Money, Markets & the Global Financial System

Figures current as of October 2026

How money is created and priced, the central banks and their 2026 rate rises, the money markets, banks and the non-banks, government debt and the deficit, currencies and the dollar's place, the international system, the capital markets, derivatives, digital money, crises, emerging markets, and regulation.

MODULE 1 — Foundations: What Money Is

Goal: Establish what money does, the forms it takes, and how much there is.

The three functions; the two tiers in which banks create money and central banks preserve its value; the forms from banknote to stablecoin in a table; the money stock of the United States, the euro area, China, and Japan; and velocity.

MODULE 2 — Money Creation and the Banking System

Goal: Explain where money comes from.

Loans create deposits; what limits a bank's lending; reserves, capital, and the rules in a table; and a bank's balance sheet worked through a loan, a payment, and a rate rise.

MODULE 3 — Central Banks

Goal: Map the institutions that set the price of money, and where each stood in October 2026.

What central banks do; eighteen central banks' rates in a table; the Federal Reserve's structure, its 2026 votes, and Chair Warsh; independence and the Supreme Court's rulings of June 2026; and the Fed's tools.

MODULE 4 — Interest Rates and the Yield Curve

Goal: Explain how rates are set across maturities and what the curve says.

The term structure set against a year and two years earlier; real rates, the neutral rate, and the term premium; a bond's price and duration worked; and what the October curve prices.

MODULE 5 — Inflation and Deflation

Goal: Cover how inflation is measured, its record since 2021, and the 2026 dilemma.

The two American price indexes; the record by country in a table; the three waves; the oil shock of 2026; whether to look through it or tighten, argued; Japan below 2% again and China's producer prices back above zero.

MODULE 6 — The Money Markets

Goal: Explain the plumbing of short-term finance.

Bills, repo, fed funds, commercial paper, money funds, and the Fed's facilities in a table; the rate corridor; the seizures of 2019 and 2020 and the squeeze at the end of 2025; and a repo trade and the basis trade worked.

MODULE 7 — Banks and the Shadow System

Goal: Cover the banks, the non-banks, and where credit now lives.

Banking systems compared in a table; the 2023 failures; the non-bank half of finance in a table; private credit's growth and its 2025-26 strains, argued; and where the economy now borrows.

MODULE 8 — Government Debt and the Bond Market

Goal: Cover the world's largest market and who finances it.

Sovereign debt compared in a table; the Treasury market and its shift to bills; the holders in a table; the bond market's discipline from Britain in 2022 to April 2025; and a Treasury auction worked from October's ten-year.

MODULE 9 — Fiscal Policy and the Fiscal-Monetary Collision

Goal: Explain how deficits and interest rates interact.

Fiscal 2026's results against the budget office's baseline; the July 2025 law and the tariff refunds; the two channels of the collision; fiscal dominance argued; and the debt's sensitivity to rates and growth worked.

MODULE 10 — Exchange Rates and the Currency Markets

Goal: Explain how currencies are priced and traded.

The $9.6 trillion-a-day market; the major currencies in a table with their 2026 moves; what sets a currency's price; the yen carry trade worked; and intervention, from Tokyo's record purchases to the yuan's rise.

MODULE 11 — The Dollar's Reserve Status

Goal: Assess the dollar's position and its challengers.

The dollar's roles in a table; gold's rise as a reserve asset; the sanctions weapon and its cost; and de-dollarization argued.

MODULE 12 — The International Monetary System

Goal: Cover the architecture from the gold standard to the present.

The regimes since 1870 in a table; the IMF, the World Bank, the BIS, and the Fed's swap lines; the offshore dollar and capital flows; the Triffin dilemma then and now; and the 2026 oil shock's path through the system.

MODULE 13 — Financial Markets: Stocks, Bonds, and the Machinery

Goal: Map the capital markets and their 2026 state.

The markets by size in a table; the stock market's concentration and valuation; whether the spending on artificial intelligence is a bubble, argued; and the bond market's structure and plumbing.

MODULE 14 — Derivatives, Leverage, and the Risk System

Goal: Explain the instruments that multiply exposure and the system that contains them.

The $845 trillion of notional value in a table; clearing; leverage and margin; an airline's hedge through the 2026 oil shock worked; and the risk system, from Long-Term Capital Management to the gilt crisis.

MODULE 15 — Crypto, Stablecoins, and Digital Money

Goal: Cover the digital forms and their 2026 legal status.

The market in a table; stablecoins under the GENIUS Act, argued; bitcoin's record and the haven test; and central-bank digital currencies and tokenization.

MODULE 16 — Business Cycles and Crises

Goal: Explain how the cycle turns and how crises spread.

The cycle and Minsky's sequence; thirteen crises from 1971 to 2026 in one table, each the failure of an assumption; what the record teaches; and the recession signals of October 2026.

MODULE 17 — Emerging Markets and the Periphery

Goal: Cover the countries the system's shocks land on.

Exposure by country in a table; the mechanism; Argentina's stabilization and the American rescue, argued; and China, a property bust inside a creditor.

MODULE 18 — Regulation, Supervision, and the 2025-26 Deregulation

Goal: Cover the rules and their unwinding.

What was built after 2008; the 2025-26 changes in a table; the deregulation argued; and what the guardrails still hold.

MODULE 19 — Where Things Stand, and What to Watch

Goal: Close with the argument, the contradictions, and a dated watch list.

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 numbers come from official statistics wherever they exist. The Federal Reserve (the Fed) supplies money, bank balance sheets, and policy rates; the Treasury supplies the debt and its auctions; the Bureau of Labor Statistics (BLS) and the Bureau of Economic Analysis (BEA) supply prices, jobs, and output; and the Congressional Budget Office (CBO) supplies the budget. The Federal Deposit Insurance Corporation (FDIC) covers the banks, and the Bank for International Settlements (BIS), the International Monetary Fund (IMF), and the Financial Stability Board (FSB) cover the world. Market prices are closing levels, taken where possible from FRED, the St. Louis Fed's public database. Figures for private markets, such as private credit and crypto, come from industry sources and are estimates. Where the field argues, the course makes each case as its advocates make it, gives the evidence, and states its own reading once. The arguments are whether to look through an oil shock, the risks in private credit, fiscal dominance, the dollar's future, the valuations of artificial intelligence, stablecoins, the rescue of Argentina, and the deregulation of 2025-26. Nothing in the course is investment advice.

Market Snapshot

Rates, prices, and indices at the close of Wednesday, October 14, 2026

Measure	Level	Source
Effective federal funds rate (overnight unsecured loans between banks)	3.88%	Federal Reserve Bank of New York
Secured Overnight Financing Rate (SOFR), on overnight loans against Treasuries	3.88%	Federal Reserve Bank of New York
Treasury bills	1-month 4.11%; 3-month 4.28%; 6-month 4.37%; 1-year 4.53%	Treasury, daily par yield curve
Treasury notes and bonds	2-year 4.82%; 5-year 5.00%; 7-year 5.09%; 10-year 5.19% (5.31% on October 5); 30-year 5.52%	Treasury, daily par yield curve
Real yield on ten-year Treasury Inflation-Protected Securities (TIPS)	2.84%	Treasury, daily real yield curve
Ten-year breakeven inflation (the nominal yield less the real one)	2.35%	FRED
Thirty-year fixed mortgage rate	7.40% (survey of October 15)	Freddie Mac
Investment-grade corporate bonds	Yield 5.94%; spread over Treasuries 0.84 points	ICE (Intercontinental Exchange) BofA index, via FRED
High-yield corporate bonds	Yield 8.20%; spread over Treasuries 3.25 points	ICE BofA index, via FRED
S&P 500 index	7,718.94; record close 7,818.93 on October 6; up 12.8% in 2026, after 16.4% in 2025	S&P Dow Jones Indices, via FRED
Nasdaq Composite; Dow Jones Industrial Average; Cboe Volatility Index (VIX)	26,692.87; 51,621.48; 16.87	Via FRED
S&P 500 valuation	19.1 times the next twelve months' expected earnings (October 9; ten-year average 19.1); cyclically adjusted price-earnings ratio 41.4	FactSet; Robert Shiller's method, via multpl.com
Dollar index (DXY), the dollar against six major currencies	About 102.6, its highest since April 2025	ICE, via Trading Economics
Euro, pound, and Australian dollar, in US dollars	$1.1158; $1.3194; $0.697	Late New York rates
Yen, yuan, Swiss franc, and Canadian dollar, per US dollar	158.33 yen; 6.69 yuan (the People's Bank of China's fixing was 6.7249); 0.835 francs; 1.426 Canadian dollars	Late New York rates; China's exchange administration; Bank of Canada
Emerging-market currencies, per dollar	Indian rupee 95.2; Brazilian real 5.03; Mexican peso 18.49; Turkish lira 49.39; Argentine peso about 1,513; Russian ruble 83.87 (official rate)	Late New York rates; Bank of Russia
Crude oil	Brent front-month futures about $106 a barrel and West Texas Intermediate about $95; Dated Brent, the price of physical cargoes, $125.78 on October 13	ICE, via Trading Economics; Dated Brent via FRED
Gold	About $4,106 an ounce (spot)	Via Trading Economics
Bitcoin; ether	$81,694; $2,424	Coinbase, via FRED

Closing levels on Wednesday, October 14, 2026, unless another date is given. Yields are the Treasury's par yields. The dollar index, oil, and gold are closing quotes, which can differ slightly from official settlements. Policy rates are in Module 3 and inflation in Module 5.

Module 1 — Foundations: What Money Is

Its Functions, Its Forms, and How Much There Is

Recommended Reading / Reference

Book: Felix Martin, *Money: The Unauthorized Biography* (2013), money as a system of credit rather than a thing

Reference: The Federal Reserve's H.6 release, the monthly count of the American money stock

1a. Three Functions and Two Tiers

Money is whatever a society uses as a medium of exchange, a unit of account, and a store of value, and each test is practical: can it buy things, are prices quoted in it, and does it hold its worth until it is spent? Gold, silver, cowrie shells, cigarettes, and paper have all passed at different times, and the dollar, euro, yen, and yuan pass now because their states accept them for taxes and their courts enforce debts written in them.

Modern money has two tiers, and the rest of the course rests on that fact: the central bank issues the base, which is banknotes plus the reserve balances that commercial banks keep in their accounts at the central bank, and commercial banks create almost all the rest by lending. Of the currency and bank deposits Americans hold, about nine dollars in ten are deposits, each one a bank's promise to pay central-bank money on demand.

1b. The Forms

Form	Issuer	Who holds it	Redeemable in	Amount (United States)	Note
Banknotes and coin	The Federal Reserve (notes) and the Treasury (coin)	Anyone, at home and abroad (Module 11)	Nothing: it is the final means of payment	$2.48 trillion in circulation (October 7, 2026)	Most of the value is in $100 bills
Reserve balances	The Federal Reserve	Banks only	Notes, on demand	$3.03 trillion (October 7, 2026)	The money banks settle with; the Fed pays interest on it (Module 3)
Bank deposits	Commercial banks	Households, firms, and governments	Reserves and notes, on demand	About $19.1 trillion of domestic deposits at insured banks (June 30, 2026)	Created by lending and insured up to a limit (Module 2)
Money-market fund shares	Mutual funds	Households, firms, and institutions	Deposits, at a stable share price	Sized in Module 6	Prone to runs (Module 6)
Stablecoins	Private issuers, licensed under the GENIUS Act (Module 15)	Crypto traders, and savers where local money fails	Dollars, paid from the issuer's reserves	Sized in Module 15	The newest tier, outside the banks
Central-bank digital currency	The central bank	The public, where one exists	Itself	None in the United States	Module 15

Form	Issuer	Who holds it	Redeemable in	Amount (United States)	Note
Eurodollars	Banks outside the United States	Firms, banks, and governments worldwide	Dollars in the American system	Sized in Module 12	The offshore dollar

1c. How Much There Is

Measure	Definition	United States	Euro area	China	Japan
Monetary base	Currency plus banks' reserves at the central bank	$5.41 trillion (August 2026)			
Narrow money (M1)	Currency plus checking and other liquid deposits	$19.99 trillion (August 2026)			
Broad money (M2), or M3 in the euro area	Narrow money plus savings, small time deposits, and retail money funds	$23.34 trillion (August 2026), up 5.7% in a year	€17.65 trillion, about $19.7 trillion (August 2026), up 3.5%	356.8 trillion yuan, about $53.3 trillion (August 2026), up 7.5%	1,296 trillion yen, about $8.2 trillion (September 2026)
Broad money as a share of the economy	Broad money divided by a year's output (GDP)	About 70%	About 110%	About 250%	About 200%
Velocity of money	Output divided by broad money: how often a dollar turns over in a year	1.42 (second quarter of 2026), against 2.2 in 1997 and 1.1 in 2020			

Federal Reserve, European Central Bank, People's Bank of China, and Bank of Japan data; dollar values at the October 14, 2026 rates in the Market Snapshot; shares of output approximate.

The measures count money by how quickly it can be spent, and the base, the part the central bank creates, was multiplied by quantitative easing (QE), the purchase of bonds with newly created reserves, from $0.8 trillion before the 2008 crisis. Broad money is the part the public holds, and in the United States it shrank by almost 5% between March 2022 and October 2023, its first fall since the 1930s, before growing again.

The comparison across countries shows how each system is built, since China's broad money is more than twice America's in dollars on a smaller economy because Chinese households and firms save and borrow through banks rather than through markets. Japan's high ratio is the residue of three decades of near-zero interest rates.

Velocity explains a puzzle of the last twenty years: between 2008 and 2020 the money stock grew fast while consumer prices barely moved, because velocity kept falling, to half its 1997 level by 2020, and the new money sat in deposits instead of being spent. When it began to be spent as the pandemic ended, velocity recovered and prices rose.

1d. Why It Matters

The two tiers decide who controls what, because the central bank sets the price of money (its policy rate) and the size of the base (through its balance sheet). The banks set the quantity of broad money through their lending, within the limits that capital and regulation impose, and the public sets velocity by spending or holding.

Each later module follows from that split. Inflation (Module 5) is what happens when money and its velocity outrun the goods they can buy, and a financial crisis (Module 16) is what happens when depositors doubt a bank's promise to convert their deposits into central-bank money and demand the conversion all at once. The money markets (Module 6) are where banks, funds, and dealers lend base money to one another overnight so that the promises can be kept. Every other price in the system is set against the price of money, which is why the Fed's September rise (Module 3) runs through every module that follows.

Module 1 Key Points

Foundations: What Money Is

• Money passes because states accept it for taxes and courts enforce debts in it: a medium of exchange, unit of account, and store of value.

• Modern money has two tiers: the central bank issues notes and reserves, and banks create the deposits that are most of the money people hold.

• About nine dollars in ten of Americans' currency and deposits are deposits, each a bank's promise to pay central-bank money on demand.

• China's broad money, about $53 trillion, is more than twice America's, because its finance runs through banks.

• Velocity halved between 1997 and 2020, which is why a decade of fast money growth did not raise consumer prices.

Module 1 Quiz

Check Your Understanding

1. In the two-tier system, what makes a bank deposit money?

A) The bank's promise to pay central-bank money on demand
B) A legal-tender law that covers every account
C) Gold held in the bank's vault against each deposit it takes
D) The central bank's guarantee of every deposit, insured or not

2. Why is China's broad money more than twice America's in dollars on a smaller economy?

A) China prints far more banknotes per person than the United States
B) Chinese households and firms save and borrow through banks rather than through markets
C) The yuan's managed exchange rate inflates every figure
D) China counts its foreign reserves, the world's largest, as part of its broad money supply

3. What happened to American broad money between March 2022 and October 2023?

A) It was redefined to leave out money-market funds, which cut the total by a fifth
B) It doubled as the pandemic transfers were spent
C) It stopped being published while the Fed reviewed it
D) It shrank

4. Why did fast money growth between 2008 and 2020 not lift consumer prices?

A) The Fed's interest on reserves kept banks from lending it out
B) Cheap imports from China pushed goods prices down all decade
C) Velocity kept falling: the new money sat in deposits instead of being spent
D) Banks lent out less than the reserves the Fed created

5. Which part of the money stock does the public, rather than the central bank or the banks, decide?

A) Velocity
B) M2
C) Interest on reserves
D) The monetary base

Module 2 — Money Creation and the Banking System

Where Money Comes From

Recommended Reading / Reference

Reference: The Bank of England, 'Money creation in the modern economy' (*Quarterly Bulletin*, 2014), the clearest official account of how lending creates deposits

Reference: The FDIC's *Quarterly Banking Profile*, the quarterly report on every insured American bank

2a. Loans Create Deposits

The textbook story says that a bank takes in deposits and lends them out, keeping a fraction in reserve, so that the money supply is a multiple of reserves, but the mechanics are wrong, and the Bank of England said so in 2014. A bank creates a deposit when it makes a loan: it credits the borrower's account with, say, $300,000 for a mortgage and books the loan as its asset, and the money did not come from another depositor, because the entry created it.

Four things limit how much a bank can lend. The first is capital, since regulators require equity in proportion to the bank's risky assets (2c), and the second is funding, since the deposit moves to another bank when the borrower spends it and the first bank must settle the payment in reserves it holds or borrows. The third is demand, because people borrow less when loans cost more, and the fourth is the risk the bank is willing to carry.

The central bank steers the process through price rather than quantity: its policy rate sets what banks pay for reserves, which sets what they charge borrowers, which sets how much the public wants to borrow. Since 2008 the Fed has run an 'ample reserves' regime, supplying more reserves than banks need and moving rates by changing the interest it pays on them (Module 3) rather than by rationing reserves day to day.

2b. A Bank's Balance Sheet, Worked

Worked example — Three Events at First Regional Bank

First Regional has $10 billion of assets: $6 billion of loans, $2.5 billion of securities (Treasuries and mortgage bonds), $1 billion of reserves at the Fed, and $0.5 billion of cash and other assets. It funds them with $8.5 billion of deposits, $0.5 billion of short-term borrowing, and $1 billion of equity, a 10% capital ratio.

Event one is a loan of $50 million to a developer: loans rise by $50 million on the asset side and the developer's new deposit adds $50 million on the other, so money has been created and no reserves have moved. Equity is now $1 billion against $10.05 billion of assets, so the capital ratio falls to 9.95%, and that ratio, not the stock of reserves, limits how many such loans the bank can make.

Event two is the developer paying a contractor who banks elsewhere: the $50 million deposit leaves, and First Regional settles by sending $50 million of reserves to the contractor's bank, so its reserves fall to $950 million. If it runs short, it borrows overnight from other banks or in the repo market at the day's market rate (the Market Snapshot gives October 14's), or from the Fed's discount window at a higher one, and the money markets of Module 6 exist to make that routine.

Event three is a one-point rise in interest rates, which cuts the market value of the $2.5 billion of securities, with an average duration of about six years (Module 4), by about 6%: $150 million, or 15% of the bank's equity. If the bonds are classed as held to maturity the loss never reaches earnings, and it matters only if depositors leave and the bank must sell, which is what happened to Silicon Valley Bank in March 2023 (Module 7).

The three events are the whole of banking: create money by lending, settle payments in reserves, and manage the mismatch between deposits that can leave tonight and assets that pay back over years.

2c. Reserves, Capital, and the Rules

Constraint	What it is	Level (United States, October 2026)	Who sets it	Effect
Reserve requirement	The share of deposits banks must hold as reserves	0% since March 2020 (1% in the euro area; about 6% in China after repeated cuts)	The central bank	No limit in the United States; a drain on banks' cash elsewhere
Interest on reserve balances	The rate the Fed pays banks on their reserves	Set inside the Fed's target range (Module 3)	The Fed	Steers market rates
Capital (common equity tier 1)	Shareholders' equity against risk-weighted assets	A 4.5% minimum plus buffers; the largest banks hold about 12-14%	The Basel Committee and national regulators	The binding limit on lending; the 2025-26 changes lowered it (Module 18)
Leverage ratio	Equity against total assets, unweighted	3% minimum, plus a buffer for the largest banks	Regulators	Eased in 2025 (Module 18)
Liquidity rules	Liquid assets against 30 days of outflows; stable funding against long-term assets	100% of each	The Basel Committee	Why banks hold reserves and Treasuries
Deposit insurance	The FDIC's guarantee	$250,000 per depositor at each bank	The FDIC and Congress	Runs come from the uninsured (Module 7)
Lender of last resort	The discount window and the standing repo facility	At the top of the target range (Module 3)	The Fed	Turns a liquidity crisis into a loan, if banks will use it

Before 2008 the Fed kept reserves scarce and steered the overnight rate by adding or draining a few billion dollars a day, until quantitative easing left banks with trillions in reserves and brought the ample-reserves regime of 2a.

The table's last row has a catch: the stigma attached to borrowing in 2008 and 2023 shows that banks sometimes will not use the lender of last resort.

Module 2 Key Points

Money Creation and the Banking System

• A bank creates money when it lends: it credits the borrower's deposit and books the loan, with no prior deposit needed.

• Capital, funding, loan demand, and risk limit lending; the United States has required no reserves since March 2020.

• A one-point rate rise costs a bank with six-year duration about 6% of its bonds; it bites only if deposits run.

• Banking is three acts: create deposits by lending, settle payments in reserves, and manage deposits that can leave overnight.

• The Fed steers by price, paying interest on ample reserves, and its discount window lends to sound banks in a run.

