G2G ADVISORY

Financial Institutions Group (FIG)

Industry Special — Sector-Specific Reference

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Supplement to the G2G Complete Reference. No duplication.

I. Bank P&L Structure & Core Metrics

Net Interest Income, Spreads & Margins

A bank's P&L is fundamentally different from industrial companies. Net Interest Income (NII) is the core operating metric: interest earned on lending (loans, mortgages, securities) minus interest paid on deposits & funding. A £100bn bank with average interest-earning assets (AIEA) of £80bn earning 3.5% gross yield (loan rate 4%, security yield 2%) minus funding cost of 1.5% (deposit rate 0.5%, wholesale funding cost 2.5%) generates NII of £80bn × (3.5% - 1.5%) = £1.6bn. Net Interest Margin (NIM) is NII / AIEA = 1.6bn / 80bn = 2.0%. NIM is the headline metric for bank health: higher NIM (3-4%) is preferable; lower NIM (<1.5%) signals either competitive pressure on lending rates or high funding costs. During periods of rising rates (2022-2023), NIM expanded as banks repriced deposits more slowly than loan repricing, capturing margin expansion; during low-rate periods (2010-2021), NIM compressed as competitive pressure forced lower lending spreads while deposit rates hit zero lower bound. A 10 bps (0.1%) change in NIM on a £80bn AIEA base = £80m annual NII impact. Non-Interest Income (NII) includes: trading gains, lending fees (loan origination, commitment fees), investment banking (M&A advisory, capital raises), wealth management (AUM-based fees), insurance, card fees. NII typically represents 20-35% of bank operating income; during recessions, trading income & fee income collapse (reducing NII 20-30%), making net interest income the stickier revenue base.

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NII = (AIEA × Lending Yield) - (AIEA × Deposit + Wholesale Costs)
Net Interest Margin (NIM) = NII / AIEA
Spread Sensitivity = (Duration of Assets - Duration of Liabilities) × Yield Change
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Pre-Provision Operating Profit & Cost-to-Income

Pre-Provision Operating Profit (PPOP) = NII + Non-Interest Income - Operating Costs (staff, buildings, technology, regulatory costs). For a £100bn bank: £1.6bn (NII) + £0.8bn (NII, trading, fees) - £1.2bn (costs) = £1.2bn PPOP. Cost-to-Income Ratio (CIR) = Operating Costs / Operating Income = 1.2bn / 2.4bn = 50%. CIR below 50% is considered efficient; above 60% is inefficient. CIR is a key management KPI: a bank improving CIR from 55% to 50% (via automation, branch closures, staff reduction) expands PPOP by 5% of revenue—a £120m improvement on a £2.4bn operating income base. Operating costs split roughly: (1) Staff 45% (base salary, bonus, benefits, pension), (2) IT & Technology 20% (infrastructure, regulatory systems, cybersecurity), (3) Real estate & Facilities 10%, (4) Regulatory & Compliance 10%, (5) Other 15%. Cost inflation in banks is real: wage inflation 4-6% p.a., technology cost inflation 3-4% p.a., regulatory cost inflation 5-8% p.a. (regulators keep adding compliance requirements). A bank growing revenue 2% but facing 4% cost inflation faces negative operating leverage & CIR deterioration unless cost discipline is tight. Digital transformation (moving customers to mobile apps, reducing branch staff, automating back-office) is a multi-year programme (3-5 years, capex £100-500m) that yields CIR improvement of 500-800 bps over the transformation period & permanent cost savings of 15-20%.

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PPOP = NII + Non-Interest Income - Operating Costs
Cost-to-Income = Operating Costs / (NII + Non-Interest Income)
Operating Leverage = d(PPOP) / d(Revenue) = 1 - CIR
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Impairment Charges & Credit Losses

Impairment charges (loan loss provisions) are the P&L charge for expected credit losses on the loan portfolio. Under IFRS 9, banks must provision for expected losses using a forward-looking model (not just observed defaults). IFRS 9 staging: Stage 1 (loans <30 days past due, normal risk, provision = 12-month ECL—expected credit loss), Stage 2 (loans 30-90 days past due, significant increase in credit risk, provision = lifetime ECL), Stage 3 (loans >90 days past due, default, provision = lifetime ECL + specific reserves for loss). A £100bn loan portfolio with 1% Stage 1 loans (£1bn × 0.5% provision = £5m), 0.5% Stage 2 (£500m × 2% provision = £10m), 0.2% Stage 3 (£200m × 40% provision = £80m) = £95m total impairment charge (0.095% of portfolio). Cost of risk (CoR) = Impairment Charge / Average Loan Portfolio = 0.095%. CoR is a leading indicator of credit cycle health: <0.1% is excellent, 0.15-0.20% is normal, >0.3% signals credit stress. During recessions, CoR spikes (£500m-1bn+ in impairment charges for large banks) as portfolio credit quality deteriorates & forward-looking models anticipate defaults. Diligence question: is the bank's ECL model conservative or optimistic relative to actual default rates? Models that underestimate ECL (e.g., failing to foresee a credit downturn) face regulatory criticism & potential restatements.

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Cost of Risk (CoR) = Total Impairment Charges / Avg Loan Portfolio
ECL Provision = Exposure at Default × Probability of Default × (1 - Loss Given Default)
IFRS 9 Stage Migration Risk = % Loans moving Stage 1→2→3 annually
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Return on Tangible Equity (RoTE) = Net Income / (Equity - Intangible Assets)
Target RoTE 12-15% in bull markets, 8-10% in bear markets
Below-Cost-of-Equity Signal = RoTE < 10% (indicates value destruction)
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II. Bank Balance Sheet & Funding Dynamics

Loan Composition & Diversification

A bank's asset side is dominated by loans (60-70% of assets). Loan composition determines credit risk profile & cyclicality. Example portfolio: (1) Mortgages (residential real estate) 35%: 4-5% yield, 0.05% CoR (very safe), long duration (15-20 year amortization), sticky deposit funding. (2) Corporate & Commercial Lending 25%: 4.5-6% yield, 0.15-0.25% CoR (higher risk, pro-cyclical), medium duration (3-7 year terms), wholesale funding mix. (3) Consumer & Credit Cards 15%: 8-15% yield (high risk premium), 1-3% CoR (volatile, pro-cyclical), short duration, unsecured. (4) Commercial Real Estate (CRE) 10%: 5-7% yield, 0.3-0.5% CoR (high risk if vacancy rises), medium duration, cyclical. (5) Securities & Trading Assets 10%: 1-3% yield (lower risk), minimal CoR, short duration, liquid. (6) Other 5%: Overdrafts, acquisition finance, project finance. A portfolio skewed toward mortgages (50%+ mortgages) is defensive (lower CoR, stable NIM) but exposes the bank to residential real estate downturns & rate-driven valuation changes. A portfolio skewed toward CRE & corporate lending (40%+ combined) is higher-yielding but faces pro-cyclical credit losses during recessions. Geographic diversification is critical: a UK bank with 80%+ UK exposure faces concentration risk if UK economy weakens; a global bank with 30-40% exposure to any single country is more diversified. Customer concentration is also monitored: top 20 customers >15% of portfolio is concentration risk; regulatory guidelines typically cap single-name exposure at 10-15% of capital.

