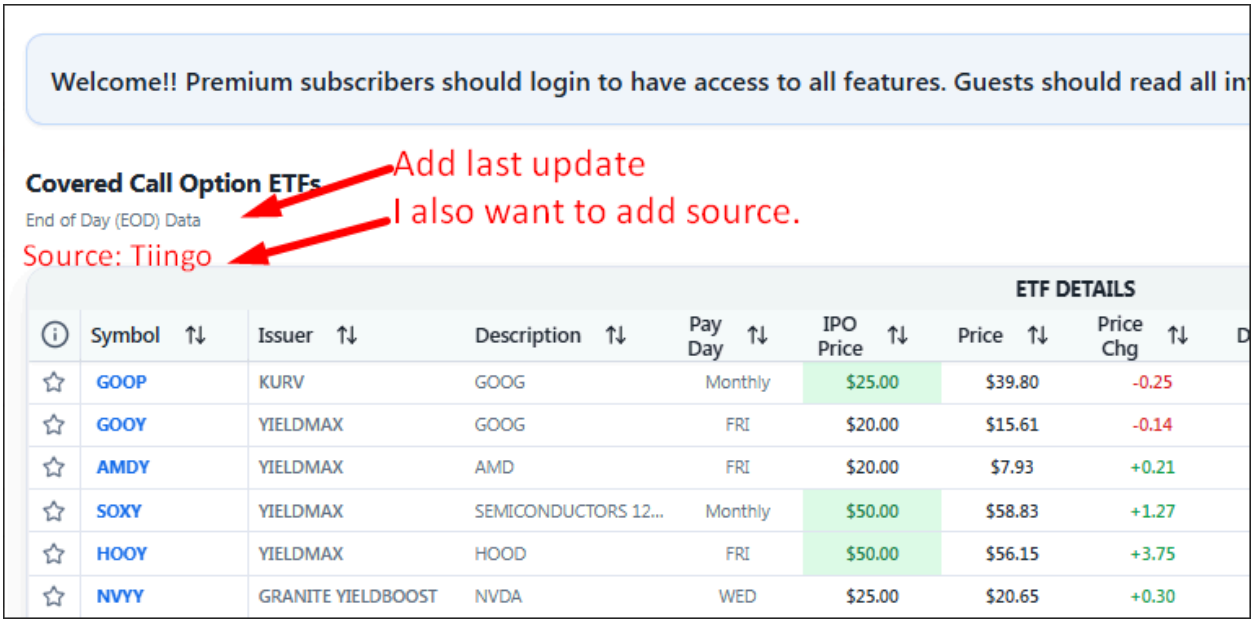
Dividends & Total Returns - Changes Left