Module 2 Quiz

Check Your Understanding

1. Where does the money for a new bank loan come from?

A) From the deposits of the bank's savers, which it lends on
B) From the reserves the central bank lends to the bank each morning
C) From the bank's equity, which the loan draws down
D) The bank creates it: the loan's deposit is made by the entry

2. What is the American reserve requirement?

A) 10% of checkable deposits, as in the 1990s
B) 3% on deposits above $100 million, set each year by the Fed
C) 0%
D) 1%, as in the euro area

3. In the worked example, why does a one-point rate rise threaten First Regional only if depositors leave?

A) Because the FDIC covers any loss on the Treasuries an insured bank holds
B) Because a loss on bonds held to maturity stays on paper unless it must sell them
C) Because rates do not change the value of bonds the bank plans to hold
D) Because its loans reprice at once and the extra income offsets it

4. What happens to First Regional's reserves when its borrower pays a contractor at another bank?

A) They are unchanged, because the deposit and the loan stay on the same books
B) They rise, because the payment shows up as a new deposit at the bank
C) They are replaced by an automatic overnight loan from the Fed
D) They fall by the amount paid, since the bank settles the transfer in reserves

5. What does the 'ample reserves' regime mean?

A) Rationing reserves to steer the overnight rate day by day
B) Steering rates by the interest paid on reserves
C) Requiring banks to hold 10% of deposits as reserves
D) Abolishing the reserve accounts banks keep at the Fed

Module 3 — Central Banks

The Institutions That Set the Price of Money, and Where They Stood in October 2026

Recommended Reading / Reference

Book: Ben Bernanke, *21st Century Monetary Policy* (2022), the Fed's modern toolkit explained by a former chair

Reference: The Federal Open Market Committee's statements and Summary of Economic Projections, September 16, 2026

3a. What They Do

A central bank issues the base money, sets its price, lends to banks in a crisis, supervises them, runs the payment system, and manages the country's reserves and, in many countries, its exchange rate. Its policy rate, the rate at which banks borrow reserves overnight, is the anchor from which every other interest rate is priced, and most central banks move it to hit an inflation target, usually 2%, a practice that spread from New Zealand in 1990 to the Fed in 2012.

Independence, the insulation that lets a central bank raise rates before an election, is a convention of the last forty years. It is written into law in the euro area and Britain, protected by statute and now by the Supreme Court in the United States (3c), and absent in China, where the People's Bank carries out the Communist Party's priorities.

Central bank	Policy rate, October 14, 2026	Last move	Next decision
Federal Reserve (United States)	3.75-4.00% (federal funds target range)	Up 0.25 on September 16 (3b)	October 27-28
European Central Bank	2.50% (deposit rate)	Up 0.25 on September 10, after a rise in June	October 29
Bank of Japan	1.25%	Up 0.25 on September 18, 7-2	October 29-30
Bank of England	3.75% (Bank Rate)	Cut in December 2025; held 6-3 on September 17, three members voting for 4%	November 5
People's Bank of China	1.40% (seven-day reverse repo); loan prime rates 3.0% (one year) and 3.5% (five years)	Cut in May 2025	Loan prime rates set monthly
Swiss National Bank	0%	Cut in June 2025	December 10
Bank of Canada	2.25%	Cut in October 2025	October 28
Reserve Bank of Australia	4.60%	Up 0.25 on September 29, its fourth rise of 2026	November 3
Norges Bank (Norway)	4.50%	Up 0.25 on September 24	November 5
Sveriges Riksbank (Sweden)	1.75%	Held on September 24	November 4
Bank of Korea	3.00%	Up 0.25 on August 27, after a rise in July	October 22
Reserve Bank of India	5.50%	Up 0.25 on October 7, its first rise since 2023	December 4
Bank Indonesia	5.75%	Up a full point in May and June; held September 23	October 21
Central Bank of Brazil	13.75% (Selic)	Cut 0.25 on September 16	Not confirmed

Central bank	Policy rate, October 14, 2026	Last move	Next decision
Bank of Mexico	6.50%	Held on September 24	November 5
South African Reserve Bank	7.25%	Up 0.25 on September 23	November 19
Central Bank of Turkey	37% (one-week repo; banks borrow at the 40% overnight rate)	Held for a fifth time on September 10	October 22
Bank of Russia	14.00% (key rate)	Cut 0.25 in July; held September 11	October 23

Central banks' announcements, as compiled by Trading Economics and the banks themselves. Argentina's monetary regime is in Module 17.

The table shows the turn of 2026: in 2025 most central banks were cutting, but the oil shock that began in February 2026 (Module 5) pushed inflation up again. By October the Fed, the European Central Bank, the Bank of Japan, and the central banks of Australia, Norway, Korea, India, Indonesia, and South Africa had all raised rates. At the Bank of England a minority voted to join them, while Brazil and Russia were still cutting and China held, because their own inflation was falling or their economies were weak.

3b. The Federal Reserve

The Fed is a Board of seven governors in Washington, appointed by the President and confirmed by the Senate for fourteen-year terms, and twelve regional Reserve Banks, of which New York carries out policy in the markets. Its Federal Open Market Committee (FOMC), the seven governors plus five Reserve Bank presidents, New York's permanent and four rotating, sets the target for the federal funds rate at eight meetings a year.

In October 2026 the Board is Chair Kevin Warsh, Vice Chair Philip Jefferson, Vice Chair for Supervision Michelle Bowman, and Governors Christopher Waller, Lisa Cook, Michael Barr, and Jerome Powell. Warsh was nominated on January 30, 2026, confirmed in mid-May, and sworn in on May 22, taking the seat Stephen Miran had held since September 2025, with a term to 2040. Powell stayed on as a governor when his term as chair ended, and his governor's term runs to January 2028. The presidents voting in 2026 are John Williams (New York), Beth Hammack (Cleveland), Neel Kashkari (Minneapolis), Lorie Logan (Dallas), and Anna Paulson (Philadelphia).

The committee cut three times in late 2025, in September, October, and December, to 3.50-3.75%, with dissents on both sides, and then held at five meetings in 2026 while the pressure turned. In January two governors, Miran and Waller, dissented for a cut, but by July three presidents, Hammack, Kashkari, and Logan, dissented for a rise, and the vote to hold was 9-3.

Warsh's first meeting, on June 17, held rates unanimously and set up five task forces to review how the Fed decides and explains itself: communications, the balance sheet, data, productivity and jobs, and the inflation framework, with findings due by the end of 2026. At the Jackson Hole conference on August 28 he called 2% a 'firm, fixed target', said forward guidance had 'outstayed its welcome', and argued that the summer's better inflation readings did not yet show the underlying trend improving.

The meeting of September 15-16 raised the target range by a quarter point, 12-0, the first rise since July 2023, and Waller, who had said on September 3 that he could support a hold if inflation kept improving, voted for it. The statement dropped its reference to 'supply shocks', said that 'the Committee will deliver price stability', and gave no guidance about what came next.

The projections showed 16 of the 18 participants who submitted one expecting at least one more rise in 2026, four of them two, and their median put the funds rate at 4.1% at the end of both 2026 and 2027,

although Warsh submitted no projection of his own. The President wrote the same afternoon that rates should be 1% or less, and the minutes, released on October 7, said most participants thought another rise likely to be appropriate by the end of the year. Futures prices gave an October rise about one chance in five before the September inflation report and about two in five after it, on October 14.

3c. Independence and the Court

The 2025-26 contest over the Fed's independence was settled, for now, in court. In August 2025 the President announced that he was removing Governor Cook, citing allegations about her mortgages, and on June 29, 2026, in *Trump v. Cook*, the Supreme Court refused, by 5-4, to let the removal take effect. Chief Justice Roberts wrote for the majority that governors may be removed only for cause, which requires a substantial showing, notice, and a chance to respond, and Cook remains on the Board while the lower courts weigh the facts.

The same day, in the Slaughter case, which concerned a member of the Federal Trade Commission, the Court voted 6-3 to overrule *Humphrey's Executor*, the 1935 decision that had let Congress protect the heads of independent agencies from removal at will, but it set the Fed apart from that ruling. The Fed is now the one independent agency whose members keep that protection, the carve-out to which later modules refer. Appointments remain the President's, and he chooses the chair, so what the Court protected is the governors' tenure once they sit.

3d. The Tools

Tool	How it works	Setting or status, October 2026
Interest on reserve balances (IORB)	The rate the Fed pays banks on reserves, the main lever of the ample-reserves regime	3.90%, a tenth of a point below the top of the target range
Overnight reverse repurchase agreements (reverse repos)	The Fed borrows from money funds and others against Treasuries, setting a floor	3.75%, the bottom of the range (use in Module 6)
Discount window and standing repo facility	The Fed lends to banks, and through repo to dealers, against collateral	4.00%, the top of the range (use in Module 6)
The balance sheet	Buying securities, quantitative easing (QE), adds reserves and lowers long rates; letting them mature without replacement, quantitative tightening (QT), drains reserves	$6.75 trillion (October 7), down from $8.97 trillion in April 2022; runoff ended December 1, 2025, and bill purchases to keep reserves ample ran from December 2025 to mid-August 2026
Forward guidance	Telling markets where rates are likely to go	Set aside in 2026 (3b)
The projections ('dot plot')	Each participant's expected path for rates, published quarterly	Kept (3b)
Supervision and regulation	Capital, liquidity, and stress tests for the largest banks	Eased in 2025-26 (Module 18)
Swap lines	Dollars lent to foreign central banks for their own banks	Module 12

The administered rates form a corridor around the target, because money funds will not lend for less than the reverse-repo rate, banks have little reason to lend reserves for much less than the Fed pays them, and no sound borrower pays much more than the discount rate. The market rates in the Market Snapshot sit inside it, a little below the rate on reserves because much of the overnight lending comes from the Federal Home Loan Banks, which are not paid interest on reserves (Module 6). The balance sheet, meanwhile, works on longer rates and on the quantity of reserves, which the Fed now holds steady after ending its runoff.

Module 3 Key Points

Central Banks

• Half the central banks in the table, the Fed among them, raised rates in 2026 as the oil shock lifted inflation.

• The Fed raised its target a quarter point to 3.75-4.00% on September 16, 2026, 12-0, its first rise since July 2023.

• Chair Kevin Warsh, sworn in on May 22, 2026, dropped forward guidance and set up five task forces on how the Fed works.

• The Supreme Court ruled 5-4 in June 2026 that Fed governors may be removed only for cause.

• Three administered rates bracket the market: reverse repos at 3.75%, reserves at 3.90%, and the discount window at 4.00%.

Module 3 Quiz

Check Your Understanding

1. Which description fits the world's central banks in October 2026?

A) Nearly all were cutting toward a neutral rate as inflation faded after the 2025 cuts
B) All were holding still to wait out the oil shock
C) Half were raising rates as an oil shock lifted inflation
D) Most had returned to zero rates to support growth

2. Who dissented at the Fed's July 2026 meeting, and in which direction?

A) Hammack, Kashkari, and Logan, for a rise
B) Miran and Waller, for a cut of a quarter point
C) Warsh alone, for a cut
D) Powell and Cook, for a half-point rise instead

3. What did the Supreme Court decide about Governor Cook in June 2026?

A) The President may remove governors at will, as he may other agency heads
B) Cook's removal could take effect while the lower courts heard the case
C) Congress must approve the removal of any governor
D) Governors may be removed only for cause

4. What did the September 2026 statement change besides the rate?

A) It restored forward guidance and promised two more rises before the end of the year
B) It dropped 'supply shocks', said the Committee will deliver price stability, and gave no guidance
C) It announced a new round of bond purchases to support the Treasury market
D) It replaced the 2% target with a range of 2-3% for the oil shock

5. Where does the Fed set the rate on its overnight reverse repos, and why?

A) At the bottom of the target range, to put a floor under money-market rates
B) At the top of the range, to cap what banks will pay one another for overnight loans
C) A tenth of a point below the top, where it pays banks on reserves
D) Wherever the market clears that day, since the facility is an auction

Module 4 — Interest Rates and the Yield Curve

How Rates Are Set Across Maturities, and What the Curve Says

Recommended Reading / Reference

Book: Frank Fabozzi, *Bond Markets, Analysis, and Strategies*, the standard text on pricing, duration, and the term structure

Reference: The Treasury's daily par yield curves, nominal and real, the source of every yield in this module

4a. The Term Structure

Maturity	What sets it	October 14, 2025	October 15, 2024
Federal funds target	The FOMC	4.00-4.25%	4.75-5.00%
3-month bill	The policy rate expected over the next three months	4.02%	4.73%
2-year note	The policy rate expected over two years	3.48%	3.95%
5-year note	Expected policy plus a term premium	3.60%	3.86%
10-year note	Expected policy, the term premium, and the supply of debt	4.03%	4.03%
30-year bond	The term premium, supply, and the debt's long-run path	4.62%	4.32%
10-year real yield (TIPS)	The real rate investors demand	1.73%	1.75%
10-year breakeven inflation	Expected inflation plus a premium for inflation risk	2.30%	2.28%
30-year mortgage	The ten-year yield plus a spread of 1.5 to 2.5 points	6.27%	

Treasury par yields and Freddie Mac. The October 14, 2026 levels are in the Market Snapshot.

Interest rates are a family, not a number, and each member answers a different question. The overnight rate is the Fed's decision, the two-year yield is the market's forecast of where the Fed will take it, and the ten-year adds a term premium, the extra yield investors demand for holding a long bond through an uncertain decade, along with the effect of how much debt the Treasury must sell. Mortgages and corporate bonds are priced at a spread above it.

Set against the table, the October 2026 curve shows what a year of oil shock and deficits did. The two-year rose about 1.3 points in twelve months and now sits above the funds rate, because the market expects the Fed to raise rates again. The ten-year rose more than a point after two years near 4%, crossing 5% in 2026 for the first time since 2007, and the real ten-year yield rose by about the same amount, so the move was mostly in real rates rather than in expected inflation.

4b. Real Rates, the Neutral Rate, and the Term Premium

Three ideas organize the curve. The real rate is the nominal yield less expected inflation, and it is what borrowers and savers actually face; the ten-year TIPS yield, the return on bonds whose principal rises with consumer prices, measures it directly. The neutral rate, called r-star, is the real policy rate that neither speeds nor slows the economy, a quantity no one observes and everyone estimates.

The Federal Reserve's own estimate of neutral is embedded in its projections: the median participant's long-run funds rate was about 3.2% in September 2026, which with 2% inflation implies a neutral real rate a

little above 1%. With core inflation near 3% (Module 5), a funds rate near 3.9% is therefore a real rate below 1%, roughly neutral rather than restrictive. That is the arithmetic behind the hawks' view that policy was not tight even after the September rise.

The term premium, the third idea, was near or below zero through much of the 2010s, when central banks were buying long bonds and inflation seemed dead, and it has come back: the Federal Reserve Board's Kim-Wright model put the ten-year premium at about 1.1 points on October 9, 2026. A rising term premium is how long rates climb in months when the Fed does nothing, and it is the channel through which the bond market charges a government for its borrowing (Module 8).

4c. A Bond's Price and Duration, Worked

Worked example — A Note Bought in 2024

Take a ten-year Treasury note bought at par in 2024 with a 3.875% coupon, paying $38.75 a year on $1,000. In October 2026 it has eight years left, and a new buyer will pay only what makes it yield what new eight-year paper yields, about 5.12% (between the seven-year's 5.09% and the ten-year's 5.19%). Discounting the remaining coupons and the $1,000 at 5.12% gives a price of about $919, so the first owner has lost 8.1% of principal on paper.

Duration measures that sensitivity: this note's modified duration is about 6.7, which means a further one-point rise in yields would cut its price by about 6.5% (a little less than 6.7%, because convexity, the curvature of the price-yield relationship, cushions losses and amplifies gains). A new thirty-year bond at 5.52% has a modified duration of about 14.6, so the same one-point rise would cost it about 13%, and a thirty-year bond bought at a 1.25% yield in 2020 would now trade near 43 cents on the dollar.

The loss is real only if the owner sells, since held to maturity the note's price climbs back toward $1,000 as the years pass, and a buyer who pays $919 today earns 5.12% a year until 2034. That is the whole argument between the bond bulls of 2026, who see yields that pay well for the wait, and the bears, who expect yields to rise further and prices to fall first.

4d. What the Curve Says

The curve's shape is the market's forecast, and an upward slope is normal, because long bonds carry a term premium and growth and inflation are expected to continue. An inverted curve, with short rates above long ones, prices rate cuts and usually a recession, and it has come before every American recession since the late 1960s. The 2022-24 inversion, the deepest since 1981, was not followed by one, so it was either a false alarm or a very long lead.

The October 2026 curve in the Market Snapshot slopes upward from a month to thirty years, with bills already above the top of the Fed's range and the two-year well above it. It prices at least one more rise, then a plateau, and a long end held up by the term premium and the supply of debt. It does not price a recession: the ten-year sits about 0.4 points above the two-year and 0.9 points above the three-month bill. The signal to watch is the two-year, because a fall below the funds rate would mean the market has decided the Fed is done.

Module 4 Key Points

Interest Rates and the Yield Curve

• The two-year yield is the market's forecast of policy; the ten-year adds a term premium and the weight of debt supply.

• The ten-year rose more than a point in a year, crossing 5% in 2026 for the first time since 2007.

• With core inflation near 3%, a funds rate near 3.9% is close to the Fed's own estimate of neutral.

• A 3.875% note bought at par in 2024 is worth about $919 per $1,000 now; its duration of 6.7 measures the risk.

• The October 2026 curve slopes upward and prices no recession; inversion preceded every recession since the 1960s but misfired in 2022-24.

Module 4 Quiz

Check Your Understanding

1. Why does the two-year Treasury yield sit above the federal funds rate in October 2026?

A) Two-year notes carry a credit premium since the 2025 downgrade
B) The term premium is largest at two years
C) The market expects the Fed to raise rates again
D) Foreign central banks sold two-year notes during the oil shock

2. What is the neutral rate, or r-star?

A) The extra yield on long bonds over short ones
B) The yield at which the Treasury can sell all the debt it needs
C) The real rate that neither speeds nor slows the economy
D) The rate at which banks lend one another reserves overnight

3. In the worked example, why is a 3.875% note bought at par in 2024 worth about $919 per $1,000 in October 2026?

A) Its coupon was cut when the Fed raised rates
B) New eight-year paper yields about 5.1%, so its fixed coupon is worth less
C) The Treasury's credit rating fell, so all its notes lost value
D) Inflation since 2024 has cut the real value of its $1,000 repayment to $919

4. What does a bond's modified duration measure?

A) The number of years until the bond repays its principal
B) The share of the bond's return that comes from its coupons
C) How many coupon payments are left before the bond matures
D) The percentage its price changes for a one-point move in its yield

5. What has an inverted yield curve usually signaled?

A) A coming recession
B) Rising inflation expected over the next decade
C) A shortage of long-dated Treasury bonds
D) A central bank about to raise rates sharply

Module 5 — Inflation and Deflation

The Measurement, the Record Since 2021, and the 2026 Dilemma

Recommended Reading / Reference

Book: Stephen D. King, *We Need to Talk About Inflation* (2023), a central-bank economist on why the 2021-22 inflation was missed

Reference: The BLS's monthly Consumer Price Index release and the BEA's personal consumption expenditures price index

5a. Measurement

Inflation is the rate at which the general price level rises, and the general level is a construction: a basket of goods and services, weighted by what households buy and priced every month. The United States publishes two. The Consumer Price Index (CPI), from the BLS, prices about 80,000 items and indexes Social Security and TIPS, while the price index for personal consumption expenditures (PCE), from the BEA, covers a broader basket, including spending made on households' behalf such as employer-paid health care, and is the measure the Fed targets at 2%.

The two differ mainly in their weights, since the CPI counts housing at about a third of the basket and the PCE at about a sixth. 'Core' measures strip out food and energy because those prices swing; 'headline' measures keep them, and in 2026 the difference between the two is the oil shock. In August 2026, unusually, core PCE inflation ran 0.6 points above core CPI inflation, which was 2.4%, a reminder that the choice of index is itself a policy argument.

Other gauges fill in the picture: producer prices, trimmed means that drop the month's most extreme moves, the breakeven inflation priced into Treasury bonds (Market Snapshot), and surveys. The University of Michigan's October survey found households expecting 4.7% inflation over the next year and 3.5% a year over the next five to ten, the long-run figure being the one central banks watch most closely.

5b. The Record Since 2021

Country or area	Peak since 2021	Latest 12-month rate	What drove 2026
United States (CPI)	9.1% (June 2022)	3.7% in September 2026; core 2.6%	Tariffs in 2025, then the oil shock (5c)
United States (PCE, the Fed's target)		3.4% in August 2026; core 3.0%	The same, with services weighted more heavily
Euro area	10.6% (October 2022)	3.8% in September 2026 (flash); core 2.5%	Oil and gas prices
Britain	11.1% (October 2022)	3.1% in August 2026	Energy and services
Japan	4.3% (January 2023)	1.9% in August 2026; 1.7% excluding fresh food	Energy subsidies (5e)
China	Consumer prices 2.8% (September 2022)	Consumer prices 0.9%; producer prices up 5.0% (September 2026)	Oil and an export boom (5e)
India	7.8% (April 2022)	5.54% in September 2026	Food and fuel, after a record low of 0.25% in October 2025

Country or area	Peak since 2021	Latest 12-month rate	What drove 2026
Brazil	12.1% (April 2022)	4.58% in September 2026	Above the 3% target
Turkey	85.5% (October 2022)	29.7% in September 2026	Slow disinflation under very tight policy
Argentina	289% (April 2024)	33.4% in September 2026; 1.9% in the month	Stabilization (Module 17)
Venezuela		534% in August 2026, on the central bank's figure	Hyperinflation's return
World	8.7% (2022)	4.7% forecast for 2026 by the IMF (October 2026)	The disinflation of 2023-25 reversed by the oil shock

National statistics offices and central banks, as compiled by Trading Economics; IMF, *World Economic Outlook*, October 13, 2026.