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Loan Yield = f(Base Rate + Spread, Risk Premium, Duration)
Portfolio Concentration Risk = Top N Customers / Total Portfolio
Geographic Risk = Single Country Loans / Total Loans
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Deposits, Wholesale Funding & Loan-to-Deposit Ratio

Banks fund loans through deposits ("cheap" funding at ~0-2% rate in normal times) & wholesale funding (bond markets, short-term borrowing, interbank lending at 2-4% rates). A £100bn bank with £60bn deposits & £40bn wholesale funding pays: (£60bn × 0.5%) + (£40bn × 2.5%) = £0.3bn + £1.0bn = £1.3bn funding cost on £100bn total funding = 1.3% blended cost. Deposit types matter: (1) Demand deposits (current accounts, accessible immediately, 0.1-0.3% rate), (2) Notice deposits (savings, 3-month notice, 0.5-1.5% rate), (3) Certificated deposits (CDs, fixed-term, 2-4% rate). Demand deposits are "stickier" (customers don't withdraw en masse unless rates spike dramatically), commanding lower rates. CDs are volatile: if market rates spike and the bank's CD rates are below-market, deposit outflows accelerate. Loan-to-Deposit Ratio (LDR) = Loans / Deposits. A 100% LDR means loans equal deposits (bank must wholesale-fund the excess). A 80% LDR means deposits exceed loans (bank has excess liquidity, lower NIM but more stable funding). LDR >120% indicates reliance on wholesale funding & means rising funding costs squeeze NIM. During financial crises (2008, COVID March 2020), deposit inflows spiked (savers fled risky assets), reducing LDR; when confidence recovered, deposits normalized. Deposit Beta (sensitivity of customer deposit rates to market rate changes) is key: a bank with high deposit beta (rates move 1:1 with market) faces rapid NII compression when market rates fall; a bank with low deposit beta (rates move slowly, customers are "sticky") preserves NII during rate cuts. Regulatory stress tests assume deposit beta of 50-100% (meaning deposits reprice 50-100% of market rate changes).

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Loan-to-Deposit Ratio (LDR) = Total Loans / Customer Deposits
Blended Funding Cost = (Deposits × Deposit Rate) + (Wholesale × Wholesale Rate)
Deposit Beta = Change in Customer Deposit Rate / Change in Market Rates
Funding Gap Risk = (Loans - Deposits) / Assets
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Encumbrance & Wholesale Funding Mix

Encumbered assets are pledged as collateral for wholesale funding (covered bonds, repo, securitization). High encumbrance (50%+ of assets pledged) limits the bank's flexibility to raise additional funding in a stress scenario (unencumbered assets shrink). A bank with £100bn assets, £50bn mortgages pledged in covered bonds, £20bn in repo, has £30bn unencumbered assets—limited flexibility if markets seize up & the bank needs emergency liquidity. Wholesale funding mix: (1) Covered bonds (senior debt, backed by mortgage collateral, <3% rate, 3-5 year maturity, refinancing risk if bond markets close), (2) Subordinated debt (lower priority in bankruptcy, 3-4% rate, 10+ year maturity, CET1-eligible if hybrid), (3) Term funding (wholesale borrowing from other banks, central banks, capital markets). A bank with high reliance on short-term wholesale (3-12 month maturity) faces maturity mismatch risk: if short-term funding markets seize (as in 2008, 2020), the bank is forced to refinance at much higher rates or cut lending. The ideal funding mix: 40-50% deposits (stable, low cost), 30-40% long-term bonds (stable, slightly higher cost), 10-20% short-term (provides flexibility). During COVID, central banks implemented Term Funding Scheme (UK, Australia, US), allowing banks to borrow at low rates for 3-4 years, reducing wholesale funding costs & refinancing risk.

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Encumbered Ratio = Pledged Assets / Total Assets
Funding Maturity Ladder = $ Due <3mo + 3-12mo + 1-5yr + >5yr
Unencumbered Assets = Total Assets - Pledged Collateral
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III. Capital Adequacy: Basel III Framework

CET1, AT1, T2 & Total Capital Ratio

Basel III requires banks to hold capital (equity & quasi-equity) as a buffer against losses. Capital tiers: (1) CET1 (Common Equity Tier 1): highest-quality capital, includes ordinary shares, retained earnings, & CET1-eligible hybrid instruments. Banks must hold minimum 4.5% CET1 ratio. (2) AT1 (Additional Tier 1): subordinated bonds with loss-absorption features (write-down or conversion to equity if bank capital ratios fall below trigger thresholds). Banks must hold minimum 1.5% AT1 ratio (CET1 + AT1 = minimum 6.0% Tier 1 capital ratio). (3) T2 (Tier 2): subordinated debt, minimum 5.5 years to maturity, with loss-absorption features. Banks must hold minimum 2% T2 ratio. (4) Buffers: Pillar 2 Requirement (P2R, supervisor-determined capital buffer, typically 2-4%), Capital Conservation Buffer (CCB, 2.5% of RWA—risk-weighted assets), Countercyclical Buffer (CCyB, 0-2.5% of RWA depending on macroeconomic conditions). A fully-loaded bank holds: 4.5% CET1 + 1.5% AT1 + 2% T2 (Pillar 1) + 4% Pillar 2R + 2.5% CCB + 2% CCyB = 16.5% total capital minimum. A bank with 20% CET1 ratio has £4bn CET1 on £20bn RWA = comfortable buffer above regulatory minimum.

Capital ratios are calculated on risk-weighted assets (RWA), not total assets. A £100bn bank with: 60% mortgages (0% risk weight = £0 RWA), 20% corporate loans (100% risk weight = £20bn RWA), 10% CRE (100% risk weight = £10bn RWA), 10% securities (20% risk weight = £2bn RWA) = £32bn RWA. With £2bn equity, CET1 ratio = 2bn / 32bn = 6.25% (barely above minimum). If the bank increases mortgage lending & reduces corporate lending, RWA falls, CET1 ratio improves (same equity, lower RWA). This incentive structure encourages regulatory arbitrage: banks load up on low-risk-weight assets (mortgages, government bonds) & de-risk portfolios, potentially missing profitable lending opportunities. CET1 ratio is watched obsessively: a bank with CET1 falling below 10% faces regulatory scrutiny & pressure to raise capital (dilutive equity issuance) or cut dividends. During crises, regulators may impose higher CET1 minimums (emergency buffer), forcing banks to hoard capital & cut lending—pro-cyclical impact.