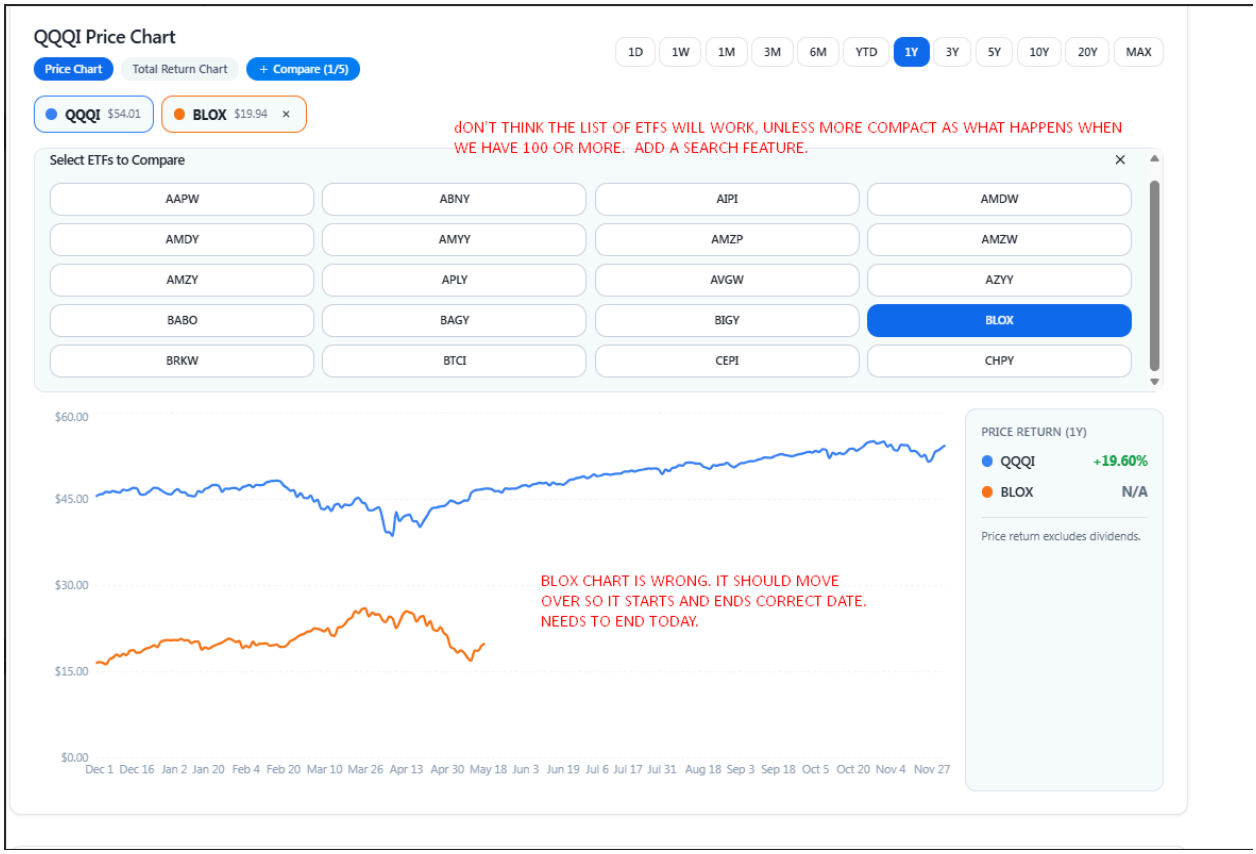
1. Remove performance summary

2. Change EOD Data text to last updated date and time. And add “Source: Tiingo”

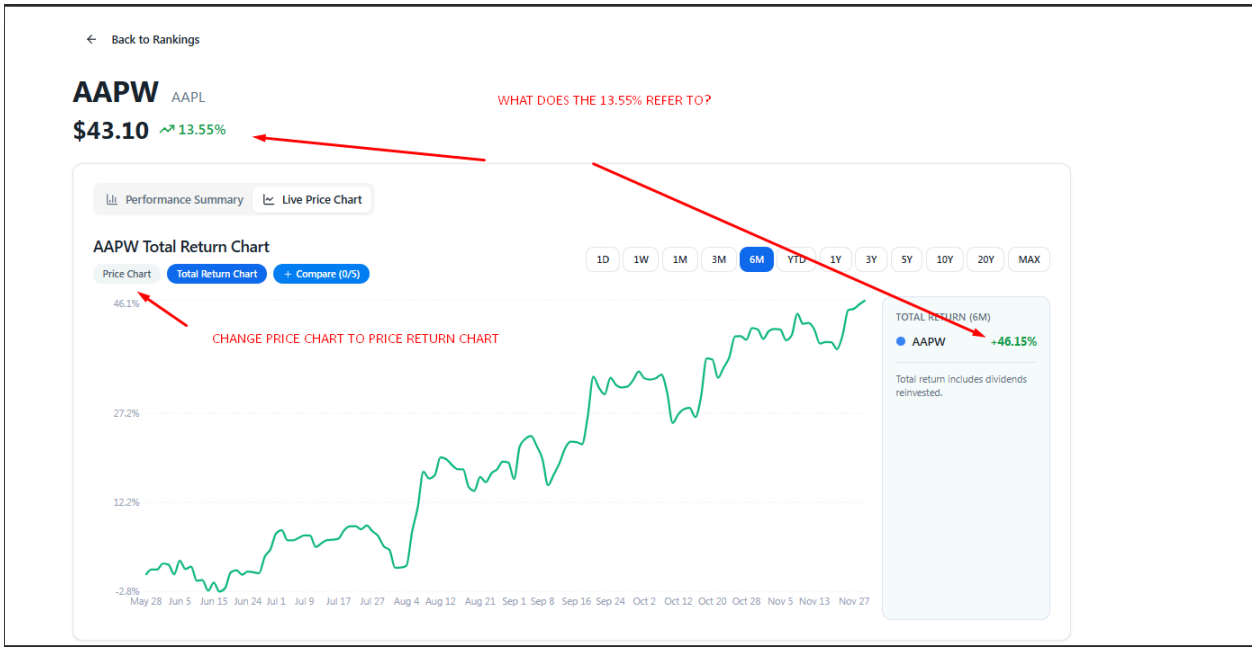


	Symbol	Issuer	Description	Pay Day	IPO Price	Price	Price Chg
☆	GOOP	KURV	GOOG	Monthly	$25.00	$39.80	-0.25
☆	GOOY	YIELDMAX	GOOG	FRI	$20.00	$15.61	-0.14
☆	AMDY	YIELDMAX	AMD	FRI	$20.00	$7.93	+0.21
☆	SOXY	YIELDMAX	SEMICONDUCTORS 12...	Monthly	$50.00	$58.83	+1.27
