,040 to Alphabet, $5,700 to Microsoft, and about $8,600 to Amazon, Meta, and Tesla together. Another $5,500 goes to the next three, Broadcom, Berkshire Hathaway, and Eli Lilly. The remaining $59,600 is spread across the other 493 companies, about $121 each on average. Now suppose the seven fall 40% and the other 493 do not move. The fund loses $13,960, or 14.0%, with almost every company in it unchanged. An equal-weight fund puts about one five-hundredth of the money into each member, about $1,400 into the seven, and the same fall costs it about $560, or 0.6%. The equal-weight fund gives up the seven's gains to escape their losses. Neither choice is right in itself; the choice is a view on whether the seven's earnings justify their third of the index, which is the question of Module 17.

Module 6 Key Points

The Concentration

• Seven companies are 34.9% of the S&P 500 and the top ten 40.4%, near the highest since at least the mid-1960s.

• The top ten earn 36% of the index's profits and trade at 20.9 times forward earnings, against 17.9 for the rest.

• Past leadership groups fell much further than the index in the bear markets that followed them.

• What is new is the shared exposure: the seven buy, sell, or finance the AI build-out.

• A 40% fall in the seven alone would cost an index fund about 14%, and an equal-weight fund about 0.6%.

Module 6 Quiz

Check Your Understanding

1. What share of the S&P 500 did Nvidia, Apple, Alphabet, Microsoft, Amazon, Meta, and Tesla make up in October 2026?

A) About 60%, a record
B) About 35%
C) About 15%, as in 2010
D) About half, the most ever

2. How do the ten largest companies' shares of earnings and value compare, on J.P. Morgan's figures?

A) About 10% of the earnings for about 40% of the value
B) About 60% of the earnings for about 40% of the value
C) About 36% of the index's earnings for about 41% of its value
D) Equal shares of earnings and value, about 40% each

3. What happened to past leaders such as the Nifty Fifty and the dot-com stars?

A) They kept leading for decades
B) They were broken up by regulators
C) They were all removed from the index by its committee
D) They fell much further than the index

4. What is new about the 2026 concentration, according to the module?

A) The seven lose money, as the dot-com leaders did before the bust
B) The seven are all foreign companies listed in New York
C) The seven share one exposure: they buy, sell, or finance the AI build-out
D) The seven sit in one sector, as the oil companies did in 1980

5. In the worked example, what would a 40% fall in the seven alone cost an S&P 500 index fund?

A) About 0.6%, as in an equal-weight fund
B) About 14%
C) About 40%, the fall in the seven
D) Under 1%, since 493 stocks are unchanged

Module 7 — Passive Investing

The Largest Change in How Stocks Are Owned

Recommended Reading / Reference

Book: John Bogle, *Common Sense on Mutual Funds* (second edition, 2010)

Reference: S&P DJI's S&P Indices Versus Active (SPIVA) scorecards, twice a year, and the Investment Company Institute's *Investment Company Fact Book*

7a. From Folly to Majority

Year	Event	Index funds' share of American long-term fund assets
1976	Vanguard's First Index Investment Trust raises $11 million; Wall Street calls it 'Bogle's folly'	Under 1%
1993	The first American exchange-traded fund (ETF), State Street's SPDR, lists on the American Stock Exchange	Small
2010	Index funds take in money every year while active stock funds lose it	19%
2020	The pandemic year	40%
End of 2023	Index funds pass active funds in total assets for the first time, on Morningstar's count	About half
2025	American ETFs take in a record $1.49 trillion; Vanguard's S&P 500 ETF (VOO) takes in $137.7 billion, the most ever for one ETF	52% (Investment Company Institute); about 55% (Morningstar)
June 2, 2026	VOO becomes the first ETF with $1 trillion of assets; the three largest S&P 500 funds hold about $2.65 trillion	Still rising

Investment Company Institute, *2026 Fact Book*; Morningstar; etf.com. 'Long-term funds' leaves out money-market funds; the two counts differ in what they include.

The flows have not slowed. In the twelve months to June 2026, Morningstar counted $1.25 trillion going into index funds and a net $2 billion out of active ones, with $783 billion into index stock funds and $477 billion out of active stock funds.

7b. Why It Won

Passive investing won on arithmetic. Before costs, the average dollar invested in the market earns the market's return, by definition; after costs, the average actively managed dollar must earn less, by the amount of its fees and trading. The evidence is S&P DJI's SPIVA scorecard, which has compared active funds with their benchmarks since 2002.

Horizon	Share of active large-company funds that trailed the S&P 500	Note
Calendar 2025	78.8%	A year of wide gaps between winners and losers, which should have helped stock-pickers
Three years to June 2026	76.6%	The years of the largest companies' lead
Five years	89.3%	Includes the 2022 bear market
Ten years	83.3%	The standard long-run figure

Horizon	Share of active large-company funds that trailed the S&P 500	Note
Fifteen years	90.5%	About half of the funds that existed fifteen years ago have closed or merged
Twenty years	92.6%	Only about 37% of the funds that existed twenty years ago survive

S&P DJI, *SPIVA U.S. Scorecard*, year-end 2025 (March 2026) for 2025 and mid-year 2026 (September 2026) for the rest.

Fees explain most of it. In 2025, index stock mutual funds charged 0.05% a year on average, weighted by assets, against 0.64% for actively managed stock funds, on the Investment Company Institute's figures. At a 7% annual return, that gap leaves the active investor with about 10% less after twenty years and 15% less after thirty. The rest is the difficulty of the task: the market is competitive, information is public, and the few managers who beat it for a decade are hard to identify in advance.

7c. The Big Three

The consequence of passive investing's victory is ownership concentrated in three firms. BlackRock, which managed $15.5 trillion at the end of September 2026, Vanguard, with about $12 trillion, and State Street, with about $5.7 trillion, manage more than $30 trillion between them, much of it in index funds. A study of 2015 data found them, together, the largest shareholder in about 88% of S&P 500 companies, and their combined stake has grown since.

Their votes help decide directors, pay, and mergers, and their policies apply to every company at once. The responses have been political and practical. BlackRock and Vanguard now let investors in many of their funds choose how their shares are voted, with $3.6 trillion of Vanguard's assets in its program at the end of 2025. Texas and twelve other states sued all three in 2024, arguing that their stakes in coal companies weakened competition; Vanguard settled in February 2026 for $29.5 million, and a trial against BlackRock and State Street is set for January 2028.

7d. Has Passive Investing Broken the Market?

- **The case that it has,** as critics of indexing argue: index funds buy in proportion to market value whatever the price, so new money flows to the largest stocks. Xavier Gabaix and Ralph Koijen estimate that a dollar of new money into stocks raises the market's value by about five dollars, because so few holders sell in response. The inclusion effect (Module 5) shows the mechanism in one stock, and fewer active managers are left to set prices on fundamentals.
- **The case that it has not,** as defenders of indexing argue: index funds trade little, and most trading is still active, high-frequency, or hedging. Index stock funds held about 19% of the value of American stocks at the end of 2025 (Investment Company Institute), far from a majority of the market. And active managers have not found prices easier to beat as their share shrank, as they should have if prices had stopped reflecting fundamentals.
- **The evidence:** the flow effects are real and measurable, at index inclusions and in Gabaix and Koijen's estimates, but the SPIVA record shows no improvement for active managers. No year of net withdrawals from index funds has tested the structure since they became the majority of fund assets.

The course's reading: passive investing has changed who sets the marginal price and how money moves through the market, without breaking price discovery, since active traders still set most prices and are no better at beating them. For the individual investor the arithmetic holds either way. The risk an index fund now carries is the concentration of Module 6, and the untested one is a sustained reversal of the flows.

Module 7 Key Points

Passive Investing

• Index funds grew from one 1976 fund to about 55% of American long-term fund assets by 2025, on Morningstar's count.

• In 2025, 78.8% of active large-company funds trailed the S&P 500; over twenty years, 92.6% did.

• Index stock funds charged 0.05% a year in 2025, against 0.64% for active stock funds.

• BlackRock, Vanguard, and State Street manage more than $30 trillion and are the largest holders of most large companies.

• The course's reading: passive has changed who sets prices without breaking price discovery; a reversal of flows is untested.

Module 7 Quiz

Check Your Understanding

1. What share of American long-term fund assets was in index funds at the end of 2025, on Morningstar's count?

A) About 55%
B) About 5%
C) About 25%, a quarter
D) About 90%, nearly all of it

2. What share of active large-company funds trailed the S&P 500 over twenty years, in SPIVA's mid-2026 report?

A) Half
B) About 10%
C) A quarter, over twenty years
D) About 93% of them

3. What did index stock mutual funds charge on average in 2025, against active stock funds?

A) 0.05% against 0.64%
B) 1% against 2%
C) 0.64% against 0.05%, the reverse
D) 0.5% against 0.6%, nearly the same

4. What are the Big Three, collectively, to most large American companies?

A) Their largest customer, buying most of their output
B) Their main lender, holding most of their bonds
C) Their largest shareholder
D) Their regulator, setting their disclosure rules

5. What is the course's reading on whether passive investing has broken the market?

A) It has broken price discovery, since index funds own nearly all American shares
B) It has had no effect on prices at all, since index funds never trade the shares they hold
C) It has made prices easier for active managers to beat, which is why their record improved
D) It has changed who sets prices without breaking price discovery; a reversal of flows is untested

Module 8 — The Exchanges and the Plumbing

How a Trade Actually Happens

Recommended Reading / Reference

Book: Michael Lewis, *Flash Boys* (2014), the popular account of high-frequency trading

Reference: Cboe's yearly *U.S. Equities Year in Review* and the monthly market-structure figures of SIFMA (Securities Industry and Financial Markets Association)

8a. Where Shares Trade

Venue	Share of American stock trading	Owner	Note
New York Stock Exchange and its sister exchanges	20.0%	Intercontinental Exchange	The closing auction averaged more than $43 billion a day in early 2026, with a record $230.5 billion on March 20
Nasdaq's exchanges	15.3%	Nasdaq Inc.	Electronic since 1971; the technology listings; 23-hour trading planned from December 6, 2026
Cboe's exchanges	9.8%	Cboe Global Markets	Four stock exchanges, and the main market for options on the S&P 500 and the VIX
Other exchanges	7.0%	Various	IEX 3.9%, MEMX 2.2%, MIAX Pearl 0.9%, 24X 0.1%; the Texas Stock Exchange began trading on July 10, 2026
Off-exchange: dealers and wholesalers	About 41% (2025)	Citadel Securities, Virtu, Jane Street, and others	Retail orders filled by wholesalers, and trades against dealers' own capital
Off-exchange: alternative trading systems (dark pools)	About 9.5% (2025)	Banks and brokers	Large institutional orders matched without displaying them; more than thirty such venues

SIFMA, February 2026, for the exchange shares; Cboe, *2025 U.S. Equities Year in Review*, for off-exchange trading, which was 50.6% of all volume in 2025, the first year above half; NYSE (April 2026) for the closing auction. Shares move from month to month.

There are eighteen stock exchanges, but half the trading happens off them. Exchanges show their best prices publicly, and the national best bid and offer (NBBO), the highest price any buyer is quoting and the lowest any seller is asking across all exchanges, is the benchmark against which every other trade is measured.

8b. The Life of an Order

A retail investor taps 'buy 100 shares' in a brokerage app. The broker does not send the order to an exchange; it routes it to a wholesale market maker such as Citadel Securities, Virtu, or Jane Street. The wholesaler pays the broker for the right to fill it and fills it at the NBBO or slightly better. This is payment for order flow, the business model that let commissions fall to zero in 2019.

Citadel Securities alone handles close to a quarter of all American stock trading and 35-40% of retail trading, on its president's figures for 2025. An institutional order works differently: a $500 million purchase is cut into thousands of pieces by an algorithm and worked over hours or days through exchanges and dark pools to hide its size, then judged against the volume-weighted average price of the day.