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Tier 1 Capital Ratio = (CET1 + AT1) / RWA ≥ 6.0%
Total Capital Ratio = (CET1 + AT1 + T2) / RWA ≥ 8.0%
CET1 Fully-Loaded Buffer = Current CET1 - 11% (Pillar 1 + Buffers)
RWA = Σ(Asset Class i × Risk Weight i)
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Leverage Ratio & Output Floor (Basel 3.1)

The leverage ratio is a non-risk-weighted capital metric: Tier 1 Capital / Total Exposure. A bank with £2bn Tier 1 capital & £100bn total exposure = 2% leverage ratio. Basel III minimum is 3% (so this bank is under-leveraged). The leverage ratio prevents banks from using risk-weight gaming to hold too-low capital: a pure non-risk-weighted constraint ensures a hard floor. During crises, leverage ratio bites: a bank with 3% leverage ratio cannot expand balance sheet without raising capital, constraining lending growth. For a systemic bank (G-SIB—Global Systemically Important Bank), leverage ratio minimum is 3.5-4.5% depending on size & systemic importance. Basel 3.1 (final framework, adopted in 2023, implementation 2025-2027) introduces the Output Floor (also called Standardised Floor or SA floor): a bank's RWA cannot fall below 72.5% of RWA calculated using the Standardised Approach (less sophisticated risk models). This prevents banks from using Internal Ratings Based (IRB) models to artificially lower RWA. Example: A bank calculates RWA = £30bn using IRB models. Standardised Approach would yield RWA = £42bn. Output floor requires RWA ≥ £42bn × 72.5% = £30.45bn. So the IRB-based RWA is constrained to minimum £30.45bn. This is a significant tightening for banks that were aggressively using IRB models, forcing CET1 ratios lower for a given capital amount. Diligence: simulate Basel 3.1 impact on your target bank's CET1 ratio; if current CET1 is close to post-3.1 minimum, the bank has limited capital buffer for growth or stress.

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Leverage Ratio = Tier 1 Capital / Total Exposures (non-RWA based)
Output Floor = Max(IRB-RWA, Standardised-RWA × 72.5%)
Basel 3.1 Impact = (Standardised-RWA × 0.725 - Current IRB-RWA) / Current IRB-RWA
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IV. Liquidity Regulation: LCR & NSFR

Liquidity Coverage Ratio (LCR) & High-Quality Liquid Assets

LCR = High-Quality Liquid Assets (HQLA) / Total Net Cash Outflows (under stress, 30-day horizon). Regulatory minimum is 100%, meaning a bank must hold enough liquid assets to cover 30 days of stressed funding outflows. HQLA comprises: (1) Level 1 (0% haircut): cash, central bank reserves, government bonds, unencumbered central bank eligible collateral—limitless amount. (2) Level 2A (15% haircut): investment-grade corporate bonds, covered bonds, agency MBS—up to 40% of HQLA. (3) Level 2B (25-50% haircut): non-investment grade corporate bonds, equities, residential MBS—up to 40% of HQLA. Cash outflows in the LCR stress scenario: (1) Retail deposits: 5-10% outflow (stable deposits are "sticky", so only 5-10% is assumed to flee in stress). (2) Wholesale funding: 25-100% outflow depending on counterparty type & tenor (unsecured wholesale is assumed 100% outflow in 30 days; secured repo is lower). (3) Derivative & contingent payables: 5-20% outflow. (4) Undrawn credit lines: 10-30% outflow (clients draw committed credit lines during stress). A £100bn bank with: £10bn cash, £30bn government bonds (Level 1 HQLA = £40bn); £20bn covered bonds (Level 2A, haircut 15% = £17bn net); Total HQLA = £57bn. Net cash outflows estimated: £8bn retail deposits (out of £50bn) + £20bn wholesale funding (out of £40bn) + £2bn derivatives + £3bn contingent = £33bn. LCR = £57bn / £33bn = 172% (comfortable). LCR >150% is considered strong; 100-110% is minimum compliance; <100% is a breach.

LCR stress assumptions are set by regulators & can be tightened during macroeconomic stress. In 2008, the LCR stress scenario was deemed too lenient (banks breached it), so regulators tightened assumptions. In COVID March 2020, central banks relaxed LCR temporarily (allowed banks to dip below 100%) to encourage lending. LCR composition matters: a bank with £40bn HQLA skewed toward government bonds (illiquid in true market dysfunction) is less robust than one with £40bn in cash & central bank facilities (immediately usable). Diligence: examine HQLA composition & stress-test the LCR if major deposit outflows occur (assume retail deposit outflow of 20-30% in a severe crisis vs. regulatory 5-10% assumption).

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LCR = HQLA / Total Net Cash Outflows (30-day horizon)
Net Cash Outflows = Deposit Outflows + Wholesale Funding Runoff + Contingent Flows
LCR Buffer = (Current LCR - 100%) / 100% × Total Assets
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Net Stable Funding Ratio (NSFR)

NSFR = Available Stable Funding (ASF) / Required Stable Funding (RSF), minimum 100%. This is a longer-term liquidity metric (one-year horizon vs. 30 days for LCR). Available Stable Funding includes: (1) Stable deposits (retail, low run-off): 80-90% of deposit value counted as ASF. (2) Less stable wholesale funding (short-term, wholesale): 50% of value counted as ASF. (3) Equity & long-term debt: 100% counted as ASF. Required Stable Funding depends on asset liquidity: (1) Cash, government bonds: 0-5% RSF (very liquid, minimal stable funding required). (2) Mortgages, corporate loans: 50% RSF (assume 50% stable funding required). (3) CRE, leveraged loans: 100% RSF (illiquid, full stable funding required). A £100bn bank with: £50bn mortgages (50% RSF = £25bn RSF), £30bn corporate loans (100% RSF = £30bn RSF), £10bn cash/bonds (5% RSF = £0.5bn), £10bn trading assets (100% RSF = £10bn). Total RSF = £65.5bn. ASF: £50bn deposits (85% = £42.5bn) + £40bn wholesale debt (60% = £24bn) + £10bn equity (100% = £10bn) = £76.5bn. NSFR = £76.5bn / £65.5bn = 117% (compliant). NSFR <100% signals an imbalance: short-term funding funding long-term assets, maturity mismatch risk. During a funding stress, short-term wholesale doesn't roll over, forcing asset sales & deleveraging.

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NSFR = ASF / RSF ≥ 100%
ASF = Stable Deposits + Less-Stable Deposits + LT Wholesale + Equity
RSF = Σ(Asset Class i × RSF Weight i)
Funding Gap = (RSF - ASF) / Total Assets
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V. Why EV/EBITDA Fails for Banks (Valuation Framework)

Enterprise Value/EBITDA is meaningless for banks because: (1) Debt is raw material (for a manufacturing company, debt is financing; for a bank, deposits & wholesale funding are core inputs to generate interest income—like raw materials for a factory). Subtracting debt from EV doesn't make sense for banks. (2) EBITDA doesn't exist (EBITDA removes interest expense & taxes; for a bank, interest expense is fundamental to the business model, not a financing choice). (3) Free cash flow is undefined (a bank doesn't invest capex like a factory; it invests in loan growth & securities, which are funding decisions, not operating capex). (4) Leverage is productive (a non-financial company with 3x net debt / EBITDA is leveraged; a bank with 8-10x leverage on equity is normal & safe if capital ratios are adequate). Therefore, traditional industrial multiples are irrelevant. Bank valuation requires bank-specific frameworks: Price-to-Book (P/B) ratio, Price-to-Earnings (P/E) ratio, Price-to-Tangible Book Value (P/TBV), Dividend Yield, and intrinsic value models (DDM, Residual Income Model, Excess Return Model). Each is explained in the next section.