☆	HOOY	YIELDMAX	HOOD	FRI	$50.00	$56.15	+3.75
☆	NVYY	GRANITE YIELDBOOST	NVDA	WED	$25.00	$20.65	+0.30

3. Chart is wrong and should move over so it starts and ends at correct date. And add a search bar feature similar to one on home page instead of our ETFs list.

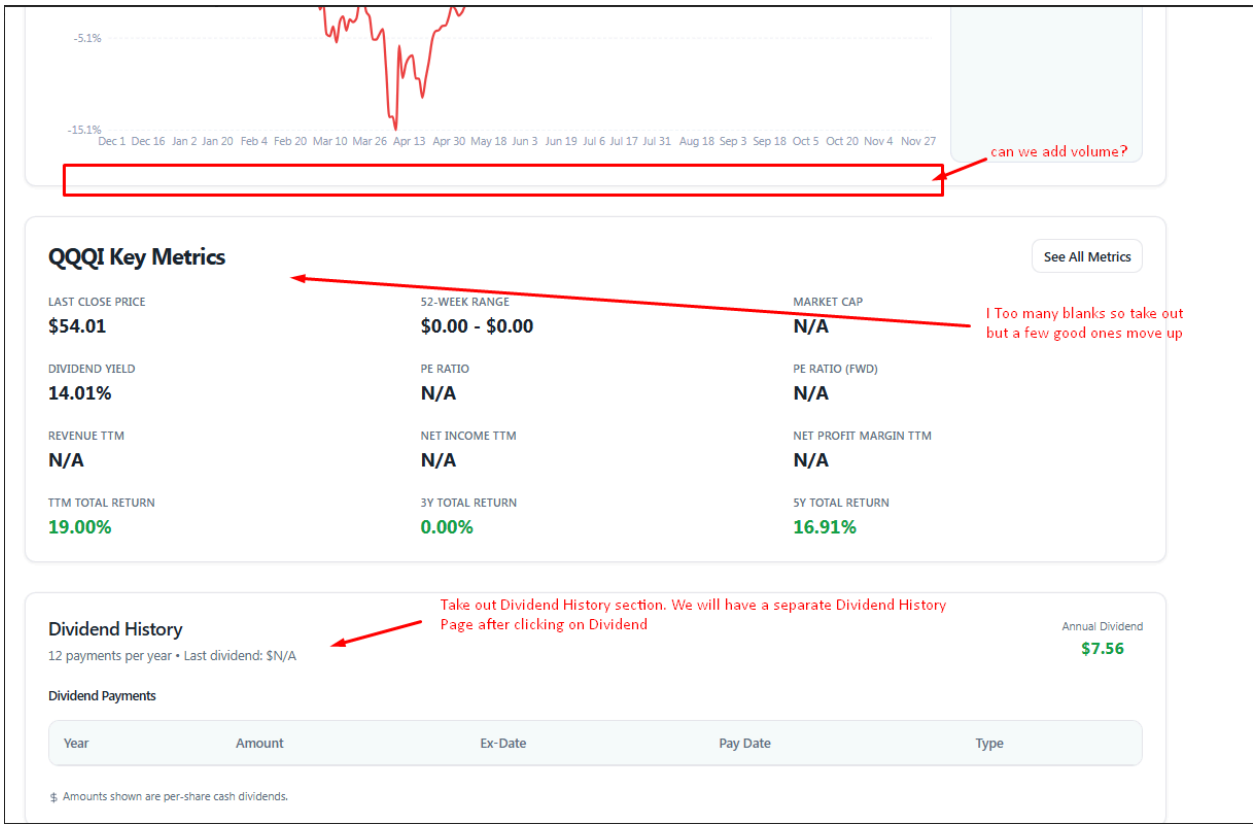


5. Change “Price Chart” to “Price Return Chart” and fix the percentage to match under symbol with what appears next to chart