Settlement, the exchange of shares for cash, has taken one business day since May 28, 2024 (T+1). It runs through the Depository Trust and Clearing Corporation (DTCC), which holds nearly all American shares in electronic form and guarantees each trade against a member's default; its clearing arm has operated around the clock on weekdays since June 28, 2026.

8c. Trading Around the Clock

The trading day is lengthening. The SEC approved Nasdaq's plan for 23-hour weekday trading on April 10, 2026, to begin on December 6, the day the consolidated price feeds extend their hours and new overnight price bands take effect. NYSE Arca's plan for 22 hours a day was approved in February 2025, with a launch aimed at late 2026, and the 24X exchange has traded from 4 a.m. to 8 p.m. since October 2025. Until December, overnight trading happens on alternative trading systems, and trading outside regular hours, overnight included, was about 13% of volume in August 2026.

8d. The Safeguards

- **Market-wide circuit breakers:** trading stops for fifteen minutes if the S&P 500 falls 7% or 13% from the previous close before 3:25 p.m., and for the rest of the day at 20%. They were introduced after 1987 and revised after 2010, and they were triggered four times in March 2020 and not since.
- **Single-stock pauses (limit up-limit down):** a stock pauses for five minutes if it moves outside a band, 5% for the largest stocks, within five minutes. They answered the flash crash of May 6, 2010, when Accenture traded at a penny and Apple printed at $99,999.99 for an instant.
- **The order-protection rule:** under Regulation NMS (National Market System), adopted in 2005, an order must be filled at the best displayed price on any exchange, which created today's fragmented but connected market.
- **Short-selling rules:** since 2010, a stock that falls 10% in a day can be sold short only above the best bid; short positions are reported twice a month, and large ones must be reported to the SEC from January 2, 2028, with the first reports due in February.
- **Clearing margins:** the clearinghouse collects collateral from brokers. The restrictions on GameStop trading in January 2021 followed the clearinghouse's demand that Robinhood post about $3 billion, not a conspiracy (Module 11).

8e. The Argument About Payment for Order Flow

- **The case for,** as brokers and wholesalers make it: it gave small investors zero commissions and prices at or better than the public quote, the cheapest trading in history, and the wholesalers compete for the flow.
- **The case against,** as exchanges and other critics make it: brokers are paid to send orders to whoever pays them, retail orders are kept away from the public quote that everyone else relies on, and free trading encourages the overtrading that costs individuals money (Module 11).
- **The evidence:** the SEC proposed in 2022 to make wholesalers compete in auctions for retail orders and withdrew the proposal on June 12, 2025. Robinhood's own reports show it was paid 0.6-1.7 cents a share for market orders in S&P 500 stocks in the second quarter of 2026, and its routing has shifted toward Virtu.

The course's reading: payment for order flow has made trading cheaper for the small investor than it has ever been, and its costs fall less on each trade than on the quality of the public quote and on the trading habits it encourages. With the auction plan withdrawn, the model stands.

Worked example — What a Retail Order Costs and Pays

A broker sends 100 million shares a day of customer orders in S&P 500 stocks to wholesalers and is paid 0.6 cents a share, the low end of Robinhood's figures for the second quarter of 2026. That is $600,000 a day, or about $150 million over a year of 252 trading days, and it is why the customers pay no commission. The wholesaler fills each order at the best public price or better and earns its return by trading against the flow, which is worth paying for because retail orders, taken together, rarely predict where prices go next. The customer's cost is part of a spread a penny wide: on a stock quoted at $50.00 to $50.01 and filled at the midpoint, half a cent a share, or 0.01% of the price. Before 2001, when prices moved in sixteenths of a dollar, the smallest possible spread was 6.25 cents, and online brokers charged about $10 or more a trade. The critics' arithmetic is about everyone else: if those 100 million shares reached the exchanges, the public quote might be a little tighter for every other trader.

Module 8 Key Points

The Exchanges and the Plumbing

• Off-exchange trading passed half of American volume for the first time in 2025, at 50.6%.

• A retail order goes to a wholesaler, which pays the broker for it and fills it at or better than the public quote.

• Trades settle the next business day, and clearing has run around the clock on weekdays since June 28, 2026.

• Nasdaq plans 23-hour trading from December 6, 2026, with new overnight price bands.

• The course's reading: payment for order flow made trading cheaper than ever, at a cost to the public quote and to habits.

Module 8 Quiz

Check Your Understanding

1. What share of American stock trading happened off the exchanges in 2025?

A) About 5%
B) About 51%, a record
C) About 15%
D) About 90%, nearly all of it

2. What is payment for order flow?

A) A fee that customers pay the exchange for each share they trade
B) A wholesaler paying a broker for its customers' orders
C) A rebate that exchanges pay high-frequency traders for quoting prices
D) A tax on every share traded, collected by the Securities and Exchange Commission

3. When does a market-wide circuit breaker close the market for the day?

A) At any 7% fall
B) At a 13% fall after 3:25 p.m.
C) At a 50% fall from the index's record, at any time
D) At a 20% fall from the previous day's close

4. What has run around the clock on weekdays since June 28, 2026?

A) Clearing at the DTCC
B) Nasdaq
C) Trading on every American exchange
D) The SEC's market-surveillance staff

5. What is the course's reading on payment for order flow?

A) It costs retail investors more than the commissions it replaced
B) It has been banned since the SEC's order-competition rule took effect
C) It made trading cheaper than ever, at a cost to the public quote and to investors' habits
D) It has no effect on prices, because retail orders never reach the market

Module 9 — Earnings, Dividends, and Buybacks

Following the Cash From the Company to the Shareholder

Recommended Reading / Reference

Book: William Thorndike, *The Outsiders* (2012), on chief executives who allocated capital well, buybacks included

Reference: FactSet's weekly *Earnings Insight* and S&P DJI's quarterly buyback and dividend reports

9a. The Quarterly Cycle

Large American public companies report their results within forty days of each quarter's end, and smaller ones within forty-five, so the reports arrive in a wave of about six weeks, 'earnings season', that sets the market's direction more than any other scheduled event. What moves a stock is the result against the expectation. Analysts' consensus estimates are the benchmark, companies guide those estimates, and over the past five years about 78% of S&P 500 companies beat them in a typical quarter, so a beat is expected and a miss is punished.

The quarterly report itself may change. On May 5, 2026 the SEC proposed to let companies file a report every six months, on a new Form 10-S, in place of the three quarterly reports; comments closed on September 2, and no final rule had been adopted by mid-October 2026.

Quarter	S&P 500 earnings growth	Revenue growth	Share of companies beating estimates	Note
Third quarter of 2025	13.4%	8.4%	83%	A record net profit margin at the time, 13.1%
Fourth quarter of 2025	14.2%	9.4%	75%	Full-year 2025 earnings grew about 13%
First quarter of 2026	28.4%	11.6%	84%	Alphabet and Amazon booked $54.5 billion of gains on their investments
Second quarter of 2026	52.0%	15.5%	87%	33.8% without those two companies; energy's earnings up 146%; a record 17.0% net margin
Third quarter of 2026 (estimate)	29.6%	12.4%	84% of the first 19 reports	Estimates rose 1.4% during the quarter, where they usually fall about 2%
Calendar 2026 (estimate)	32.7%	12.5%	—	After about 13% in 2025
Calendar 2027 (estimate)	15.8%	9.4%	—	The second quarter of 2027 faces a hard comparison

FactSet *Earnings Insight*: November 21, 2025, and February 13, May 21, August 28, September 4, and October 9, 2026; First Trust, from FactSet data, for the fourth quarter's figures. Growth is from the same quarter a year earlier.

Two forces drive the surge. The first is real: AI-related sales at Nvidia and the chip and equipment makers, and oil-company profits lifted by the war (Module 13). The second is accounting. American rules require companies to mark many equity stakes to their market or latest private value, so when the AI laboratories raised money at higher valuations, their investors booked the difference as profit: in the second quarter, Alphabet recorded a $98 billion gain, mostly unrealized, on its equity holdings and Amazon $53.4 billion, mainly on its stake in Anthropic. Those gains can reverse, and Module 17 asks what that means for the index.

FactSet also records how companies themselves see the third quarter: 72 issued positive guidance on earnings, the most since its records began in 2006, and 44 negative. If companies beat estimates by their usual margin, it expects third-quarter growth above 35%.

9b. Dividends

A dividend is cash paid to shareholders out of profits, declared by the board, usually each quarter. For most of the market's history it was the main reason to own a stock: on Shiller's data, dividends supplied about two-fifths of the S&P 500's total return from 1926 to 2000. Dividends per share reached a record $78.92 in 2025, up 5.5%, yet the index's yield fell to 1.05% in October 2026, the lowest on record, because prices rose faster than payouts and companies shifted their payouts to buybacks.

Buybacks are more flexible than dividends: a company can stop them without the punishment a dividend cut brings, and the holder who does not sell owes no tax until selling. Most companies in the index pay a dividend, and the 'aristocrats' have raised theirs every year for at least 25 years. The technology leaders pay little: Alphabet and Meta began small dividends in 2024, and Amazon, Tesla, and Berkshire Hathaway pay none.

9c. Buybacks

Year	S&P 500 buybacks	Dividends	Note
2007	About $589 billion	About $247 billion	The pre-crisis peak; banks bought at the top
2009	About $138 billion	About $196 billion	Buybacks collapsed in the crisis, when prices were lowest
2018	$806 billion	$456 billion	The tax cut brought cash home from abroad
2022	$923 billion	$565 billion	A 1% excise tax on buybacks followed in 2023
2024	$943 billion	$630 billion	Technology companies led
Twelve months to September 2025	$1.02 trillion	$665 billion	Records for both; 2025 was expected to pass $1 trillion

S&P DJI's buyback and dividend reports, to the release of December 18, 2025, the latest found; the 2007 and 2009 figures are rounded.

Announcements in 2026 have set a record pace. Birinyi Associates counted $665 billion of S&P 500 authorizations in the first four months alone, led by Apple's $100 billion. Citadel Securities counted $1.3 trillion of American authorizations by late September, and found most of the largest outside the technology sector. Authorizations are permissions, not purchases, but most are carried out over time. Nvidia bought back $19.7 billion of its shares in the quarter to July 2026, and Apple $62 billion in the nine months to June.

9d. The Argument About Buybacks

- **The case for,** as most corporate-finance scholars and investors such as Warren Buffett make it: a company that cannot reinvest its cash at a good return should hand it back, and a buyback does so flexibly and tax-efficiently, raising each remaining holder's share of the company.
- **The case against,** as critics in Congress and elsewhere make it: companies buy most when prices are high and least when they are low, buybacks funded with debt weaken balance sheets, and executives paid in stock gain from the arithmetic; the 1% excise tax of 2023 was the political answer.

- **The evidence:** the table shows the pattern at the 2007 top and the 2009 bottom. The excise tax has barely slowed buybacks: S&P DJI estimated that it cut the index's operating earnings by about 0.4% over a year.

The course's reading: buybacks are neither a scandal nor a gift. They return cash at whatever price the company pays, so their value to the remaining holders depends on that price, and companies have tended to buy most when prices were highest. In 2026 the largest buyers are among the largest spenders on AI, so the payout and the build-out compete for the same cash.

Worked example — What a Buyback Does to a Share

A company earns $10 billion a year and has 1 billion shares at $200: a $200 billion market value, $10 of earnings per share, and a P/E of 20. It spends all $10 billion of its earnings buying back 50 million shares at $200, leaving 950 million. Next year's earnings, unchanged at $10 billion, are $10.53 a share, up 5.3% with no growth in profit. At the same P/E of 20 the price is $210.53, a 5.3% gain for the remaining holders, which is exactly the $10 billion divided among them: the buyback created nothing, but turned the company's cash into the holders' price. Now run it at $400 a share, a P/E of 40: the $10 billion buys 25 million shares, earnings per share rise only 2.6%, to $10.26, and the same money does half as much. Reverse it: the company issues 50 million new shares at $200 to raise $10 billion for a data center, and earnings per share fall 4.8% until the data center earns its cost. Every capital decision is this arithmetic, because the share count is the denominator of everything.