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EV/EBITDA ≠ applicable for banks
Debt is financing for industrials, raw material for banks
Use P/TBV, P/E, or DDM instead for bank valuation
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VI. Bank Valuation Methods

Price-to-Tangible Book Value (P/TBV) & Gordon Growth Model

Price-to-Tangible Book Value (P/TBV) = Market Cap / (Equity - Intangible Assets). For a bank with £10bn market cap, £5bn equity, £0.5bn intangible assets (goodwill from acquisitions), P/TBV = £10bn / (£5bn - £0.5bn) = £10bn / £4.5bn = 2.2x. P/TBV of 1.0-1.5x signals the bank is trading below book value (potential undervaluation or market skepticism). P/TBV of 1.5-2.5x is normal for healthy banks. P/TBV >2.5x suggests high growth expectations or strong franchise value. The Gordon Growth Model (Dividend Discount Model for banks) derives justified P/TBV: P/TBV = (RoE - g) / (CoE - g), where RoE is return on equity, g is long-term growth rate (typically 2-3%), CoE is cost of equity

(7-10% for banks). A bank with RoE = 12%, CoE = 9%, g = 2.5%: justified P/TBV = (12% - 2.5%) / (9% - 2.5%) = 9.5% / 6.5% = 1.46x. If the bank trades at 1.8x P/TBV, it's overvalued vs. this model. This derivation shows that P/TBV is determined by: (1) RoE (higher RoE = higher justified multiple), (2) CoE (lower cost of equity = higher multiple, e.g., systemically-important banks have lower CoE due to implicit government guarantees), (3) Growth rate (higher growth = higher multiple, but bank growth is capped by risk-weighted asset constraints & regulatory capital limits). A bank below-cost-of-equity (RoE < CoE) will trade at P/TBV < 1.0 because it destroys shareholder value (every new pound of capital generates returns below the cost of capital). The market quickly reprices such banks downward until RoE improves or CoE falls.

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P/TBV = (RoE - Growth Rate) / (Cost of Equity - Growth Rate)
Justified P/TBV = 1.0 when RoE = Cost of Equity
P/TBV < 1.0 signals Value Destruction (RoE < CoE)
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Price-to-Earnings & Dividend Discount Model

Price-to-Earnings (P/E) = Market Cap / Net Income. For a bank earning £1bn on £10bn market cap, P/E = 10x. Bank P/E multiples typically range 8-15x depending on growth, RoE, & cost of equity. A mature, low-growth bank trades at 8-10x P/E. A high-growth, high-RoE bank trades at 12-15x P/E. The dividend discount model (DDM) values a bank based on expected future dividends: Value = Σ (Dividend per Share Year i) / (1 + CoE)^i. A bank paying 50% payout ratio (50% of earnings paid as dividends, 50% retained for growth) with £2 EPS, 7% CoE, 3% growth: Year 1 dividend = £1. Value = £1 / (7% - 3%) = £25 per share (intrinsic value). If the share trades at £30, it's 20% overvalued. DDM is sensitive to the terminal growth rate: if g increases from 3% to 4%, the denominator shrinks (7% - 4% = 3%), value doubles to £33/share (50% upside). This extreme sensitivity makes DDM dangerous if the growth assumption is off. Diligence: validate the long-term growth rate (should match GDP growth + market share gains/losses; for a mature bank, 2-3% is realistic). Also validate dividend policy: a bank may cut dividends in a downturn (forcing DDM revaluation downward), so the stability of dividends is crucial.

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Dividend per Share = Earnings per Share × Payout Ratio
DDM Value = DPS Year 1 / (Cost of Equity - Terminal Growth Rate)
Dividend Yield = DPS / Stock Price
Terminal Growth Rate typically 2-3% (mature bank, GDP growth)
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Residual Income & Excess Return Model

Residual Income Model: Value = Tangible Book Value + PV of Future Residual Income, where Residual Income = (RoE - CoE) × Tangible Book Value. A bank with TBV = £4.5bn, RoE = 12%, CoE = 9%: Year 1 Residual Income = (12% - 9%) × £4.5bn = 3% × £4.5bn = £135m. If this excess return is sustainable perpetually at g = 2% growth: Value = £4.5bn + £135m / (9% - 2%) = £4.5bn + £1.93bn = £6.43bn. If market cap is £10bn, the bank is 55% overvalued per this model. This model is elegant because it decouples book value growth (which continues automatically via retained earnings) from excess value creation (RoE - CoE). A bank with RoE = CoE creates no excess value; intrinsic value = book value. A bank with RoE > CoE (e.g., a dominant franchise with strong competitive advantages) creates value; intrinsic value > book value. This is why high-RoE banks (IB franchises like Goldman Sachs, JPM) trade at 2-3x P/TBV while struggling regional banks trade at 0.8-1.0x P/TBV. Cost of equity estimation for banks: CoE = Risk-Free Rate + Beta × Market Risk Premium. For a bank, beta is 1.0-1.3 (equity returns are typically 1-30% more volatile than the overall market). Risk-free rate (10-year government bond yield) was 0.5-1% in 2010-2020, rose to 4-5% in 2023-2024, materially raising CoE. A 1% rise in risk-free rate increases CoE by 100 bps, lowering justified valuation 10-15%.

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Residual Income = (RoE - CoE) × Tangible Book Value
Intrinsic Value = TBV + RI / (CoE - Growth)
Cost of Equity = Risk-Free Rate + Beta × Market Risk Premium
Value = Σ (RoE - CoE) × TBV × (1+g)^i / (1+CoE)^i + Terminal Value
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VII. Basel 3.1/IV & Output Floor Implementation

Basel 3.1 (final rules released December 2023, implementation 2025-2027) introduces the Standardised Approach Output Floor (SA floor), setting a minimum RWA at 72.5% of RWA calculated under the Standardised Approach. This prevents banks from using sophisticated Internal Ratings Based (IRB) models to aggressively lower RWA. The impact is material for banks that have heavily optimized IRB models. Example: Bank A uses IRB models to calculate RWA = £30bn on a £100bn loan portfolio (30% RWA density). Standardised Approach would yield RWA = £42bn (42% RWA density, more conservative). Output floor forces RWA ≥ £42bn × 72.5% = £30.45bn. So the bank's RWA increases from £30bn to £30.45bn, a 1.5% increase. For a bank with £2bn capital, CET1 ratio drops from 2bn/30bn = 6.67% to 2bn/30.45bn = 6.57%, a 10 bps reduction. For a bank with tight capital ratios (barely above minimum), this can force capital raising. European banks face the largest impact because they've been aggressive with IRB models; UK & US banks using more conservative approaches face smaller impacts. Implementation timeline: banks must fully comply by January 1, 2028. Interim compliance (Jan 1, 2027): output floor applies to 50% of the gap between IRB-RWA & SA-RWA. Diligence impact: if a bank's current CET1 ratio is 10.5% and Basel 3.1 output floor pushes RWA up 5%, CET1 ratio falls to ~10%, dangerously close to regulatory minimum of 8-9%. The bank must raise capital or reduce assets/growth to maintain buffers. This is a material headwind for European bank multiples in 2025-2027 periods.