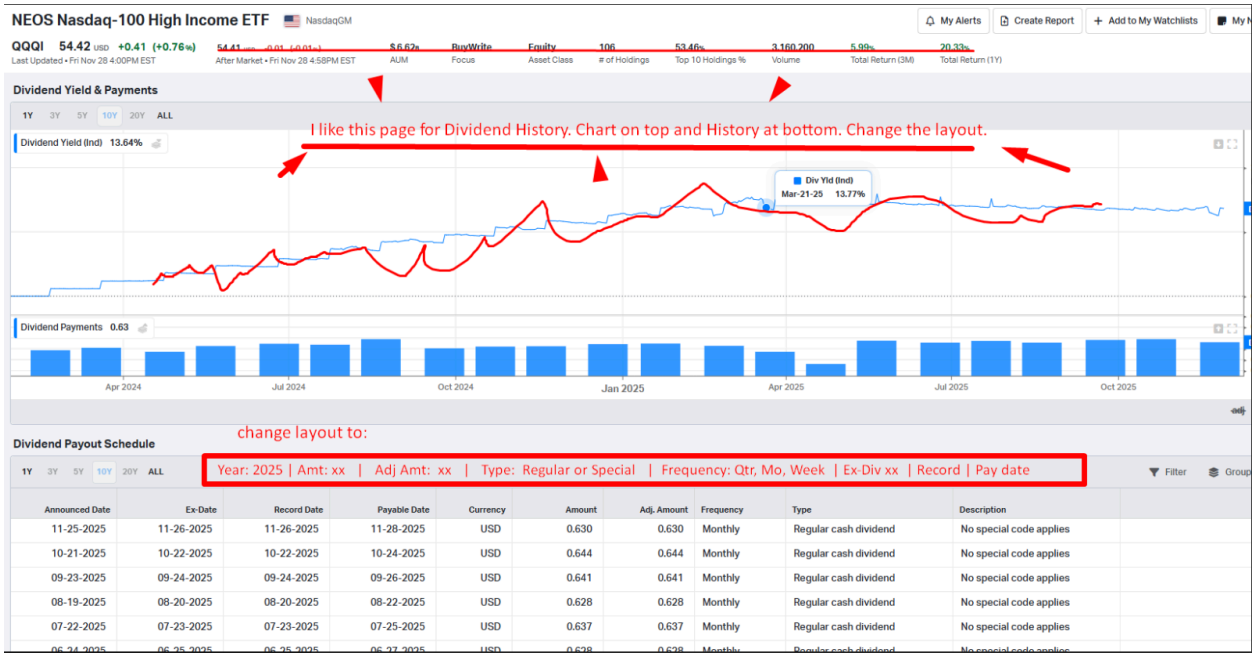
6. Use this way of reflecting dates on total and price return charts

7. Remove key metrics section (too many blanks so take out) and take out the dividend history section (will have a separate dividend history page after clicking on Dividend). is it possible to add volume below chart?



8. On chart when dividends average is clicked, it should show our Dividend volumes and payouts all on this page (reference second image attached. And change layout to “Year: 2025 |

Amt: xx | Type: Regular or Special | Frequency: Qtr, Mo, Week | Ex-Div xx | Record | Pay date". He likes.



1) Database / data model (match "FIELDS FOR DATABASE")

Create (or update) an `etfs` table so each row can drive the main grid exactly like screenshot #1.

Core identity fields (static / manual or seed file)

- `symbol` (PK) – ticker, e.g. QQQI
- `issuer` – text
- `description` – text
- `pay_day` – string like `MON`, `TUE`, `WED`, `Monthly` etc.
- `ipo_price` – decimal

(**Favorites** should be a separate `user_favorites` table keyed by user + symbol, not a column.)

