Professional Certificate in Introduction to ETFs (Exchange-Traded Funds)

Understanding ETF Costs

Accredited Investor – a qualified individual or entity that meets income or net-worth thresholds set by regulators, allowing participation in certain ETF offerings not available to the general public. Related terms: qualified purchaser, private placement. Example: An investor with $2 million in assets may invest in a specialty ETF that requires accredited status. Challenge: Verifying accreditation can add administrative overhead for ETF sponsors.

Active Management – a strategy where fund managers make frequent buying and selling decisions to outperform a benchmark. Related terms: passive management, alpha. Cost impact: Higher management fees and transaction costs due to increased trading. Example: An actively managed equity ETF may charge a 0.75% Expense ratio versus 0.10% For a passive index ETF. Challenge: Performance must justify higher fees.

Adverse Selection – a situation where uninformed investors trade with more informed market participants, potentially leading to higher bid-ask spreads. Related terms: information asymmetry, liquidity risk. In ETFs, adverse selection can increase creation-unit costs for authorized participants. Example: During market stress, less-informed investors may sell shares while informed participants buy, widening spreads. Challenge: Managing spread risk requires robust market-making.

Alpha – the excess return of an ETF relative to its benchmark after adjusting for risk. Related terms: beta, risk-adjusted return. Alpha is a performance metric, not a cost, but it influences investors' willingness to pay higher fees. Example: An ETF that consistently delivers 2% alpha may justify a 0.50% Higher expense ratio. Challenge: Sustaining alpha is difficult, especially after fees.

Authorized Participant (AP) – a large financial institution authorized to create and redeem ETF shares in large blocks called creation units. Related terms: creation unit, in-kind transfer. APs help keep ETF market price aligned with net asset value (NAV). Example: A broker-dealer purchases the underlying basket of securities, delivers them to the ETF sponsor, and receives ETF shares. Challenge: AP activity can be limited in thinly traded markets, affecting liquidity.

Bid-Ask Spread – the difference between the highest price a buyer is willing to pay (bid) and the lowest price a seller will accept (ask) for ETF shares. Related terms: liquidity, market depth. A wider spread raises transaction costs for investors. Example: An ETF with a $10.00 Bid and $10.05 Ask has a 0.5% Spread on a $10 price. Challenge: Spreads can widen dramatically during volatile periods.

Broker-Dealer – a firm that executes trades on behalf of clients and may also act as an authorized participant for ETFs. Related terms: market maker, execution venue. Broker-dealers influence execution quality and can affect the implicit cost of trading. Example: A broker-dealer may provide price improvement over the public quote. Challenge: Conflict of interest when the same firm creates and trades the ETF.

Buy-Write ETF – an ETF that holds a portfolio of securities and simultaneously writes (sells) call options on

those securities to generate additional income. Related terms: covered call, option premium. The strategy reduces upside potential but can lower overall volatility. Example: A buy-write equity ETF may have a lower expense ratio but higher implied cost due to option-related risk. Challenge: Investors must understand option-related performance drag.

Capital Gains Distribution – the portion of an ETF's realized capital gains that is passed through to shareholders, usually on a quarterly basis. Related terms: tax efficiency, turnover ratio. ETFs typically generate lower distributions than mutual funds because of the in-kind creation/redemption process. Example: An ETF with a 5% turnover may still deliver minimal capital gains. Challenge: High turnover can increase taxable events.

Cash Drag – the performance loss that occurs when an ETF holds cash (or cash equivalents) that does not earn the same return as the underlying securities. Related terms: cash holdings, tracking error. Cash drag is more pronounced in low-return environments. Example: An ETF that keeps 2% of assets in cash may underperform its index by that amount. Challenge: Balancing liquidity needs with tracking fidelity.

Composite Index – an index that combines multiple sub-indices or asset classes to represent a broader market segment. Related terms: benchmark, index construction. Composite-based ETFs aim to track these broader measures. Example: A global multi-asset ETF may track a composite index of equities, bonds, and commodities. Challenge: Complexity in weighting and rebalancing can increase tracking error.

Creation Unit – the large block of ETF shares (often 50,000 to 1 million) that authorized participants can create or redeem in exchange for the underlying basket of securities. Related terms: in-kind creation, redemption process. Creation units are the mechanism that keeps ETF price aligned with NAV. Example: An AP delivers a basket of 100 stocks and receives 200,000 ETF shares. Challenge: The size of creation units may limit participation for smaller investors.

