



NOVA SCHOOL OF
BUSINESS & ECONOMICS

Hedge Funds

Investment Strategy – Fixed Income I

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Fixed Income

Basic Concepts

- Bond
- Duration
- BPVs (Basis Point Value)
- Convexity
- Carry
- Roll Down

Fixed Income

Basic Concepts

Calculations

- Bond
 - i) String of fixed cash-flows
 - ii) Price = PV of CFs @ market rates => P is inversely related to rates
- Duration
 - Weighted avg life before repayment / or rate reset
 - MDuration = **price sensitivity to rate changes**
 - $MDuration = - dP / dY \times 1 / P$
- BPVs
 - $MDuration \times Price / 100 \times 0.01\%$
- Convexity
 - MDuration sensitivity to rate changes**
 - $Conv = d^2P / dY^2 \times 1 / P$
- Carry
 - Return due to passage of time if Y unchanged
 - Yield - r** (Coupon + P pull to par - r)
- Roll Down
 - Return due to passage of time if YC unchanged
 - Change in Yield x MDuration

Fixed Income

Fixed Income Arbitrage

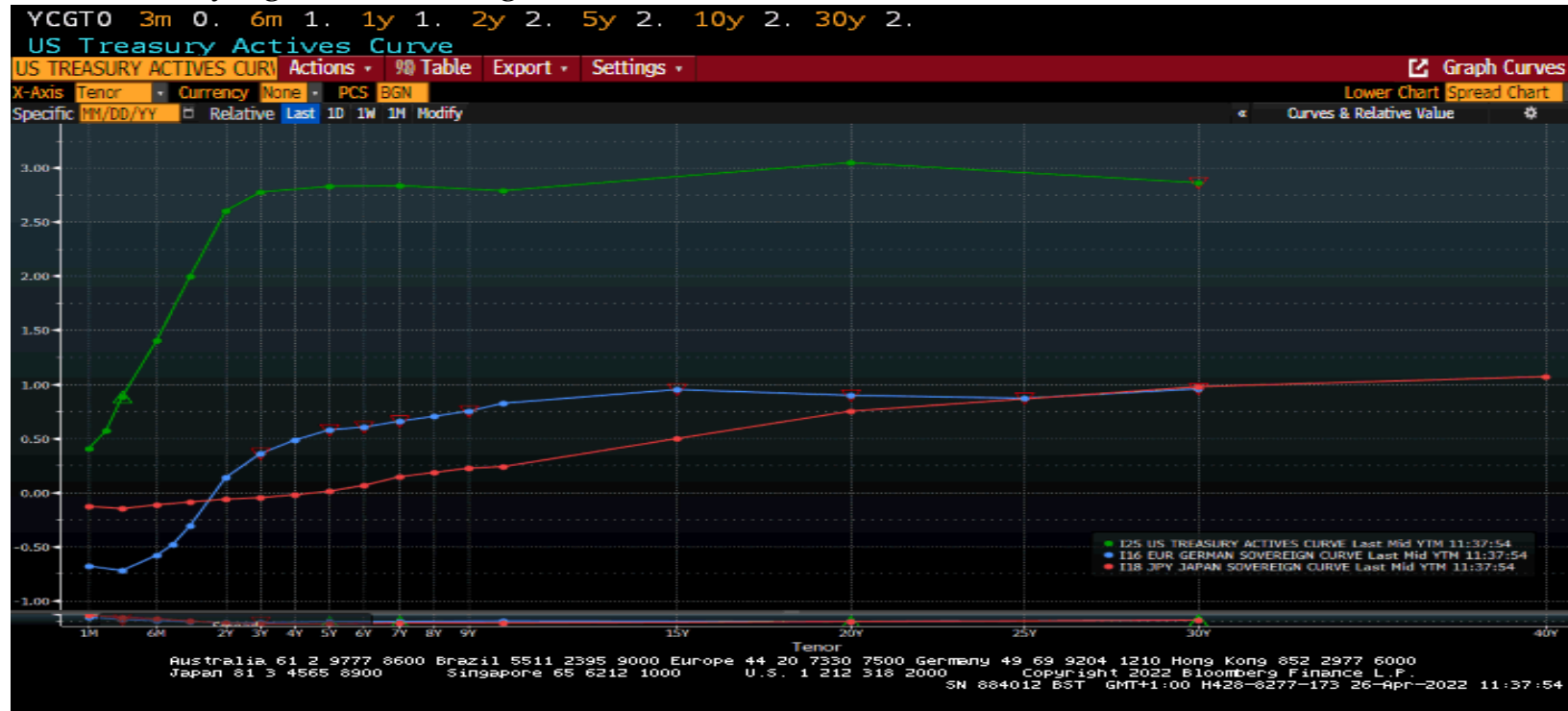
- **Fixed Income includes several types of instruments** such as Bonds (treasuries), IRS, FRAs, Futures, Swaptions, Caps & Floors, etc
- **May involve directional positions** to express a Macro / Interest Rate view, but
- **Most frequently involves trading 2 or more points of the Yield Curve**, as a safer / more efficient way to express such view
- **Positions are usually calibrated by Duration / BPVs**