Module 9 Key Points

Earnings, Dividends, and Buybacks

- S&P 500 earnings grew 52.0% in the second quarter of 2026, or 33.8% without Alphabet and Amazon.
- Analysts expect earnings growth of 32.7% in 2026 and 15.8% in 2027 (FactSet, October 9).
- The dividend yield of 1.05% is a record low; dividends supplied about two-fifths of the return from 1926 to 2000.
- Companies announced a record $665 billion of S&P 500 buybacks in the first four months of 2026.
- A buyback raises earnings per share by shrinking the share count, and does least when prices are highest.

Module 9 Quiz

Check Your Understanding

1. How fast did S&P 500 earnings grow in the second quarter of 2026, on FactSet's count?

A) 52.0%
B) 11%
C) About 5%, a slowdown
D) About 100%, a doubling

2. Why was second-quarter earnings growth smaller without Alphabet and Amazon?

A) They reported losses on their cloud businesses for the first time
B) They stopped buying back their own shares during the quarter
C) They booked large gains on their stakes in other companies, including Anthropic
D) Their revenue fell when the advertising market contracted in the spring

3. What is unusual about the S&P 500's dividend yield in October 2026?

A) It is the highest since the 1970s
B) It is a record low
C) It is higher than the ten-year Treasury yield
D) It has not changed since the year 2000

4. What did the SEC propose in May 2026?

A) Ending earnings reports
B) Requiring monthly reports
C) Making every company report within ten days of each quarter's end
D) Letting companies report every six months

5. In the worked example, why does a buyback at $400 a share do less than one at $200?

A) The same $10 billion retires half as many shares, so earnings per share rise half as much
B) Buybacks at high prices are taxed at a higher rate than those at low prices
C) The company must pay a dividend before it can buy back shares at a high price
D) Earnings per share fall whenever a company buys back its shares at a high price

Module 10 — IPOs and the Shrinking Public Market

From Private to Public, and the Companies That Come Late

Recommended Reading / Reference

Reference: Jay Ritter's IPO statistics (University of Florida), with every American initial public offering since 1980

Reference: SEC EDGAR: the S-1 registration statements themselves, beginning with SpaceX's of May 20, 2026

10a. How a Company Goes Public

Step	What happens	Who is paid
Preparation	Audited accounts, an independent board, and controls; a confidential draft registration statement (an S-1) to the SEC, allowed for all companies since 2017; the SEC's review of a large company takes months	Lawyers and auditors
The banks	Underwriters, led on most large deals by Goldman Sachs, Morgan Stanley, and JPMorgan, value the company, gather orders, and buy the shares to resell them	A fee of a few percent of the money raised, less on the largest deals
The roadshow	The public S-1 is filed at least fifteen days before the roadshow, about two weeks of meetings with investors that ends with a price range and then a price	—
Pricing and allocation	Set the night before trading; institutions get most of the shares; the first-day rise has averaged 19% since 1980, money the company leaves on the table	The buyers who receive allocations
Lockup	Insiders and earlier investors cannot sell for a set period, usually up to 180 days, sometimes released in stages	—
Aftermarket	Analysts begin coverage; index inclusion if the company qualifies (Module 5); the first quarterly report is the first real test	—

Jay Ritter, IPO statistics (October 2026): the average first-day return was 19.0% across 9,345 offerings in 1980-2025, and 29.3% in 2025.

10b. The 2026 Wave

Company	Listed	Raised	Valuation	What happened next
SpaceX (SPCX)	June 12, 2026, Nasdaq	$75 billion at $135 a share, about $86 billion with the extra shares sold to meet demand: the largest offering in history	$1.77 trillion at pricing; about $2.1 trillion at the first close	Rose 19.2% on the first day and to $225.64 on June 16; fell to $104.83 before its first report; about $152 on October 14 (worked example)
SK hynix (American depositary shares)	Priced July 10, 2026, Nasdaq	$26.5 billion at $149 a share	Already listed in Seoul; about $690 billion in mid-October	The largest American offering ever by a foreign company, more than seven times oversubscribed

Company	Listed	Raised	Valuation	What happened next
Anthropic	Not yet listed	A confidential S-1 on June 1, 2026	$965 billion in its May funding round; seeking up to or above $2 trillion	Reported marketing as soon as the week of November 9, and a listing before Thanksgiving or by year-end
OpenAI	Not before 2027	A confidential S-1 on June 8, 2026	$852 billion in March 2026; a new round reported at about $1.4 trillion	Its chief executive said in September that 'right now would be an ill-advised moment to go public'
Oura	Postponed September 29, 2026	Was seeking up to $2.2 billion	About $15.6 billion	Pulled on the day of pricing 'due to market uncertainty'

SEC filings; Benzinga; Al Jazeera; TechCrunch; Bloomberg and Reuters reports on Anthropic (October 1 and 14, 2026); Fortune and Forge Global on OpenAI; Yahoo Finance and International Financing Review on Oura.

The totals were records. Renaissance Capital counted $146 billion raised in American listings by September 8, 2026, the most ever, but only about $71 billion without SpaceX, and the third quarter was weaker than expected, with thirty offerings, as rising yields, the Fed's return to rate rises, and worries about AI spending made buyers more cautious.

10c. The Shrinking Public Market

Year	Listed American companies	Note
1996	8,090	The peak, on the World Bank's count; the dot-com listings
2021	4,774	Hundreds of listings through special-purpose acquisition companies (SPACs), most of which later failed
2024	4,010	The latest year of the World Bank's series
End of 2025	3,657 American operating companies	A narrower count from CRSP, via Jay Ritter; its peak was 7,451 in 1997

World Bank, listed domestic companies; Jay Ritter, number of listed firms on American exchanges.

The number of listed American companies has roughly halved since the late 1990s, even as the market's value multiplied. The causes are structural: private capital grew until a company could raise tens of billions without listing, the costs and disclosure burdens of being public rose after the Sarbanes-Oxley Act, mergers removed listed companies faster than listings added them, and venture investors learned to sell companies to buyers rather than to the public. Private markets managed about $15.3 trillion in 2024.

The consequence is that the public market captures a shrinking share of young companies' growth. Nvidia listed in 1999 at a market value of a few hundred million dollars and multiplied in public hands; SpaceX listed at $1.77 trillion, and Anthropic plans to list near $2 trillion, after most of their growth was captured privately. The debate of 2026 is whether these listings bring the AI industry's growth to the public or arrive only once that growth is priced.

10d. Dual-Class Shares and Control

Many of the century's largest listings, from Google (2004) and Facebook (2012) to SpaceX (2026), sold the public one class of shares while the founders kept another with more votes per share. Elon Musk holds about 85% of SpaceX's voting power with a much smaller economic stake, Mark Zuckerberg controls Meta, and Google's founders still control Alphabet. The arrangement lets a founder raise money without ceding control, while the public buys the economics without the vote. The S&P 500 admits such companies, so the

checks of Module 12, the board, the proxy vote, and the activist, are weaker in them, and the investment is a bet on the founder as much as on the company.

Worked example — SpaceX's Price Read as a Forecast

SpaceX sold 555.6 million shares at $135 for $75 billion, valuing its roughly 13.2 billion shares at $1.77 trillion, with only about 4-5% of them available to trade. It had $18.7 billion of revenue and a $4.94 billion net loss in 2025, a $4.28 billion loss in the first quarter of 2026, and a $541 million loss on $7.81 billion of revenue in the second quarter, when its capital spending reached $18.3 billion, $15.8 billion of it on AI. At $152.16 on October 14 the company was worth about $2.0 trillion: about 64 times its second-quarter revenue at an annual rate, and no multiple of earnings at all, since it has none. The buyers' case rests on Starlink, which earned $4.4 billion of operating profit in 2025, and on rockets and AI; the sellers' rests on the spending, which must be financed. CFRA initiated coverage with a 'sell' rating and a $115 target, and Morningstar put fair value at $780 billion. The path showed what a small float does: with most shares locked up, the price was set by the most eager buyers. The test is the supply ahead: about 320 million shares become free to sell on October 24, about 1.3 billion two trading days after the third-quarter report expected in early November, and more around December 8, with Musk's own shares locked until June 2027.

Module 10 Key Points

IPOs and the Shrinking Public Market

• Listings raised a record $146 billion by September 2026, led by SpaceX's $75 billion, the largest offering in history.

• Anthropic plans to list as soon as November at up to or above $2 trillion; OpenAI has ruled out 2026.

• Listed American companies have roughly halved since the 1996-97 peak, while private markets grew to about $15 trillion.

• Dual-class shares give founders control, so the public buys the economics without the vote.

• SpaceX's $2 trillion value is about 64 times its annualized revenue, with no earnings, and a series of lockups ahead.

Module 10 Quiz

Check Your Understanding

1. How much did SpaceX raise in its June 2026 listing?

A) $25.6 billion, like Aramco
B) $7.5 billion, a typical listing
C) $75 billion
D) $750 billion, half of its value

2. What happened to Oura's planned listing?

A) It raised $2.2 billion and doubled
B) It was postponed on the day of pricing in September
C) It was bought before it could list
D) It listed in London instead of New York, at a higher valuation than planned

3. What has happened to the number of listed American companies since the late 1990s?

A) It has doubled with the technology listings
B) It is unchanged at about 5,000
C) It tripled
D) It has roughly halved

4. What do dual-class shares give the public?

A) The control, without the economics
B) A guaranteed dividend instead of a vote
C) The economics
D) More votes per share than the founders hold

5. In the worked example, what happens on October 24, 2026?

A) SpaceX joins the S&P 500 under rules changed for very large listings
B) SpaceX reports its first annual profit
C) Musk's own shares come out of their lockup
D) About 320 million SpaceX shares become free to sell

Module 11 — Retail, Options, and the New Trading

The Market's Newest Participants

Recommended Reading / Reference

Paper: Brad Barber and Terrance Odean, 'Trading Is Hazardous to Your Wealth' (*Journal of Finance*, 2000), the retail evidence that still stands

Reference: The Options Clearing Corporation's monthly volume reports and Cboe's data on short-dated options

11a. The Retail Return

Individual investors were about a tenth of American stock trading for most of the past two decades and about 21% in 2025, on Bloomberg Intelligence's estimate; J.P. Morgan put them at 20-25%, with a record of about 35% in April 2025. Three things changed. Commissions went to zero in October 2019, when Schwab cut them and its rivals followed within days. The pandemic of 2020 brought more than 10 million new online brokerage accounts. Options, once a professional tool, became the retail trade of choice through apps that make a small bet on a week's price move as easy as buying a share.

Robinhood, the emblem of the change, had 28.6 million funded customers and $384 billion of customer assets at the end of August 2026. Of its $776 million of trading revenue in the second quarter of 2026, options brought in $342 million, shares $129 million, crypto $100 million, and event contracts on elections, sports, and economic data $156 million. Most of the retail money is in index funds and retirement accounts, held for decades. The trading part concentrates in a few hundred stocks and in options, and at the margin it moves them.

11b. The Options Market

Measure	Level	Note
Options contracts cleared a day	70.8 million in January-September 2026, up 20.5% from 58.7 million a year earlier	Each stock-option contract covers 100 shares; the Options Clearing Corporation (OCC) clears them all
Share of S&P 500 options that expire the day they trade ('zero-day')	About 65%, with a record 66.2% in July 2026	S&P 500 options have expired every weekday only since 2022
Largest quarterly expiration	About $8 trillion of notional value on June 18, 2026, a record	Notional value is the value of the shares the contracts cover, not money at risk; September 18 was about $7 trillion
The Cboe Volatility Index (VIX)	A record close of 82.69 in March 2020; 52.33 on April 8, 2025; above 30 in late March 2026; 16.87 on October 14	The options market's expectation of the S&P 500's volatility over the next thirty days, at an annual rate

OCC, monthly volume report (October 2, 2026); Cboe; Citadel Securities' estimates of expirations, as reported; Cboe for the VIX.