The inflation of the 2020s, the first worldwide inflation since the 1970s, came in three waves. The first, in 2021-22, was pandemic demand, fed by government transfers and by the money created to finance them, meeting supply shocks in shipping, chips, and labor and then Russia's invasion of Ukraine, and it set the peaks in the table. The second, in 2023-24, was the disinflation, as the fastest round of rate rises since 1980 and repaired supply chains brought the rich world back toward 2-3%.

The third wave is the re-acceleration of 2025-26: American tariffs lifted goods prices from 2025, and then the closing of the Strait of Hormuz in 2026 lifted energy and food prices (5c). That kind of supply shock raises prices and cuts output at the same time, which a central bank cannot cure by raising rates and cannot ignore if it starts to move what people expect.

5c. The Oil Shock of 2026

The war that began with the strikes on Iran on February 28, 2026 closed the Strait of Hormuz to most shipping, cutting off the route that had carried about a fifth of the world's oil. Brent crude, about $72 a barrel on February 27, averaged $103 in March and $117 in April, when futures briefly passed $126. Prices eased in early summer as some traffic resumed, averaging $84 in July, but the strait was closed again from July 11, and Brent averaged $114 in September.

By early October only between seven and about twenty commodity ships a day were crossing, against about 125 before the war, and physical cargoes cost far more than futures: Dated Brent, the price for oil that can actually be loaded, reached $135.51 on October 2, about $30 above the futures price. In the United States the shock showed up as a 20.4% rise in energy prices over the year to September, and it spread through diesel, fertilizer, and freight into the prices of goods that never touch the Gulf.

5d. Look Through It or Tighten?

Textbook policy says a central bank should look through a supply shock, because a one-time rise in the price level is not sustained inflation, unless the shock lifts expectations and wages, in which case the bank must tighten into a slowing economy. The Fed's choice in 2026 turned on which of those two cases applied, and each has serious advocates.

The case for looking through runs as follows. Raising rates cannot reopen a strait or lower the price of oil, so it adds an output loss to the one the shock has already caused. Core CPI inflation was well below the headline rate in September (5b), and wages were rising about 3.0% a year, with no sign of the wage-price spiral of the 1970s. The labor market was weakening: payrolls rose 29,000 in September after revisions cut

July's figure to a loss, and unemployment reached 4.2%. Central banks that tightened into oil shocks before, the European Central Bank in 2008 and 2011, had to reverse course within months.

The case for tightening runs the other way. Inflation had been above 2% for five and a half years, since the spring of 2021, and households' long-run expectations (5a) were well above the target. Core PCE inflation, the Fed's own measure, was above it too (5b), and the shock had lasted nearly eight months and come twice, which makes it less like a one-time jump. Policy was close to neutral (Module 4), so a quarter-point rise tightened little, while a large government deficit was adding to demand (Module 9).

The evidence is mixed. Markets still expect inflation to settle, judging by the ten-year breakeven in the Market Snapshot, but households' long-run expectations had drifted above target, which is what economists mean when they warn that expectations are coming unanchored. The course's reading is that the September rise is best understood as insurance on expectations rather than an attack on the oil price: after so long above target, the cost of losing credibility outweighs the cost of a quarter point. The case for looking through grows stronger, though, with every month the labor market weakens, and if hiring keeps slowing a second rise would be the larger risk.

5e. Japan and China, the Exceptions

Japan, after three decades in which prices and wages barely moved, ran inflation above 2% from 2022 through 2025, and its unions won pay rises above 5% in each spring round from 2024 to 2026 (5.01% in 2026, by the main federation's tally). The Bank of Japan raised rates from below zero (Module 3). In 2026, however, Japanese inflation fell back below 2% from January, as energy subsidies offset the oil shock, so the Bank of Japan kept raising rates with inflation under target, on the strength of wages and a weak yen (Module 10).

China was the deflation story of 2023-25: consumer prices near zero, a property collapse, and factory-gate prices that fell for about 41 months while excess industrial capacity pushed Chinese goods onto the world at falling prices. The oil shock and a boom in Chinese exports ended the fall in producer prices in March 2026, and by September they were rising far faster than consumer prices (5b). The question for the rest of the world is whether China resumes exporting deflation once oil eases, or whether the export boom has absorbed its spare capacity.

Module 5 Key Points

Inflation and Deflation

• The Fed targets 2% on the PCE index; the CPI counts housing about twice as heavily, so the two can diverge.

• American consumer prices rose 3.7% in the year to September 2026, with energy up 20% on the oil shock.

• The 2020s inflation came in three waves: pandemic demand, disinflation, then tariffs and the 2026 oil shock.

• Households expected 3.5% inflation over the long run in October 2026, the drift that turns a supply shock into a policy problem.

• Japan's inflation fell below 2% in 2026 on energy subsidies, while China's factory-gate prices rose after 41 months of decline.

Module 5 Quiz

Check Your Understanding

1. Which American price index does the Fed target at 2%?

A) The PCE price index
B) The CPI
C) The producer price index for finished goods
D) The CPI excluding shelter

2. Which three waves does the module describe in the inflation of 2021-26?

A) Wages first, then rents, and at the end food and fuel
B) Oil in 2021, oil again in 2023, and oil once more in 2026
C) Demand, then disinflation, then tariffs and oil
D) A single rise on demand that never broke, from 2021 to 2026

3. In the case for looking through the 2026 oil shock, why would raising rates do more harm than good?

A) It would push the dollar down and so import more inflation
B) It cannot reopen the strait or lower oil prices, so it only adds lost output
C) It would lift mortgage rates above 10% and stop housing in its tracks
D) It would end the Fed's independence from the Treasury for good

4. What does the module mean by inflation expectations becoming 'unanchored'?

A) Breakevens falling below zero
B) The Fed giving up its 2% target for a range
C) Markets pricing higher inflation than households expect over the next year
D) Long-run expectations drifting above the target, as households' did

5. What happened to China's producer prices in March 2026?

A) They fell for the forty-first month in a row as exports slowed
B) They were frozen by decree to protect exporters
C) They were replaced by a new index that excludes energy
D) They began to rise

Module 6 — The Money Markets

The Plumbing of Short-Term Finance

Recommended Reading / Reference

Book: Joseph Wang, *Central Banking 101* (2021), a former Fed trader's guide to reserves, repo, and the Fed's balance sheet

Reference: The Office of Financial Research's money-market and repo data, and the New York Fed's reference rates

6a. The Instruments and the Size

Instrument	What it is	Size (latest)	Who borrows and who lends	Note
Treasury bills	Government IOUs of four weeks to a year, sold at a discount	Module 8	The Treasury borrows; money funds, foreigners, firms, and stablecoin issuers lend	The safe asset at the center of the system (Module 8)
Repurchase agreements (repo)	A loan secured by securities, which the borrower sells and agrees to buy back, usually the next day	About $5.4 trillion a day in the centrally cleared and tri-party segments, plus uncleared trades between dealers and clients	Dealers and hedge funds borrow; money funds and banks lend	Priced at SOFR (Market Snapshot); central clearing coming (6b)
Federal funds	Unsecured overnight loans of reserves between banks	About $110 billion a day	Mostly the Federal Home Loan Banks lending to foreign banks' American branches	The rate the Fed targets, now set in a small market
Commercial paper	Unsecured IOUs of companies and banks, of up to 270 days	$1.49 trillion (October 7, 2026)	Firms and banks borrow; money funds lend	Froze in 2008 and March 2020
Money-market funds	Funds holding bills, repo, and commercial paper at a stable $1.00 a share	$7.96 trillion (October 7, 2026), of which $6.56 trillion in government funds	Households, firms, and institutions lend through them	Ran in 2008 and 2020; institutional prime funds must charge fees on large redemptions since October 2024
Federal Home Loan Bank advances	Loans from eleven government-sponsored banks to their member banks, against mortgages	$811 billion (June 30, 2026)	Banks borrow	The 'lender of next-to-last resort', which funded Silicon Valley Bank and First Republic before they failed
The Fed's facilities	The reverse repo floor and the standing repo ceiling (Module 3)	Near zero most days	Money funds lend to the Fed; dealers and banks borrow from it	The corridor's walls

Treasury, Office of Financial Research, Federal Reserve, ICI (the Investment Company Institute), and the FHLBanks' Office of Finance.

The money markets are where the financial system borrows and lends for a day to a year, and they are the plumbing everything else stands on. Treasury bills' share of the debt has grown because the Treasury chose to borrow short (Module 8). Repo is the largest market by daily volume, and its benchmark, the Secured

Overnight Financing Rate, replaced the London interbank offered rate (Libor) in 2023 as the reference for trillions of dollars of loans and derivatives.

Money-market funds are the largest lenders, having grown in years when households moved cash out of bank deposits paying little into funds paying close to the policy rate. The Fed's reverse-repo facility, which held $2.55 trillion of the funds' cash at the end of 2022, is nearly empty because the Treasury's extra bills absorbed that cash. Market rates trade inside the Fed's corridor (Module 3) except when the plumbing seizes.

6b. When the Plumbing Seizes

Twice in six years the money markets stopped working. In September 2019 the overnight repo rate jumped from about 2% to as much as 10% within a day, because corporate tax payments and a Treasury settlement drained reserves just as years of balance-sheet runoff had left them scarcer than anyone had measured. The Fed lent tens of billions of dollars a day in repo and resumed buying bills, and the lesson that 'ample' reserves must be measured rather than assumed led in 2021 to the standing repo facility.

In March 2020 the Treasury market itself broke, as foreign central banks, hedge funds unwinding the basis trade (6c), and money funds meeting redemptions all sold Treasuries for cash at once. Dealers' balance sheets could not absorb the selling, and yields rose during a crisis instead of falling. The Fed bought about $1 trillion of Treasuries in three weeks, backstopped money funds and commercial paper, and opened dollar swap lines with foreign central banks (Module 12).

A smaller squeeze came in late 2025, as runoff drew reserves down toward the level banks need. Banks and dealers borrowed $50.35 billion from the standing repo facility on October 31, 2025, a record at the time, and $74.6 billion on December 31, the year-end record. The end of the Fed's runoff and its purchases of bills (Module 3) let the squeeze pass, and borrowing from the facility fell back to near zero for most of 2026.

The episodes are why the money markets are now regulated as infrastructure. The Securities and Exchange Commission (SEC) requires central clearing of cash Treasury trades from December 31, 2026 and of Treasury repo from June 30, 2027, and the standing repo facility caps the overnight rate. The open question, sharpened by the Treasury's reliance on bills, is whether dealers can absorb the next wave of selling.

6c. A Repo Trade and the Basis Trade, Worked

Worked example — Financing $1 Billion of Two-Year Notes

A hedge fund buys $1 billion of two-year Treasury notes yielding 4.82% and finances them in repo. It hands the notes to a money fund as collateral and receives $980 million in cash, a 2% haircut, agreeing to buy them back the next day for $980 million plus a day's interest at SOFR, 3.88%, which comes to about $105,600. It rolls the loan every day.

Over a year the notes earn $48.2 million and the borrowing costs about $38.0 million, leaving $10.2 million on the $20 million of the fund's own money, a return of about 51% at 50-to-1 leverage. The same leverage cuts the other way: a 2% fall in the notes' price wipes out the fund's capital, and for a two-year note that takes a rise in yields of only about 1.1 points.

The basis trade adds a futures leg: the fund sells Treasury futures against the notes to capture the small amount by which futures trade above the cash bonds, and it runs at 50 to 100 times leverage. A Fed study

published in June 2026 put hedge funds' basis positions at about $830 billion in September 2025, double their early-2020 peak, and Morgan Stanley, measuring differently, estimated $1.2 trillion in September 2026, down about a fifth during the year.

The trade works until repo rates spike, as in September 2019, or until a shock forces everyone to unwind at once, as in March 2020. At that point a fund levered 50 to 1 must sell its notes into a market that is already selling, which is how a plumbing problem becomes a crisis in the Treasury market. The money fund on the other side is safe in a narrower sense: it lent overnight against government collateral, and it will lend again tomorrow unless it needs the cash back, which is what happened in 2020.

Module 6 Key Points

The Money Markets

• The money markets lend for a day to a year; money-market funds, the largest lenders, held $7.96 trillion in October 2026.

• Market rates trade in a corridor between the Fed's reverse-repo floor and its discount-rate ceiling, except when the plumbing seizes.

• In September 2019 overnight repo jumped to 10% when reserves proved scarcer than anyone had measured.

• In March 2020 the Treasury market itself broke, and the Fed bought about $1 trillion of Treasuries in three weeks.

• A basis trade at 50 to 1 can earn about 51% a year, and a 2% price fall wipes it out.

Module 6 Quiz

Check Your Understanding

1. Which money market is the largest by daily volume?

A) Repo, loans secured by securities
B) Federal funds, at about $110 billion a day
C) Commercial paper
D) Treasury bills

2. Why is the Fed's reverse-repo facility nearly empty in 2026 after holding $2.55 trillion at the end of 2022?

A) The Fed closed the facility to money funds in 2024
B) Money funds shrank by half after the 2023 bank failures
C) The Treasury's extra bills absorbed the cash
D) Rates fell so low it paid nothing

3. What did the repo spike of September 2019 teach the Fed?

A) That money funds are safe in any squeeze
B) That 'ample' reserves must be measured, not assumed
C) That bills are too risky for money funds to hold
D) That repo is unnecessary when reserves are high

4. What broke in March 2020?

A) The Treasury market itself, as everyone sold Treasuries for cash at once
B) Only the stock market, which fell a third in a month
C) The deposit insurance fund, which paid out more than in a decade
D) The reverse-repo floor, which money funds pushed through

5. In the worked example, how much does the fund earn a year on its own $20 million?

A) About 4.8%, the notes' yield
B) About 0.9 points, the spread over the repo rate
C) About 20%, the haircut's multiple
D) About 51%

Module 7 — Banks and the Shadow System

The Banks, the Non-Banks, and Where Credit Now Lives

Recommended Reading / Reference

Book: Gary Gorton, *Misunderstanding Financial Crises* (2012), on why runs happen to any short-term debt that looks like money

Reference: The Financial Stability Board's *Global Monitoring Report on Non-Bank Financial Intermediation* (December 2025)

7a. The Banks

Bank	Country	Total assets, end of 2025	Note
Industrial and Commercial Bank of China	China	$7.65 trillion	The world's largest bank by assets
Agricultural Bank of China	China	$6.97 trillion	State-owned, like the other three Chinese giants
China Construction Bank	China	$6.52 trillion	
Bank of China	China	$5.48 trillion	
JPMorgan Chase	United States	$4.42 trillion	$5.09 trillion by September 30, 2026; market value about $880 billion

S&P Global Market Intelligence, 'The world's largest banks by assets, 2026' (April 2026); JPMorgan's third-quarter report (October 13, 2026).

Banks are the system's core and a shrinking share of it. The United States had 4,238 insured banks and savings institutions at the end of June 2026, down from about 18,000 in 1985, with $26.5 trillion of assets and a return on assets of 1.37% in the second quarter; the four largest held 40% of the assets. JPMorgan, the largest, earned a 20% return on tangible equity in the third quarter of 2026 with common equity of 13.9% of its risk-weighted assets.

China's banking system is the world's largest, with about 480 trillion yuan (about $70 trillion) of assets at the end of 2025, and its four state giants in the table carry the most exposure to property and to local-government debt (Module 17). Europe's banks are fragmented, less profitable, and consolidating, and Japan's are recovering their margins as rates rise. Rising rates cut both ways, lifting lending margins but cutting the value of bonds bought when yields were low, which left American banks with about $330 billion of unrealized losses on securities at the end of June 2026, losses that shrink only as the bonds mature.

7b. The 2023 Failures

Silicon Valley Bank (SVB) showed how a modern bank run works. At the end of 2022 it had $209 billion of assets, about 94% of its deposits were uninsured, and a large portfolio of bonds bought at low yields carried losses of about $15 billion that its accounts did not show because the bonds were classed as held to maturity. On March 8, 2023 it announced a $1.8 billion loss on bonds it had sold and a plan to raise capital.

Depositors, many of them start-ups advised by the same venture-capital firms, withdrew more than $40 billion the next day, mostly by phone and app, and asked for about $100 billion more the morning after, when regulators closed the bank. Signature Bank, with $110 billion of assets, failed two days later, and First

Republic, with about $229 billion, was seized and sold to JPMorgan on May 1. After Washington Mutual's in 2008, they were the second-, third-, and fourth-largest bank failures in American history.

The response was to guarantee every deposit at the two failed banks under a 'systemic risk' exception, to lend to other banks against bonds valued at par through the Bank Term Funding Program (which stopped new loans on March 11, 2024), and to propose higher capital for large regional banks, a proposal the 2025-26 deregulation reversed (Module 18). The episode's lesson is that a run now takes hours rather than days, and that uninsured deposits plus long-dated bonds are the combination to watch.

7c. The Shadow System

Sector	What it does	Size (latest)	Where the risk lies
All non-bank finance	Lending and investing outside banks	$256.8 trillion, 51% of the world's $503.7 trillion of financial assets (end of 2024); it grew 9.4% in 2024 against 4.7% for banks	Activities that look like banking without a bank's capital, liquidity rules, or central-bank backstop
Money-market funds	Short-term lending to governments, banks, and firms	Module 6	Runs
Hedge funds	Leveraged trading	About $13 trillion of assets on the IMF's count (October 2026)	The basis trade and other leveraged bets on 'safe' assets (Module 6)
Private credit	Funds lending directly to mid-sized companies	About $1.4 trillion in the United States (Fed, May 2026); $1.5-2.0 trillion on industry estimates	Argued in 7d
Insurers and pension funds	Long-term savings, and the buyers of long bonds and private credit		Leverage hidden in hedging strategies (the 2022 gilt crisis, Module 14); growing private-credit holdings
Government-sponsored enterprises	Fannie Mae and Freddie Mac guarantee mortgages; the home-loan banks lend to banks	Advances in Module 6	Fannie and Freddie in conservatorship since 2008, with plans to sell shares still undecided

Financial Stability Board, December 2025; IMF, *Global Financial Stability Report*, October 2026; Federal Reserve, *Financial Stability Report*, May 2026.

The regulation that made banks safer after 2008 pushed risk toward the non-banks, a shift the Financial Stability Board calls migration. Most of the crises of the 2020s were non-bank crises: the money-fund run and the basis-trade unwind of March 2020 (Module 6), the collapse of British pension funds' leveraged hedges in 2022 (Module 14), and, in 2025-26, the strains in private credit.

7d. Is Private Credit the Next Crisis?

Private credit is the decade's fastest-growing lender: funds raised from pensions, insurers, endowments, and increasingly retail investors lend directly to mid-sized companies that once borrowed from banks, at floating rates several points above the bonds of larger firms. Its strains in 2025-26 put it at the center of the argument over where the next crisis will start.

Those who see a systemic risk, among them the IMF, several regulators, and JPMorgan's chief executive, Jamie Dimon, point to its speed of growth and its opacity. Loans are valued by the lenders' own models and some borrowers pay interest in more debt rather than cash. The bankruptcies of First Brands and Tricolor in

September 2025 involved collateral allegedly pledged to several lenders at once, which prompted Dimon to warn that 'when you see one cockroach, there are probably more.' They also stress the ties to banks, which lent $2.08 trillion to non-bank financial firms by September 2026, and the funds sold to individuals, which promise withdrawals the loans cannot fund.

Those who see a contained risk, the industry and many economists among them, answer that a fund financed by investors who have agreed to lock up their money cannot suffer a run the way a bank can. Its leverage is lower than a bank's, and the losses so far came from frauds that also caught banks. On this view the borrowers would otherwise be borrowing from banks, the risk sits with investors who chose it, and the Fed puts American private credit at about a tenth of the debt of non-financial companies.

The evidence of 2026 cuts both ways. In April, Blue Owl capped withdrawals from two of its funds at 5% after investors asked to take out 22% of its flagship fund and 41% of a technology-lending fund, amid fears that artificial intelligence would disrupt the software companies it had lent to. The caps worked as designed, with no forced sales, but they showed the mismatch between retail promises and illiquid loans, and the Fed reported that withdrawals from such funds exceeded new money in the first quarter for the first time.

The course's reading is that private credit is more likely to spread a recession than to start one: locked-up capital limits runs, but bank credit lines and retail funds tie it to the rest of the system, and its opacity means losses will be found late. Its test is the first recession since it grew, which it has not yet had.

7e. Where Credit Lives

The two tables together answer where the economy now borrows. Households borrow from banks for credit cards and from non-banks for most mortgages, since non-bank lenders now originate about two-thirds of American home loans. Large companies borrow in the bond market and mid-sized ones increasingly from private-credit funds, governments borrow from everyone, and the banks in the middle have become the financiers of the financiers, lending to the funds, the non-bank lenders, and the dealers rather than to the final borrowers. The consequence for a crisis is that the run may come from a fund or a pension scheme rather than a bank, beyond the reach of deposit insurance and the discount window.

Module 7 Key Points

Banks and the Shadow System

• America had 4,238 insured banks in mid-2026, down from about 18,000 in 1985; the four largest held 40% of assets.

• Silicon Valley Bank lost more than $40 billion of deposits in one day in March 2023, and failed the next.

• Non-bank finance held $257 trillion at the end of 2024, slightly more than half the world's financial assets.

• Private credit, about $1.4 trillion in America, is more likely to spread a recession than to start one.

• Non-banks now originate about two-thirds of American mortgages, while banks lend to the lenders.