Live price fields (from Tiingo EOD)

- `price` – today's close (`close` from Tiingo)
- `price_change` – today's close minus previous close (or % change)

Dividend + frequency fields

- `dividend` – latest regular dividend amount per share (from Tiingo dividends)
- `num_payments` – number of regular payments per year (auto-detect from history: 12 = monthly, 52 = weekly, 4 = quarterly, etc.)
- `annual_dividend` – *rolling 365-day sum of regular, split-adjusted dividends* (this is the "current annualized dividend" the SD/CV code returns).
  STANDARD DEVIATION CV ADJUSTED …
- `forward_yield` – `annual_dividend / price`

Volatility + ranking columns

- `dividend_sd` – SD of the rolling 365-day annualized series over the chosen lookback (e.g. last 3Y)
- `dividend_cv` – `sd / mean` of that same series (store as decimal, e.g. 0.18)
- `dividend_cv_percent` – optional formatted string if you want (e.g. `18.0`)
- `dividend_volatility_index` – whatever label you want to display (probably just `dividend_cv_percent`)
- `weighted_rank` – precomputed numeric rank we'll use to sort the table

Total return (WITH DRIP – the main "TOTAL RETURNS" section on the right)

TOTAL RETURN WITH AND WITHOUT D…

Store these as decimals (e.g. 0.346 for +34.6%):

- `tr_drip_3y`
- `tr_drip_12m`
- `tr_drip_6m`
- `tr_drip_3m`
- `tr_drip_1m`
- `tr_drip_1w`

Price / non-DRIP returns (bottom "PRICE RETURN" block)

TOTAL RETURN WITH AND WITHOUT D…

- `price_return_3y`
- `price_return_12m`
- `price_return_6m`

- `price_return_3m`
- `price_return_1m`
- `price_return_1w`

(If Rich wants “Total Return w/o DRIP” instead of pure price for that block, you can store both sets; use naming like `tr_nodrip_12m` as well.)

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2) Back-end calculations (the “big boy” formulas)

2.1 Dividend SD / CV “frequency-proof” function

Implement the universal function from the **Standard Deviation CV Adjusted for Frequency Changes** doc.

STANDARD DEVIATION CV ADJUSTED …

Key steps (Python service):

1. **Pull dividend history from Tiingo** (`list_dividends`):
    - Filter to **regular** dividends only (`type` contains “regular” or is `None`).
    - Use **split-adjusted amount** column (`adjAmount` or `adjDivCash`).
2. Build a **time-indexed series** of amounts by `exDate`, sorted ascending.
3. Create the **rolling 365D annualized series**:
    - `annualized = regular.rolling('365D', min_periods=300).sum()`
    - This series is: “dividends paid over the last 12 months as of each date”, and automatically adjusts when frequency changes (monthly → weekly, etc.).
4. For each lookback window (e.g. last 3 years):
    - Slice `annualized` to the desired date range.

    - Compute `sd = series.std()`, `mean = series.mean()`, `cv = sd / mean` (guard if mean ≤ 0).
    - Also take `current_annual_dividend = series.iloc[-1]`.
5. Save `annual_dividend`, `dividend_sd`, `dividend_cv`, `dividend_cv_percent` into the DB for that ticker.

This one function becomes the **single source of truth** for:

- `annual_dividend` (used for Forward Yield)
- SD / CV / "Dividend Volatility Index"
- Any future "consistency score" or growth metrics

2.2 Total return WITH DRIP (compounding)

For each symbol and each horizon (3Y, 12M, 6M, 3M, 1M, 1W):

1. Query Tiingo **EOD price** series with `adjClose`.
   TOTAL RETURN WITH AND WITHOUT D…
2. Determine `start_date` = today minus horizon; grab the closest trading day's `adjClose` as `P_adj_start`.
3. `P_adj_end` = latest `adjClose`.
4. Compute:

```
TR_with_DRIP = (P_adj_end / P_adj_start) - 1
```

5. Store in `tr_drip_*` columns.

This is the official "Total Return with dividends reinvested (DRIP)" metric.

2.3 Price / non-DRIP return

Pure price return (capital gain only, no dividends):

TOTAL RETURN WITH AND WITHOUT D…

```
PriceReturn = (P_close_end / P_close_start) - 1
```

Use `close` instead of `adjClose` and save into `price_return_*`.

Optional Total Return WITHOUT DRIP (if Rich wants it):

```
TotalDividends = sum(divCash between start_date and end_date)
TR_without_DRIP = ((P_close_end - P_close_start) + TotalDividends) / P_close_start
```

Store as `tr_nodrip_*` if needed.