Custodian – a financial institution that holds the underlying securities of an ETF, ensuring safekeeping and proper settlement. Related terms: clearer, depository. Custodians also provide reporting for NAV calculations. Example: A major bank acts as custodian for a large-cap equity ETF. Challenge: Custody fees are embedded in the expense ratio and may affect net returns.

Dividend Yield – the annual dividend income expressed as a percentage of the ETF's current price. Related terms: distribution rate, total return. Dividend-focused ETFs often highlight yield to attract income-seeking investors. Example: An ETF trading at $20 with an annual dividend of $0.80 Has a 4% yield. Challenge: High yields may mask underlying risk or tax inefficiency.

Expense Ratio – the annual fee expressed as a percentage of assets under management (AUM) that covers management, administration, and other operating costs. Related terms: management fee, total expense ratio (TER). Expense ratio directly reduces investor returns. Example: An ETF with a 0.12% Expense ratio deducts $12 per $10,000 invested each year. Challenge: Low-cost ETFs compete on fee, making cost a key selection factor.

Execution Shortfall – the difference between the price at which an order is placed and the final execution price, encompassing market impact and timing costs. Related terms: implementation shortfall, slippage.

Execution shortfall is a hidden cost of trading ETF shares. Example: An investor submits a market order for 10,000 shares; the average fill price ends up 0.15% Higher than the initial mid-price. Challenge: Managing shortfall requires careful order routing and possibly using limit orders.

Exchange – a regulated marketplace where ETF shares are listed and traded, such as NYSE or NASDAQ. Related terms: listing venue, trading floor. Exchange rules affect order types, market-making obligations, and reporting. Example: An ETF listed on NASDAQ benefits from high electronic liquidity. Challenge: Cross-border listings may involve additional regulatory fees.

ETF Liquidity – the ability to buy or sell ETF shares quickly with minimal price impact, driven by both the underlying market liquidity of its holdings and the activity of authorized participants. Related terms: trading volume, intraday NAV. High liquidity reduces transaction costs. Example: An ETF with average daily volume of 2 million shares and tight spreads is considered highly liquid. Challenge: Liquidity can deteriorate rapidly in stressed markets.

ETF Structure – the legal and operational design of an ETF, commonly a unit investment trust (UIT) or an open-ended fund. Related terms: segregated portfolio, share class. Structure determines tax treatment, creation/redemption mechanics, and regulatory requirements. Example: A U.S. Equity ETF is typically an open-ended fund under the Investment Company Act of 1940. Challenge: Differing structures across jurisdictions can create cost asymmetries.

ETF Sponsor – the company that creates, manages, and markets an ETF, responsible for index licensing, fund administration, and compliance. Related terms: fund manager, brand. Sponsors set the expense ratio and oversee service providers. Example: A global asset manager launches a thematic ETF on renewable energy. Challenge: Sponsor reputation influences investor confidence and can affect fee negotiations.

ETF Tax Efficiency – the degree to which an ETF minimizes taxable events for shareholders, commonly achieved through in-kind creation/redemption and low turnover. Related terms: capital gains distribution, tax-loss harvesting. Tax-efficient ETFs help investors retain more after-tax returns. Example: An ETF that rarely distributes capital gains due to the in-kind process is considered highly tax efficient. Challenge: Certain asset classes (e.G., High-yield bonds) may generate unavoidable taxable income.

ETF Tracking Error – the standard deviation of the difference between the ETF's return and that of its benchmark index. Related terms: benchmark deviation, replication method. Tracking error reflects both cost and operational inefficiencies. Example: An ETF with a 0.05% Annual tracking error closely mirrors its index. Challenge: Higher tracking error may be acceptable for niche or illiquid markets but can erode investor confidence.

ETF Turnover Ratio – the percentage of an ETF's holdings that are replaced over a given period, typically one year. Related terms: portfolio turnover, capital gains. High turnover can increase transaction costs and taxable events. Example: A leveraged ETF may have a turnover exceeding 200% annually. Challenge: Balancing turnover with the need to maintain index fidelity.

Execution Venue – the platform or marketplace where ETF trades are routed, such as a stock exchange, alternative trading system (ATS), or dark pool. Related terms: order routing, liquidity provider. Venue choice

influences price improvement and hidden costs. Example: Routing a large order to a broker-dealer's internal crossing network may reduce market impact. Challenge: Transparency of execution venues varies, requiring diligent monitoring.