11c. How Options Move Stocks

An option is a right to buy (a call) or to sell (a put) a share at a set price, the strike, by a set date. The dealer who sells the option hedges by holding shares in proportion to the option's sensitivity to the share price, its delta. As the price rises toward a call's strike, the delta rises and the dealer must buy more shares; as the price falls, the dealer sells.

When many investors buy calls on one stock, the dealers' hedging buys the stock, which raises the price, which raises the delta, which buys more. This is the 'gamma squeeze', named for the rate at which delta changes, that took GameStop from about $20 at the start of January 2021 to $483 on January 28. The same mechanics in reverse amplify falls. Because options on the S&P 500 and the largest stocks are now so heavily traded, whether dealers must buy or sell into a move can decide whether a day is calm or violent, and the days when large positions expire are the days that move.

11d. Meme Stocks, Tokens, and Prediction Markets

- **Meme stocks:** shares moved by crowds of individual buyers organized on social media, usually against a large short position. GameStop in 2021 is the case; the pattern recurs at smaller scale, as when Wendy's rose 28.5% on June 24, 2026, with about a third of its shares available to trade sold short. Most participants lose money.
- **Tokenized shares:** digital tokens on a blockchain that represent or track a share. The SEC's staff said on January 28, 2026 that tokenized securities remain securities under the existing rules; on March 18 the SEC approved Nasdaq's rule to trade tokenized versions of its listed shares on the same order book; and Robinhood has offered stock tokens in Europe since 2025 and in more than 120 countries since mid-2026.
- **Prediction markets:** exchanges such as Kalshi and Polymarket trade contracts that pay out on events, from elections to Fed decisions, under the Commodity Futures Trading Commission (CFTC). The courts are split on whether the states can regulate them as gambling: the Third Circuit ruled for Kalshi against New Jersey in April 2026, the Ninth Circuit for Nevada in August, and New Jersey asked the Supreme Court to decide on September 2.

11e. The Evidence on Trading

Brad Barber and Terrance Odean's study of 66,465 households at a discount broker in 1991-96 found that the fifth of households that traded most earned 11.4% a year, against 17.9% for the market, mostly because of trading costs and overconfidence. The finding has been repeated in market after market since. The investor who buys the index and holds it has done better than nearly everyone who trades it actively (Module 18).

Module 11 Key Points

Retail, Options, and the New Trading

• Individuals were about 21% of American stock trading in 2025, about double their historical share.

• Options volume averaged 70.8 million contracts a day in 2026, 20.5% more than a year earlier.

• About two-thirds of S&P 500 options trading is in contracts that expire the day they trade.

• Dealers hedging options buy into rises and sell into falls, which can amplify moves: the gamma squeeze.

• The households that traded most earned 6.5 points a year less than the market in Barber and Odean's study.

Module 11 Quiz

Check Your Understanding

1. What share of American stock trading did individuals account for in 2025, on Bloomberg Intelligence's estimate?

A) About 21%, roughly double their historical share
B) About 60%, a majority for the first time
C) About 5%, after commissions went to zero
D) About 2%, as in the 1990s

2. What is a zero-day option?

A) A free option
B) One that expires the day it trades
C) One with no expiry date that trades like a share
D) One that can be exercised only after a full year

3. What is a gamma squeeze?

A) Dealers' hedging buys a stock as it rises
B) A short sale
C) A rule that halts trading in a volatile stock for the rest of the day
D) A tax on options profits collected when the contracts settle

4. What did the Third Circuit decide in April 2026?

A) That prediction markets are illegal gambling under federal law
B) That the SEC, not the CFTC, regulates event contracts
C) That Polymarket must close its American operations
D) For Kalshi, against New Jersey

5. What did Barber and Odean find about the households that traded most?

A) They beat the market by about 6.5 points a year through skill and speed
B) They matched the market after costs over any period longer than a year
C) They earned about 6.5 points a year less than the market, mostly through overtrading
D) They lost all their money within five years of opening an account

Module 12 — The Institutions

The Holders Who Move the Market

Recommended Reading / Reference

Book: Sebastian Mallaby, *More Money Than God* (2010), the history of the hedge funds

Reference: Hedge Fund Research's (HFR) quarterly *Global Hedge Fund Industry Report* and Milliman's monthly *Pension Funding Index*

12a. The Holders and What Moves Them

Holder	Size	How it invests	What moves it
Corporate pension plans	Milliman's 100 largest: assets $1.26 trillion, 114.5% of their obligations (September 30, 2026)	Plans in surplus tend to swap stocks for bonds that match their payments	Funding: the discount rate on their obligations, 6.47%, is the highest since 2009
Public pension plans	Part of the $10.2 trillion pensions hold in equities (Module 1)	42.2% in listed stocks and 13.9% in private equity in fiscal 2025	Their actuarial return targets
Hedge funds	A record $5.6 trillion (second quarter of 2026)	Leveraged strategies on every market	Performance fees; their own risk limits
Sovereign wealth funds	About $15 trillion worldwide (January 2026); Norway's fund about $2.3 trillion	Norway's fund owns about 1.5% of all listed companies, some 7,100 of them	Oil revenue and their governments' plans
Foreign investors	$19.9 trillion of American stocks, 18% of the total (June 2025)	Largest by residence: the Cayman Islands, Canada, Britain, Ireland, Luxembourg, Japan	The dollar, relative growth, and American policy
Berkshire Hathaway	Stocks worth $323.8 billion and $365.5 billion of cash and Treasury bills (June 30, 2026)	Concentrated, long-term holdings under Greg Abel, chief executive since January 1, 2026	Price: it buys when it finds value

Milliman (October 7, 2026); Public Plans Data; HFR (July 23, 2026); Global SWF; Norges Bank Investment Management; Treasury, annual survey of foreign holdings of American securities (June 30, 2025); Berkshire Hathaway's second-quarter filing, via secondary summaries.

12b. The Hedge Funds

Strategy	Assets (HFR, mid-2026)	How it works	Its role in the market
Equity hedge (long-short)	$1.76 trillion	Buys the stocks it likes and sells short the ones it does not	The classic strategy; its short side has lost to the largest companies for a decade
Event-driven	$1.59 trillion	Bets on mergers, restructurings, and campaigns by activists	Activists buy stakes and demand changes: board seats, sales, buybacks
Relative value, including multi-strategy platforms	$1.43 trillion, of which multi-strategy $880 billion	Hundreds of trading teams with tight risk limits and borrowed money, at firms such as Citadel and Millennium	The steadiest returns of the decade, and the market's amplifier when they cut risk together
Macro	$857.5 billion	Bets on rates, currencies, and commodities	The tariffs of 2025 and the oil shock of 2026 were their opportunities

HFR, second quarter of 2026. Quantitative funds sit inside these categories rather than in one of their own.

Activism set records. Barclays counted 255 campaigns in 2025, beating the previous high of 249 in 2018, with a record 32 American chief executives leaving under pressure, and Lazard, counting differently, found 297; Elliott alone deployed a record $19 billion across 18 campaigns. Companies trading at high multiples with slowing growth are the natural targets of such campaigns.

12c. The Signals Institutions Sent in 2026

Two institutional decisions in 2026 told the market more than any forecast. The first was Berkshire Hathaway's turn. After fourteen straight quarters of selling more stock than it bought, and a cash pile that reached a record $397.4 billion at the end of March 2026, the company bought about $19.8 billion more than it sold in the second quarter, including $10 billion of Alphabet shares placed with it directly, and repurchased $4.5 billion of its own stock.

One reading is that the most valuation-conscious investor of the age had found things worth buying; the other is that a new chief executive had begun to deploy the cash he inherited. Berkshire reports its third quarter by November 9, and the filing will show whether the buying continued.

The second signal was the pension funds'. With the largest corporate plans at 114.5% funded, above their 2007 peak of 108.1% on Milliman's index, plans in surplus have reason to sell stocks for bonds that lock the surplus in, which makes them structural sellers who care little about price. Index funds and corporate buybacks are structural buyers (Modules 7 and 9), and the price is set between them.

Between the two sit the foreign holders. When American stocks, Treasuries, and the dollar fell together in April 2025 (Module 16), the market read it as foreign owners pulling back at once, a reminder that American policy can be the shock that moves them.

Module 12 Key Points

The Institutions

• The largest corporate pension plans were 114.5% funded in September 2026, above their 2007 peak, and lean toward bonds.

• Hedge funds managed a record $5.6 trillion in mid-2026; multi-strategy platforms ran $880 billion.

• Activist campaigns set a record in 2025: 255 on Barclays' count and 297 on Lazard's.

• Foreign investors held $19.9 trillion of American stocks in June 2025, about 18% of the market.

• Berkshire Hathaway bought about $20 billion more stock than it sold in mid-2026, after fourteen quarters of selling.

Module 12 Quiz

Check Your Understanding

1. How well funded were the largest corporate pension plans at the end of September 2026, on Milliman's index?

A) About 60%
B) About 114.5%, above the 2007 peak
C) About 85%, as in 2020
D) About 200%, double their obligations in full

2. How large was the hedge-fund industry in mid-2026, on HFR's count?

A) A record $5.6 trillion, after its largest quarterly rise
B) About $2 trillion, after years of withdrawals
C) About $20 trillion, more than the index funds
D) About $500 billion, a fifth of its 2007 peak

3. How many activist campaigns did Barclays count in 2025?

A) About 50, the fewest in a decade
B) About 1,000, four times the usual
C) 255, a record
D) Twelve, after the SEC's new rules

4. What did Berkshire Hathaway do in the second quarter of 2026?

A) Sold its Apple stake
B) Paid its first dividend
C) Spent its whole cash pile of about $400 billion on a single acquisition
D) Bought about $20 billion more stock than it sold

5. How much of the American stock market did foreign investors hold in June 2025?

A) Half
B) About 18%
C) About 40%, most of it held in China
D) About 2%, almost none of it

Module 13 — Sectors, Styles, and Factors

Sorting the Market by What Drives Returns

Recommended Reading / Reference

Book: Andrew Berkin and Larry Swedroe, *Your Complete Guide to Factor-Based Investing* (2016)

Reference: Kenneth French's data library at Dartmouth, with the factor returns since 1926

13a. The Eleven Sectors

Sector	Weight, September 30, 2026	2025 return	2026 to September 30	Largest members
Information technology	39.7%	+24.0%	+28.4%	Nvidia, Apple, Microsoft, Broadcom
Financials	11.4%	+15.0%	−1.3%	Berkshire Hathaway, JPMorgan, Visa
Communication services	9.9%	+33.6%	+4.5%	Alphabet, Meta, Netflix
Health care	9.3%	+14.6%	+10.2%	Eli Lilly, Johnson & Johnson
Consumer discretionary	8.6%	+6.0%	−5.8%	Amazon, Tesla, Home Depot
Industrials	8.0%	+19.4%	+8.5%	GE Aerospace, Caterpillar, RTX
Consumer staples	4.4%	+3.9%	+6.0%	Walmart, Costco, Procter & Gamble
Energy	3.4%	+8.7%	+40.3%	Exxon Mobil, Chevron
Utilities	1.9%	+16.0%	−5.7%	NextEra Energy, Southern
Materials	1.7%	+10.5%	+8.8%	Linde
Real estate	1.7%	+3.2%	+5.3%	Prologis, American Tower

Weights from Schwab; total returns from Novel Investor, from S&P DJI data. The Global Industry Classification Standard (GICS) puts Alphabet and Meta in communication services and Amazon and Tesla in consumer discretionary.

No sector has weighed so much since the classification began in 1999; at the 2000 peak, technology was about a third of the index. On the narrow definition, technology was 39.7% of the S&P 500 at the end of September 2026; adding the four platform companies that the classification places elsewhere takes the share to about 54%. A sector index fund, a 'style' fund, or the whole index is now, in large part, a position on the same companies.

13b. Growth, Value, Size, and the Factors

Stocks can be sorted by characteristics that have predicted returns across a century of data, and the sorting underlies most professional strategy. The table below sets out the best-documented factors: value, size, momentum, quality, and low volatility. The value factor judges cheapness by price-to-book or price-to-earnings, and momentum, in which recent winners keep winning for six to twelve months, is the most robust factor and the costliest to trade.