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Output Floor RWA = Max(IRB-RWA, SA-RWA × 72.5%)
CET1 Impact = (New RWA - Old RWA) / Old RWA × Current CET1 Ratio
Capital Raise Requirement = RWA Increase × Target CET1 Ratio
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VIII. Credit Risk & Asset Quality Management

NPL Ratios, Coverage & Stage 1/2/3 Migration

Non-Performing Loans (NPLs) are loans >90 days past due, unlikely to be fully repaid. NPL Ratio = NPLs / Total Loans. An NPL ratio <1% is healthy; 1-3% is elevated; >3% signals credit stress. During recessions, NPL ratios spike: 2008 financial crisis saw US bank NPL ratios rise from 1-2% to 5-7% by 2010; COVID saw temporary spikes in 2020 but quick recovery in 2021 (due to government stimulus). European banks with legacy NPLs from the 2008 crisis saw NPL ratios >10% in 2016, requiring multi-year clean-up programmes. Coverage ratio = Loan Loss Provisions / NPLs. Coverage >50% indicates the bank has reserved for most expected losses; coverage <30% indicates the bank is under-reserved & will face future provisions. IFRS 9 staging (Stage 1, 2, 3) replaced the old "non-performing" definition. Stage 1: loans with no significant increase in credit risk since origination (provision = 12-month ECL). Stage 2: loans with significant increase in credit risk (e.g., customer credit score declined, industry downturned) but not yet in default (provision = lifetime ECL, typically 2-5% of loan value). Stage 3: loans in default (provision = lifetime ECL + customer-specific assessment, typically 40-70% of loan value). A bank with high Stage 2 migration (lots of loans moving into the "watch list") indicates deteriorating credit quality ahead. Stage 2 ratio >20% of total loans warrants scrutiny; it signals future Stage 3 migration & provision increases. Diligence: examine customer defaults & restructured loans (firms that negotiated payment deferrals, covenant waivers) as these are likely Stage 2 or 3 candidates & pose provision risk.

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NPL Ratio = Non-Performing Loans / Total Loans
Coverage Ratio = Loan Loss Provisions / NPLs
Stage 2 Migration Risk = Quarterly % of Stage 1 Loans Moving to Stage 2
Provision Coverage = Stage 3 Provisions / Stage 3 Loans
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Loss Given Default & Exposure at Default

Loss Given Default (LGD) = % of loan value lost after default (50% for unsecured; 20-30% for mortgages; 40-60% for unsecured corporate). Exposure at Default (EAD) = amount owed at time of default (100% for term loans; 20-40% for drawn credit lines; 50-80% for undrawn committed lines, assuming partial draw-down in distress). ECL = EAD × Probability of Default (PD) × LGD. A £1m mortgage with 70% LGD (after foreclosure, sale proceeds cover 30% of balance, loss is 70%), 0.5% PD, 100% EAD: ECL = 1m × 0.5% × 70% = £3,500 provision. A £1m corporate loan with 40% LGD, 2% PD, 100% EAD: ECL = 1m × 2% × 40% = £8,000 provision. Higher-risk loans (corporate, unsecured) require higher provisions despite similar balance sheet sizes. Diligence: scrutinize LGD assumptions, especially for CRE & corporate exposures. If the bank assumes 30% LGD on CRE but market comps show 50% LGD in recent distressed sales, the bank is under-reserved by 40% on those loans. Also examine concentration of high-LGD exposures: if 30% of the portfolio is CRE with 50% LGD, a 10% CRE price decline cascades to 5% total portfolio loss (10% × 30% × 50%), potentially forcing £500m provision (on a £100bn portfolio). Stress-test the provision impact of a 20% commercial real estate price decline & a 200 bps unemployment spike (likely to drive PD up 2-3x); provision charges could jump from normal £500m p.a. to £2-3bn p.a. in stress.

```
ECL = EAD × PD × LGD
LGD varies by collateral type: Mortgages 20-30%, Unsecured Corp 40-60%
Concentration Risk Provision = Σ(Sector Concentration %) × Sector PD × Sector LGD
Stress Test Provision = Recession ECL - Normal ECL
```

IX. Interest Rate Risk in the Banking Book (IRRBB)

Banks have two types of interest rate risk: (1) Net Interest Margin (NIM) sensitivity: if rates rise, banks earn more on new loans but pay more on deposits (deposit beta determines pass-through speed), net effect depends on asset/liability repricing mismatch. (2) Economic Value (EVE) sensitivity: if rates rise, the present value of long-duration fixed-rate assets (mortgages, long-term loans) falls relative to short-duration liabilities (deposits). Example: A bank holds £50bn mortgages at 3% fixed rate, 20-year duration. If rates rise 100 bps (mortgages now yield 4%), the present value of the mortgage portfolio falls by approximately 20% × 100 bps = 2% = £1bn (duration approximation). Conversely, deposits are short-duration (reinvestable daily), so deposit liability values are less affected by rate changes. A 100 bps rate rise could cause a £1bn loss in economic value. NII sensitivity: assume deposit beta of 50% (deposits reprice 50% of market rate move). A 100 bps rate rise: new mortgage yields rise 100 bps (on new originations) but existing deposits reprice only 50 bps higher (deposit rate stickiness). Assuming 50% of the loan portfolio and 50% of deposits reprice annually: NII impact = (£50bn assets × 100 bps) - (£50bn deposits × 50 bps) = £500m - £250m = £250m annual NII benefit (positive, improves margins). This creates a paradox: a rising-rate environment improves NII but hurts EVE. A falling-rate environment hurts NII but improves EVE. Duration gap = Duration of assets - Duration of liabilities. A positive duration gap (long assets, short liabilities) means the bank benefits from falling rates (EVE increases) but is hurt by rising rates. A negative duration gap (short assets, long liabilities) is rare for banks but creates the opposite exposure. Diligence: model NIM and EVE impact of a 100, 200, 300 bps rate move in both directions. A bank with high duration gap and low deposit beta faces significant EVE risk in a rate-rise scenario; a bank with low duration gap and high deposit beta faces NIM compression risk in a rate-fall scenario.

```
Duration Gap = Duration of Assets - Duration of Liabilities
EVE Sensitivity ≈ Duration Gap × Rate Change × Asset Size
NIM Sensitivity = (Repricing Assets - Repricing Deposits) × Rate Change
Stress Scenario = 100/200/300 bps parallel shift up & down
```

X. Insurance: Life & Casualty Fundamentals

Embedded Value & MCEV for Life Insurance

Life insurance economics differ from property & casualty (P&C) due to long-tail liabilities (30-40 year duration on annuities). Embedded Value (EV) = Net Asset Value + Present Value of Future Profits (PVFP). For a £20bn market-cap life insurer with £8bn equity, £12bn PVFP: EV = £8bn + £12bn = £20bn. EV is disclosed under Market-Consistent Embedded Value (MCEV) standard. The P/EV multiple (Price / MCEV) is the life insurance equivalent of P/TBV. A P/EV of 0.8-1.0x suggests the insurer is undervalued; 1.0-1.3x is fair value for quality franchises. MCEV components: (1) Adjusted Net Asset Value (ANAV): equity capital, less intangible assets, adjusted for tax. (2) PVFP: profits expected from in-force business over its lifetime, discounted to present value. PVFP depends on: (a) New business margins (profit on new policies sold), (b) Persistency (% of policies that don't lapse; life insurance persistency is 85-95% annually; lapses reduce PVFP), (c) Reversion to mean (if interest rates rise, discount rate for PVFP increases, PVFP falls despite same nominal profits). A major interest-rate shock can cause PVFP swings >20% (hence, life insurers are sensitive to the interest-rate cycle). VNB (Value of New Business) = annual PVFP contribution from policies sold in the current year. VNB margin = VNB / New Business Premiums. A high-quality life insurer has VNB margin >25%; a competitive/saturated market has margins 10-15%. Diligence: examine persistency trends (falling persistency signals customer dissatisfaction or low-quality business), VNB margins (falling margins signal pricing pressure), & duration of PVFP (longer duration = more interest-rate sensitivity).

```
MCEV = ANAV + PVFP
P/EV Ratio = Market Cap / MCEV
VNB Margin = Value of New Business / New Business Premiums
Persistency Impact = 1 bps persistence loss = PVFP -0.5 to -1.0%
```