Module 7 Quiz

Check Your Understanding

1. What made the 2023 failures of Silicon Valley Bank and its peers so fast?

A) Fraud by the banks' executives
B) Uninsured deposits that could leave in hours
C) A stock-market crash that wiped out their capital in March
D) Losses on commercial real estate loans that came due together

2. What share of the world's financial assets did non-bank finance hold at the end of 2024?

A) About a quarter, $120 trillion
B) About nine-tenths of the total
C) About half, some $257 trillion of it
D) About a tenth, much of it in money funds

3. What did the First Brands and Tricolor bankruptcies reveal?

A) Strong underwriting across the private-credit industry
B) That banks had no exposure to private credit at any point
C) Collateral allegedly pledged to several lenders at once
D) Losses on loans to software companies

4. In the case that private credit is a contained risk, why can a fund not suffer a bank-style run?

A) The FDIC insures private-credit funds just as it insures banks
B) Its loans are all backed by Treasuries that can be sold
C) The Fed lends to the funds through its discount window
D) Its investors agreed to lock up their money, so they cannot all leave at once

5. Who originates most American home mortgages in 2026?

A) Non-bank lenders
B) The four largest banks, through their mortgage arms
C) Fannie Mae and Freddie Mac, directly
D) Credit unions and small community banks

Module 8 — Government Debt and the Bond Market

The World's Largest Market, and Who Finances It

Recommended Reading / Reference

Book: Barry Eichengreen, Asmaa El-Ganainy, Rui Esteves, and Kris James Mitchener, *In Defense of Public Debt* (2021), three centuries of what public debt has been for

Reference: The Treasury's quarterly refunding statements and its Treasury International Capital (TIC) data on foreign holders

8a. The Debt and the Market

Country	Gross government debt, 2026 (% of GDP, IMF)	Ten-year yield, October 14, 2026	Note
United States	125.8%	Market Snapshot	Discussed below
Japan	199.4%	3.00%	The thirty-year reached a record 4.25% in October and the forty-year 4.40% in May
Italy	137.9%	4.56%	
France	118.5%	4.88%	Now above Italy's; the spread over Germany reached about 1.47 points on October 5, the widest since 2011-12
Britain	104%	5.40%	A budget due on October 28
Germany	64.6%	3.44%	The euro's benchmark
China	104.4%	1.66%	Local-government financing vehicles owed about $8 trillion more at the end of 2023, on the IMF's estimate
World	Just under 94% (2025)		Heading to 100% by 2029 on the IMF's April 2026 projection

IMF, *World Economic Outlook* database and *Fiscal Monitor* (April 2026); yields from Trading Economics.

Government debt is the world's largest market, and the American Treasury market is its benchmark, its safe asset, and the collateral behind the money markets of Module 6. Gross federal debt passed $40 trillion on August 18, 2026 and stood at $40.34 trillion on October 13, of which $32.48 trillion was held by the public and $7.86 trillion by government trust funds such as Social Security's. Of the debt held by the public, $31.8 trillion was marketable at the end of September: $7.12 trillion of bills, $16.28 trillion of notes, $5.55 trillion of bonds, and the rest inflation-protected and floating-rate securities.

Bills were 22.4% of the marketable debt, their highest share since 2020, because the Treasury has chosen to meet its extra borrowing with short-term paper. At its August 2026 refunding it held the sizes of its note and bond auctions steady 'for at least the next several quarters', and its borrowing advisory committee warned that larger coupon auctions could be needed in fiscal 2027. The average maturity of the marketable debt has slipped to 71 months, and about a third of it comes due within a year, so a rise in short rates reaches the Treasury's interest bill quickly (Module 9).

Gross issuance looks enormous because bills roll over many times a year: the Treasury sold $30.5 trillion of securities in 2025, about $25.7 trillion of them bills, to raise net new borrowing of about $2 trillion. The other

large debtors in the table face their own versions of the problem: Japan is repricing its debt as the Bank of Japan raises rates, and Italy and France are the euro area's stress points.

8b. Who Holds the Treasuries

Holder	Amount (latest)	Trend
Federal Reserve	$4.57 trillion (October 14, 2026)	Up $368 billion in a year after runoff ended; down from $5.77 trillion in June 2022
Foreign official holders (central banks and sovereign funds)	$3.77 trillion (July 2026)	Flat in dollars, falling as a share (below)
Foreign private holders	$5.48 trillion (July 2026)	Rising, much of it hedge funds booked in the Cayman Islands and other centers
Money-market funds	$3.28 trillion (second quarter of 2026)	The buyers of the extra bills
Households, including hedge funds in the Fed's accounts	$2.83 trillion	Rising
American banks	$1.80 trillion	Freed by the 2025 leverage-ratio change to hold more (Module 18)
Mutual funds	$1.74 trillion	
Stablecoin issuers	About $175 billion of bills and Treasury-backed repo: Tether $115 billion of bills (June 30), Circle's reserve fund $62 billion	The newest buyer of bills, required by law to hold safe reserves (Module 15)

Federal Reserve H.4.1 and *Financial Accounts* (second quarter of 2026); Treasury International Capital data; issuers' attestations. Sources differ in date and valuation, so the amounts do not sum to a total.

Who finances the debt has changed. The Fed held about a quarter of the market at the peak of quantitative easing in 2022 and holds about 14% now. Foreign central banks, which held about 36% of the debt held by the public in 2008, hold about 12%, as China cut its holdings from $1.32 trillion in November 2013 to $618 billion in July 2026 and Gulf holders drew on theirs during the oil shock. Japan, with $1.10 trillion, and Britain, with $998 billion (much of it held for others in London), are the largest foreign holders, followed by China, Belgium, the Cayman Islands, Luxembourg, Canada, and Taiwan.

The buyers who replaced the official holders are domestic and private: money funds absorbing the bills, banks freed by a looser leverage rule, hedge funds running the basis trade (Module 6), and, newest, the stablecoin issuers, whose reserves Treasury Secretary Scott Bessent said in August 2026 'will lower government borrowing costs.' The shift from official to private holders, and from patient to leveraged ones, is part of why the market has become more sensitive to shocks and why the term premium has returned (Module 4).

8c. The Bond Market's Discipline

The bond market disciplines governments by charging them more, and the 2020s have revived the idea of 'bond vigilantes'. Britain's September 2022 mini-budget of unfunded tax cuts set off a collapse in gilt prices that forced the Bank of England to intervene and the prime minister out of office; the mechanics are in Module 14, and the episode is the template every finance ministry now studies.

In April 2025, after the American 'reciprocal' tariff announcement, the ten-year Treasury yield rose from 4.01% on April 4 to 4.48% on April 11 while the dollar fell with it (Module 10), so Treasuries did not act as a safe haven. Moody's removed the last AAA rating from the United States on May 16, 2025, cutting it to Aa1.

In 2026 the discipline spread to France, to Japan as its central bank stepped back from buying its bonds (both in the table), and to the United States as the deficit widened (Module 9). The vigilantes are back because the term premium is back, and the term premium is back because the debt is larger and its buyers less patient.

8d. A Treasury Auction, Worked

Worked example — The Ten-Year Note of October 7, 2026

The Treasury sells its debt at more than 400 scheduled auctions a year, most of them for bills. On October 7, 2026 it reopened the ten-year note for $39 billion. Investors bid either a yield they would accept (competitive bids) or for an allotment at whatever yield clears (non-competitive bids), and the primary dealers, banks that are obliged to bid at every auction, stand ready to buy what others do not.

Bids came to $108 billion, 2.77 times the amount offered, and the auction cleared at 5.300%, the highest yield at a ten-year auction since November 2000. Indirect bidders, mostly foreign buyers and funds bidding through dealers, took 80.3%, direct bidders took 17.1%, and the dealers were left with 2.5%, a low share that signals strong demand.

A weak auction looks different: a low ratio of bids to the amount offered, a yield well above where the note traded just before (a 'tail'), and a large share left with the dealers, as at the thirty-year auction of June 11, 2026, when bids were 2.33 times the amount offered and dealers took 14.7%. A weak auction moves the whole curve, because all the marketable debt is repriced off the marginal sale, which is why every long-bond auction is watched for the moment the market balks.

Module 8 Key Points

Government Debt and the Bond Market

• American gross debt passed $40 trillion on August 18, 2026; the public holds $32.5 trillion of it.

• Bills are 22.4% of marketable Treasury debt, their highest share since 2020, because the Treasury chose to borrow short.

• Foreign central banks hold about 12% of the debt held by the public, down from about 36% in 2008.

• Britain's 2022 gilt crisis is the template: a budget the bond market rejected forced out a prime minister within a month.

• October's ten-year auction sold $39 billion at 5.300%, the highest auction yield since 2000, yet dealers kept only 2.5%.

Module 8 Quiz

Check Your Understanding

1. How has the ownership of Treasuries shifted since 2008?

A) Toward foreign central banks and the Fed together
B) From foreign central banks toward private buyers
C) Toward the Fed alone, now holding half of all Treasuries
D) It has barely changed in the last two decades

2. Why are bills a larger share of the Treasury's debt in 2026?

A) Foreign central banks now refuse to buy notes and bonds
B) The Treasury chose to borrow short
C) A 2025 law capped long borrowing
D) Bills pay more than bonds, so savers want them

3. What happened to the ten-year Treasury yield in the week after the April 2025 tariff announcement?

A) It fell sharply as investors fled to safety
B) It was unchanged because the Fed bought bonds
C) It rose, but only because the dollar was rising along with it
D) It rose about half a point while the dollar fell

4. In the October 7, 2026 ten-year auction, what did the dealers' 2.5% share signal?

A) Weak demand that forced dealers to buy most of the notes
B) A failed auction that the Fed had to cover
C) Strong demand, since investors bid for nearly all of the notes
D) A tail of several basis points above the market

5. What was the template for the 'bond vigilantes' of the 2020s?

A) Britain's 2022 gilt crisis
B) Japan's yield-curve control from 2016
C) America's 1951 Treasury-Fed Accord
D) Greece's 2012 debt restructuring

Module 9 — Fiscal Policy and the Fiscal-Monetary Collision

How Deficits and Interest Rates Interact

Recommended Reading / Reference

Book: Stephanie Kelton, *The Deficit Myth* (2020), the case that a currency issuer's deficits are limited by inflation rather than by markets

Reference: The Congressional Budget Office's *Monthly Budget Review* for fiscal 2026 (October 8, 2026) and *The Budget and Economic Outlook: 2026 to 2036* (February 2026)

9a. The Fiscal Position

Item	Fiscal 2025	Fiscal 2026	CBO's February baseline
Receipts	$5,235 billion	$5,403 billion (up 3%)	
Outlays	$7,010 billion	$7,396 billion (up 6%)	
Deficit	$1,775 billion (5.8% of GDP)	$1,993 billion (6.2% of GDP)	$1,853 billion for 2026 (5.8%); $3,115 billion for 2036 (6.7%)
Net interest on the public debt	$1,028 billion	$1,143 billion (up 11%)	Net interest 3.3% of GDP in 2026, rising to 4.6% in 2036
Customs duties	$195 billion	$172 billion, after about $130 billion of refunds	$418 billion assumed for 2026
Debt held by the public		About 101% of GDP at the end of September	100.6% of GDP in 2026, rising to 120.2% in 2036

Congressional Budget Office. Fiscal years end on September 30; fiscal 2026 figures are CBO's preliminary estimates of October 8, 2026.

Fiscal policy is what the government taxes and spends, and the American position is a structural deficit: receipts of about 17% of output against outlays of about 23%. Fiscal 2026, which ended on September 30, closed with a deficit $140 billion larger than the CBO had projected in February, and net interest on the public debt now exceeds what the government spends on defense and takes about a fifth of federal revenue.

Two laws and a ruling shaped the year. The budget law signed on July 4, 2025 (Public Law 119-21) made the 2017 tax cuts permanent and added new ones, about $4.5 trillion of lower revenue over ten years, while cutting Medicaid by $887 billion and food assistance by $186 billion. The CBO estimated that it adds $3.4 trillion to deficits through 2034, or $4.1 trillion with the extra interest, and the law also raised the debt limit by $5 trillion. Then, on February 20, 2026, the Supreme Court ruled 6-3 in *Learning Resources v. Trump* that the International Emergency Economic Powers Act (IEEPA) does not authorize tariffs.

The ruling struck down the 'reciprocal' and fentanyl tariffs, and the government began refunding the collected duties in May, which is why customs revenue fell so far short of the CBO's assumption in the table. The administration replaced part of the tariffs with a temporary 10% levy under another statute from February 24 and with new tariffs after trade investigations from July 24, but fiscal 2026's revenue bore the loss. The distinction that matters for what follows is between the primary deficit, spending minus taxes before interest, which was about 2.6% of output and is the part Congress controls, and the interest bill, which is arithmetic on the stock of debt and the rates the market charges.

9b. The Collision

Fiscal and monetary policy collide through two channels. The first is demand: a deficit of the size in 9a, at near-full employment, adds spending that the Fed must offset with higher rates than it would otherwise set, which raises the neutral rate (Module 4) and was part of the hawks' case for the September rise. The second is the debt itself: every percentage point of interest on the debt held by the public (Module 8) costs about $325 billion a year once the debt reprices, and because so much of it is short-term, about $108 billion of that arrives in the first year.

A central bank that raises rates to fight inflation therefore raises the deficit it may eventually have to help finance. Thomas Sargent and Neil Wallace called this 'some unpleasant monetarist arithmetic' in 1981: if the government does not adjust its budget, a central bank fighting inflation with high rates makes the debt grow faster and may lose in the end. The 2026 version is explicit, with a President demanding cuts to shrink the interest bill, a committee raising rates against an oil-driven inflation, and a Treasury leaning on bills to buy time (Module 8).

9c. Is Fiscal Dominance Coming?

Fiscal dominance is the regime in which the central bank serves the treasury, holding rates below what inflation warrants so that the debt stays affordable and letting inflation shrink its real value. The United States practiced it from 1942 to 1951, when the Fed pegged Treasury yields for the war and the years after until the Treasury-Fed Accord of March 1951 restored its freedom. Argentina and Turkey practiced it in the 2020s with the results in Module 5's table, and Japan's yield-curve control of 2016-24 was a gentler version.

Those who see the United States sliding toward it make four points. Interest already weighs heavily on the budget, and the CBO estimates that rates 1.5 points higher than its baseline would push debt to 133% of output by 2036, against the baseline in 9a. The President has demanded lower rates, tried to remove a governor, and chosen the chair, and the Treasury's reliance on bills ties its costs ever more closely to the policy rate. And running large deficits in an expansion leaves no room for the next recession without more borrowing.

Those who see no sign of it point to the record of 2026. The committee raised rates in September over the President's public objection, and the Supreme Court protected the governors' tenure in June (Module 3). Markets expect inflation to stay contained, as the ten-year breakeven shows, and the Fed has stopped shrinking its balance sheet without returning to buying long bonds. The Treasury market is still absorbing record supply, as the strong ten-year auction in Module 8 showed.

The course's reading is that fiscal dominance is not the American regime: the institutional evidence of 2026 points the other way. The arithmetic, though, is moving toward it, because each year at these deficits makes higher rates more expensive for the Treasury and a Fed rise more politically costly. The test will come the first time the Fed must choose between a rise the inflation data demand and a Treasury market under strain.

9d. The Debt's Sensitivity to Rates and Growth, Worked

Worked example — How Fast the Debt Ratio Grows

The ratio of debt to output changes each year by about p + d × (r − g) ÷ (1 + g). Here d is debt held by the public as a share of output, about 1.01 at the end of fiscal 2026, and p is the primary deficit as a share of output, about 2.6%. The average interest rate on the debt, r, is about 3.6%, and g is the growth rate of output in current dollars, which the example assumes is 4.5% a year (real growth near 2% plus inflation near 2.5%).

At those values the ratio rises about 1.7 points a year, because the primary deficit adds 2.6 points and the gap between growth and the interest rate takes away about 0.9. If the average rate on the debt rises a point, to 4.6%, the ratio rises about 2.7 points a year, and if output grows a point faster, at 5.5%, it rises only about 0.8. If Congress balanced the primary budget, the ratio would fall about 0.9 points a year at today's rates and growth.

Put another way, holding the ratio steady at today's rates and growth would require cutting the primary deficit from about 2.6% of output to about 0.9%, roughly $560 billion a year at fiscal 2026's scale. The lesson of the four cases is that the interest rate is set by the bond market and the Fed, the primary deficit by Congress, and growth by forces neither controls, which is why fiscal policy in 2026 is in effect a bet that productivity, perhaps from artificial intelligence, will outrun the interest rate.

Module 9 Key Points

Fiscal Policy and the Fiscal-Monetary Collision

• Fiscal 2026's deficit was $1.99 trillion, 6.2% of output, and $140 billion above the CBO's February projection.

• Net interest on the public debt reached $1.14 trillion in fiscal 2026, more than defense and about a fifth of revenue.

• Every point of interest on $32.5 trillion of public debt costs about $325 billion a year once it reprices.

• Fiscal dominance is not the American regime yet: the Fed raised rates 12-0 over the President's objection in September 2026.

• At today's rates and growth, holding the debt ratio steady requires a primary deficit near 0.9% of output, not 2.6%.

Module 9 Quiz

Check Your Understanding

1. What is the primary deficit, and why does the distinction matter?

A) The deficit including interest, which is all that markets watch
B) The deficit before interest, the part Congress controls
C) The trade deficit with China, Mexico, and the European Union
D) The states' combined budget gap

2. Why did customs revenue fall to $172 billion in fiscal 2026 instead of the $418 billion the CBO had assumed?

A) Congress repealed the emergency tariffs in the budget law it passed in July 2025
B) Imports collapsed during the oil shock
C) The Supreme Court struck down the IEEPA tariffs and refunds began in May
D) The CBO counted tariffs twice in its baseline

3. What did Sargent and Wallace's 'unpleasant monetarist arithmetic' describe?

A) A central bank fighting inflation can lose if the government never adjusts
B) Tax cuts that pay for themselves through growth over a decade
C) Interest rates that can never stay above growth for long
D) Deficits that cause growth in the long run

4. Which fact does the module cite against the view that fiscal dominance has arrived?

A) The Treasury's shift to bills
B) The CBO's projection of debt at 133% of output
C) The President's demand for rates of 1%
D) The September rise

5. In the worked example, what happens to the debt ratio if output grows a point faster than assumed?

A) It falls about 0.9 points a year, as with a balanced budget
B) It rises faster, because growth pushes up interest rates
C) It is unchanged, because growth does not enter the formula
D) It still rises, but only about 0.8 points a year instead of 1.7

Module 10 — Exchange Rates and the Currency Markets

How Currencies Are Priced and Traded

Recommended Reading / Reference

Book: Barry Eichengreen, *Exorbitant Privilege* (2011), the dollar's rise to dominance and what sustains it

Reference: The Bank for International Settlements' *Triennial Central Bank Survey* of foreign-exchange turnover (April 2025)

10a. The Market and the Major Currencies

Currency	Share of turnover (of 200%)	Regime	The 2026 story
US dollar	89.2%	Floats	Down about 9% on the dollar index in 2025; up about 4% in 2026 (Market Snapshot)
Euro	28.9%	Floats	At its lowest of 2026 against the dollar in mid-October despite the European Central Bank's rises (Module 3)
Japanese yen	16.8%	Floats; the Ministry of Finance intervenes	Weakest in July, before the intervention of 10d
British pound	10.2%	Floats	Held back by weak growth and Britain's fiscal worries (Module 8)
Chinese yuan	8.5%	Managed (10d)	Rising against the dollar
Swiss franc	6.4%	Floats; the Swiss National Bank intervenes	The haven currency
Australian dollar	6.1%	Floats	Supported by rate rises (Module 3)
Canadian dollar	5.8%	Floats	Roughly flat through the spring's oil shock despite Canada's oil exports; weaker in October
Hong Kong dollar	3.8%	Pegged to the US dollar since 1983, within 7.75-7.85 since 2005	The peg held
Indian rupee	1.9%	Managed float	Record lows, a monthly average of 95.86 per dollar in July, on the oil bill
Mexican peso	1.6%	Floats	The trade agreement's review (Module 17)
Brazilian real	0.9%	Floats	Supported by high interest rates (Module 3); a presidential runoff on October 25 (Module 17)

BIS Triennial Survey, April 2025 (each trade has two currencies, so shares sum to 200%); Federal Reserve and market data. Levels on October 14, 2026 are in the Market Snapshot.

The foreign-exchange market turned over $9.6 trillion a day in April 2025, up 28% in three years and dozens of times the value of world trade, and the dollar's share in the table dwarfs every other currency's. It holds that place because oil, much of world trade, most international debt, and most reserves are denominated in dollars, so every other currency is priced and traded against it. Swaps, in which two parties exchange currencies now and reverse the exchange later, made up 42% of turnover, most of it banks and funds borrowing one currency against another.

Currency regimes run from free floats, through managed floats in which the central bank smooths the moves, to bands and daily fixings like the yuan's, hard pegs like Hong Kong's and the Gulf states', and the outright use of the dollar in Panama, Ecuador, and El Salvador. The 2026 picture reversed 2025's, when the tariffs and the questions about the Fed pulled the dollar down: in 2026 American rates climbed, and the oil shock favored the dollar, the currency of an energy exporter, over those of the importers.

10b. What Sets a Currency's Price

Over decades a currency tends toward purchasing-power parity, the rate at which the same goods cost the same in two countries, which the Economist's Big Mac index approximates. Over years it follows interest-rate differences and capital flows, since money moves toward the currency that pays more, allowing for the depreciation expected. Over months it follows trade balances, shocks to the prices of what a country exports and imports, risk appetite, and intervention, and over days it follows the flows of funds, companies, and central banks through the dealers of London and New York.