The factor debate of the 2020s is whether value and size are dead or merely dormant. Value lagged growth for most of the time since 2007, while the expensive stocks were the technology leaders that earned their multiples. The exception was 2022, when rising rates gave value its best year against growth in two decades: the Russell 1000 Value index fell 7.5% and the Russell 1000 Growth index 29.1%. Size revived in 2026: S&P DJI's mid-year report found its small-company index up 24% and its mid-sized index up 17% in

the first half, against about 10% for the S&P 500, before the largest companies caught up in the third quarter.

Factor	What it buys	Long-run record	Recent record
Value	Cheap stocks against expensive ones	A premium of a few points a year over most of the twentieth century	Lagged for most of 2007-2025; a strong 2022
Size	Small companies against large ones	A smaller premium, concentrated before the 1980s	Lagged through 2025; a strong first half of 2026
Momentum	Recent winners against recent losers	The largest premium before costs, with sharp crashes when trends reverse	Strong while the AI winners kept winning
Quality	Profitable, stable companies	A steady premium	The largest companies score highly on it
Low volatility	Calmer stocks	Close to the market's return with less risk	Lags in sharp rallies, holds up better in falls

Kenneth French's data library; FTSE Russell; S&P DJI, *SPIVA U.S. Scorecard*, mid-year 2026. The premiums are averages across long periods, not annual promises.

13c. The Trades of 2026

• **The AI trade:** semiconductors, the cloud companies, and the suppliers of power and cooling. Technology rose 28.4% to the end of September, after 24.0% in 2025, and its earnings were expected to grow 65.1% in the third quarter (FactSet, October 9).

• **The energy trade:** the war that began on February 28 and the closures of the Strait of Hormuz took energy from a middling 2025 to the best sector of 2026, up 40.3%; the five largest Western oil companies earned $48 billion in the second quarter, led by Exxon Mobil's $14.5 billion.

• **The defense trade:** European rearmament and the war lifted the arms makers on both sides of the Atlantic, part of the industrials' gains.

• **The losers:** utilities, the data-center power trade of 2025, fell 5.7% as the ten-year Treasury yield rose above 5%; consumer-discretionary companies and financials also fell, squeezed by higher rates and oil.

• **The broadening:** every year since 2023 began with a forecast that leadership would spread from the largest companies to the rest, and in 2026 it partly did, as smaller companies and the equal-weight index drew level (Module 5).

Module 13 Key Points

Sectors, Styles, and Factors

• Technology was 39.7% of the S&P 500 at the end of September 2026, and about 54% on a broad definition.

• Energy led 2026 with a 40.3% return to September 30, on the war; communication services led 2025.

• Value, size, momentum, quality, and low volatility are the factors with the longest records.

• Value lagged growth for most of the time since 2007, with 2022 the main exception.

• Smaller companies beat the S&P 500 by a wide margin in the first half of 2026.

Module 13 Quiz

Check Your Understanding

1. What share of the S&P 500 was information technology at the end of September 2026?

A) About 10%
B) About 25%
C) About 75%, three-quarters of it
D) About 40% of the index

2. Which sector led the S&P 500 in 2026 through September 30?

A) Energy, up about 40%
B) Utilities
C) Financials, up about 15%
D) Consumer discretionary, up about 20%

3. What has happened to the value factor since 2007, according to the module?

A) It has beaten growth every year, as it did across the twentieth century
B) It has lagged growth for most of the period, with 2022 the main exception
C) It has matched growth exactly, so the premium has disappeared
D) It was dropped from the index providers' factor indices in 2015

4. Which factor does the module call the most robust and the costliest to trade?

A) Value, because cheap stocks are illiquid
B) Size, because small stocks are hard to buy
C) Momentum
D) Quality, because it needs audited accounts

5. How did smaller companies do in the first half of 2026, on S&P DJI's figures?

A) Worse than in any half-year since 2008
B) Exactly in line with the largest companies
C) They were not measured, because the index was closed
D) Better than the S&P 500

Module 14 — The World's Markets

The Markets Outside America

Recommended Reading / Reference

Book: Elroy Dimson, Paul Marsh, and Mike Staunton, *Triumph of the Optimists* (2002), the global record since 1900, updated each year in their *Global Investment Returns Yearbook*

Reference: MSCI's index factsheets, monthly, with country weights and valuations

14a. The Map

Market	Main index	2025 return, local currency	2026 to mid-October	Forward P/E (MSCI, September 30)
United States	S&P 500	+16.4%	+12.8% (October 14)	19.4
Taiwan	TAIEX	+25.7%	+68% (October 14)	18.7
South Korea	Kospi	+75.6%	+43% (October 13)	5.0
Japan	Nikkei 225	+26.2%	About +30% (October 16)	15.6
Canada	S&P/TSX Composite	+28%	+12.2% (October 14)	15.7
Britain	FTSE 100	+21.5%	About +9% (mid-October)	12.1
Europe	STOXX Europe 600	+16.6%	About 6% below its 2026 high (Euro Stoxx 50, October 16)	14.2
Saudi Arabia	Tadawul All Share	Lower	−3.7% (October 14)	13.0
China	Shanghai Composite	+18.4%	About −6% (October 16)	10.2
Hong Kong	Hang Seng	+28%	About −6% (October 5)	Included in MSCI China
India	Nifty 50	About +10%	−14.4% (October 14)	18.6
All markets outside the United States	MSCI ACWI ex USA	+31-34% in dollars for developed and emerging markets	—	12.7

Exchanges and index providers, via Focus Taiwan, JoongAng Daily, Nikkei, Fortune, Reuters, Argaam, Advisor Perspectives, Angel One, and Yahoo Finance; MSCI factsheets (September 30, 2026) for forward P/Es; MSCI EAFE (Europe, Australasia, and the Far East) returned 31.2% and MSCI Emerging Markets 33.6% in dollars in 2025.

The table holds two years with different winners. In 2025 the rest of the world beat America by a wide margin in dollars, helped by a falling dollar. In 2026 the chip-making markets of East Asia led everything, while India, China, and Hong Kong fell.

14b. The Stories of 2025-26

• **Korea and Taiwan:** the memory and chip boom. The Kospi rose 75.6% in 2025, the most of any major market, set a record close of 9,114.55 on June 22, 2026, fell 10.8% in one day on July 28, and stood near 6,000 in mid-October. Taiwan's TSMC is worth about $2.2 trillion, Samsung passed $1 trillion, and SK hynix sold $26.5 billion of shares in New York (Module 10). Taiwan and Korea are now half of MSCI's emerging-market index, and MSCI's forward P/E for Korea, 5.0 against 10.3 on past earnings, shows how fast analysts expect the memory makers' profits to keep rising.

• **Japan:** the Nikkei 225 first closed above 60,000 on April 27, 2026 and set a record of 72,366 on June 25. The drivers were corporate-governance reform (the Tokyo exchange's 2023 demand that companies trading below book value explain how they would fix it), the end of deflation, and the weak yen. The Bank of Japan's rate rises are the risk, and the unwinding of yen borrowing in August 2024 was the preview.

• **India:** the laggard of 2026, down 14.4% to mid-October. Foreign investors sold a record of about $18 billion of Indian shares in 2025 and $32.7 billion more in January-September 2026, as the war raised the cost of imported oil and the rupee weakened to about 95 to the dollar, yet MSCI's index still trades at 18.6 times expected earnings.

• **China and Hong Kong:** both rose in 2025 and have fallen about 6% in 2026, with property prices still falling, exports booming, and the trade truce with Washington running only to January 10, 2027; at 10.2 times expected earnings, China is the cheapest large market after Korea.

• **Europe, Britain, and Canada:** Europe's STOXX 600 rose 16.6% in 2025, its best year since 2021, and Britain's FTSE 100 21.5%, then the war hit Europe as an importer of energy; Canada's TSX, heavy in banks and resources, rose 28% in 2025 and 12% more in 2026.

• **The Gulf:** oil above $100 has not lifted Saudi shares, which fell in mid-October to their lowest closes since March 2023, because the war that raised the price also threatens the routes the oil travels.

14c. Home Bias and the Case for Abroad

Americans keep about 80% of their stock investments in American companies, on an International Monetary Fund measure cited by Morningstar. That is more than the American share of world market value, about 44% counting every listed company, and more than its 64% of MSCI's All Country World Index, which counts only the shares available to the public. Investors in every country show the same home bias.

• **The case for owning abroad,** as advocates of global diversification make it: stocks outside America trade at 12.7 times expected earnings against 19.4 for American stocks, a discount of about a third. 2025 showed what the discount can do, when developed and emerging markets returned 31-34% in dollars against 17.9% for the S&P 500. And foreign shares hedge an American investor against a falling dollar and against the concentration of Module 6.

• **The case for staying home,** as advocates of American exceptionalism make it: from 2016 to 2025 the S&P 500 returned 14.8% a year in dollars against 8.4% for MSCI's index of the world outside America. The AI leaders are American, American companies earn higher returns on capital, and the discount has persisted for a decade because the earnings gap is real.

• **The evidence:** the long global record shows every major market leading for a decade or more and lagging for a decade or more, without anyone forecasting the turns reliably.

The course's reading: the valuation gap is real and so is the earnings gap, and neither has predicted the turns. The case for owning abroad is diversification against America's own risks, the concentration of its index and the dollar, rather than a forecast that foreign stocks will win.

Module 14 Key Points

The World's Markets

• America is 64% of MSCI's All Country World Index and about 44% of world market value; Americans keep about 80% at home.

• Korea and Taiwan led 2026 on the memory and chip boom, and are now half of MSCI's emerging-market index.

• Japan's Nikkei first closed above 60,000 in April 2026 and set a record of 72,366 in June.

• India fell 14.4% in 2026 as foreign investors sold about $50 billion of its shares in two years.

• Stocks outside America trade at 12.7 times expected earnings, against 19.4 for American stocks (MSCI, September 30).

Module 14 Quiz

Check Your Understanding

1. What share of MSCI's All Country World Index was American at the end of September 2026?

A) About 64%, far above America's share of world output
B) About 20%, matching its share of world output
C) About 90%, nearly the whole index
D) About 44%, the same as on SIFMA's count

2. Which markets led the world in 2026, on the module's table?

A) India
B) China and Hong Kong, after their 2025 rally
C) Taiwan and Korea
D) Britain and Canada, on banks and resources

3. What did Japan's Nikkei 225 do in 2026?

A) Fell by half
B) First closed above 60,000 and set a record in June
C) Was closed for a month
D) Stayed below its 1989 peak for the thirty-seventh straight year

4. Why did India's market fall in 2026, on the module's account?

A) Domestic investors were barred from buying shares
B) The exchange closed for most of the summer
C) Foreign investors sold heavily
D) Indian companies stopped reporting their earnings

5. What is the course's reading on owning stocks outside America?

A) The case is diversification against America's own risks, not a forecast that foreign stocks will win
B) Foreign stocks will certainly beat American ones, because they are a third cheaper
C) Owning abroad never pays, because American stocks have won in every decade on record
D) The dollar never affects the return an American investor earns from abroad

Module 15 — Stocks and the Macro

Rates, Earnings, and Shocks

Recommended Reading / Reference

Paper: Clifford Asness, 'Fight the Fed Model' (*Journal of Portfolio Management*, 2003)

Reference: The Federal Reserve's statements and its Summary of Economic Projections; the St. Louis Fed's FRED database for rates and prices

15a. The Rate Connection

Interest rates set the stock market's multiple through two channels. One is the discount rate of Module 3, which lowers the present value of future profits as it rises. The other is the alternative: a ten-year Treasury paying 5.19% competes with a stock market whose expected earnings yield 5.24% in a way that a 1.5% Treasury did not.

History shows the link most clearly at the extremes. On the course's calculation from Shiller's monthly data since 1950, the CAPE averaged about 11 when the ten-year yield was above 8% and about 28 when it was below 2%. In between the link was loose: the late 1990s carried the CAPE above 40 with yields of 5-6%, because a story about technology overrode the arithmetic for years.