Combined Ratio & Underwriting Profit for P&C

Property & Casualty (P&C) insurance (auto, home, commercial property, liability) is more cyclical than life. Combined Ratio = (Claims Incurred + Operating Expenses) / Premiums Earned. A combined ratio <100% indicates underwriting profit (insurance is profitable); >100% indicates underwriting loss. Example: A P&C insurer earns £10bn premiums, pays £6bn claims (losses), £3bn operating costs: Combined Ratio = (£6bn + £3bn) / £10bn = 90%. The underwriting profit is £1bn. A ratio of 100% breaks even on underwriting; profit comes from investment returns on the "float" (premiums received before claims are paid). During soft markets (excess capacity, intense competition), combined ratios spike to 105-110%, causing underwriting losses offset by investment income. During hard markets (capacity shortage, pricing discipline), combined ratios fall to 85-90%, generating high underwriting profits. Underwriting cycles are 4-6 years: capacity builds, margins compress, players exit, capacity shrinks, margins expand, new entrants arrive, cycle repeats. Loss triangles (development of claims over time) show reserve adequacy. If a £10bn premium year is expected to mature at £12bn in losses (development factor 1.2x), but actual losses come in at £11.5bn (lower than expected), the insurer "beats" reserves & records a reserve release (bonus profit, one-time). Diligence: examine loss development & reserve adequacy (is the company releasing reserves because it's a good underwriter, or because it was over-reserved?); also examine expense ratio trends (are costs inflating faster than premiums?).

```
Combined Ratio = (Incurred Losses + Expenses) / Premiums
Underwriting Profit = Premiums - (Losses + Expenses)
Loss Development = Ultimate Losses / Initial Reserve
Expense Ratio = Operating Costs / Premiums
```

XI. Solvency II Framework for EU Insurers

Solvency II (EU insurance regulation, implemented 2016, UK maintained post-Brexit) requires insurers to hold capital (Solvency Capital Requirement or SCR) to cover losses at a 99.5% confidence level over 1-year horizon. MCR (Minimum Capital Requirement) = 50% of SCR; breaching MCR triggers regulatory intervention. Solvency II uses a Standard Formula (prescribed capital charge for each asset/liability) or Internal Model (insurer's own risk model, subject to supervisory approval). Standard Formula risk charges: (1) Equity risk: 39% capital charge on equity positions (market-value-of-options—MVO—adjustment), (2) Property risk: 25% capital charge on real estate, (3) Spread risk: 0-8% capital charge on bonds depending on credit rating, (4) Interest rate risk: duration-based (long-duration liabilities exposed to falling rates), (5) Catastrophe risk: 15-100% capital charge on natural disaster/terrorism exposure depending on line of business. Example: An insurer with £1bn equity, £5bn bonds (weighted 3% spread charge), £20bn insurance liabilities: SCR = (£1bn × 39%) + (£5bn × 3%) + underwriting risk = £390m + £150m + underwriting risk. If total SCR = £1bn & the insurer has £2bn capital, solvency ratio = 2bn / 1bn = 200% (well-capitalized). Solvency II adjustments: (1) Matching Adjustment (MA): allows insurers with matched assets to use higher discount rates, reducing liability values (benefit for annuity writers with long-duration liabilities). (2) Volatility Adjustment (VA): allows temporary capital relief during market stress (e.g., 2008, 2020). VA widening lowers solvency ratios; MA removal tightens them. UK Solvency II reform (2024): regulators are considering removing MA (or tightening it) & relaxing other requirements to enable growth. Diligence: model solvency ratio under stress scenarios (equity market crash 30%, interest rate shock, spread widening); ensure solvency remains >150% (comfortable buffer above 100% minimum).

```
SCR = Σ(Risk Module Exposure × Capital Charge)
Solvency Ratio = Own Funds / SCR
Matching Adjustment Impact = LDI de-risking / Fixed-Rate Liability Hedge
Stress Test = Market Crash 30% + Interest Rate ±100bps + Spread +200bps
```

XII. Asset Management & Wealth Management Economics

AUM, Fee Rates & Organic Growth

Asset Under Management (AUM) is the asset pool that an asset manager invests on behalf of clients. Fee structure: (1) Fixed AUM fee: 0.3-2% p.a. depending on strategy (index fund 0.05-0.1%, active equity 0.8-1.5%, alternatives 1-2%). (2) Performance fee: 10-20% of outperformance over a benchmark (e.g., if a hedge fund beats its benchmark by £10m in a year & the performance fee is 20%, it collects £2m extra). (3) Blended: combination of AUM fee + capped performance fee (e.g., 0.5% AUM + 10% performance, max 1% total). Total revenue = AUM × Blended Fee Rate. A £100bn AUM asset manager with 0.65% blended fee rate generates £650m revenue. Operating costs (portfolio managers, compliance, IT) are typically 50-70% of revenue, leaving 30-50% operating margin. Organic growth = net inflows (new client assets added, minus redemptions) + market appreciation. A mature asset manager has 0-5% organic growth (steady-state clients); a growth-stage manager targets 10%+ (winning new clients). Organic growth >5% is attractive; organic growth <0% (net redemptions) is a red flag. Fee compression is secular: passive assets (index funds, ETFs) now represent 40%+ of the market and earn 0.05-0.15% fees vs. active's 0.8-1.5%. As AUM flows from active to passive, blended fee rates compress 10-20 bps annually. Diligence: model long-term fee compression (assume 10 bps annual compression), project client redemption risk (are clients staying or fleeing to cheaper competitors?), & examine product mix (how much is high-fee alternatives vs. low-fee equity?). A manager with 50%+ passive assets faces structural headwinds.

```
Revenue = AUM × Fee Rate
Operating Margin = (Revenue - Costs) / Revenue
Organic Growth = Net Inflows + Market Appreciation
Fee Compression = (Current Fee Rate - Target Fee Rate) / Current Fee Rate
```