Fee Waiver – a temporary reduction or elimination of an ETF's management fee, often used to attract assets during launch. Related terms: promotional pricing, fee compression. Fee waivers reduce the expense ratio for investors but may be phased out. Example: A new thematic ETF offers a 0.00% Fee for the first 12 months, then reverts to 0.30%. Challenge: Investors must assess whether the underlying strategy justifies the post-waiver fee.

Fixed-Income ETF – an ETF that holds bonds or other debt securities, providing exposure to interest-rate markets. Related terms: duration, yield curve. Fixed-income ETFs may incur additional costs such as bid-ask spreads on underlying bonds. Example: A corporate bond ETF with an average maturity of 7 years. Challenge: Bond market illiquidity can increase transaction costs and tracking error.

Fundamental Index – an index constructed based on fundamental metrics like earnings, sales, or book value rather than market capitalization. Related terms: smart beta, factor investing. ETFs tracking fundamental indices often charge higher fees due to proprietary methodology. Example: A fundamental large-cap ETF selects stocks with the highest sales-to-market ratios. Challenge: Investors must evaluate whether the factor premium exceeds added costs.

Forward-Looking Cost – an estimate of future expenses, including projected management fees, transaction costs, and tax impacts, used for performance modeling. Related terms: cost projection, scenario analysis. Forward-looking cost helps investors compare ETFs before purchase. Example: An analysis shows an ETF's future expense ratio may rise to 0.25% After fee waivers expire. Challenge: Assumptions may be inaccurate, leading to mis-pricing of expected returns.

Fundamental Risk Premium – the excess return expected from exposure to fundamental factors such as value, size, or profitability. Related terms: risk factor, factor tilt. ETFs that target these premiums may have higher fees due to active selection. Example: A value-tilted ETF seeks a 3% premium over the market. Challenge: Measuring and isolating the premium requires robust analytics.

Fundamental Weighting – a method of constructing an index where each security's weight is proportional to a fundamental metric (e.G., Cash flow). Related terms: equal weighting, market-cap weighting. ETFs using fundamental weighting often have higher turnover and licensing costs. Example: A cash-flow weighted ETF assigns larger weights to companies with higher operating cash flow. Challenge: Higher turnover can increase transaction costs and tax drag.

Growth ETF – an ETF that emphasizes companies with strong earnings growth expectations, often measured by revenue or EPS acceleration. Related terms: growth factor, sector tilt. Growth ETFs may experience higher valuation risk and potentially higher expense ratios. Example: A technology-focused growth ETF with a 0.45% Expense ratio. Challenge: Growth stocks can be more volatile, affecting total return after fees.

In-Kind Creation – a process where authorized participants deliver a basket of securities to the ETF sponsor and receive ETF shares, avoiding cash transactions. Related terms: creation unit, redemption in kind. In-kind

creation helps maintain tax efficiency and tight spreads. Example: An AP provides 100 stocks to create 200,000 shares of an equity ETF. Challenge: The basket must match the index composition, which can be complex for multi-asset ETFs.

In-Kind Redemption – the reverse of in-kind creation; authorized participants return ETF shares to the sponsor and receive the underlying securities. Related terms: redemption unit, cash drag. In-kind redemption reduces capital gains distributions. Example: An AP redeems 300,000 shares and receives a basket of bonds. Challenge: Limited redemption activity can lead to cash buildup in the fund.

Index Licensing Fee – a fee paid by the ETF sponsor to the index provider for the right to use the benchmark's methodology and name. Related terms: royalty, benchmark licensing. Licensing fees are embedded in the expense ratio. Example: A popular global equity index may charge a 0.03% Annual licensing fee. Challenge: High-profile indices often command higher fees, affecting total cost.

Information Ratio – the ratio of an ETF's active return (alpha) to its tracking error, measuring risk-adjusted performance. Related terms: Sharpe ratio, active risk. A higher information ratio indicates better manager skill relative to cost. Example: An active ETF with an alpha of 1.5% And tracking error of 2% has an information ratio of 0.75. Challenge: Achieving a high information ratio after fees is difficult.

Intrinsic Value – the theoretical fair price of an ETF based on its NAV, underlying holdings, and expected future cash flows. Related terms: fair value, price deviation. Intrinsic value guides investors on whether to buy at a premium or discount. Example: An ETF trading at $20.10 While its NAV is $20.00 Reflects a 0.5% Premium. Challenge: Price deviations can persist, creating execution risk.