Ten-year Treasury yield	Average CAPE	When the market was there
Below 2%	About 28	2011-22, the era of near-zero rates
2-4%	About 20	The 1950s and early 1960s, and parts of 2008-23
4-6%	About 24-28	Long stretches from 1959 to 2008, including the late-1990s bubble
6-8%	About 19	1968-2000 at times
Above 8%	About 11	1974-91, the inflation years

Computed by the course from Robert Shiller's monthly data, 1950 to mid-2023.

Most bear markets since 1950 followed or accompanied a period of rising rates, the pandemic crash of 2020 being the clear exception, and several of the worst years, 1974, 2000-02, and 2022, came when rates rose into an expensive market. The configuration of October 2026 is the one those regularities warn about: a CAPE of 41.4 with the ten-year yield above 5%, and a Fed that resumed raising rates in September. What offsets it is the earnings surge of Module 9: if earnings grow as forecast, the multiple can fall while prices hold.

15b. The October 2026 Configuration

Variable	October 2026	What the market expects	What would surprise it
Federal funds rate	3.75-4.00% after the 25-basis-point rise of September 16, the first since July 2023, by 12-0	After September's consumer prices, futures put the chance of another rise at the October 27-28 meeting at about two in five, up from one in five; 16 of 18 officials projected at least one more in 2026	A pause with a soft message, or a rise with a promise of more
Ten-year Treasury	5.19%, after 5.31% on October 5; the thirty-year at 5.52%	Yields that stay above 5%	A move toward 5.5% would test the multiple directly

Variable	October 2026	What the market expects	What would surprise it
Inflation	Consumer prices up 3.7% in the year to September, 2.6% excluding food and energy	The Fed's own median: core personal consumption expenditures (PCE) inflation of 3.4% in 2026 and 2.5% in 2027	A second oil spike, or wages that follow prices
Earnings	Third-quarter growth estimated at 29.6%; 32.7% for 2026 and 15.8% for 2027	The AI build-out keeps paying	A cut in the largest companies' spending plans, or a reversal of their investment gains
Oil	Brent futures about $106; physical cargoes about $126; the Strait of Hormuz closed again since July 11	A slow easing	A wider war, or a reopening that drops the price fast
Jobs	Unemployment 4.2% in September; 29,000 jobs added	Slow hiring without a recession	A rise in unemployment toward 4.5%, the usual recession signal

Federal Reserve; CME FedWatch, as reported on October 14; Treasury; Bureau of Labor Statistics; Bureau of Economic Analysis; FactSet; ICE; FRED. The PCE price index is the Fed's preferred measure of inflation.

15c. The Fed Model and Its Critics

The 'Fed model' compares the stock market's earnings yield with the ten-year Treasury yield, on the logic that stocks and bonds compete for the same money. It is the most quoted valuation tool and one of the most criticized. Clifford Asness showed in 2003 that it confuses inflation with value: earnings grow with inflation, so the earnings yield is closer to a real return, while a bond's yield is nominal. In 1981-82, with Treasury yields above 13%, it called stocks expensive at a CAPE below 9, on the eve of the 1982-99 boom (Module 2), and in 2020 it called them cheap because Treasuries yielded under 1%.

A sounder comparison sets the earnings yield against the real yield on inflation-protected Treasuries. In October 2026 the forward earnings yield, 5.24%, exceeds the ten-year real yield, 2.84%, by 2.4 points. The excess CAPE yield, which sets the CAPE's earnings yield against the Treasury yield less past inflation, was 1.01 points in September, the lowest since May 2002 on one published series. The reward for owning stocks rather than a risk-free real bond is positive but thin, which is not a forecast, only a statement that the market is priced for the good outcome.

Worked example — What a Rise in Rates Does to a Multiple

Take the S&P 500 at 7,700 with expected earnings of about $407 a share over the next year, a forward P/E of 18.9. Using Module 3's shorthand with 4% long-run growth, the implied discount rate is 1 ÷ 18.9 + 0.04 = 9.3%. Suppose the ten-year yield rises 0.3 points and the equity premium stays the same, so the discount rate rises to 9.6%. The fair multiple becomes 1 ÷ (0.096 − 0.04) = 17.9, and the index falls 5.4% to about 7,290 with no change in earnings. If the higher rate also trims long-run growth by a quarter point, to 3.75%, the multiple is 17.1 and the fall 9.4%, to about 6,970. Reverse it, with the ten-year yield 0.3 points lower, and the multiple rises to 20.1, a 6% gain to about 8,160. The same arithmetic is why the bear market of 2022, a fall of 25% as the ten-year yield rose from about 1.5% to above 4%, came almost entirely from the multiple: on FactSet's count, the index's earnings rose that year.

Module 15 Key Points

Stocks and the Macro

• Rates set the multiple through the discount rate and the alternative; the link is clearest at extremes of yield.

• Since 1950 the CAPE averaged about 11 with ten-year yields above 8% and about 28 with yields below 2%.

• In October 2026 the CAPE is 41.4 with the ten-year yield at 5.19%, far above the average for such yields.

• The forward earnings yield beats the real Treasury yield by 2.4 points: positive, but thin.

• A 0.3-point rise in the discount rate cuts the fair multiple from 18.9 to 17.9, about 5% off the index.

Module 15 Quiz

Check Your Understanding

1. What did the CAPE average when ten-year Treasury yields were above 8%, on the module's table?

A) About 28
B) About 41
C) About 20, the average of all the yields in the table
D) About 11, in 1974-91

2. Which bear market since 1950 is the clear exception to the pattern of rising rates?

A) The bear market of 1973-74, on the oil embargo
B) The pandemic crash of 2020
C) The dot-com bust of 2000-02
D) The rate shock of 2022

3. What did Clifford Asness argue about the Fed model?

A) It mixes real and nominal yields
B) It ignores dividends and buybacks entirely
C) It applies only to the Dow and not to the S&P 500
D) It uses trailing earnings where forward earnings belong

4. In the worked example, what does a 0.3-point rise in the discount rate do to the index, with earnings unchanged?

A) Little effect, since earnings are unchanged
B) A 25% fall
C) A fall of about 5.4%
D) A rise of about 6%, since bonds become less attractive

5. Why does the module say the 2022 bear market came almost entirely from the multiple?

A) The index's earnings collapsed by a quarter in a deep recession
B) The index fell about 25% as yields rose, while the index's earnings rose that year
C) A wave of defaults in the technology sector forced funds to sell their shares
D) Foreign investors sold American stocks after the sanctions on Russia

Module 16 — Bubbles, Crashes, and Bear Markets

The Anatomy of a Fall

Recommended Reading / Reference

Book: Charles Kindleberger and Robert Aliber, *Manias, Panics, and Crashes* (seventh edition, 2015)

Reference: S&P DJI's daily index history, from which the course's bear-market table is drawn

16a. The Definitions and the Record

Term	Definition
Pullback	A fall of 5-10% from a high
Correction	A fall of 10-20%
Bear market	A fall of 20% or more, measured on closing prices
Crash	A fall of 10% or more within days

Bear market	Peak to low	Fall	Length	Cause	Back to the old high
1929-32	September 1929 to June 1932	−86% (Dow −89%)	33 months	Leverage, the Depression, deflation	25 years, in 1954
1973-74	January 1973 to October 1974	−48%	21 months	The oil embargo, inflation, the Nifty Fifty's multiples	About 7½ years, in 1980
1987	August to December 1987	−34% (−20.5% on October 19)	3 months	Portfolio insurance's feedback loop; rising rates	About 2 years
2000-02	March 2000 to October 2002	−49% (Nasdaq −78%)	31 months	The dot-com bubble; Enron; the September 11 attacks	About 7 years, in 2007, and lastingly only in 2013
2007-09	October 2007 to March 2009	−57%	17 months	Leverage in housing and the banks	5½ years, in 2013
2020	February 19 to March 23, 2020	−34%	23 trading days	The pandemic	About 6 months
2022	January to October 2022	−25%	9 months	Rising rates and the multiple	About 2 years, in January 2024

S&P 500 closing prices. On a strict 20% closing basis there have been eleven bear markets since 1950, averaging a fall of about 35%; 1990's 19.9% fall would make twelve. The 2025 and 2026 falls, of 18.9% and 9.1%, did not qualify.

16b. How a Bubble Forms and Ends

Charles Kindleberger's sequence has described every bubble since the tulips. It begins with a **displacement**, a real innovation or change, such as railways, electricity, the internet, or AI, that raises expected profits. **Credit** follows, the money to buy the assets, from margin loans in 1929 to zero interest rates in 2020. Then comes **euphoria**: prices detach from the profits the innovation will actually produce, new buyers enter because prices are rising, and the language changes to 'a new era'. **Distress** arrives when the first insiders sell, credit tightens, and a rate rise or an earnings miss exposes the gap. The last stage is **panic**, when everyone sells at once into a market whose buyers have already bought.

The innovation is usually real: the railways were built, the internet arrived, the AI models work. What a bubble gets wrong is who will profit, and when, and how much to pay in advance. Tested against 2026, the displacement is real, and the credit is there in the borrowing of the data-center builders and in the options market (Modules 11 and 17). The euphoria showed in SpaceX's first days, and the distress in its fall and in the Fed's return to rate rises; no one has panicked.

16c. April 2025: The Fastest Round Trip

The tariff crash is the decade's case because it compressed every mechanism into weeks. On April 2, 2025 the administration announced tariffs on nearly every trading partner at rates far above expectations. The S&P 500 fell 12.1% in four sessions to April 8, taking its fall from the record of February 19 to 18.9%, and the VIX closed at 52.33, its highest since 2020.

The fall was amplified as hedge funds unwound leveraged trades in Treasuries, and the ten-year yield rose from 4.01% on April 4 to 4.48% on April 11, while stocks, bonds, and the dollar fell together, the pattern called 'Sell America'. On April 9, with the bond market signaling that the policy could not be financed calmly, the administration paused most of the tariffs, and the S&P 500 rose 9.52%, one of its three largest daily gains since the Second World War. It set a new record on June 27.

The lessons: policy can be the shock, the bond market is the check, the unwinding of leverage is the amplifier, and when the shock is reversed the recovery can be as fast as the fall. An investor who sold on April 8 missed the rebound.

16d. 2026: The War Correction

The second test came with the war. The strikes on Iran on February 28, 2026 began a war that closed the Strait of Hormuz to most shipping, and the S&P 500 fell 9.1% from its record of 6,979 on January 27 to 6,344 on March 30, with the VIX above 30 in late March. It was back at records by April 15 and closed at a record 7,818.93 on October 6 (Market Snapshot).

16e. What Recovers and What Does Not

- **The index has recovered every time:** every bear market in the S&P 500 has been followed by a new high, though the wait has ranged from about six months (2020) to twenty-five years (1929).
- **The leaders often do not:** the companies that led a bubble tend to lag the recovery, because their multiples had priced in the growth that the crash reset; Amazon fell about 94% from 1999 to 2001 and became Amazon, while Cisco took about 25¾ years to regain its 2000 price (Module 3).
- **Staying invested matters most in the worst weeks:** on J.P. Morgan's figures for 2005-2024, $10,000 in the S&P 500 grew to $71,750 for an investor who stayed in, and to $32,871 for one who missed the ten best days, seven of which came within two weeks of one of the ten worst.
- **The circuit breakers work:** the market-wide halts of March 2020 (Module 8) brought no cascade; on October 19, 1987, with no such breakers, the Dow fell 22.6% in a day.

Across the century, each crash in the timeline of Module 2 was a failure of one assumption: that there would be a buyer at the price on the screen. In 1929 the buyers were borrowing; in 1987 they were programs that turned out to be sellers; in 2008 they were banks that needed cash themselves; in 2025 they were hedge funds forced to sell. The 2026 market's own assumptions, that index funds keep buying, companies keep buying back, options dealers can hedge, and the AI build-out stays financed, are the ones the next fall will test.