The yen shows the second force at work: the Bank of Japan has been raising rates (Module 3), but the Fed's rate is still more than 2.5 points higher, so borrowing yen to hold dollars still pays, and Japan's oil import bill rose with the shock. The yen therefore stayed weak through a year of Japanese rate rises. The yuan shows the third: exports in September 36.3% above a year earlier and a trade surplus of about $938 billion in the first nine months of 2026 pulled the currency up. The People's Bank let its daily fixing rise to its strongest level since early 2023.

The dollar's behavior in April 2025 broke a long pattern. In the week after the tariff announcement it fell together with American stocks and bonds (Module 8) instead of rising as a haven, a rare break in its record and the episode that turned its reserve status (Module 11) into a live question.

10c. The Carry Trade, Worked

Worked example — Borrow Yen, Buy Pesos

A hedge fund borrows 15.8 billion yen, $100 million at 158.33 yen to the dollar, at about 1.3%, a little above the Bank of Japan's rate, and uses it to buy Mexican government bills paying about 6.5%. The carry, the gap between the two rates, is about 5.2 points, or $5.2 million a year. On $10 million of the fund's own money, leverage of ten to one, that is a return of about 52% a year if the currencies stand still.

Currencies do not stand still, and when Japan and the United States intervened at the end of July (10d), the dollar fell from about 164 yen to 155.20, a 5.7% rise in the yen. A move that size, with the peso steady against the dollar, would raise the fund's yen debt by $5.7 million, more than a year's carry.

In July and August 2024 the yen rose 12.4% in less than a month, from 161.73 per dollar to 143.95, after a Bank of Japan rise and weak American data, and a fund like this one would have lost $12.4 million, more than its capital, forcing it to sell pesos to repay yen. That forced selling is the unwind: on August 5, 2024 Japan's Nikkei index fell 12.4% in a day, and the Bank for International Settlements put the carry positions involved at about 40 trillion yen, roughly $250 billion. With the Bank of Japan still raising rates and both governments willing to intervene, the same risk hangs over the trade in 2026.

10d. Intervention and the Yuan

Governments fight the market when the price hurts. Japan bought a record 11.73 trillion yen with dollars, about $73 billion, between April 28 and May 27, 2026, including a record 6.28 trillion yen on April 30, and it intervened again on July 30. The next day the United States Treasury joined it in buying yen, the first American intervention in currency markets since 2011. The Swiss National Bank has spent years buying foreign assets to hold the franc down, and Argentina's band was defended in 2025 with an American credit line (Module 17).

China runs the largest managed currency: the People's Bank sets a daily fixing from which the yuan may move 2% either way, controls capital through quotas and approvals, and held $3.40 trillion of reserves at the end of September 2026. From early 2025 to mid-October 2026 it let the yuan rise about 9%, from about 7.30 per dollar to the Market Snapshot's level, a choice that eased trade frictions and supported its effort to widen the yuan's use abroad through swap lines, its own cross-border payment network (Module 11), and the digital yuan (Module 15).

Module 10 Key Points

Exchange Rates and the Currency Markets

- Currencies traded $9.6 trillion a day in April 2025, and the dollar was on one side of 89% of trades.
- Rate gaps move currencies over years: with the Fed about 2.5 points above the Bank of Japan, the yen stayed weak.
- A yen-funded carry trade earns about 5 points a year; the yen's 5.7% jump in late July 2026 erased more than that.
- Japan bought a record $73 billion of yen in April-May 2026, and the United States joined it on July 31.
- China let the yuan rise from about 7.30 to 6.69 per dollar between early 2025 and October 2026.

Module 10 Quiz

Check Your Understanding

1. About how much currency changed hands each day in April 2025?

A) About $960 billion, a tenth of that
B) About $96 trillion, most of it dollars
C) About $9.6 trillion
D) $1.5 trillion

2. Why did the yen stay weak in 2026 even as the Bank of Japan raised rates?

A) The Fed's rate was over 2.5 points higher, and oil raised Japan's import bill
B) Japan's government sold yen to help its exporters
C) The Bank of Japan resumed buying long-dated government bonds in the summer to cap yields
D) Foreign central banks dumped their yen reserves

3. In the worked example, what does a 5.7% rise in the yen do to the fund's position?

A) It doubles the fund's carry for the year
B) It erases more than a year's carry
C) It has no effect if the peso is steady
D) It cuts the fund's yen debt by $5.7 million

4. What was unusual about the dollar's fall in April 2025?

A) It rose instead, as in every earlier crisis
B) It fell together with American stocks and bonds, not as a haven
C) It was caused by a rate rise at the European Central Bank that same week
D) It affected only the yen, while other currencies held still

5. What did the United States do on July 31, 2026?

A) It joined Japan in buying yen, its first intervention in currency markets since 2011
B) It sold yen to push the dollar back up after the Fed held its rate in July
C) It imposed limits on carry trades by American funds
D) It ended its swap line with the Bank of Japan

Module 11 — The Dollar's Reserve Status

The Dollar's Position and Its Challengers

Recommended Reading / Reference

Book: Kenneth Rogoff, *Our Dollar, Your Problem* (2025), a former IMF chief economist on the dollar's rise and the risks to it

Reference: The IMF's data on the currency composition of official reserves (second quarter of 2026, released September 30, 2026) and the European Central Bank's *The International Role of the Euro* (June 2026)

11a. The Dollar's Roles

Role	The dollar's share	The rivals
Allocated foreign-exchange reserves (IMF, second quarter of 2026)	56.7%, down from 72% in 2001 and 58% in 2024	Euro 20.6%; yen 5.0%; yuan 2.1%; total reserves $13.22 trillion
Foreign-currency debt issued since 2010 (Federal Reserve)	About 60%	Euro about 26%
Cross-border bank positions in foreign currencies (Federal Reserve)	About 55% of claims and 60% of liabilities	
Payments through Swift, the banks' messaging network for international payments (June 2026)	50.1%, or 58.6% leaving out payments within the euro area	Euro 21.9%; pound 6.7%; yen 3.7%; yuan 3.1%, fifth
Trade finance through Swift (June 2026)	81.2%	Yuan 8.0%, second
Invoicing of exports, 1999-2019 (Federal Reserve)	96% in the Americas, 74% in Asia and the Pacific, 79% elsewhere	The euro leads only in Europe
Exchange-rate anchors (Federal Reserve, 2019)	More than half of all countries anchor their currencies to the dollar	
Banknotes (Federal Reserve)	About half of all dollar notes are held abroad	

IMF; Federal Reserve, 'The International Role of the U.S. Dollar' (July 2025); Swift's monthly currency tracker (July 2026). Allocated reserves are those whose currency the IMF can identify.

A reserve currency is one that governments, banks, and companies outside its own country choose to hold, to borrow in, and to settle in, and the dollar does all three on a scale no rival approaches. The roles reinforce one another: oil and most commodities are priced in dollars, so trade is invoiced in dollars and firms borrow in dollars, so central banks hold dollars to defend their currencies and pay their debts, and they hold them as Treasuries because that is the deepest and safest market (Module 8).

Each role makes the others cheaper, which is why a rival needs not one advantage but all of them at once. The erosion shows in reserves (the table's first row). An IMF study of 2022 found that about a quarter of the lost share had gone to the yuan and three-quarters to smaller currencies, such as the Australian and Canadian dollars, the Korean won, and the Swedish krona, bought by central banks seeking higher yields. The roles in trade, borrowing, and payments have barely moved, and the dollar still dominates currency trading (Module 10).

11b. Gold's Rise as a Reserve Asset

Since 2022 the largest change in reserves has been not to another currency but to gold. Central banks bought 1,082 tonnes in 2022, 1,051 in 2023, and 1,092 in 2024, on the World Gold Council's figures, after the United States and its allies froze Russia's reserves (11c), and they bought 863 tonnes in 2025 and about 345 in the first half of 2026. China's central bank reported its twenty-third straight monthly addition in September 2026.

Gold's appeal to a reserve manager is that it is no one's liability: held in the central bank's own vaults, it cannot be frozen, and it does not depend on any government's promise. Buying and price fed each other: gold rose from $2,610.85 an ounce at the end of 2024 to $4,307.95 at the end of 2025, setting 53 records along the way, and reached $5,501.70 at the London fix on January 29, 2026. It then fell 21% in three weeks of March, from $5,390 to $4,264, as the oil shock hit (Module 12).

By the European Central Bank's count, gold was about 27% of the world's official reserves at market prices at the end of 2025, up from 20% a year earlier and more than the euro's 15% or the 22% held in Treasuries. The bank added that most of the change was price: at the end-2023 price of gold, gold and the euro would each be about 16%. Gold pays no interest and cannot settle a trade without first being sold, so it serves as a reserve of last resort rather than a working currency.

11c. The Sanctions Weapon and Its Cost

The dollar's roles give the United States a power no other state has. Because dollar payments clear through American banks, the Treasury's Office of Foreign Assets Control can cut a person, a firm, or a country off from most of the world's financial system, and it has done so to Iran, North Korea, Venezuela, and, since February 2022, Russia. That year the United States, the European Union, Britain, Japan, and Canada immobilized about $300 billion of the Bank of Russia's reserves, and Europe removed the largest Russian banks from Swift.

Most of the money sits in Europe: the European Union holds about €210 billion, about €185 billion of it at Euroclear, the Belgian securities depository. In December 2025 the EU decided to keep the assets immobilized indefinitely, by a qualified majority under Article 122 of its treaty, instead of renewing the freeze unanimously every six months. It then agreed to lend Ukraine €90 billion for 2026-27, funded by its own borrowing, after a 'reparations loan' of up to €165 billion backed by the Russian assets stalled over Belgium's objections.

The weapon works, and it has a cost, because every state that could be its target has built ways around it. China's Cross-Border Interbank Payment System had 1,690 participating institutions in June 2025 and handled 180 trillion yuan, about $25 trillion, in 2025. The mBridge platform, which links the central banks of China, Hong Kong, Thailand, the United Arab Emirates, and Saudi Arabia, has settled about $55 billion in all, more than 95% of it in digital yuan, and the Bank for International Settlements, which helped build it, withdrew in October 2024. Russian officials say almost all of Russia's trade with China is now settled in rubles and yuan.

The newest cost has come from the issuer itself. Donald Trump threatened 100% tariffs on the BRICS countries (Brazil, Russia, India, China, South Africa, and the members added since 2024), first as President-elect in November 2024, if they backed a rival to the dollar, and the pressure on the Fed (Module 3) gave every reserve manager a reason to ask what else might change. The BRICS leaders met in New Delhi on September 12-13, 2026, with links between national payment systems and settlement in local currencies on the agenda.

11d. Is the Dollar Losing Its Place?

De-dollarization, the idea that the world is moving off the dollar, is one of the field's oldest predictions, and 2025-26 revived it, with a serious case on each side.

Those who see the decline under way point to the trend and to its cause. The reserve share keeps falling (11a), foreign central banks' share of the Treasury market keeps shrinking (Module 8), and since 2022 central banks have chosen gold, which no government can freeze, over the debt of a government that can. The issuer has given them reasons: the freezing of Russia's reserves, tariffs on allies, pressure on the central bank, and the week in April 2025 when the dollar fell with the Treasury market (Module 10). The rivals are building the plumbing, and the yuan already ranks second in trade finance through Swift.

Those who see the dollar secure answer that erosion is not replacement. The euro has no single government bond on the scale of Treasuries, since its debt is issued by many governments of differing credit, and the yuan is held back by capital controls and a managed exchange rate. The dollar's roles in payments, borrowing, and trade finance have held, and in the 2026 oil shock, a war in the world's main oil route, investors ran to the dollar rather than from it (Module 12). Gold's larger share is mostly a price effect, as the central bank that measured it says, and stablecoins are spreading the dollar's use (Module 15).

The evidence of 2026 gives each side something: the dollar's reserve share slipped again in the second quarter, from 57.2% in the first, and central banks' gold buying picked up after a slow first quarter, to 289 tonnes in the second. But the yuan's share of reserves stayed near 2%, and the transactional roles in the table did not move.

The course's reading is that de-dollarization is real in the reserves of central banks that fear sanctions and in the trade of the sanctioned states, and largely absent from the markets that give the dollar its power: funding, debt, and payments. The dollar's position therefore depends less on what Beijing builds than on what Washington does, and the main risk to it is the issuer's own conduct.

Module 11 Key Points

The Dollar's Reserve Status

• The dollar held 56.7% of allocated reserves in mid-2026, down from 72% in 2001; the euro held 20.6%, the yuan 2.1%.

• Central banks bought more than 1,000 tonnes of gold a year in 2022-24, after Russia's reserves were frozen.

• At end-2025 prices gold was about 27% of official reserves, more than the euro or Treasuries, mostly through its price.

• About $300 billion of Russia's reserves stay immobilized; the EU made the freeze indefinite in December 2025.

• The course's reading: erosion in reserves, not replacement; the dollar's power rests on funding, debt, and payments, which have held.

Module 11 Quiz

Check Your Understanding

1. What share of the world's allocated reserves was held in dollars in mid-2026?

A) About 89%, its share of trades
B) About 40%, level with gold at market prices
C) Two-thirds
D) 56.7%, down from 72% in 2001

2. Where did most of the dollar's lost reserve share go, according to an IMF study of 2022?

A) To the euro, which gained nearly all of what the dollar lost
B) To the yuan, which now makes up a tenth of all reserves
C) To smaller currencies, like the won
D) To bitcoin, now held by several dozen central banks

3. Why do reserve managers value gold, according to the module?

A) It pays a higher yield than Treasuries in most years
B) Its price has risen every year since Russia's reserves were frozen
C) It is no one's liability and cannot be frozen
D) It can settle trade directly, without first being sold for dollars

4. What did the European Union decide in December 2025 about Russia's immobilized reserves?

A) To return them once a ceasefire is signed
B) To keep them immobilized indefinitely, by qualified majority
C) To seize them outright and transfer them to Ukraine as reparations
D) To renew the freeze every six months by unanimous vote, as before

5. What is the course's reading of de-dollarization?

A) Replacement by the yuan once China opens its capital account to foreign investors
B) A collapse within the decade, once the BRICS launch a currency
C) A steady gain in the dollar's reserve share since 2022
D) Erosion in reserves, without a replacement in funding, debt, or payments

Module 12 — The International Monetary System

The Architecture From the Gold Standard to the Present

Recommended Reading / Reference

Book: Benn Steil, *The Battle of Bretton Woods* (2013), on how Keynes and White built the postwar system

Reference: The BIS's global liquidity indicators (end-March 2026) and the IMF's *World Economic Outlook* (October 13, 2026)

12a. The Regimes and the Institutions

Era	System	How it worked	How it ended, or what it left
1870s-1914	The classical gold standard	Currencies fixed to gold; capital moved freely; Britain at the center; deficits corrected by falling prices and wages	Suspended in the First World War
1919-1939	The interwar gold-exchange standard	Restored in the 1920s, Britain's at the prewar parity, with reserves held in pounds and dollars as well as gold	Collapsed in the Depression: Britain left gold in 1931 and the United States devalued in 1933-34, and those that left earliest recovered first
1944-1971	Bretton Woods	Currencies pegged to the dollar, the dollar convertible into gold for central banks at $35 an ounce; capital controls; the IMF and World Bank founded	Ended in 1971 (12c)
1973-	Floating among the major currencies	The majors float; others peg or manage; capital moves freely; the dollar is central by habit rather than treaty	The present system
1985-87	The Plaza and Louvre accords	The largest economies agreed to push the dollar down, then tried to hold it steady	The last formal agreement to steer the major currencies, though joint interventions followed, most recently in July 2026 (Module 10); invoked by the 'Mar-a-Lago accord' idea (12c)
1999-	The euro	One currency and one central bank without one budget; 21 members since Bulgaria joined on January 1, 2026	The debt crisis of 2010-12 (Module 16); the second reserve currency (Module 11)
2007-	The swap-line network	The Fed lends dollars to foreign central banks in a crisis	Still in place (below)
2022-	The sanctions era	Reserves immobilized and payment networks used as weapons; gold and new payment systems as the responses	Module 11

An international monetary system is the set of rules and institutions by which currencies are exchanged, payments cross borders, and imbalances between countries are corrected. Each regime in the table traded off the same three goals: fixed exchange rates, free movement of capital, and a monetary policy aimed at the home economy, of which a country can have only two. The gold standard chose the first two and gave up the third, Bretton Woods kept fixed rates and monetary freedom by controlling capital, and the floating system since 1973 keeps free capital and monetary freedom and lets exchange rates move.

Four institutions hold the present system together. The IMF, founded at Bretton Woods and owned by 191 member countries, lends to governments that cannot pay their foreign bills, on conditions; in April 2026 its managing director, Kristalina Georgieva, said that at least a dozen countries hit by the oil shock were

seeking loans, adding $20-50 billion of demand to the 39 programs it was already running. The World Bank lends for development rather than for crises. The Bank for International Settlements (BIS) in Basel is the central banks' bank and the home of the committees that write the international rules on bank capital (Module 18).

The fourth is the Fed's network of swap lines, through which it lends dollars to foreign central banks against their own currencies so that their banks can pay dollar debts in a crisis. It extended lines to fourteen central banks in 2008 and again in 2020, and drawings peaked at about $580 billion and $450 billion. It has kept standing lines with the European Central Bank, the Bank of Japan, the Bank of England, the Bank of Canada, and the Swiss National Bank since 2013, and since 2020 it has also lent dollars to foreign central banks against their Treasuries. In 2026 the lines were barely used: drawings reached $481 million on January 7, never passed $180 million in March and April, and stood at $207 million on October 7.

12b. The Offshore Dollar and Capital Flows

Most of the dollar's international business happens outside the United States. Eurodollars, dollar deposits and loans booked by banks abroad, began in London in the 1950s, and the system they grew into is the plumbing of world trade and finance. The BIS counted $14.7 trillion of dollar credit to non-bank borrowers outside the United States at the end of March 2026, in bank loans and bonds, up 7.3% in a year, and about 30% of it, roughly $4.4 trillion, was owed by borrowers in emerging and developing economies; the equivalent in euros was €5.1 trillion.

Beyond the balance sheets lies a larger sum. The BIS estimated in 2022 that more than $80 trillion of dollar obligations sat in foreign-exchange swaps and forwards, contracts to deliver dollars later that appear in no country's debt statistics, about $26 trillion of it owed by non-banks outside the United States and $39 trillion by non-American banks. The offshore system has no lender of last resort of its own, which is why the swap lines exist and why a shortage of dollars, as in 2008 and March 2020, becomes a global event rather than an American one.

Capital flows are the system's weather, and the Institute of International Finance counted $179.8 billion of portfolio inflows to emerging markets in the first half of 2026, more than a year earlier, but $81.1 billion left their stock markets, and June brought a net outflow of $17.8 billion. America's own current-account deficit, what it buys from the world less what it sells and earns, was $246.0 billion in the second quarter of 2026, 3.0% of output, financed by foreigners' purchases of American stocks, bonds, and companies.

12c. The Triffin Dilemma, Then and Now

Robert Triffin observed in 1960 that the country issuing the world's reserve currency must run deficits to supply it, and that the deficits must in time undermine confidence in the currency. By the late 1960s dollars held abroad far exceeded the gold the United States held to redeem them, and on August 15, 1971 President Nixon closed the 'gold window', ending convertibility.

The dilemma has returned in fiscal form: the world's safe asset is American government debt (Module 8), and it is safe only so long as that debt is sustainable, while the deficits that create it stay large (Module 9). Foreign demand for Treasuries lets the United States borrow cheaply, cheap borrowing lets the debt grow, and the point at which the world's appetite meets its doubt is what the term premium measures (Module 4).

Stephen Miran, who became chair of the President's Council of Economic Advisers in 2025, proposed in November 2024 a way out that came to be called the 'Mar-a-Lago accord': using tariffs and security

guarantees to press allies toward a weaker dollar and to swap their Treasuries for very long-dated bonds. No accord was signed, but Treasury Secretary Scott Bessent has pressed the Bank of Japan to raise rates, and the Treasury has joined Japan in buying yen (Module 10). The tension between wanting a weaker dollar and needing foreigners to keep buying the debt is the system's unresolved contradiction.

12d. The 2026 Oil Shock's Path Through the System

The war that closed the Strait of Hormuz (Module 5) showed how a shock now travels. The dollar rose first: the Fed's broad dollar index rose from an average of 117.91 in February to 119.92 in March, as investors sold almost everything else, then eased to 118.78 in May. Even some oil exporters' currencies weakened in March before recovering: the Norwegian krone strengthened from 9.66 per dollar in March to 9.25 in May, and the Brazilian real from 5.23 to 4.98.

The importers took the lasting damage: the yen and the rupee fell to their weakest of the year by July (Module 10), the Korean won fell from 1,447 per dollar in February to 1,529 in June before recovering to 1,359 in September, and the Turkish lira kept setting record lows. Emerging-market stocks fell 13% in about a month, and the spread of emerging-market corporate bonds over Treasuries widened from 1.58 points on February 27 to 1.82 on March 30 before narrowing again by the end of April.

The plumbing held, which is the difference from 2008 and 2020, either because the shock was not a run on dollar funding or because standing lines, larger reserves, and the Fed's lending against Treasuries had prepared the system, and probably both. The Treasury's custody data showed holdings attributed to Saudi Arabia falling from $160.4 billion in February to $140.1 billion in April, and the United Arab Emirates' from $120.0 billion to $112.5 billion. The shock reached the periphery through import bills and currencies rather than through a dollar shortage, and it sent the most fragile importers to the IMF (Module 17).

Module 12 Key Points

The International Monetary System

• Bretton Woods tied the dollar to gold at $35 an ounce; it ended on August 15, 1971, when America closed the window.

• Dollar credit to non-bank borrowers outside America reached $14.7 trillion in March 2026, about 30% of it in emerging economies.