Liquidity Provider – a market participant that continuously quotes bid and ask prices for an ETF, helping to narrow spreads. Related terms: market maker, designated liquidity provider (DLP). Liquidity providers earn profit from spread capture. Example: A large bank acts as a DLP for a high-volume ETF, posting tight quotes. Challenge: During market stress, liquidity providers may withdraw, widening spreads.

Management Fee – the portion of the expense ratio that compensates the investment manager for portfolio construction, research, and oversight. Related terms: expense ratio, operating expense. Management fees are charged daily and reflected in NAV. Example: A 0.20% Management fee reduces assets by $2 per $1,000 invested annually. Challenge: Fees must be justified by the manager's added value.

Market Impact Cost – the price change caused by executing a large order, reflecting the liquidity of the ETF and its underlying securities. Related terms: execution shortfall, slippage. Market impact is a hidden cost, especially for institutional traders. Example: Buying 500,000 shares of a thinly traded ETF may push the price up 0.3%. Challenge: Mitigating impact may require algorithmic execution or splitting orders.

Micro-Lot – a small trade size, often less than 100 shares, used by retail investors to test execution quality. Related terms: order size, minimum trade. Micro-lots can reveal hidden spread costs for small investors. Example: A retail broker offers a micro-lot of 50 shares for a low-cost ETF. Challenge: Per-share costs may be higher for micro-lots due to fixed fees.

Net Asset Value (NAV) – the per-share value of an ETF's underlying assets, calculated at the end of each

trading day. Related terms: intraday NAV, fair value. NAV serves as a reference point for pricing and arbitrage. Example: An ETF with total assets of $500 million and 10 million shares has an NAV of $50.00. Challenge: Discrepancies between market price and NAV create arbitrage opportunities but also risk for investors.

Net Expense Ratio (NER) – the expense ratio after accounting for fee waivers, reimbursements, or other temporary reductions. Related terms: gross expense ratio, fee discount. NER reflects the actual cost to investors over a given period. Example: An ETF with a gross expense of 0.30% And a 0.05% Fee waiver has an NER of 0.25%. Challenge: Monitoring NER changes is essential for cost-aware investors.

Non-Diversified ETF – an ETF that holds a concentrated portfolio, often fewer than 20 securities, exposing investors to higher idiosyncratic risk. Related terms: single-stock ETF, sector concentration. Non-diversified ETFs may have higher tracking error and volatility. Example: A 15-stock technology ETF focusing on high-growth firms. Challenge: Concentration risk can amplify the impact of fees on overall performance.

Open-Ended Fund – an ETF structure where the number of shares can increase or decrease as investors buy or sell, with continuous NAV calculation. Related terms: unit investment trust, share class. Most U.S. ETFs are open-ended funds. Example: A standard equity ETF that issues new shares upon creation requests. Challenge: Open-ended structure requires robust liquidity management.

Option-Adjusted Spread (OAS) – a measure used for fixed-income ETFs that adjusts the yield spread for embedded options, reflecting pure credit risk. Related terms: yield spread, duration. OAS helps investors compare bond-ETF performance net of option risk. Example: A high-yield bond ETF shows an OAS of 3.5% Over Treasuries. Challenge: Calculating OAS requires sophisticated modeling, affecting cost transparency.

Order Routing – the process of directing a trade order to a specific execution venue or liquidity provider. Related terms: best execution, smart order router. Effective routing can reduce explicit transaction costs. Example: A broker's algorithm routes a large ETF order to an ATS with better depth. Challenge: Lack of transparency may hide hidden fees.

Performance Fee – a fee based on the ETF's returns, often applied to actively managed or leveraged ETFs, in addition to the base expense ratio. Related terms: incentive fee, high-water mark. Performance fees align manager incentives but increase cost volatility. Example: An active ETF charges 20% of any alpha above the benchmark, on top of a 0.40% Expense ratio. Challenge: Fee timing and calculation can affect net performance.

Portfolio Turnover – the rate at which securities in an ETF's portfolio are replaced during a period, expressed as a percentage of total assets. Related terms: turnover ratio, transaction cost. Higher turnover can increase both explicit (commissions) and implicit (tax) costs. Example: A sector rotation ETF may have a 150% annual turnover. Challenge: Investors must weigh turnover against the strategy's potential benefits.