Module 16 Key Points

Bubbles, Crashes, and Bear Markets

• There have been eleven bear markets of 20% or more since 1950, averaging a fall of about 35%.

• Kindleberger's stages, displacement, credit, euphoria, distress, and panic, describe every bubble; in 2026 no one has panicked.

• In April 2025 the S&P 500 fell 12.1% in four sessions, rose 9.52% in a day, and set a record by June 27.

• The 2026 war cut the index 9.1% by March 30, and it was back at records by April 15.

• The index has always recovered; the leaders of a bubble often have not.

Module 16 Quiz

Check Your Understanding

1. How many bear markets of 20% or more has the S&P 500 had since 1950, on a strict closing basis?

A) Three, all before 1980
B) Thirty
C) Twenty, averaging a fall of about half
D) Eleven, averaging about 35%

2. What starts a bubble in Kindleberger's sequence?

A) A central bank's rate rise
B) A wave of new margin rules from the regulators
C) An earnings miss by a leading company
D) A displacement: a real change

3. What amplified the April 2025 fall, according to the module?

A) Hedge funds unwinding leveraged trades in Treasuries
B) A bank failure that froze the money markets
C) A collapse in the index's earnings
D) An emergency rate rise by the Fed

4. How did the S&P 500 do after the strikes on Iran in February 2026?

A) Fell 34% in 23 trading days, as in 2020
B) Rose every week of the war, because the oil companies in the index gained
C) Fell 9.1% to March 30, then regained its record by April 15
D) Fell 25% over nine months, as in 2022

5. What does the module say about the leaders of past bubbles?

A) They always led the next bull market as well, as the oil companies did after 1980
B) They often lagged the recovery
C) They were removed from the index before the crash and so did not affect it
D) They recovered faster than the rest of the market because they were profitable

Module 17 — The AI Question

The Argument That Decides the Next Five Years

Recommended Reading / Reference

Book: Carlota Perez, *Technological Revolutions and Financial Capital* (2002), on how technology booms and their financing unfold

Reference: The largest companies' quarterly reports and capital-spending guidance, and Nvidia's quarterly filings

17a. The Scale

Measure	Level	Note
Capital spending by Amazon, Microsoft, Alphabet, and Meta	$251 billion in 2024; $416 billion in 2025; $720-745 billion planned for 2026	About $800 billion with Oracle, which plans up to $95 billion in its year to May 2027; the largest private investment program on record
Nvidia's revenue	$130.5 billion in the year to January 2025; $215.9 billion in the year to January 2026; $96.2 billion in the quarter to July 2026	More than double a year earlier, at a 75% gross margin; guidance of $108 billion for the quarter to October
Anthropic	Revenue of about $4.6 billion in 2025; $16.8 billion in the third quarter of 2026, up 45% on the second, with an adjusted profit	Its valuation and listing plans are in Module 10
OpenAI	Annualized revenue approaching $70 billion by late September 2026	Its valuation and listing plans are in Module 10
Data centers' share of American electricity	About 4.4% in 2023; 9.5-15.3% projected for 2030	Lawrence Berkeley National Laboratory (June 2026)
CoreWeave, the largest specialist AI cloud	Debt of $35.1 billion at June 30, 2026, against $2.6 billion of quarterly revenue	A backlog of about $104 billion of contracts; a net loss of $626 million in the second quarter

Company reports and guidance; Platformonomics for capital spending including finance leases; Bloomberg, Reuters, and Quartz on Anthropic and OpenAI; FactSet; Lawrence Berkeley National Laboratory.

17b. The Bull Case and the Bear Case

Question	The bull case	The bear case
Is the demand real?	Anthropic's revenue grew 45% in one quarter, with an adjusted profit; Nvidia's revenue more than doubled in a year; demand for computing still outruns supply	The two leading labs' revenue, about $135 billion a year at their latest pace, is a fraction of $800 billion of annual spending, and the buyers are a handful of companies
Will the spending earn its cost?	Cloud revenue is growing fast; chips and buildings serve for years; not building cedes the platform to a rival	At a 10% cost of capital, $800 billion a year needs about $80 billion of new annual profit, every year, just to break even, and chips wear out or date quickly
Is the valuation reasonable?	The ten largest companies trade at a modest premium to the rest, far from the multiples of 2000 (Module 6)	The CAPE is 41.4 (Module 4), and some of the earnings behind the multiples are paper gains that can reverse
Where is the leverage?	Mostly in cash-rich companies paying from their own profits	In specialist clouds such as CoreWeave, in Oracle's borrowing, in private credit funds lending to data-center builders, in the options market, and in deals where suppliers invest in their customers

Question	The bull case	The bear case
What is the precedent?	Electricity and the internet: real, transformative, and their leaders earned it over decades	The railways and the telecom networks: real, transformative, and the builders went bankrupt while the users profited; Cisco was the Nvidia of 2000

17c. The Loop Inside the Index

One feature of 2026 has no clear precedent. The AI laboratories raise money at rising valuations from the largest technology companies, those companies record the higher valuations as profit, the profits lift their share prices, and the share prices support the spending that the laboratories depend on. In the second quarter, Alphabet and Amazon, their profits swollen by gains of this kind, made the difference between 52.0% and 33.8% earnings growth for the whole S&P 500 (Module 9).

Anthropic's listing, sought at up to or above $2 trillion, will mark those stakes again, upward if it succeeds and downward if it does not. The suppliers' own deals tie the system tighter: Nvidia's 2025 plan to invest up to $100 billion in OpenAI was reported in February 2026 to be giving way to a $30 billion stake, AMD gave OpenAI a warrant on its shares, and Oracle agreed to sell OpenAI $300 billion of computing over five years.

The course's reading: the build-out is a real boom, paid for mostly from the spenders' own profits, with a bubble's financing at its edges. The stock market is exposed to it twice, through the earnings of the companies that spend and supply, and through paper gains on the laboratories' private valuations. A pause in spending would therefore hit index earnings from two sides at once.

17d. Where a Turn Would Show First

The AI trade will not end with a model failing. If it ends, it will end with a cut in planned spending, and the sequence to watch runs as follows. The spenders' own third-quarter reports in late October come first, then Nvidia's, expected around November 18. Anthropic's pricing, expected as soon as mid-November and otherwise by year-end, will be the first public price for a standalone frontier laboratory. The largest companies' fourth-quarter reports in late January 2027 will set 2027 spending, and a flat number after three years of rapid growth would be the signal. Then come the specialist clouds' borrowing costs, where the leverage sits, and the power supply, which could cap the build-out before demand does.

SpaceX's fall from $225.64 in June to $104.83 before its first report, and its 13.6% drop the day after that report, as its capital spending jumped to $18.3 billion a quarter, previewed what a repricing looks like (Module 10). It was not a crash but a re-reading of the same numbers at a higher discount rate, the kind of event that could reach the index through the spenders' guidance.

Module 17 Key Points

The AI Question

• Four companies plan $720-745 billion of capital spending in 2026, about $800 billion with Oracle, up from $416 billion in 2025.

• Nvidia's revenue reached $96.2 billion in the quarter to July 2026, more than double a year earlier.

• Anthropic's quarterly revenue grew 45% to $16.8 billion; it seeks a valuation of up to or above $2 trillion.

• At a 10% cost of capital, $800 billion a year needs about $80 billion of new annual profit to break even.

• The course's reading: a real boom with a bubble's financing at its edges, felt in index earnings twice.

Module 17 Quiz

Check Your Understanding

1. How much did four of the largest companies plan to spend on capital projects in 2026?

A) About $100 billion, as in 2020
B) About $2 trillion, a fifth of GDP
C) About $416 billion, the same as in 2025
D) $720-745 billion

2. What did Anthropic report for the third quarter of 2026?

A) Revenue of $16.8 billion, up 45%
B) A $5 billion loss
C) No revenue yet
D) Revenue of $1 billion and a plan to close its cloud business

3. What is the bear case's break-even arithmetic, on the module's figures?

A) About $8 billion
B) About $80 billion of new profit a year
C) About $800 billion a year, the whole of the outlay
D) About $250 billion a year, a third of the outlay

4. Why is the stock market exposed to AI twice, in the course's reading?

A) Through the AI companies' dividends and through the taxes the government collects on them
B) Through the electricity the data centers use and the copper they need for their wiring
C) Through the spenders' and suppliers' earnings, and through paper gains on the labs' private valuations
D) Through the index funds' fees and the brokers' payments for orders in AI stocks

5. What did SpaceX's fall from $225.64 to $104.83 preview, according to the module?

A) A crash that ends the AI boom and closes the market to new listings for years
B) A fraud uncovered in the company's accounts by its auditors before the report
C) A repricing: the same numbers read at a higher discount rate after spending surged
D) A lockup expiry that flooded the market with every insider's shares at once

Module 18 — Investing: What the Evidence Says

A Century of Data, Distilled

Recommended Reading / Reference

Book: John Bogle, *The Little Book of Common Sense Investing* (updated edition, 2017)

Reference: Roger Ibbotson's century of returns, published by the CFA Institute Research Foundation (2026), and Morningstar's yearly *Mind the Gap* study

18a. What the Long Run Has Paid

Asset	Annual return, 1926-2025	After inflation	Worst calendar year	Note
Large American stocks	About 10-10.5%	About 7%	−43% (1931)	The equity premium: about 5 points a year over long government bonds and 6.6 over Treasury bills
Small American stocks	About 11%	About 8%	−58% (1937)	Higher return, higher risk, and long droughts
Long-term government bonds	About 5%	About 2%	A loss of more than a quarter (2022)	The 2022 loss was the worst in the series
Treasury bills (cash)	About 3.3%	About 0.4%	Close to zero in the late 1930s, the 1940s, and the 2010s	Safe in dollars, but a loss after inflation in many decades
Inflation	About 2.9%	—	—	Prices rose about eighteenfold over the century

Roger Ibbotson, via the CFA Institute Research Foundation (September 2026), and Dimensional's growth-of-a-dollar data, whose estimates differ slightly; returns include reinvested income.

18b. The Evidence in Ten Findings

• **Stocks have beaten inflation over every twenty-year stretch since 1926,** on the course's calculation from Shiller's monthly data, though the worst, from March 1962, beat it by only 0.35% a year. The premium is paid for bearing the losing years and the lost decades (Module 2).

• **Costs are the one thing an investor fully controls:** the fee gap between index and active funds (Module 7) compounds, as the worked example below shows.

• **Time in the market has beaten timing:** the best days cluster in the worst periods, so the investor who missed the ten best days of 2005-2024 ended with less than half the money of one who stayed (Module 16).

• **Diversification is the only free lunch,** and the index is less diversified than it looks when ten companies are 40% of it (Module 6); foreign stocks, which lagged for a decade, beat the S&P 500 by more than ten points in 2025 (Module 14).

• **Rebalancing keeps the risk where the investor set it:** selling what rose to buy what fell, on a schedule, stops a portfolio from drifting into the concentration of whatever led.

• **A lump sum has usually beaten investing in stages:** Vanguard found that investing at once did better about two-thirds of the time, because markets rise more often than they fall; spreading purchases out mostly serves to keep a nervous investor invested.

• **Investors earn less than the funds they own:** Morningstar's 2026 study found investors earned 8.7% a year over the ten years to 2025, against 9.9% for their funds, a gap of 1.2 points that comes from buying after rises and selling after falls; for broad American stock funds the gap was only 0.4 points.

• **Active management is a contest that loses its costs,** as the arithmetic of Module 7 shows.

• **Mixing stocks and bonds survived 2022,** the year both fell, as the table below shows; with Treasury yields above 5%, bonds now pay enough to cushion stocks again.

• **The starting valuation shapes the decade:** the evidence ties a high starting price to a lower decade's return, not to a crash on a predictable date (Module 4).