Wealth Management Roll-Ups & Passive Shift

Wealth management (investment advisory, estate planning, tax optimization for high-net-worth individuals & families) has higher margins than asset management: 1-2% AUM fees (vs. 0.65% for asset management) because advice is more personalized. Roll-up strategies: consolidate regional wealth advisors into national/international franchises. A mid-market wealth advisor with £5bn AUM earning 1.2% fees = £60m revenue, 40% margin = £24m EBITDA. Buy for 8x EBITDA = £192m. Post-integration, consolidate costs, raise fees to 1.4% (via value-add), grow AUM to £7bn (via client wins): Revenue grows to £98m, margin to 50%, EBITDA to £49m. Sell for 10x EBITDA = £490m. Value creation = £490m - £192m = £298m (2.6x return). Passive shift is a secular headwind: younger clients prefer low-cost index ETFs (0.05% fees) over active management (1%+ fees). Advisors increasingly move to AUM-based advice (charge per £1m AUM managed, independent of investment performance) to stabilize revenue. Diligence: examine client demographics (are they aging out and withdrawing, or younger & accumulating?), fee rates (are they declining?), & advisor retention (high turnover = business collapse risk).

```
Wealth Mgmt Revenue = AUM × Fee Rate (1-2%)
Organic Growth = (Net Inflows + Market Appreciation) / AUM
Advisor Retention = # Advisors Staying / Beginning Advisors
Fee Compression = Passive AUM % × (Active Fee - Passive Fee)
```

XIII. Fintech & Digital Banking

Fintech disruption is fragmenting traditional banking: (1) Neobanks (digital-only banks with no branch network; Revolut, Wise, Chime, N26): target millennials & Gen-Z with mobile-first experience, lower costs, no geographic constraints. Revenue model: 1-2% transaction fees on transfers, FX conversion (markup on FX rates), subscription for premium features, lending. Unit economics: customer acquisition cost £10-30 via digital marketing, lifetime value £200-500 if customer stays 3-5 years & spends £500/year on fees. CAC payback <6 months is attractive; >12 months is worrying. (2) Payments fintech (Stripe, Square, Block): process payments for merchants online & offline. Revenue model: 2.5-3% of transaction value. Scale rapidly (processing $1tn of payments), but margins compress as competition intensifies (Stripe's margins likely 30-40%). (3) Lending platforms (Lending Club, Upstart, SoFi): originate loans & sell to capital markets (avoiding balance sheet constraints). Unit economics: loan origination cost £50-200 per loan, revenue £200-400 per loan (fees + servicing), lifetime value depends on credit quality. High defaults = negative unit economics. (4) Embedded finance (payments/lending embedded into non-financial apps; e.g., Klarna embedded in Shopify). (5) Open Banking (PSD2 in EU, Payments API in US): APIs exposing customer bank data to fintechs, enabling third-party innovation. BaaS (Banking-as-a-Service) is a traditional bank providing infrastructure (charter, deposit insurance, compliance) to fintech via API; the fintech handles customer experience, the bank handles the balance sheet. Example: a neobank uses Axiom BaaS (provided by a US traditional bank) to offer checking accounts with FDIC insurance without building its own compliance infrastructure. Regulatory arbitrage risk: fintech that operates cross-border without a banking license can face sudden regulatory crackdowns (e.g., UK FCA restricting Wise's business model). Diligence: assess regulatory moats (does the fintech have a banking license?), unit economics (CAC payback, LTV/CAC ratio), credit quality (if lending is involved, examine default rates), & competitive moats (what prevents a larger player from copying the model?).

```
Neobank Unit Economics = (LTV - CAC) × Customers
Payment Fintech Revenue = GMV × Take Rate
Lending Fintech Revenue = Loan Volume × Fee % + Servicing Fee
CAC Payback = Customer Acquisition Cost / Annual Revenue per Customer
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XIV. FIG M&A & Deal Structures

Bank consolidation is driven by: (1) Cost synergies (branch network rationalization, IT consolidation, shared services), (2) Revenue synergies (cross-sell of products to acquired customer base), (3) Scale benefits (larger balance sheet allows lower funding costs, regulatory capital efficiencies). A £50bn-revenue bank acquiring a £15bn-revenue bank: cost synergies = 20-30% of target's cost base (saves £3-5bn opex), revenue synergies = 5-15% (target's customer base adopts acquirer's products, adds £750m-2bn revenue). Acquire at 0.9x P/TBV (assumes target is distressed or has execution risk), integrate over 2-3 years, improve combined ROE from 10% to 12%, exit at 1.2x P/TBV. Value creation = (P/TBV appreciation + synergy realization) × Target TBV - integration costs - cost of capital. Bancassurance (combination of banking & insurance) is attractive for diversification: banks gain fee income from insurance distribution; insurers gain distribution channels. Challenges: cultural differences (insurance is long-tail risk, banking is short-term liquidity), regulatory (insurance & banking are regulated separately), complexity. Fintech acquisition: a traditional bank buys a fintech to accelerate digital transformation (e.g., JPM acquiring Warburg Pincus to add tech talent, Goldman buying payment tech). Challenges: tech talent retention (engineers flee post-acquisition if equity vests or cultural fit is poor), integration risk (legacy bank IT systems don't integrate easily with modern fintech stacks). Wealth roll-up: consolidate regional/independent wealth advisors into a national platform (e.g., UBS acquiring 40+ independent advisors post-2008). Regulatory approval process: FIG deals require central bank approval (stress-test the combined entity, ensure combined CET1 ratio >10%), antitrust review (if deal reduces competition materially, it may be blocked), & national security review (if foreign buyer is acquiring domestic bank & acquirer is from a non-allied country). Hostile bids for banks are rare (regulatory can block based on "fitness & propriety", unfriendly management unlikely to cooperate on integration); most deals are negotiated.

```
Deal Value = Target EV = Target EBITDA × Exit Multiple
Cost Synergies = Target COGS × Reduction % (typically 20-30%)
Revenue Synergies = Target Revenue × Cross-Sell %
Integration Cost = Target EBITDA × 30-50% (one-time restructuring)
```

XV. Due Diligence Red Flags for FIG

CET1 Buffer Erosion: A bank with CET1 declining from 12% to 10% over 2-3 years is under pressure. If CET1 is trending toward regulatory minimum (8-9%), the bank has no buffer for stress & will face capital raise dilution or dividend cuts. RoTE Below Cost of Equity: If RoTE <9% & CoE is 9-10%, the bank is destroying shareholder value & faces multiple compression (P/TBV should fall below 1.0x). NPL Migration Risk: Sharp uptick in Stage 2 loans or slowing NPL recoveries signals future provision charges & credit losses. Loan Concentration: >25% of portfolio in single sector (e.g., property development, auto finance) or single customer >10% of revenue is concentration risk. Model Risk: IFRS 9 ECL models can be optimistic in benign conditions, then underestimate losses in stress. Audit criticisms of models warrant scrutiny. Conduct Risk: Regulatory enforcement actions, fines for mis-selling, fake accounts (Wells Fargo), data breaches signal poor risk culture & future remediation costs. Tech Debt: Banks with legacy IT systems face rising costs to maintain & patch; a major data breach or system outage is catastrophic. Deposit Concentration: >30% of deposits from single customer or industry (e.g., financial services deposits = pro-cyclical, flee during crises) is liquidity risk. Interest Rate Sensitivity: A bank with EVE falling >20% if rates rise 200 bps faces material mark-to-market losses. Loan-to-Value creep: Mortgages with >80% LTV are risky if property prices decline. Liquidity Mismatch: LCR <120% or NSFR <110% indicates tight funding & vulnerability to funding shocks.