• The Fed's swap lines, drawn to about $580 billion in 2008, were barely touched in 2026: never above $481 million.

• Triffin's dilemma returns in fiscal form: the world's safe asset is American debt, safe only while that debt is sustainable.

• The 2026 oil shock hit importers' currencies, not dollar funding; emerging-market stocks fell 13% in about a month.

Module 12 Quiz

Check Your Understanding

1. What ended the Bretton Woods system?

A) America's suspension of the dollar's convertibility into gold in August 1971
B) The euro's launch as a rival reserve currency in 1999
C) The oil embargo of 1973 and the double-digit inflation that followed it
D) The Plaza Accord's agreement to push the dollar down

2. How much dollar credit had borrowers outside the United States taken on by March 2026, on the BIS's count?

A) About $2.5 trillion, all of it in bank loans
B) About $14.7 trillion, roughly 30% of it in emerging economies
C) About $80 trillion, most of it in bonds
D) About $32 trillion, matching the Treasury's public debt

3. How much did foreign central banks draw on the Fed's swap lines during the 2026 oil shock?

A) About $450 billion, as in March 2020
B) More than $1 trillion in the first month of the war
C) About $100 billion, mostly by the Bank of Japan
D) Under $500 million

4. What did Robert Triffin argue in 1960?

A) That a reserve issuer's deficits would erode trust in its currency
B) That gold would soon replace the dollar
C) That floating exchange rates would end every balance-of-payments crisis
D) That the IMF should issue a world currency to replace national reserves

5. What did the 'Mar-a-Lago accord' paper of November 2024 propose?

A) A return to a gold standard at a price set jointly by the Treasury and Congress
B) A common currency for the BRICS
C) Pressing allies toward a weaker dollar and very long-dated Treasuries
D) Ending the Fed's swap lines with Europe

Module 13 — Financial Markets: Stocks, Bonds, and the Machinery

The Capital Markets and Their 2026 State

Recommended Reading / Reference

Book: Burton Malkiel, *A Random Walk Down Wall Street* (50th anniversary edition, 2023), the classic case for indexing and against forecasting

Reference: The *Capital Markets Fact Book* of the Securities Industry and Financial Markets Association (SIFMA), 2026 edition, and the Federal Reserve's *Financial Stability Report* (May 2026)

13a. The Markets by Size

Market	Size	American share	Note
Stocks, worldwide	$157.8 trillion of market value (end of 2025)	43.7% ($68.9 trillion)	The S&P 500 index of large American companies is the benchmark (13b)
Bonds, worldwide	$160.7 trillion outstanding (end of 2025)	38.1% ($61.2 trillion)	Governments are the largest borrowers; Treasuries in Module 8
American corporate bonds	$12.1 trillion (second quarter of 2026)		
American municipal bonds	$4.5 trillion (second quarter of 2026)		More than 50,000 state and local issuers, most of the interest exempt from federal tax
Private markets: equity, credit, real estate, infrastructure	$15.3 trillion under management (2024)		Blackstone, the largest manager, held $1.35 trillion at the end of June 2026

SIFMA, *Capital Markets Fact Book*, 2026, and its quarterly statistics; Preqin data, via Opimas; Blackstone. Derivatives are in Module 14, crypto in Module 15, and currencies in Module 10.

The world's stock and bond markets in the table are about the same size. For scale, the financial institutions counted in Module 7 hold about half a quadrillion dollars of assets, and the derivatives of Module 14 carry more than that in notional value. The United States' share of world stock-market value far exceeds its quarter of world output, because its largest companies are the most profitable in the world and its markets are deep, liquid, and governed by disclosure rules and courts that investors trust.

Ownership is concentrated: the top 10% of American households owned 88.1% of the stocks and mutual-fund shares held by households in the second quarter of 2026, on the Fed's distributional accounts, and the top 1% alone owned 50.9%. A rise in stock prices therefore raises the wealth of a few households far more than the incomes of the rest, which is part of why a market record and a gloomy public mood can coexist.

13b. The Stock Market's Concentration and Valuation

Measure	Level	Note
Weight in the S&P 500 of the seven technology companies called 'the Magnificent Seven'	34.9% (October 15, 2026)	The ten largest companies make up 40.4%
The four largest companies	Nvidia 7.45% ($5.34 trillion); Apple 7.10% ($5.01 trillion); Alphabet 6.04% ($4.20 trillion); Microsoft 5.70% ($3.96 trillion)	Alphabet passed Microsoft in November 2025
Share buybacks by S&P 500 companies	About $1 trillion in 2025, a record	Companies are the market's largest net buyers of their own shares
Index funds' share of American long-term fund assets	About 55% (end of 2025)	Funds that buy the index whatever its price
Options expiring the day they trade ('zero-day' options)	About 65% of S&P 500 options volume; a record 66.2% in July 2026	Short-dated bets that can amplify a day's move
Settlement of stock trades	One business day after the trade since May 28, 2024	Less time for a failure to spread

Slickcharts and CompaniesMarketCap (weights and values, October 15, 2026); S&P Dow Jones Indices; Morningstar; Cboe; the Securities and Exchange Commission. The index level and valuation ratios are in the Market Snapshot.

The American stock market in October 2026 is near its records and unusually concentrated. Because seven companies whose fortunes turn on artificial intelligence carry the weight in the table, an investor who buys the index to spread risk holds a large bet on one technology. The two standard valuation measures in the Market Snapshot disagree. The price relative to the next twelve months' expected earnings is at its ten-year average, because analysts expect earnings to keep growing quickly, while the cyclically adjusted ratio, which divides the price by the average of ten years' earnings after inflation, is higher than at any time except the peak of the dot-com bubble in 1999-2000.

Two shocks in two years show how the market now behaves. After the tariff announcement of April 2, 2025 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% in seven weeks. It rose 9.52% on April 9, when most of the tariffs were paused, and set a new record on June 27. The 2026 oil shock cut it 9.1%, from a record of 6,979 on January 27 to 6,344 on March 30, and it was back at records by April 15. Each fall was recovered within weeks or months, which has taught investors to buy every drop, a lesson that holds until a fall arrives that is not reversed.

Worked example — What the Stock Market Is Paying

The earnings yield is the inverse of the price-earnings ratio: the earnings a dollar of stock buys. At the Market Snapshot's 19.1 times expected earnings it is 1 ÷ 19.1 = 5.24%, and at the cyclically adjusted ratio of 41.4 it is 1 ÷ 41.4 = 2.42%. The equity risk premium is the extra return stocks are expected to pay for their risk, and one simple measure of it subtracts the real yield on ten-year inflation-protected Treasuries, 2.84%, from the earnings yield.

On expected earnings the premium is 5.24 − 2.84 = 2.40 points a year; on ten years' average earnings it is 2.42 − 2.84 = −0.42 points, which would mean stocks pay less than a government bond protected against inflation. Against the ordinary ten-year Treasury, which yields 5.19%, the forward earnings yield is only 0.05 points higher. An investor buying the index at these prices is therefore accepting about 2.4 points a year for the risk of stocks if the analysts' forecasts come true, and nothing if earnings fall back toward their ten-year average.

13c. Is the Spending on Artificial Intelligence a Bubble?

The four largest spenders on data centers told investors at the end of July 2026 that they would spend about $720-745 billion on capital projects in 2026, mostly data centers and chips: Amazon about $220 billion, Alphabet $195-205 billion, Microsoft about $175 billion, and Meta $130-145 billion. With Oracle, which plans up to $95 billion in its fiscal year to May 2027 and to raise $40 billion in debt and equity, the total is about $800 billion. Whether that spending will earn its cost is the market's largest question.

Those who see a bubble point to the pattern of past manias. Valuations on long-run earnings are near the dot-com peak, much of the index rides on one theme, and the revenue from selling artificial intelligence is still a small fraction of what is being spent to build it. Some of the financing is circular, with suppliers investing in their customers: Nvidia's letter of intent of September 2025 to put up to $100 billion into OpenAI was reported in February 2026 to be giving way to a planned $30 billion equity stake. AMD agreed to supply OpenAI with six gigawatts of chips and gave it a warrant for up to 160 million AMD shares, and Oracle agreed to sell OpenAI $300 billion of computing over five years. The IMF's stability report of October 13, 2026 named a correction in AI-linked valuations among the main risks to the system.

Those who see a sound boom answer that the spenders are the most profitable companies in history, paying mostly from their own cash flow rather than borrowing, and that demand for computing has so far outrun supply. On their view the forward price-earnings ratio sits at its ten-year average because earnings have grown with prices, and the railways and fiber networks of earlier booms were overbuilt and still transformed their economies. The investors who lose in a downturn would be shareholders, who can bear it, rather than banks.

The evidence supports parts of both: the core spenders can afford the bill, and the market's forward valuation is not extreme, but the cyclically adjusted measure is, and the financing at the edges is moving to debt: Oracle's borrowing, data-center developers, and the private-credit funds lending to them (Module 7). The course's reading is that the AI build-out is a boom with a bubble's financing at its edges. The likeliest damage is a pause in spending that hits the chipmakers' revenue and a concentrated index, felt mainly by shareholders, unless the debt at the edges has grown large enough by then to carry the losses into credit markets.

13d. The Bond Market's Structure and Plumbing

Bonds trade mostly over the counter, between dealers and their clients, rather than on exchanges. Treasuries trade through the primary dealers (Module 8), electronic platforms, and principal trading firms that use their own capital, corporate bonds through dealers whose inventories have not grown with the market, and municipal bonds through a fragmented network that serves many small issues. Agency mortgage-backed securities, pools of home loans guaranteed by Fannie Mae, Freddie Mac, and Ginnie Mae, are the most actively traded bonds after Treasuries.

Credit spreads, the extra yield over Treasuries that companies pay, are narrow in October 2026 by the measures in the Market Snapshot, which means investors are charging little for the risk of default even as Treasury yields have risen. The plumbing behind all of this, from the clearing of trades to the repo funding of dealers and the new clearing deadlines of Module 6, is built for a world in which dealers can absorb a wave of selling, and March 2020 showed they cannot at scale. The standing repo facility (Module 3) and the leverage-ratio change of 2025 (Module 18) are attempts to give the pipes more room before the next flood.

Module 13 Key Points

Financial Markets: Stocks, Bonds, and the Machinery

• The world's stock and bond markets were each worth about $160 trillion at the end of 2025.

• The top 10% of American households own 88.1% of household stocks and fund shares; the top 1% own 50.9%.

• Seven technology companies make up 34.9% of the S&P 500, more than a third of the index.

• On expected earnings, stocks offer about 2.4 points a year over inflation-protected Treasuries; on ten-year earnings, less than nothing.

• The course's reading: AI spending of about $800 billion in 2026 is a boom with a bubble's financing at its edges.

Module 13 Quiz

Check Your Understanding

1. How did the world's stock and bond markets compare in size at the end of 2025?

A) About equal, at roughly $160 trillion each
B) Bonds were ten times larger
C) Stocks were about twice the size of bonds after the AI rally of 2025
D) Stocks were far smaller

2. What share of the S&P 500 did the 'Magnificent Seven' technology companies make up in October 2026?

A) About 10%, close to their weight a decade ago
B) About 35%, while the ten largest made up about 40%
C) About 60% of the index's total value
D) About half, a share set in 2024

3. In the worked example, what premium does the forward earnings yield imply over inflation-protected Treasuries?

A) Below zero
B) About 5.2 points, the whole earnings yield
C) About 2.4 points
D) About 8 points, its average since 1950

4. How far did the S&P 500 fall from its February 2025 record to its low of April 8, 2025?

A) 34% in 23 trading days, as in March 2020
B) 9.5%, all of it on the day of the announcement
C) About 50%, as in the crash of 2008
D) 18.9%, over about seven weeks

5. What is the course's reading of the spending on artificial intelligence?

A) A bubble certain to burst within the year, as the dot-com bubble did after the Fed raised rates
B) A boom whose danger lies in debt at the edges, not the cash-rich core
C) A sound investment with no financial risk
D) A boom financed mainly by bank loans

Module 14 — Derivatives, Leverage, and the Risk System

The Instruments That Multiply Exposure, and the System That Contains Them

Recommended Reading / Reference

Book: John Hull, *Options, Futures, and Other Derivatives* (11th edition, 2021), the standard text

Reference: The BIS's statistics on over-the-counter derivatives (end-December 2025, published May 15, 2026) and the Bank of England's account of the 2022 gilt-market intervention

14a. The Instruments

Instrument	What it is	Notional value, end of 2025	Where the risk has shown
Interest-rate swaps, forwards, and options	Exchanging fixed for floating interest payments, or betting on or hedging future rates	$669.5 trillion, 78.8% of it centrally cleared	Pension funds' hedges in the 2022 gilt crisis (14d)
Foreign-exchange swaps, forwards, and options	Exchanging currencies now and reversing the exchange later	$148.7 trillion	The dollar debt that appears on no balance sheet (Module 12)
Equity-linked contracts	Options, forwards, and swaps on stocks and indices	$11.9 trillion	Exchange-traded options, such as zero-day options, are counted separately (Module 13)
Credit default swaps	Insurance against a borrower's default	$11.0 trillion	The insurer American International Group's (AIG's) sale of this protection without the capital to pay it in 2008
Commodity contracts	Forwards, swaps, and options on oil, metals, and grains	$2.8 trillion	The nickel squeeze of 2022 (14d)
All over-the-counter derivatives		$844.6 trillion	Far less is at risk (below)

BIS, via ISDA (International Swaps and Derivatives Association), July 2026. The BIS widened its reporting base in 2025, which inflates growth over the year. Futures and options traded on exchanges are not included. The next release is due November 16, 2026.

A derivative is a contract whose value derives from something else: an interest rate, a currency, a stock, a commodity, or a borrower's default. The table's total of notional value is a misleading number, because it is the reference amount on which payments are calculated, not the money at stake. The gross market value, what it would cost to replace every contract at current prices, was $22.8 trillion at the end of 2025, and the exposure after each pair of dealers nets its contracts against each other was $3.4 trillion, much of it covered by collateral.

Derivatives exist to move risk from those who have it to those who will take it for a price. A pension fund with fixed obligations swaps floating returns into fixed ones, an airline locks in its fuel (14c), an exporter sells its foreign earnings forward, a bank buys insurance against a borrower's default, and a hedge fund takes the other side of all of them for a fee or a bet.

14b. Clearing

Since the Group of Twenty leading economies agreed in 2009 that standardized derivatives should be cleared, most interest-rate contracts have moved onto clearinghouses such as LCH in London and CME in Chicago. A clearinghouse becomes the buyer to every seller and the seller to every buyer, and it collects margin, collateral against losses, every day. That solved the problem of 2008, when no one knew whether AIG or Lehman Brothers could pay what they owed, and it created two new ones.

The first is that the clearinghouses are now so central that one failing would take the system with it, which makes them too important to fail. The second is that the daily margin that makes clearing safe also drains cash from everyone at once when prices jump, turning a price shock into a scramble for cash. The extension of clearing to Treasury trades and repo (Module 6) applies the same trade-off to the government bond market.

14c. Leverage and Margin

Leverage is holding more than you own with borrowed money, and derivatives are its cheapest form, because a futures contract or a swap controls a large exposure for a small deposit. Margin is the system's discipline: initial margin is the deposit posted when a position opens, and variation margin is the cash paid each day to settle the position's gain or loss, so a losing position must be fed with cash at once, whatever its owner believes about the future.

Margin is also the system's accelerant: when prices fall, margin calls arrive, holders sell to meet them, prices fall further, and the calls multiply. That spiral is the common mechanism of the crash of October 1987, the collapse of Long-Term Capital Management (LTCM) in 1998, the unwinding of the basis trade in March 2020 (Module 6), the gilt crisis of 2022, and the yen carry unwind of August 2024 (Module 10).

Worked example — An Airline's Hedge Through the 2026 Oil Shock

An American airline expects to buy 100 million gallons of jet fuel in 2026. In December 2025, with Brent crude averaging $62.54 a barrel, it hedges 60% of that need, 60 million gallons or about 1.43 million barrels at 42 gallons a barrel, by buying Brent futures at about $62 for delivery through the year. It posts initial margin of about $8 a barrel, $11.4 million.

When the strait closed, the hedge paid: at April's average Brent price of $117.29, the futures were worth (117.29 − 62) × 1.43 million = $79.1 million more than the airline paid for them, collected day by day as variation margin from the sellers. The gain fell to $31.1 million at July's average of $83.76 and rose again to $74.6 million at September's $114.16, about $62.9 million at mid-October's price near $106. It offset much of what the airline paid for physical fuel, though crude futures cover the price of crude, not of jet fuel, so any widening of the gap between the two stayed with the airline.

Every dollar the airline gained, someone on the other side paid in cash within a day. A fund that had sold those futures, betting on the glut that forecasters expected at the end of 2025, had to post $79 million by April, and if it was leveraged it sold other holdings to raise the cash, which is how an oil shock reaches the stock and bond markets.

Reverse the move and the danger changes hands: had Brent fallen to $45, the airline would have paid (62 − 45) × 1.43 million = $24.3 million in margin during the year, offset by cheaper fuel bought later, but it would have needed the cash before the saving arrived. European energy companies learned this in 2022, when governments in Germany, Finland, and Sweden had to offer credit lines so they could meet margin calls on

hedges that were working as intended. Derivatives move risk; they do not remove it, and the cash to meet margin is the risk that remains.

14d. The Risk System, From Long-Term Capital Management to the Gilt Crisis

The system that contains leverage has four parts: measurement, through value-at-risk models and stress tests; collateral, through margin and haircuts; capital, the equity that banks and, more loosely, funds hold against losses; and the lender of last resort for the moments when the first three fail, and each crisis has found a gap between them.

Long-Term Capital Management, a hedge fund whose partners included two Nobel laureates, began 1998 with $4.7 billion of capital, more than $124.5 billion of borrowing, and about $1.25 trillion of derivatives, mostly bets that the gaps between similar bonds would narrow. After Russia defaulted in August 1998 the gaps widened instead, and the fund lost $4.6 billion in less than four months. On September 23, 1998 the New York Fed brought fourteen banks and brokers together to put in $3.625 billion and unwind the positions slowly, because a fire sale would have hit all of them.

Britain's gilt crisis of 2022 showed the same spiral in the safest asset. Pension schemes had used leveraged funds of gilts and swaps to match their long-dated obligations, under models in which yields could not rise far in a few days. After the mini-budget of September 23, 2022, long gilt yields rose more than a full point within days, the margin calls forced the funds to sell gilts, and the selling raised yields further. The Bank of England stopped it by buying £19.3 billion of long gilts between September 28 and October 14, and Liz Truss announced her resignation as prime minister on October 20.

The London Metal Exchange met the problem from the other side in March 2022, when a squeeze on traders who had sold nickel short, among them a large Chinese producer, drove the price so far so fast that the exchange cancelled the day's trades on March 8. Britain's financial regulator fined the exchange £9.2 million in 2025 for its failures. In each case the instrument meant to manage risk became the channel that spread it, which is why regulators now watch the basis trade, the clearinghouses' margin models, and the zero-day options of Module 13.

Module 14 Key Points

Derivatives, Leverage, and the Risk System

• Over-the-counter derivatives had $844.6 trillion of notional value at end-2025, but only $3.4 trillion of exposure after netting.

• Clearinghouses stand between buyers and sellers; they removed the AIG problem and made margin calls the system's accelerant.

• An airline hedging at $62 a barrel gained about $79 million at April 2026's average Brent price of $117.

• LTCM held about $1.25 trillion of derivatives on $4.7 billion of capital and lost $4.6 billion in four months.

• In 2022 the Bank of England bought £19.3 billion of gilts to stop a margin spiral in pension hedges.

Module 14 Quiz

Check Your Understanding

1. What does the $844.6 trillion of notional value measure?

A) The cash posted as margin
B) The market value of all contracts, after netting between dealers
C) The reference amount, not the money at risk
D) The total loss if every counterparty failed at once

2. In the worked example, what happens to the airline if Brent falls to $45?

A) It pays margin before cheaper fuel offsets it
B) It gains $24.3 million, because its futures rise as oil falls
C) Its trades are cancelled by the exchange, as the nickel trades were in 2022
D) It loses its whole fuel budget, because the futures double in price

3. What problem did central clearing solve, and what did it create?

A) It ended leverage in derivatives, but made trading in them too slow for hedgers
B) It ended fraud at the dealers, but raised the cost of hedging for most companies
C) It removed the need for collateral, and created a market in unsecured swaps
D) It removed the risk of a counterparty that cannot pay, and made margin calls a channel of stress

4. How did the New York Fed respond to the collapse of Long-Term Capital Management?

A) It bought the fund
B) It lent the fund $4.6 billion directly through the discount window
C) It let the fund fail and cut rates by a full point the next day
D) It organized a $3.625 billion rescue by 14 firms

5. What stopped the 2022 gilt crisis?

A) A rise in Bank Rate to 10% within a week to defend the pound against sellers
B) The Bank of England's purchase of £19.3 billion of long gilts
C) A suspension of gilt trading
D) The pension funds' own cash reserves

Module 15 — Crypto, Stablecoins, and Digital Money

The Digital Forms and Their 2026 Legal Status

Recommended Reading / Reference

Book: Eswar Prasad, *The Future of Money* (2021), on how digital currencies could change central banking and finance

Reference: The GENIUS Act (Public Law 119-27, July 18, 2025) and the BIS *Annual Economic Report 2025*, chapter III, on stablecoins and the next-generation monetary system

15a. The Market

Asset	Size or price, mid-October 2026	Record	Note
Bitcoin	Price in the Market Snapshot, 35% below its record	About $126,080 (October 2025)	American spot bitcoin funds held about $108.9 billion (October 5); Strategy, a listed company, held 848,250 coins (October 12)
Ether	Price in the Market Snapshot	$4,946 (2025)	The leading network for stablecoins and tokenized assets
Stablecoins	$303.1 billion: Tether $183.9 billion; USDC $72.8 billion; PayPal's PYUSD $2.9 billion		Defined in 15b
Tokenized assets	$39.2 billion, of which tokenized Treasuries $14.9 billion		BlackRock's tokenized money fund, BUIDL, is the third largest, at $2.16 billion
Decentralized finance	$88.3 billion held in lending and trading programs		Lending and trading run by code rather than intermediaries
All crypto assets	About $2.87 trillion		

CoinGecko; DefiLlama (October 15, 2026); rwa.xyz; HedgeCo; Strategy. Prices are volatile and differ slightly between sources.