2.4 Jobs / syncing

- Nightly (or more frequent) job:
    - For each active symbol:
        - Refresh EOD prices and dividends from Tiingo.
        - Recompute annualized dividend series → `annual_dividend`, SD, CV.
        - Recompute all total-return and price-return horizons.
        - Persist to DB.

---

3) Front-end layouts (how to wire the charts to the new data)

3.1 Home grid (screenshot #1)

- Use the `etfs` table fields to render:
    - Left: symbol, issuer, description, pay day, IPO price, price, price change, dividend, `# Pmts`, `annual_dividend`, `forward_yield`,

`dividend_volatility_index`, `weighted_rank`.

    - Right “TOTAL RETURNS” block: `tr_drip_*` columns laid out 3Y / 12M / 6M / 3M / 1M / 1W.
    - If using “PRICE RETURN” block underneath, map to `price_return_*` (or `tr_nodrip_*`).

- Format:
    - Percent fields as `+34.7%` etc, green when positive, red when negative.
    - Tooltips can show exact numeric values.

3.2 Dividend History page (screenshot #2)

Rich’s notes:

- **Layout**:
    - **Top half**: main chart area.
        - Line chart: dividend yield / annualized dividend over time (from the rolling 365D series).
        - Below it, within the same panel: blue bar chart of **dividend payments** by ex-date (amount per payment).
        - Time-range buttons: `1Y / 3Y / 5Y / 10Y / 20Y / ALL`.
- **Bottom half**: Dividend payout schedule table with columns:

  `Year | Amt | Adj Amt | Type (Regular/Special) | Frequency (Qtr, Mo, Week) | Ex-Div Date | Record Date | Pay Date | Description`

- Data source:
    - Bars → individual regular dividend records.
    - Table → same records, grouped by year where needed.

3.3 Total Return / Price chart page (screenshot #3)

- Use the same underlying price / TR data as the home page.
- **Main chart**:
    - Toggle between `Price Chart` and `Total Return Chart`.
    - Buttons for time windows: `1D, 1W, 1M, 3M, 6M, YTD, 1Y, 3Y, 5Y, 10Y, MAX`.
- **Top metrics bar** (red box on screenshot #3):
    - Show precomputed `tr_drip_*` (and/or `price_return_*`) in text like: `3 Yr TR: N/A | 12 Mo: +XX% | 6 Mo: +YY% | 3 Mo: +ZZ% | ...`
- **Right sidebar**:
    - Card summarizing current period:
        - "TOTAL RETURN (selected range)" value.
        - "Frwd Yield: 14.01%" (use `forward_yield`).
        - Any other per-ETF stats Rich wants to surface.

3.4 "Advanced Chart" with volume (last image, screenshot #4)

This is what Rich wants there:

- Same **orange price line** over chosen period (1Y shown in the example).
- **Bottom pane**: gray vertical **volume bars**, one bar per trading day. X-axis labels are dates (by month in the screenshot).
- Time-range buttons identical to the other chart (`1D, 5D, 1M, 6M, YTD, 1Y, 5Y, 10Y, MAX`).
- All data comes from Tiingo EOD series: `close` (for the line) + `volume` (for bars).

So: **last image = price + volume combo chart**, not total return.

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4) TL;DR for Anjishnu

1. Implement Tiingo data sync for prices (`close`, `adjClose`, `volume`) and dividends (`divCash`, `type`, `adjAmount/adjDivCash`).

2. Build the “clean annualized dividend” series and SD/CV function described in the SD/CV doc and persist `annual_dividend`, `dividend_sd`, `dividend_cv`, and `dividend_volatility_index`.
   STANDARD DEVIATION CV ADJUSTED …

3. Compute & store **Total Return with DRIP** for all timeframes using the adjusted-price ratio method; compute **Price Return** (and optional Total Return w/o DRIP) using unadjusted prices + `divCash`.
   TOTAL RETURN WITH AND WITHOUT D…

4. Make sure the DB columns exactly match the “FIELDS FOR DATABASE” sheet so the main ETF table can render 1:1 with the screenshot.

5. Wire front-end pages:

    - Home grid → new DB fields.
    - Dividend History page → top yield line + payment bars, bottom payout schedule.
    - Total Return page → TR chart, metrics strip, right summary card.
    - Advanced chart → price line + volume bars with date axis.