```
Red Flag Thresholds:
CET1 < 10.5% (minimum + buffers)
RoTE < Cost of Equity
NPL Ratio > 2% & Rising
Deposit Concentration > 30%
Funding Ratio LDR > 120%
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XVI. FIG Glossary & Technical Terms

ADJUSTED NET ASSET VALUE (ANAV): Equity capital adjusted for tax & unrealized gains/losses, used in MCEV calculation for insurance. ANYALYST ESTIMATES: Earnings estimates from sell-side equity analysts; typically 10-20 analysts cover large banks. BAaS (BANKING-as-a-SERVICE): Technology platform enabling fintechs to offer banking services (deposits, payments) via API, with compliance & FDIC/FSCS insurance provided by a charter bank. BASEL III: International regulatory framework for bank capital, liquidity, & leverage. Minimum CET1 4.5%, Tier 1 6%, Total Capital 8%. BASIS POINT (bps): 0.01%, used to express interest rates & spreads. 100 bps = 1%. BOOK VALUE: Equity capital on balance sheet. TANGIBLE BOOK VALUE: Book value minus goodwill & intangible assets. BROKER-DEALER: Investment bank division executing trades & providing market-making services. CAGR (COMPOUND ANNUAL GROWTH RATE): Average annual growth rate over multi-year period. CAPITAL BUFFER: CET1 capital above regulatory minimum, typically 2-3% of RWA. CAPITAL CONSERVATION BUFFER: 2.5% of RWA required by regulators to absorb losses. CASH INTEREST COVERAGE: EBITDA / Interest Paid, measures ability to service debt. CET1 (COMMON EQUITY TIER 1): Highest-quality capital; ordinary shares & retained earnings. CLOSE-OUT RISK: Risk that counterparty defaults & the bank must unwind derivatives at losses. COMBINED RATIO: (Insurance Claims + Expenses) / Premiums; <100% = underwriting profit.

COST OF EQUITY (CoE): Required return on equity capital; function of risk-free rate & beta. Typically 8-10% for banks. CREDIT LOSS: Losses realized from borrower default. CREDIT RISK: Risk of borrower non-repayment. CUSTODIAN: Third party holding securities on behalf of clients (e.g., BNY Mellon, State Street). DEPOSIT BETA: Sensitivity of customer deposit rates to market rate changes. DIVIDEND YIELD: Annual dividend per share / stock price. DURATION: Average time to receive cash flows; measures interest-rate sensitivity. DYNAMIC HEDGING: Continuous rebalancing of hedge ratios as market conditions change. EARLY AMORTIZATION: Securitization feature allowing rapid repayment if collateral performance deteriorates. EARNINGS YIELD: Earnings per share / Stock price = 1 / P/E ratio. ECL (EXPECTED CREDIT LOSS): Lifetime expected loss on a loan under IFRS 9. EMBEDDED VALUE (EV): Net asset value + present value of future profits; used in insurance valuation. EQUITY FORWARD: Derivative contract to buy/sell shares at future date. EVE (ECONOMIC VALUE OF EQUITY): Present value of bank's future cash flows; sensitive to interest rates. EXCESS SPREAD: Difference between mortgage yield & securitization funding cost; cushion for losses. EXPOSURE AT DEFAULT (EAD): Notional amount owed at time of default. FAIR VALUE: Price at which an asset would exchange between willing parties; market value. FILL-OR-KILL (FOK): Order instruction to buy/sell immediately or cancel. FUNDING LIQUIDITY RISK: Risk that bank cannot obtain funding at reasonable cost. GOODWILL: Excess paid over book value in acquisition; intangible asset.

GROSS DOMESTIC PRODUCT (GDP): Total output of economy; baseline for bank growth projections. GUARANTOR: Entity assuming credit risk on behalf of borrower. HEDGE FUND: Investment fund using leverage, derivatives, & short-selling; typically 2/20 fee structure (2% AUM + 20% performance fee). HIGH-YIELD DEBT: Bonds rated below investment grade (BBB-); higher yield & credit risk. ILLIQUIDITY PREMIUM: Yield spread for hard-to-trade securities. IMPAIRMENT CHARGE: P&L charge for expected credit losses. INTERBANK LENDING: Banks borrowing from each other, typically overnight or term (LIBOR, SONIA). INTERNAL RATINGS BASED (IRB): Bank's own risk model for calculating RWA; subject to regulator approval. INTRINSIC VALUE: Fundamental value based on cash flow analysis; may differ from market price. INVESTMENT GRADE: Bond rating AAA-BBB (low default risk). JV (JOINT VENTURE): Shared ownership of subsidiary by two parent companies. KEY RATE DURATION: Sensitivity of bond price to change in a specific maturity (e.g., 10-year rate). LEVERAGE RATIO: Tier 1 Capital / Total Exposures (non-risk-weighted). Minimum 3%. LIQUIDITY COVERAGE RATIO (LCR): High-quality liquid assets / net cash outflows in stress; minimum 100%. LOAN LOSS RESERVE: Balance-sheet provision for expected credit losses. LOAN ORIGINATION: Process of creating a new loan. LOAN SYNDICATION: Multiple lenders sharing a single large loan. LTV (LOAN-TO-VALUE): Loan amount / Property value; lower LTV = lower default risk.

MARKET DISCIPLINE: Concept that markets will price risk appropriately, reducing need for regulation. MARKET-RISK WEIGHTED ASSETS: Capital charge for trading book losses. MCV (MARKET-CONSISTENT EMBEDDED VALUE): MCEV; embedded value under risk-neutral valuation. MoM / QoQ / YoY: Month-on-month, quarter-on-quarter, year-on-year comparisons. MORTGAGE-BACKED SECURITIES (MBS): Securitization of residential mortgages; pass-through of principal & interest. MORTGAGE EQUITY WITHDRAWAL: Homeowner refinancing at higher value & withdrawing cash; pro-cyclical phenomenon. MUNI (MUNICIPAL BOND): Debt issued by US state/local government; typically tax-exempt. NET INTEREST INCOME (NII): Interest earned minus interest paid; core bank revenue. NET INTEREST MARGIN (NIM): NII / average interest-earning assets. Typical 1.5-3%. NPL (NON-PERFORMING LOAN): Loan >90 days past due. OTC (OVER-THE-COUNTER): Bilateral negotiated trades (vs. exchange-traded). Option-Adjusted Spread (OAS): Spread on mortgage/corporate bonds adjusted for embedded options. ORIGINATED LOANS: Loans created by bank for borrowers; on balance sheet. P/E RATIO (PRICE-TO-EARNINGS): Stock price / earnings per share. P/TBV (PRICE-TO-TANGIBLE BOOK VALUE): Stock price / (Book Value - Intangibles). PERFORMANCE BOND: Insuring contractor performance on a project. PILLAR 1: Basel III minimum capital requirements (4.5% CET1, 6% Tier 1, 8% Total). PILLAR 2: Supervisory review & additional capital requirements. PPOP (PRE-PROVISION OPERATING PROFIT): EBITDA for banks; operating income before credit loss provisions. PRIME BROKERAGE: Service provided by investment banks to hedge funds (financing, clearing, reporting). PROBABILITY OF DEFAULT (PD): % likelihood borrower defaults within 1 year. PROPORTIONAL HAZARDS MODEL: Credit risk model estimating default probability from firm characteristics.