Premium/Discount – the percentage difference between an ETF's market price and its NAV; a premium indicates price above NAV, a discount below. Related terms: price deviation, arbitrage. Premiums and discounts affect effective cost. Example: An ETF trading at $25.30 While its NAV is $25.00 Shows a 1.2% Premium. Challenge: Persistent discounts can erode returns, especially for illiquid ETFs.

Preferred Share ETF – an ETF that holds preferred stocks, offering higher yields and lower volatility than common equity. Related terms: fixed-income hybrid, interest rate sensitivity. Preferred ETF expenses may be higher due to specialized custodial requirements. Example: A preferred stock ETF with a 0.45% Expense ratio. Challenge: Interest-rate risk can cause price swings, affecting cost-adjusted performance.

Primary Market – the market where authorized participants create or redeem ETF shares directly with the sponsor, distinct from the secondary market where investors trade shares. Related terms: creation unit, in-kind transaction. Primary market activity underpins price alignment. Example: An AP places a creation order for 500,000 shares. Challenge: Limited primary market participation can lead to wider secondary market spreads.

Proxy Voting Cost – the expense associated with exercising shareholder voting rights on behalf of ETF investors, often outsourced to a proxy service. Related terms: governance, voting record. Proxy voting costs are factored into the expense ratio. Example: An ETF allocates $0.01 Per $1,000 of assets for proxy services. Challenge: Low-cost ETFs may limit voting resources, impacting governance quality.

Rebalancing Cost – the transaction cost incurred when an ETF adjusts its holdings to maintain alignment with the underlying index's weightings. Related terms: index drift, turnover. Rebalancing frequency influences total cost. Example: A quarterly rebalanced ETF may incur higher transaction fees than a semi-annual rebalance. Challenge: High rebalancing costs can offset tracking benefits.

Redemption Unit – the block of ETF shares that an authorized participant returns to the sponsor in exchange for the underlying basket of securities, typically mirroring a creation unit size. Related terms: in-kind redemption, cash redemption. Redemption units help manage cash drag. Example: An AP redeems 250,000 shares for a basket of corporate bonds. Challenge: Limited redemption activity may force the ETF to hold cash, reducing tracking precision.

Regulatory Fee – a fee levied by securities regulators (e.G., SEC, FINRA) on ETF transactions, often passed through to investors. Related terms: transaction tax, compliance cost. Regulatory fees are typically small but add to total cost. Example: A $0.001 Per share SEC fee on each trade. Challenge: Fee changes can affect high-frequency trading strategies.

Replacement Cost – the cost to replicate an ETF's exposure by buying all underlying securities directly, used as a benchmark for assessing ETF efficiency. Related terms: synthetic replication, cash cost. Replacement cost highlights the implicit cost of buying the ETF versus the basket. Example: Replicating a 500-stock ETF may cost $0.05 Per share in commissions, while the ETF's expense ratio is 0.15%. Challenge: Investors must consider both explicit and implicit costs.

Risk-Adjusted Return – a measure that compares the ETF's return to the amount of risk taken, often using Sharpe ratio or information ratio. Related terms: alpha, beta. Risk-adjusted metrics help evaluate whether higher fees are justified. Example: An ETF with a Sharpe ratio of 0.8 And a 0.35% Expense ratio may be more attractive than a lower-ratio fund with a 0.10% Fee. Challenge: Calculating accurate risk metrics requires sufficient data.

Securities Lending Income – revenue generated by the ETF when it lends out its securities to short sellers,

typically shared with shareholders. Related terms: lending program, revenue offset. Lending income can offset part of the expense ratio. Example: An ETF earns 0.03% Annually from securities lending, reducing net cost to investors. Challenge: Lending introduces counter-party risk and may affect NAV calculation.

Share Class – a variation of an ETF's structure that may have different fee schedules, currency denominations, or distribution policies. Related terms: dual-class, institutional class. Share classes allow sponsors to cater to diverse investor needs. Example: A retail share class with a 0.45% Expense ratio versus an institutional class at 0.30%. Challenge: Selecting the appropriate class requires understanding fee differentials.

Smart Beta – an ETF strategy that applies systematic factor-based rules (e.G., Value, momentum) to deviate from traditional market-cap weighting. Related terms: factor investing, alternative weighting. Smart-beta ETFs often incur higher licensing and management fees. Example: A low-volatility smart-beta ETF charges a 0.35% Expense ratio. Challenge: Factor premiums may be diminished after fees.