18c. The Portfolios in the Two Recent Shocks

Portfolio	Composition	2008	2022	What it shows
All stocks	100% S&P 500	−37.0%	−18.1%	The maximum return over time, and the maximum pain
Classic 60/40	60% S&P 500, 40% Bloomberg US Aggregate bonds	About −20%	About −16%	Bonds cushioned the 2008 fall and deepened the 2022 one
Conservative 40/60	40% S&P 500, 60% bonds	About −12%	About −15%	In 2022 even the cautious portfolio fell sharply

Computed by the course from the S&P 500's total returns (−37.0% in 2008, −18.1% in 2022) and the Bloomberg US Aggregate bond index's (+5.2% and −13.0%), rebalanced yearly. Past returns do not forecast future ones.

The two years teach different lessons. In 2008 the shock was a collapse in growth, and high-quality bonds rose as stocks fell; in 2022 the shock was inflation and rising rates, which hit both at once. A portfolio's protection depends on which kind of shock arrives, and in 2026 the oil shock and the Fed's rate rises have so far looked more like 2022 than like 2008.

Worked example — $10,000 Compounding, With and Without Costs

An investor puts $10,000 into the S&P 500 and leaves it for thirty years. At the century's 10% a year it becomes about $174,500, and at the 7% average after inflation about $76,100 in today's purchasing power, the figure that matters. Now charge a 1% annual cost, the kind of drag an active fund's fees and trading can add: 9% a year becomes about $132,700, almost $42,000 less, a quarter of the ending value gone to costs. At an index fund's 0.05%, it is about $172,100. Now add Morningstar's behavior gap of 1.2 points a year: 8.8% a year becomes about $125,600. The decisions the investor controls, the costs, the behavior, and staying invested, are worth tens of thousands of dollars on $10,000 over thirty years. Finally, the valuation caveat of Module 4: if the next ten years pay 5% a year and the twenty after them the 10% average, the $10,000 becomes about $109,600, lower, but still about eleven times the stake.

Module 18 Key Points

Investing: What the Evidence Says

- American stocks returned about 10% a year from 1926 to 2025, about 7% after inflation.
- On Shiller's data, stocks beat inflation over every twenty-year stretch since 1926, if only just from 1962.
- A 1% annual cost takes about a quarter of the ending value over thirty years.
- Investors trailed their own funds by 1.2 points a year over the decade to 2025, by buying high and selling low.
- A 60/40 portfolio lost about 20% in 2008 and about 16% in 2022, for opposite reasons.

Module 18 Quiz

Check Your Understanding

1. What have large American stocks returned after inflation since 1926?

A) About 1%
B) About 15%
C) About 3% a year, like Treasury bills
D) About 7% a year

2. In the worked example, what does a 1% annual cost do to the ending value over thirty years?

A) Takes about 1% of it
B) Takes about a quarter of it
C) Takes about half of it over the thirty years
D) Adds to it, if the fund beats the index

3. What did Vanguard find about investing a lump sum at once?

A) It won about two-thirds of the time
B) It always lost to investing in stages
C) It won only in falling markets, about a third of the time
D) It made no difference in any of the periods studied

4. What did Morningstar's 2026 study find about investors' returns?

A) They beat their funds by 1.2 points a year, by buying more when prices fell
B) They trailed their own funds by 1.2 points a year, from buying high and selling low
C) They matched their funds exactly, once fees were counted
D) They trailed the funds only in bond funds, never in stock funds

5. Why did a 60/40 portfolio fall in 2022, unlike in 2008?

A) Bonds rose while stocks fell, as they did in 2008
B) The S&P 500 fell more than in 2008
C) Stocks and bonds fell together as inflation and rates rose
D) Bond funds were closed to new money after the losses of the first half of the year

Module 19 — Where Things Stand, and What to Watch

The Argument, the Contradictions, and the Calendar Ahead

Recommended Reading / Reference

Reference: FactSet's *Earnings Insight* each Friday, the first place the watch list's earnings questions will be answered

Reference: The SEC's EDGAR system, where Anthropic's public S-1, the largest companies' quarterly reports, and SpaceX's lockup filings will appear

19a. The Argument

The course's argument fits on a page. A share is a claim on what is left after everyone else is paid (Module 1), priced as the present value of that claim at a discount rate that the Fed and the bond market set (Modules 3 and 15). The market that prices it has been rebuilt in two decades. It is owned more and more by index funds that buy whatever the index holds (Module 7), traded mostly away from the exchanges and more and more through options (Modules 8 and 11), and concentrated in a handful of companies whose fortunes turn on one technology (Module 6).

In 2026 that market met three tests at once: a ten-year Treasury yield above 5% and a Fed raising rates again (Module 15), a war that closed the Strait of Hormuz (Module 16), and the largest capital program and the largest listings in history (Modules 10 and 17). It passed them on the strength of earnings, which grew faster than at any time since 2021 (Module 9). The forward multiple therefore fell to its ten-year average even as prices set records.

The cost is what an investor buys at these prices: a CAPE second only to 1999-2000 and a record-low dividend yield (Module 4). The evidence of Module 18 says that prices like these have lowered the next decade's return without saying when or how.

19b. The Contradictions

Read across the modules, the evidence leaves five tensions that no single module states.

- **The earnings that justify the prices include the prices.** The index's 52.0% earnings growth in the second quarter was 33.8% without Alphabet and Amazon, whose profits were swollen by gains on stakes in other companies, the AI laboratories among them (Module 9). Those stakes are valued at the market's appetite for AI (Module 17), so the forward multiple that looks fair (Module 4) partly measures the AI boom's own price.
- **Diversified and concentrated.** The index fund is the most diversified product ever sold, yet 40% of it sits in ten companies that share one exposure (Modules 6 and 7).
- **The public market shrinks while its listings set records.** The number of listed companies has roughly halved since the late 1990s, yet 2026 brought the largest offerings in history, with only 4-5% of SpaceX's shares free to trade (Module 10). The growth reaches the public late and huge, and index funds must absorb it at whatever price a small float sets (Module 5).
- **Passive and price-setting.** Funds that never look at prices are the largest owners of nearly every company (Module 7), and companies buying back their own shares are among the largest buyers

(Module 9). The marginal price is set by a smaller group of active traders and option dealers (Modules 8 and 11), and the structure has never faced a year of net withdrawals.

• **Checked and unchecked.** The bond market checked the tariffs within a week in April 2025 (Module 16), and S&P's committee checked the rush to admit SpaceX (Module 5). The market's own excesses, the concentration, the leverage in options, and the financing of the build-out (Module 17), have no check but a fall.

19c. What to Watch

When	What	Why it matters
October 21-29, 2026	The largest companies' third-quarter reports: Meta on October 21, with Tesla expected the same day; Microsoft and Amazon expected on the 28th and 29th, Alphabet and Apple around the same week	Whether their 2027 spending keeps rising (Module 17), and how much of the quarter's estimated 29.6% earnings growth is investment gains (Module 9)
October 24	About 320 million SpaceX shares freed from their lockup	The first of three releases left in 2026, for a stock priced by a small float (Module 10)
October 27-28	The Fed's meeting	Futures put a second rise at about two in five; with the CAPE above 40 and the ten-year above 5%, the multiple's sensitivity to rates is high (Module 15)
Early November	SpaceX's third-quarter report, then about 1.3 billion shares freed two trading days later	The largest lockup release of 2026, and whether its AI spending keeps climbing
November 3	The midterm elections	The tariff regime, the fiscal path, and the Fed's political setting, all on the ballot in effect
Mid-November to year-end	Anthropic's listing, sought at up to or above $2 trillion	The first public price for a standalone frontier AI laboratory, which will also re-mark the stakes inside Alphabet's and Amazon's earnings (Module 17)
Around November 18	Nvidia's quarterly report, against guidance of $108 billion	The chip supplier's view of 2027 demand
December 6	Nasdaq's 23-hour trading begins, if the price feeds are ready	A longer trading day, with new overnight price bands (Module 8)
December 8-9	SpaceX's 180-day lockup ends; the Fed meets with new projections	More supply, and the rate path for 2027
Late January 2027	The largest companies' fourth-quarter reports and 2027 spending plans	The single most important number for the AI trade (Module 17)
June 2027	SpaceX first eligible for the S&P 500, if profitable; Musk's own shares leave their lockup	Index demand against founder supply (Modules 5 and 10)
November 2027 to January 2028	Half-penny price increments for heavily traded stocks; reporting of large short positions to the SEC; the Texas trial of BlackRock and State Street	The plumbing's next changes and the antitrust test of index ownership (Modules 7 and 8)

19d. The Last Word

Most of this course's figures will date within months, and the watch list is built to date them. What will not date is the machinery: a share is a claim on what is left, its price is the present value of that claim at a rate the bond market enforces, and every crash in the course was a run on the assumption that a buyer would be there (Module 16). A reader who holds those three ideas can read the next decade's shocks without this course.

The test of 2026-27 is narrower: whether earnings that rose by about a third in a year are a new level or a peak. The market has priced them as a new level. The next six months, from the largest companies' spending plans to the first public price of a standalone AI laboratory, will show how much of that price was earned and how much was the boom pricing itself.

Module 19 Key Points

Where Things Stand, and What to Watch

• The argument: a claim on the residual, priced at a rate the bond market enforces, in a market rebuilt by index funds and options.

• The earnings that justify 2026's prices include paper gains on the AI laboratories' private valuations.

• The index fund holds 503 shares and something close to one bet: ten companies are 40% of it.

• Listings set records while the number of listed companies stayed near half its peak; growth reaches the public late.

• The next test: whether 2026's earnings, up about a third, are a new level or a peak.

Module 19 Quiz

Check Your Understanding

1. What does the first contradiction say about the earnings behind 2026's prices?

A) They include gains on AI stakes
B) They are fake
C) They fell by a third, while prices rose to records
D) They come entirely from the oil companies after the war

2. What share of the S&P 500 do its ten largest companies make up, as the closing module puts it?

A) About 10%, as in 1990
B) About 25%, a normal level
C) About 75%, three-quarters
D) 40%

3. What happened to American listings in 2026, according to the closing module?

A) Few took place
B) Record proceeds, while the count stayed near half its peak
C) Only small companies listed
D) Every large private company listed, ending private markets as an alternative

4. What does the watch list place in late January 2027?

A) The 2027 spending plans
B) A Fed meeting
C) Anthropic's listing, sought at up to or above $2 trillion
D) SpaceX's entry into the S&P 500 after a year of trading

5. What does the last word name as the test of 2026-27?

A) Whether the Fed will cut rates to zero before the end of 2027
B) Whether index funds will be banned from voting their shares
C) Whether earnings that rose by about a third are a new level or a peak
D) Whether the S&P 500 will fall below its 2025 low of 4,982

Answer Sheet

Answers to every module's Check Your Understanding quiz.

Module	Answers
Module 1 Quiz	1. C 2. D 3. A 4. B 5. B
Module 2 Quiz	1. C 2. D 3. A 4. A 5. C
Module 3 Quiz	1. D 2. B 3. C 4. D 5. A
Module 4 Quiz	1. B 2. B 3. D 4. A 5. C
Module 5 Quiz	1. A 2. C 3. B 4. D 5. A
Module 6 Quiz	1. B 2. C 3. D 4. C 5. B
Module 7 Quiz	1. A 2. D 3. A 4. C 5. D
Module 8 Quiz	1. B 2. B 3. D 4. A 5. C
Module 9 Quiz	1. A 2. C 3. B 4. D 5. A
Module 10 Quiz	1. C 2. B 3. D 4. C 5. D
Module 11 Quiz	1. A 2. B 3. A 4. D 5. C
Module 12 Quiz	1. B 2. A 3. C 4. D 5. B
Module 13 Quiz	1. D 2. A 3. B 4. C 5. D
Module 14 Quiz	1. A 2. C 3. B 4. C 5. A
Module 15 Quiz	1. D 2. B 3. A 4. C 5. B
Module 16 Quiz	1. D 2. D 3. A 4. C 5. B
Module 17 Quiz	1. D 2. A 3. B 4. C 5. C
Module 18 Quiz	1. D 2. B 3. A 4. B 5. C
Module 19 Quiz	1. A 2. D 3. B 4. A 5. C