Crypto assets are tokens recorded on blockchains, public ledgers kept by networks of computers rather than by a bank, and transferable at any hour without one. Bitcoin, the first, has a fixed supply of 21 million coins and no issuer. Ether runs a network on which programs can hold and move tokens, which is where most stablecoins, tokenized assets, and decentralized finance live. Most of the market's value is speculative, but one product, the dollar stablecoin, has reached the real economy.

15b. Stablecoins and the GENIUS Act

A stablecoin is a token that its issuer promises to redeem for one dollar, backed by reserves of cash and short-term government debt. It is used to trade crypto, to send money across borders in minutes, and to hold dollars in countries whose own money is failing. The GENIUS Act (the Guiding and Establishing National Innovation for U.S. Stablecoins Act), signed on July 18, 2025, made payment stablecoins lawful and regulated in the United States. Issuers must be licensed, must hold reserves one-for-one in cash, Treasury bills, and similar safe assets, must publish their reserves, and may not pay interest to holders.

The law takes effect on January 18, 2027 or 120 days after its rules are final, whichever comes first. The regulators missed the July 18, 2026 deadline for those rules and had issued only proposals by the end of the

summer, and the Comptroller of the Currency, who charters national banks, promised a final rule by November 2026. The companion bill on the structure of crypto markets, the CLARITY Act, failed a procedural vote in the Senate, 49-50, on September 15, 2026, and Senator Cynthia Lummis, one of its leading backers, had said before the vote that if it failed, 'It's over.'

Those who see stablecoins as an asset to the dollar make three points. They carry the dollar into countries its banks never reached, which deepens the currency's international role (Module 11). Their reserves create steady demand for Treasury bills, which the Treasury expects to lower its borrowing costs (Module 8). And they let money move at internet speed without the correspondent banks that make cross-border payments slow and expensive, under reserve rules stricter than those for bank deposits.

Those who see a risk answer with the Bank for International Settlements, whose 2025 report found that stablecoins perform poorly on the three tests of money. They fail singleness, since a token can trade below a dollar when its issuer is doubted, and elasticity, since they cannot expand in a crisis as bank credit can, and they also fail integrity, since anonymous transfers carry illicit money. A stablecoin is a money fund without a lender of last resort, and a run would force its issuer to sell bills into a falling market. USDC showed the danger in March 2023, when it fell to about 87 cents after $3.3 billion of its reserves were caught in Silicon Valley Bank's failure. The largest issuer, Tether, is based outside the United States.

The evidence so far is mixed. Stablecoins have grown without a systemic failure, but they are less than a twentieth the size of the money-market funds of Module 6, the rules that would govern them are unwritten, and the one American run, in 2023, was stopped by the government's guarantee of Silicon Valley Bank's deposits rather than by the issuer. The course's reading is that stablecoins are, for now, a private extension of the dollar's reach that the Treasury welcomes. They are built like the money funds that ran in 2008 and 2020, so their risk grows with their size and with each month the rules stay unfinished.

15c. Bitcoin's Record and the Haven Test

Bitcoin's case is that a fixed-supply asset outside any state's control protects its holders against inflation and the failures of governments, which is why its advocates call it digital gold. Its record is that of a speculative asset tied to risk appetite: it fell about 76% in 2021-22, rose after American regulators approved funds holding it in January 2024 and after the 2024 election, and set the record in the table. It then fell in each of the next five months, and by the time the war began on February 28, 2026 it had lost about half its value. Through March it held roughly level, ending the month about 4% higher while stocks and gold fell, so it passed the narrow haven test of the shock only after failing the broader one in the calm before it.

The American government's embrace is the novelty of 2025-26, including an executive order of March 2025 that created a Strategic Bitcoin Reserve, which holds only coins forfeited in criminal cases and has bought none. The Securities and Exchange Commission dropped most of its suits against crypto firms in 2025, and funds and companies now hold coins on a large scale: Strategy has financed its holdings with debt and preferred shares, which makes it, in effect, a leveraged bitcoin fund. Bitcoin's importance to the financial system runs through those leveraged holders rather than through payments, where it has little use.

15d. Central-Bank Digital Currencies and Tokenization

Project	Status, October 2026	Note
China's digital yuan (e-CNY)	3.48 billion transactions worth 16.7 trillion yuan from launch to November 2025; banks may pay interest on it since January 1, 2026, when it was reclassified as a bank deposit	The largest retail central-bank digital currency, though since 2026 wallet balances are liabilities of commercial banks; dominant on mBridge (Module 11)
The digital euro	EU governments set their position in December 2025; the European Parliament approved it 416-169 on July 9, 2026; negotiations between the institutions began July 13, aiming for a deal by the end of 2026	The European Central Bank plans a pilot from mid-2027 and a possible first issue in 2029
The United States	A retail central-bank digital currency barred by an executive order of January 23, 2025; a bill to ban one passed the House 219-210 on July 17, 2025 but is not law	Private stablecoins instead (15b)
The rest of the world	146 countries exploring, 41 running pilots, and three launched: the Bahamas, Jamaica, and Nigeria (Atlantic Council, May 2026)	Adoption low where launched
Settlement between banks	Project Agorá, the BIS with seven central banks and more than 40 firms, delivered a prototype and report on May 27, 2026	Tokenized deposits settling across borders in seconds

People's Bank of China data, via Caixin; European Parliament; the White House; the Atlantic Council's tracker of central-bank digital currencies; BIS.

A central-bank digital currency is central-bank money held directly by the public in digital form, a claim on the central bank rather than on a commercial bank. Such currencies were the decade's expected future and have arrived slowly, because the private apps and cards that already digitized payments leave little need for them, and because a public digital currency raises questions about surveillance and about draining deposits from banks.

The contest has three models: China's state coin, Europe's planned one, justified as an alternative to American card networks and dollar stablecoins, and America's private tokens under the GENIUS Act. Tokenization, the recording of ordinary assets such as Treasury bills, money-fund shares, and bank deposits on blockchains, is the version with the clearest use. Collateral and payments that move at any hour, outside the correspondent-bank chain and the clearinghouses' business hours, are where the projects of central banks and private firms are converging, and where the money markets of Module 6 may eventually run.

Module 15 Key Points

Crypto, Stablecoins, and Digital Money

• Stablecoins reached $303.1 billion in October 2026: Tether $183.9 billion, USDC $72.8 billion.

• The GENIUS Act requires one-for-one safe reserves and bars interest; its rules missed their July 2026 deadline.

• Bitcoin was 35% below its October 2025 record; it held its value in the 2026 shock only after halving before it.

• China's digital yuan is the largest central-bank digital currency; the United States has barred one by executive order.

• The course's reading: stablecoins extend the dollar's reach now and are built like the money funds that ran in 2008.

Module 15 Quiz

Check Your Understanding

1. What does the GENIUS Act require of stablecoin issuers?

A) Deposit insurance from the FDIC for every token, up to $250,000 per holder
B) Reserves of at least 20% in gold, with the rest in long-term Treasury bonds
C) A license, one-for-one reserves in cash and safe short-term assets, and no interest to holders
D) Registration with the SEC as a securities offering, with quarterly audits

2. How did bitcoin behave in the 2026 oil shock?

A) It held level, after halving before the war
B) Like gold, rising as investors fled to safety
C) It crashed by half in March, faster than stocks and gold
D) It was suspended from trading on the main exchanges for a week

3. What happened to USDC in March 2023?

A) It fell to about 87 cents when $3.3 billion of its reserves were caught in a bank failure
B) It was declared a security by the SEC and delisted by the largest exchanges
C) It rose above $1.10 as investors fled the banks for stablecoins
D) It was converted into a digital dollar issued by the Federal Reserve

4. Which central-bank digital currency is the largest?

A) The digital euro, launched in 2025
B) The Fed's digital dollar, issued in early 2026
C) India's e-rupee, now used by most Indian households
D) China's e-CNY

5. What is the course's reading of stablecoins?

A) A replacement for bank deposits that will end bank runs, because tokens settle instantly on public blockchains
B) A useful extension of the dollar, built like the money funds that ran in 2008
C) A fad with no real use
D) A threat that Congress should ban outright

Module 16 — Business Cycles and Crises

How the Cycle Turns, and How Crises Spread

Recommended Reading / Reference

Book: Carmen Reinhart and Kenneth Rogoff, *This Time Is Different: Eight Centuries of Financial Folly* (2009)

Reference: The National Bureau of Economic Research's business-cycle dates and Hyman Minsky, 'The Financial Instability Hypothesis' (1992)

16a. The Cycle

Economies expand and contract in cycles, which the National Bureau of Economic Research (NBER) dates for the United States: 34 since 1854, with expansions since 1945 averaging 64.2 months and recessions 10.3 months. The shortest on record was the two-month recession of March and April 2020. The cycle is monetary as much as real: in an expansion credit grows, asset prices rise, and leverage builds until the central bank tightens; the tightening bites, credit contracts, and those who borrowed most must sell; then the central bank eases and the recovery begins.

Hyman Minsky described the financial side of that sequence: in a long expansion borrowers move from hedge finance, in which income covers both interest and principal, to speculative finance, in which it covers only the interest, and then to Ponzi finance, in which only rising asset prices cover the debt. Then a shock, such as a rate rise, a default, or a revelation, turns prices down, and the Ponzi borrowers must sell, which is the 'Minsky moment' of 2007-08 and, in miniature, of every leveraged unwinding since.

Demand shocks, like those of 2008 and 2020, lower prices and output together, so the central bank can fight both at once by cutting rates. Supply shocks, like those of 1973, 2022, and 2026, raise prices while cutting output, which leaves the central bank choosing between them, the dilemma of Module 5.

16b. Thirteen Crises, Each the Failure of an Assumption

Crisis	The assumption that failed	The damage	More in
The Nixon shock, August 1971	That dollars abroad could always be turned into gold	The end of the Bretton Woods system	Module 12
Black Monday, October 19, 1987	That portfolio insurance could always sell into a falling market	The Dow fell 22.6% in a day	
The Asian crisis, 1997-98	That currency pegs made borrowing in dollars safe	Thailand, Indonesia, and Korea in deep recession, and contagion as far as Russia	Module 17
Long-Term Capital Management, 1998	That gaps between similar bonds would narrow and markets stay liquid	A rescue organized by the New York Fed	Module 14
The dot-com bust, 2000-02	That earnings would grow into any price	The Nasdaq index fell 78%	Module 13
The global financial crisis, 2007-09	That house prices could not fall across the whole country	The deepest recession since the 1930s: output fell about 4% and unemployment reached 10%	Modules 7 and 18
The euro crisis, 2010-12	That a currency union could do without a lender of last resort for governments	Greece's output fell 26%; Mario Draghi's 'whatever it takes' on July 26, 2012 ended the panic	

Crisis	The assumption that failed	The damage	More in
The taper tantrum, 2013	That the Fed could signal its exit without shaking the periphery	The ten-year Treasury yield rose from about 1.6% to 3% in four months; money fled emerging markets	Module 17
The COVID shock, March 2020	That Treasuries could always be sold for cash	The S&P 500 fell 33.9% in 23 trading days	Module 6
The gilt crisis, September 2022	That gilt yields could not jump in days	Pension hedges forced to sell gilts	Module 14
Silicon Valley Bank, March 2023	That deposits would stay put	A run conducted by phone in hours	Module 7
The tariff shock, April 2025	That Treasuries and the dollar would rise in any crisis	Stocks, bonds, and the dollar fell together	Modules 8, 10, and 13
The Hormuz shock, 2026	That the strait, and the cheap oil of 2025, would last	Inflation rose again and half the central banks in Module 3's table raised rates	Modules 3, 5, and 12

NBER; S&P Dow Jones Indices; national statistics; the modules named.

The table's thirteen crises share a mechanism: in each, investors had borrowed against an assumption that seemed safe, a peg, a model, a rating, a deposit base, or a policy, and when it failed they had to sell at once into a market where everyone else was selling. The assumptions differ, but the forced selling, the scramble for cash, and the arrival of a lender of last resort recur.

16c. What the Record Teaches

Reinhart and Rogoff's eight centuries of crises teach that the words 'this time is different' are the most expensive in finance and that crises rhyme. A period of stability breeds leverage, and an innovation such as securitization, the basis trade, or private credit hides it from regulators and models. A shock reveals it, the borrowers sell, and the lender of last resort arrives: years late in 1929-33, within weeks in 2008, within days in 2020. The rules that follow fight the last crisis while the next one builds somewhere else.

The 2020s have added three things to the record, and the first is speed: 2020 brought the fastest bear market in history, and the falls of 2025 and 2026 were recovered within months (Module 13). The second is the migration of leverage to non-banks that the lender of last resort does not directly reach (Module 7). The third is the state as the source of the shock, with the tariffs of 2025 and the war of 2026, rather than only as the rescuer.

16d. The Recession Signals of October 2026

Signal	Latest reading	What it says
Yield curve: ten-year less three-month Treasury yield	Module 4	Positive, so the bond market is not pricing a recession
The Sahm rule: rise in the three-month average unemployment rate above its low of the past year	0.00 in September	A rise of half a point signals a recession; there has been none
Payrolls	Module 5	Hiring has nearly stopped, the classic early sign of a downturn
The Conference Board's leading index	Down 0.1% in August and over six months	Soft, but short of the board's own recession signal
Consumer sentiment (University of Michigan)	46.3 in early October, below its June 2022 low of 50.0	Gloomier than at the worst of the 2022 inflation

Signal	Latest reading	What it says
Output	2.2% annual growth in the second quarter; 3.6% estimated for the third by the Atlanta Fed's model (October 15)	Still growing strongly
Oil	Module 5	Spikes preceded the recessions of 1973, 1980, 1990, and 2008, though 2022's did not end in one

Treasury; FRED; the Conference Board; University of Michigan; Bureau of Economic Analysis; Federal Reserve Bank of Atlanta.

The signals in the table disagree, in a combination that fits an economy whose spending on artificial intelligence and whose government deficit (Module 9) are holding up output while the labor market cools beneath them.

It leaves the Fed, which raised rates in September, deciding whether the next move should be another rise against inflation or a pause against a slowdown it cannot yet see in the output figures. The leverage of Modules 6, 7, and 14, in the basis trade, private credit, and derivatives, has grown through the expansion, which is why a turn in the cycle would test the financial system as well as the economy.

Module 16 Key Points

Business Cycles and Crises

• America has had 34 business cycles since 1854; postwar expansions average 64 months and recessions 10.

• Minsky's sequence: long stability moves borrowers from hedge to speculative to Ponzi finance, until a shock forces sales.

• Each of thirteen crises since 1971 was the failure of an assumption, from gold at $35 to an open strait.

• The 2020s added speed, leverage in non-banks, and governments as the source of the shock.

• October 2026's signals disagree: 3.6% estimated growth and a positive curve against stalled hiring and sentiment below its 2022 low.

Module 16 Quiz

Check Your Understanding

1. What is Minsky's sequence?

A) Boom, bust, recovery
B) Inflation, then deflation, then stagnation, as in the 1970s
C) Hedge, then speculative, then Ponzi finance
D) Rate rises, then rate cuts, then rate rises again, as the central bank chases the cycle

2. Which assumption failed in the Asian crisis of 1997-98?

A) That the IMF would lend without conditions
B) That Japan's banks would keep lending
C) That oil prices would stay low
D) That currency pegs made it safe to borrow in dollars

3. How fast did the S&P 500 fall in the COVID shock of 2020?

A) 33.9% in 23 trading days
B) 18.9% over about seven weeks, as in 2025
C) 22.6% in a single day, as in October 1987
D) 78% over two and a half years, as the Nasdaq did after 2000

4. What have the 2020s added to the record of crises, according to the module?

A) The end of central banks' role as lenders of last resort, after the rescues of 2008 and 2020
B) Speed, leverage outside the banks, and governments as the shock
C) Fraud at the largest banks
D) Crises that start in gold

5. Which signal pointed toward recession in October 2026?

A) The yield curve
B) The Sahm rule, which crossed its threshold in September
C) Consumer sentiment, below its 2022 low
D) Third-quarter output, which the Atlanta Fed's model showed shrinking

Module 17 — Emerging Markets and the Periphery

The Countries the System's Shocks Land On

Recommended Reading / Reference

Book: Barry Eichengreen and Ricardo Hausmann, eds., *Other People's Money* (2005), on why emerging economies borrow in currencies they cannot print

Reference: The IMF's staff reports on Argentina's Extended Fund Facility (second review, May 2026) and the Institute of International Finance's capital-flows tracker

17a. The Exposure

Country	How the 2026 shock reached it	Support or buffer	What to watch
Argentina	Country-risk spread 6.55 points over Treasuries on October 2, its 2026 high, against below 5 points in June	$15.8 billion disbursed by the IMF (17c)	17c
Turkey	Through the lira (Module 12) and inflation (Module 5)	Very tight policy (Module 3)	The Istanbul mayor, Ekrem İmamoğlu, jailed since March 2025 and sentenced on September 11, 2026 to two years and one month in prison and a political ban
Egypt	An energy importer; the pound's record low of 54.86 per dollar in March 2026; Suez Canal revenue $4.67 billion in the year to June 2026, half its 2023 record of $9.4 billion	An $8 billion IMF program, its seventh review under negotiation in June	Inflation of 13.9% in September
Pakistan	An oil importer	Liquid reserves of $22.5 billion in August; IMF credit outstanding of 7.14 billion special drawing rights (March 2026)	Its program reviews
Bangladesh	An oil importer	Asked the IMF for a new program in June 2026	The program's terms
Ethiopia	In default on its Eurobond since December 2023	A deal with its bondholders on June 29, 2026, endorsed by its official creditors in August	The final documents
Brazil	An oil exporter, with one of the world's highest real interest rates (Module 3)	A floating currency and large reserves	The presidential runoff of October 25: Flávio Bolsonaro took 47.03% and President Lula 45.16% in the first round
Mexico	Exports tied to the American market	A floating peso	On July 1, 2026 the United States declined to extend the North American trade agreement, which now faces annual reviews and runs to 2036
India	An oil importer; the rupee at record lows (Module 10)	A rate rise in October (Module 3)	The trade deal of February 7, 2026, which dropped the American penalty tariff for buying Russian oil

Country	How the 2026 shock reached it	Support or buffer	What to watch
Indonesia	An oil importer	Reserves of $146.3 billion	The central bank's leadership after Governor Perry Warjiyo resigned in July 2026
China	17d	Module 10	17d

IMF; national central banks and statistics offices; Trading Economics; the countries' finance ministries; press reports. Special drawing rights are the IMF's unit of account, a basket of five currencies.

Emerging markets are where the system's shocks land, because many of them borrow in a currency they cannot print. Economists Barry Eichengreen and Ricardo Hausmann called the inability to borrow abroad in one's own currency 'original sin', and a large share of the offshore dollar credit counted in Module 12 is owed by borrowers in emerging and developing economies.

17b. The Mechanism

The mechanism is the one the Asian crisis of 1997 wrote. When the Fed tightens or the dollar rises, money leaves, the local currency falls, and the dollar debt grows in local terms. The central bank must then raise rates into a slowdown or spend its reserves defending the currency, and the countries with thin reserves, pegs, and short-dated debt end at the IMF.

The largest emerging economies learned that lesson: India, Brazil, Mexico, and Indonesia now borrow mostly in their own currencies, let their exchange rates float, and hold large reserves, so the 2026 oil shock reached them as weaker currencies and higher rates rather than as crises. The damage concentrated where the old weaknesses remain, among oil importers with thin reserves and dollar debts, such as Egypt, Pakistan, Bangladesh, and Sri Lanka, which raised its interest rates by a full point and its fuel prices as its rupee fell. The IMF's queue (Module 12) is made of countries like these.

17c. Argentina's Stabilization and the American Rescue

Argentina is the decade's test of stabilization. Javier Milei, president since December 2023, cut spending sharply enough to run a budget surplus in 2024 for the first time since 2010, ended the central bank's financing of the Treasury, and took inflation down from its triple-digit peak (Module 5). In April 2025 the IMF approved a $20 billion program and the government lifted most currency controls, letting the peso trade within a band.

In the autumn of 2025, with the peso under attack before the midterm elections, the United States Treasury offered a $20 billion swap line and bought pesos directly. Milei's party won the elections of October 26, 2025 with 40.66% of the vote and 64 of the 127 lower-house seats contested, and Argentina drew $2.5 billion on the swap line and repaid it by January 9, 2026. Since January 1, 2026 the central bank has targeted the growth of base money instead of an interest rate, and the band's edges have moved each month with inflation.

Those who defend the rescue say it worked: a disorderly devaluation before the elections would have ended the most serious reform attempt in decades, the voters then endorsed the program, and the Treasury was repaid within three months, at no cost to American taxpayers. They add that a stable, market-friendly Argentina serves American interests in a region where China has been the lender of choice.