Sponsor Branding – the reputation and market presence of the ETF sponsor, influencing investor perception and cost expectations. Related terms: brand premium, marketing expense. Well-known sponsors may command higher fees due to perceived quality. Example: A leading asset manager launches an ETF with a 0.20% Expense ratio, higher than comparable niche providers. Challenge: Brand does not always guarantee lower tracking error.

Spread Cost – the cost incurred when buying at the ask price and selling at the bid price, effectively the bid-ask spread expressed as a percentage of trade value. Related terms: transaction cost, liquidity. Spread cost is a major component of implicit trading expense. Example: A 0.10% Spread on a $10,000 trade costs $10. Challenge: Spreads widen during volatility, raising execution risk.

Swap-Based Replication – a synthetic method where the ETF uses total return swaps with a counterparty to replicate index performance, rather than holding the physical securities. Related terms: derivative exposure, counter-party risk. Swap-based ETFs may have lower tracking error but introduce credit risk. Example: A commodity ETF that uses swaps to mimic oil prices. Challenge: Swap fees and collateral requirements add to total cost.

Tax-Loss Harvesting – a strategy where an ETF sells securities at a loss to offset gains elsewhere, potentially reducing taxable income. Related terms: capital gains offset, wash sale rule. Some actively managed ETFs incorporate harvesting to improve after-tax returns. Example: A managed-risk ETF rotates out underperforming stocks, realizing losses. Challenge: Frequent harvesting can increase turnover and transaction costs.

Tracking Error Volatility – the standard deviation of the tracking error over time, indicating consistency of the ETF's performance relative to its benchmark. Related terms: tracking error, performance consistency. Low volatility suggests reliable replication. Example: An ETF with a tracking error of 0.10% And volatility of 0.02% Is highly consistent. Challenge: Higher volatility may signal operational inefficiencies or market strain.

Underlying Index – the benchmark that the ETF seeks to replicate, defined by the index provider's methodology. The choice of index influences licensing fees and replication complexity. Example: An ETF

tracking the MSCI World Index must adhere to its constituent rules. Challenge: Index revisions can cause rebalancing costs.

Unit Investment Trust (UIT) – an ETF structure where the portfolio is fixed for a set term, with limited active management. Related terms: open-ended fund, static portfolio. UIT ETFs often have lower turnover but may hold cash to meet redemption demands. Example: A fixed-income UIT ETF with a 10-year life. Challenge: Lack of flexibility can affect performance in changing market conditions.

Unlevered ETF – an ETF that provides exposure to an asset class without using leverage, offering a 1-to-1 correlation to the index. Related terms: leveraged ETF, beta. Unlevered ETFs have lower volatility and lower expense ratios compared to leveraged counterparts. Example: A standard S&P 500 ETF with a 0.03% Expense ratio. Challenge: Investors may mistakenly assume higher returns without understanding leverage effects.

Volatility Drag – the reduction in compound returns caused by volatility, especially relevant for leveraged ETFs that reset daily. Related terms: geometric return, volatility decay. Volatility drag can erode returns even when the underlying index is flat. Example: A 2× leveraged ETF may lose value over a month of choppy trading despite a net zero index move. Challenge: Investors must monitor holding periods to avoid unintended cost.

Weighted Average Cost of Capital (WACC) – a metric sometimes used by ETF managers to assess the cost of financing the fund's assets, influencing pricing and fee decisions. Related terms: cost of equity, cost of debt. While not a direct investor cost, WACC affects the sponsor's pricing strategy. Example: A sponsor sets an expense ratio that exceeds the fund's WACC to ensure profitability. Challenge: Misalignment can lead to unsustainable fee structures.

Yield Curve ETF – an ETF that tracks bonds across different maturities, often representing the shape of the yield curve. Related terms: duration, term structure. Yield-curve ETFs may incur higher transaction costs due to varying liquidity across maturities. Example: A steep-curve ETF with exposure from 2-year to 30-year Treasuries. Challenge: Rebalancing across tenors can increase turnover and spread cost.

Zero-Coupon Bond ETF – an ETF that holds zero-coupon bonds, which pay no periodic interest but are issued at a discount to face value. Related terms: accrued interest, duration. Zero-coupon ETFs can have higher price volatility and tracking error. Example: A municipal zero-coupon ETF with a 0.35% Expense ratio. Challenge: Tax treatment of imputed interest can increase tax drag for investors.