Those who criticize it say the United States put public money behind a political ally on the eve of his election, to defend an exchange rate that many economists thought too strong. They point to the record since:

Argentina missed its target for net reserves and needed an IMF waiver at the program's second review on May 21, 2026, monthly inflation has stalled near 2%, and the country-risk spread has risen again (17a).

The evidence supports both: the swap was small, brief, and repaid, but the program's weak points, reserves and a monthly inflation rate that, near 2%, still compounds to more than 25% a year, are the ones that ended Argentina's earlier stabilizations. The course's reading is that the rescue worked as a bridge, buying the government an election, and that whether it saved the program depends on reserves and on monthly inflation falling further, which the rising spread says the market doubts.

17d. China: A Property Bust Inside a Creditor

China is the emerging market that became a great creditor, and it is home to the domestic crisis that matters most. Its property market, once about a quarter of the economy's output on most estimates, has shrunk since 2021: the largest developers, Evergrande and Country Garden, defaulted, a Hong Kong court ordered Evergrande's liquidation in January 2024, and the bondholders of Vanke, a developer partly owned by the state, rejected its request for more time to pay in December 2025. New-home prices in August 2026 were 3.0% lower than a year earlier, the thirty-eighth straight month of year-on-year decline, and property investment was 19.9% lower than a year earlier.

The bust left local governments, which had financed themselves by selling land, with the debts of Module 8, and a banking system with the exposures of Module 7, losses the state has chosen to absorb slowly. Beijing's answer has been rate cuts, bank recapitalizations, programs to finish stalled projects, and an export boom (Module 10), which pushed China's falling prices abroad until the oil shock reversed its producer prices (Module 5).

As a creditor, China holds large reserves (Module 10) and has kept adding gold (Module 11), and it is the largest official lender to developing countries. That has made it the swing negotiator in every restructuring under the Group of Twenty's Common Framework, one reason the defaults of Zambia, Ghana, and Ethiopia took years to settle and why Ethiopia's deal with its bondholders needed its official creditors' approval. The periphery's fate is now decided in Beijing as well as in Washington.

Module 17 Key Points

Emerging Markets and the Periphery

• Many emerging economies borrow in dollars, so a rising dollar or a tighter Fed swells their debts as their currencies fall.

• The 2026 oil shock sent at least a dozen countries to the IMF for loans, and Bangladesh asked for a new program in June.

• Argentina drew $2.5 billion on America's $20 billion swap line and repaid it by January 9, 2026.

• The course's reading: the rescue worked as a bridge; the program's test is reserves and monthly inflation stuck near 2%.

• China's new-home prices fell for a 38th straight month in August 2026, while its exports boomed.

Module 17 Quiz

Check Your Understanding

1. What do economists mean by 'original sin'?

A) A government's first default, after which markets never fully trust it again
B) The inability to borrow abroad in one's own currency
C) Printing money to pay for deficits, as Argentina did before 2023
D) Pegging a currency to the dollar while running large trade deficits

2. How much of the American swap line did Argentina draw, and what became of it?

A) All $20 billion
B) $20 billion, still owed and rolled into the IMF program
C) $2.5 billion, repaid by January 2026
D) $1 billion, which the Treasury later wrote off

3. Which fact does the module give against the view that Argentina's program has succeeded?

A) Its inflation rose back above 100% in 2026 after the peso was allowed to float freely
B) It defaulted in May
C) Milei lost the midterms
D) It missed a reserves target and needed an IMF waiver

4. Why are India, Brazil, Mexico, and Indonesia less fragile than the Asian economies of 1997?

A) They borrow mostly in their own currencies, let their exchange rates float, and hold large reserves
B) They have pegged their currencies to the dollar, so their dollar debts cannot grow
C) They joined a common currency area that settles trade without the dollar
D) They stopped borrowing abroad at all after the crisis of 2008

5. What happened to China's new-home prices by August 2026?

A) They fell for a 38th straight month
B) They doubled
C) They rose 5%, in line with producer prices
D) They recovered to their 2021 peak after the stimulus

Module 18 — Regulation, Supervision, and the 2025-26 Deregulation

The Rules and Their Unwinding

Recommended Reading / Reference

Book: Anat Admati and Martin Hellwig, *The Bankers' New Clothes* (new edition, 2024), the case for far more bank equity

Reference: The Federal Reserve Board's staff memo on the Basel III, surcharge, and standardized-approach proposals (March 19, 2026) and its final stress-test rules (September 30, 2026)

18a. What Was Built After 2008

The rules written after 2008 had one purpose, to make a repeat of that year's runs and rescues unlikely, and four instruments. Capital: the Basel III standards, set by the Basel Committee at the BIS, required more equity and of better quality, with surcharges for the global systemically important banks (GSIBs), the thirty or so whose failure would shake the world. Liquidity: banks must hold enough cash and government debt to survive heavy withdrawals (Module 2). Resolution: the largest banks must file 'living wills' showing how they could fail without a bailout.

The fourth was oversight of the non-banks, for which the Dodd-Frank Act of 2010 created the Financial Stability Oversight Council (FSOC) to name non-banks as systemically important, pushed standardized derivatives into clearinghouses (Module 14), and set off reforms of money-market funds. Annual stress tests, which ask whether each large bank could survive a severe recession, tied the four together.

It worked where it applied. No large bank failed in the shock of 2020, and the failures of 2023 were of regional banks that a 2018 law had exempted from the strictest rules by raising the threshold for them from $50 billion of assets to $250 billion, which left Silicon Valley Bank below it (Module 7). Critics on the right said the rules made bank capital so costly that lending moved to non-banks; critics on the left said the rules never reached the shadow system where the risk had gone. Both were partly right, which is the background to the unwinding.

18b. The 2025-26 Changes

Rule or institution	Before	The 2025-26 change	Status, October 2026
Basel III 'endgame' capital rules	A 2023 proposal to raise large banks' capital about 16% in aggregate	Re-proposed on March 19, 2026, with changes to the surcharge and the standardized approach; Fed staff estimate the package lowers the largest banks' common-equity requirements 4.8%, net, mid-sized banks' 5.2%, and smaller banks' 7.8%	Comments closed June 18; no final rule
Enhanced supplementary leverage ratio, a floor of equity against all assets regardless of risk	A flat 5% for the largest holding companies: the 3% minimum plus a 2% buffer	Final rule of November 25, 2025 (Fed vote 5-2): 3% plus half of each bank's surcharge; tier 1 capital requirements fall by less than 2%	In force since April 1, 2026

Rule or institution	Before	The 2025-26 change	Status, October 2026
Stress tests	Each bank's buffer reset by each year's results	Buffers frozen on February 4, 2026 pending a review of the Fed's models; final rules of September 30 put scenarios and models out for public comment each year and average the buffer over two years from 2028	June 24 results: all 32 banks passed, with common equity down 1.6 points and $708 billion of projected losses
Consumer Financial Protection Bureau	The federal regulator of consumer credit	Funding cap cut from 12% to 6.5% of the Fed's operating costs by the July 2025 budget law; overdraft and payment-app rules repealed by Congress in May 2025; a plan to cut staff to about 550, held up in court	Acting director Mark Paoletta since August 1, 2026; nominee Brian Johnson cleared the Senate Banking Committee on September 17
Financial Stability Oversight Council	A 2023 framework for naming systemic non-banks	Its rescission proposed on March 25, 2026	No non-bank designated
Bank supervision	Examiners' judgment, including on 'reputational risk'	Reputational risk dropped from Fed examinations in June 2025; ratings of large banks reformed in November 2025; the Fed's supervisory staff to be cut about 30%	In force
Mergers	Slow approvals	Capital One-Discover closed on May 18, 2025; Fifth Third-Comerica, $290 billion combined, approved on January 13, 2026	Consolidation resumed

Federal Reserve; Office of the Comptroller of the Currency; Congress; the bureau's court filings; banks' announcements. Crypto's rules are in Module 15 and the Fed's independence in Module 3.

Taken together, the changes run one way: every row of the table eases a constraint on the banks or on their supervisors, and the leverage change in particular lets the largest banks hold more Treasuries and lend more in repo.

18c. The Deregulation, Argued

Those who defend the changes say the rules of 2010-23 overshot. The largest banks now hold far more and better equity than before 2008, and the 2026 stress test (18b) found them able to absorb a severe recession. The leverage ratio penalized the safest assets, Treasuries and repo, at the very moment the Treasury market needed dealers with room on their balance sheets (Module 6), so loosening it makes the market sturdier rather than weaker. And the cost of excess capital was to push lending to non-banks that are less regulated still, so recalibrating the rules brings credit back inside the supervised system, while supervisors who focus on material financial risk rather than paperwork and reputations are better supervisors.

Those who oppose the changes answer with the record of Module 16: leverage is the system's danger, and it has moved to non-banks at the very moment the council is giving up its power to name them. Banks lend heavily to non-bank financial firms (Module 7), so the two systems are tied together. The moment is a poor one to loosen, with hedge funds' leveraged bets on Treasuries grown large (Module 6), private credit under strain, stock valuations near records (Module 13), and a large deficit (Module 9). And the failures of 2023 were failures of supervision: the Fed's own review found that its examiners had seen Silicon Valley Bank's problems and not acted forcefully, which is an argument for more supervisory capacity, not less.

The evidence is uneven between the parts: the capital and leverage changes are modest beside the equity the largest banks have built since 2008, and the stress test suggests they can bear them. The supervisory

cuts and the retreat from non-bank oversight remove tools aimed at exactly where Modules 6, 7, and 16 locate the next crisis, and no stress test of banks measures that. The course's reading is that the capital changes are defensible recalibrations, and that the weakening of supervision and of non-bank oversight is the riskier part of the program.

18d. What the Guardrails Still Hold

What remains is substantial: the largest banks hold more equity than before 2008 and face annual stress tests, and most interest-rate swaps are centrally cleared (Module 14), as cash Treasury trades and repo will be under the deadlines of Module 6. Deposits are insured up to a limit (Module 2), and in practice further whenever regulators invoke the systemic-risk exception, as in 2023 (Module 7), and the discount window, the standing repo facility, and the swap lines are open (Modules 3 and 12). Institutional prime money funds must charge fees on large withdrawals (Module 6), and the Supreme Court has protected the Fed's governors from removal at will (Module 3).

What does not remain is as telling: no designated non-banks, a consumer regulator at a fraction of its former size, private credit and hedge-fund leverage reported but not limited, and fewer examiners. The guardrails hold the banks, and the risk has moved to where they reach least, which is also how the years before 2008 looked.

Module 18 Key Points

Regulation, Supervision, and the 2025-26 Deregulation

• After 2008 regulators raised bank capital, required liquid assets, demanded living wills, and pushed derivatives into clearinghouses.

• A 2018 law lifted the threshold for the strictest bank rules from $50 billion of assets to $250 billion.

• The March 2026 re-proposal would lower the largest banks' common-equity requirements about 4.8%, net, on Fed staff estimates.

• The leverage-ratio change, in force since April 1, 2026, lets the largest banks hold more Treasuries and repo.

• The course's reading: the capital changes are modest; weaker supervision and non-bank oversight are the riskier part.

Module 18 Quiz

Check Your Understanding

1. Why did Silicon Valley Bank escape the strictest post-2008 rules?

A) Its deposits were fully insured, so supervisors saw no risk of a run
B) A 2018 law raised the threshold for them from $50 billion to $250 billion of assets
C) It was chartered abroad and supervised by another country's regulator
D) It held no securities that could lose value when rates rose

2. What does the March 2026 re-proposal do to the largest banks' capital requirements, on the Fed staff's estimate?

A) Raises them about 16%, as the 2023 proposal would have
B) Raises them 19%, matching the original Basel endgame plan
C) Cuts them about 4.8%, net
D) Leaves them unchanged, because the surcharge offsets the cut

3. What did the leverage-ratio rule of November 2025 change?

A) It raised the ratio to 10% for the eight largest banks after the 2023 failures
B) It exempted crypto holdings
C) It ended stress tests
D) It replaced a flat 2% add-on with half of each bank's surcharge

4. Which argument does the case against the deregulation make?

A) That bank capital is now too low to absorb any loan losses at all
B) That leverage has moved to non-banks just as their oversight is being withdrawn
C) That the largest banks should be broken up into regional banks
D) That crypto should be banned from the banking system

5. What is the course's reading of the 2025-26 deregulation?

A) Modest capital changes; the riskier part is weaker supervision and non-bank oversight
B) A dangerous return to the rules of 2006 that makes a 2008-style banking crisis likely within two years
C) A necessary repeal of rules that never worked
D) A change with no effect on risk

Module 19 — Where Things Stand, and What to Watch

The Argument, the Contradictions, and What Moves Next

Recommended Reading / Reference

Reference: The Federal Reserve's statement and projections of December 9, 2026, the first document that will show whether this module's readings hold, and the IMF's *Global Financial Stability Report* of October 13, 2026, the latest official survey of the risks it names

19a. The Argument

The course's argument fits on a page. Money is a set of promises: a bank's promise to turn a deposit into cash (Module 2), a government's to pay its bonds (Module 8), a stablecoin issuer's to return a dollar (Module 15), and a central bank's to preserve the value of all of them (Module 3). The financial system is the machinery that keeps those promises every day, through money markets that lend trillions of dollars overnight (Module 6).

For a decade after 2008 the machinery ran on nearly free money, and the leverage of the 2020s was built in those years: the basis trade, private credit, and leveraged bets on assets thought safe (Modules 6, 7, and 14). The 2020s then tested it with a worldwide inflation and the rate rises that fought it (Module 5), large deficits in an expansion (Module 9), a policy shock that made the world's safe asset fall in a crisis (Module 8), and an oil shock that no central bank can reverse (Module 5).

The system has held each time, at a price: interest rates higher for longer, with the term premium back (Module 4); more debt, financed increasingly by leveraged and private buyers (Module 8); more gold in central banks' reserves (Module 11); and more leverage in the places the rules reach least (Module 18). The Fed's September rise, under a new chair and over the President's objection (Module 3), is where the next test began.

19b. The Contradictions

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

- **The safest asset rests on the least stable buyers.** As foreign central banks stepped back from Treasuries (Module 8), the buyers who replaced them were run-prone money funds, hedge funds financing the basis trade overnight (Module 6), and stablecoins built like money funds (Module 15). Regulators then loosened the banks' leverage rule so that dealers could finance more of the same positions (Module 18), so the world's safe asset now depends on repo funding that has failed before (Module 6).
- **Stocks and bonds are pricing different futures.** Stocks yield barely more in expected earnings than a ten-year Treasury does in interest (Module 13), a price that assumes strong growth in profits and calm in rates. The bond market, meanwhile, charges a term premium for holding long debt through deficits and inflation (Modules 4 and 9). Both can last for a while, but the world that justifies one makes the other wrong.
- **The dollar is a haven from the world's shocks but not from America's.** In the war of 2026 investors ran to the dollar (Module 12); in the tariff week of April 2025 they ran from it, along with Treasuries and

American stocks (Modules 8 and 10). The assets bought as insurance against the dollar disappointed when it was needed: gold, the central banks' choice (Module 11), fell sharply in March 2026, and bitcoin held its value in the shock only after halving in the months before it (Module 15). The dollar's standing therefore depends on whether the next shock is made abroad or at home.

• **Non-banks go unsupervised in calm times and are rescued in crises.** The Fed's rescues of 2008 and 2020 reached money funds, commercial paper, and a Treasury market that leveraged funds had overloaded (Modules 6 and 16), and most of the crises of the 2020s began outside the banks (Module 7). Yet the council that could name systemic non-banks is giving up that power (Module 18), so the state still carries their worst outcomes without supervising them.

• **The rich world's cure is the periphery's second shock.** Central banks from Washington to Tokyo raised rates in 2026 so that an oil shock would not become lasting inflation (Module 3). But higher American rates and a firmer dollar raise the cost of the dollar debts the oil importers owe (Modules 12 and 17), so the countries hit first by the strait's closure are hit again by the response to it, which is why the IMF's queue grew in a year of record stock prices.

19c. What to Watch

When	What	Why it matters
October 21-23, 2026	Rate decisions in Indonesia (21st), Turkey and Korea (22nd), and Russia (23rd)	Indonesia and Korea raised rates in 2026 (Module 3), Korea as the won fell (Module 12); further rises days before the Fed meets would show the periphery still paying for the rich world's tightening, the fifth contradiction above
October 23	Moody's review of France's credit rating	France already borrows at more than Italy (Module 8); a downgrade would show the bond market's discipline reaching the core of the euro area, and test how far the European Central Bank will lean against widening spreads
October 25	Brazil's presidential runoff	Brazil's real interest rate, near 9%, is the price of its fiscal credibility; the winner's first budget, more than the result itself, will decide whether the central bank can keep cutting
October 27-28	The Federal Reserve's meeting	The first decision since the September rise. With hiring stalled and core PCE inflation well above target (Module 5), a second rise would confirm that the committee ranks credibility above jobs, and a pause would show the labor market now weighs more
October 28	Britain's budget	Britain pays the highest ten-year rate in Module 8's table, and Chancellor John Healey presents his first budget four years after the gilt crisis; a plan the market doubts would show in gilt yields within hours
October 29	The European Central Bank's decision	Another rise (Module 3) would show Europe willing to tighten into an energy shock it imports, with growth already weak
October 29	September's PCE price index	The Fed's own measure, released the day after its decision; a core reading above 3% would strengthen the case for a rise in December
October 29-30	The Bank of Japan's decision	Japan is raising rates with inflation below 2% (Module 5); a rise would show it targeting wages and the yen, and a pause that weakens the yen would invite another intervention (Module 10)
November 3	American midterm elections	The next Congress writes the budgets that set the primary deficit (Module 9), votes on nominees to the Fed and the consumer bureau (Modules 3 and 18), and can restore or deny by law the tariff powers the Supreme Court struck down
November 4	The Treasury's quarterly refunding	Whether the Treasury keeps note and bond auctions steady and leans on bills (Module 8); larger long auctions would push more duration onto a market already charging a term premium (Module 4)

When	What	Why it matters
November 5	The Bank of England's decision, its first after the budget	A rise would add to whatever tightening the budget brings; a hold would leave the gilt market to do the tightening
December 8-9	The Fed's meeting, with new projections	The projections will show how far the committee's path has moved since September (Module 3), and the task forces' findings may change how the Fed explains itself, including whether the projections survive in their present form
December 11	The federal funding deadline	The stopgap signed on September 2 expires; a shutdown would delay the jobs and inflation data the Fed relies on, as the shutdown of October-November 2025 did
December 31	Central clearing of cash Treasury trades	The first of the two deadlines in Module 6; added margin may make the basis trade smaller and costlier, or simply move it
January 10, 2027	The US-China tariff truce expires	China's export boom and the yuan's rise (Module 10) were built under the truce; its end or extension decides whether trade tensions return just as China's trade surplus runs above a trillion dollars a year
January 18, 2027	The latest date for the GENIUS Act to take effect	If the rules are not final, the law takes effect without them (Module 15); how regulators treat Tether will decide how much of the market the law covers
June 30, 2027	Central clearing of Treasury repo	Repo is where the basis trade is financed (Module 6), so clearing it puts the leverage behind the first contradiction under a clearinghouse's margin
2028	Stress-test buffers averaged over two years	Steadier capital requirements for the largest banks (Module 18); the real test of the new rules will be the first recession they meet

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: money is created when banks lend (Module 2), its price is set by a central bank and the market around it (Modules 3 and 4), and every crisis in the course was a run on a promise that leverage had made too large to keep (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 the institution that preserves the value of money can keep doing so when the government that borrows the money would rather it did not. The Fed gave one answer in September, and its meeting of October 27-28 asks the question again, with a weaker labor market and the same President.

Module 19 Key Points

Where Things Stand, and What to Watch

• The argument: money is a set of promises, and the 2020s tested the machinery that keeps them with inflation, deficits, and war.

• The safest asset now rests on its least stable buyers: money funds, basis-trade hedge funds, and stablecoins.

• Stocks yield barely more than ten-year Treasuries, while bonds charge a term premium of about a point.

• The dollar is a haven from the world's shocks but not from America's, and its alternatives disappointed in 2026.

• The next test is the Fed's October 27-28 meeting: a second rise with hiring stalled, or a pause with inflation above target.

Module 19 Quiz

Check Your Understanding

1. What is the course's argument, as Module 19 states it?

A) Money is whatever the state declares it to be
B) The dollar's reign is ending, and the yuan and gold will share it by the end of the decade
C) Money is a set of promises, kept by a machinery the 2020s have tested
D) Interest rates will return to zero once the oil shock ends and inflation falls back

2. Which buyers does the first contradiction say now hold up the Treasury market?

A) Foreign central banks, which have doubled their holdings since 2008
B) Households buying savings bonds in record numbers since 2024
C) The Fed, which resumed buying long bonds in 2026 to cap yields
D) Money funds, hedge funds, and stablecoins

3. Why does the module call the dollar a haven from the world's shocks but not from America's?

A) It has fallen in every crisis since 2008, whether the shock began abroad or at home
B) Its share of reserves rose in 2025 and fell in 2026
C) Gold rose in March 2026 while the dollar fell
D) Investors ran to it in the 2026 war but away from it in the tariff week of April 2025

4. What happens on December 31, 2026, according to the watch list?

A) Cash Treasury trades must be cleared
B) The GENIUS Act takes effect for stablecoins, at the latest
C) The US-China tariff truce expires unless both sides extend it
D) The federal government's stopgap funding runs out

5. What does the last word say the Fed's October 27-28 meeting asks?

A) Whether to cut
B) Whether to restart bond purchases to hold down the Treasury's interest bill
C) Whether it will again protect money's value
D) Whether to adopt a 3% inflation target once the task forces report

Answer Sheet

Answers to every module's Check Your Understanding quiz.

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