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Rates Curves

Main Sovereign Yield Curves

- Bonds with maturity less than 1 year are T-Bills, thereafter are considered Treasury Bonds
- Underlying Risk is issuing Government

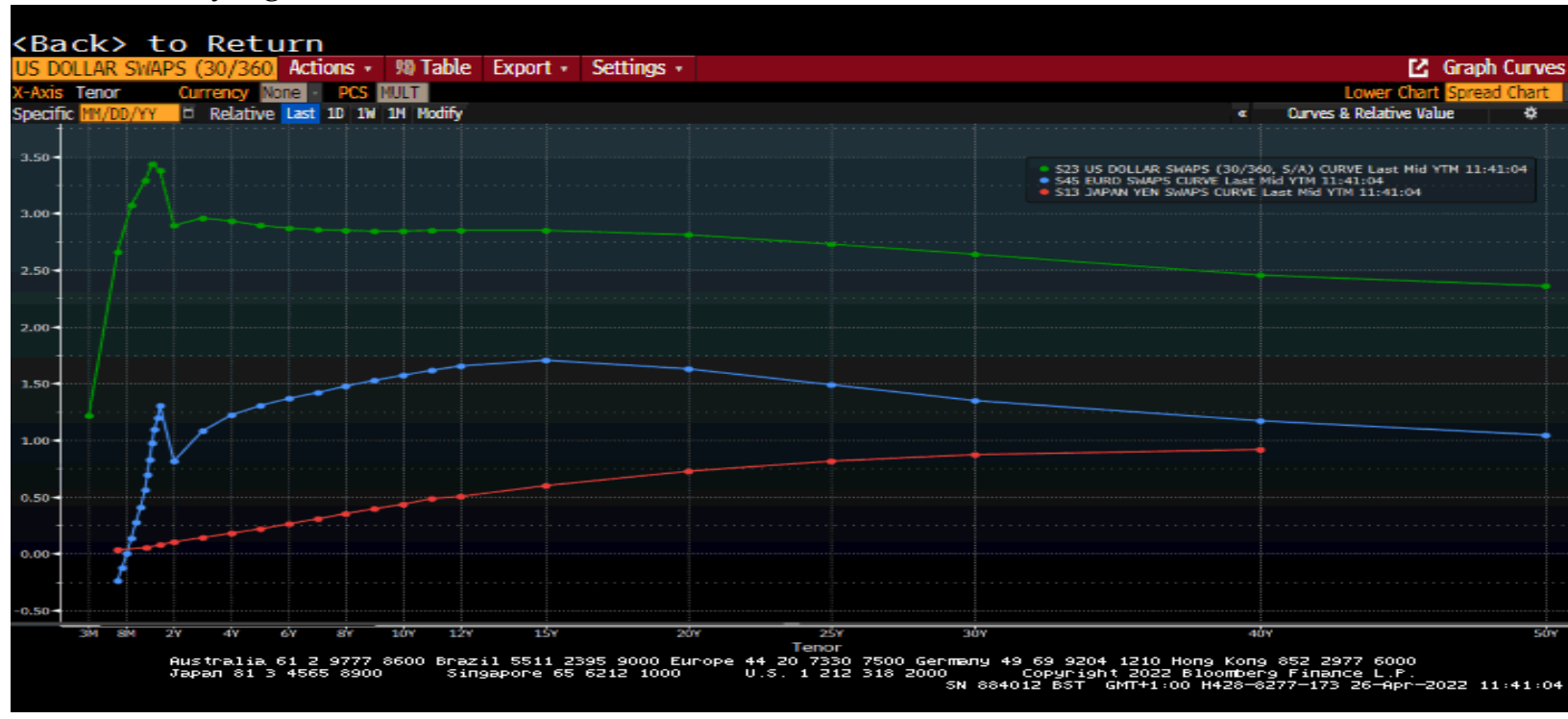


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Rates Curves

Main Swap Yield Curves

- Rates up to 1 year maturity are Libor, thereafter are considered for Interest Rate Swaps
- Underlying Risk is Banks

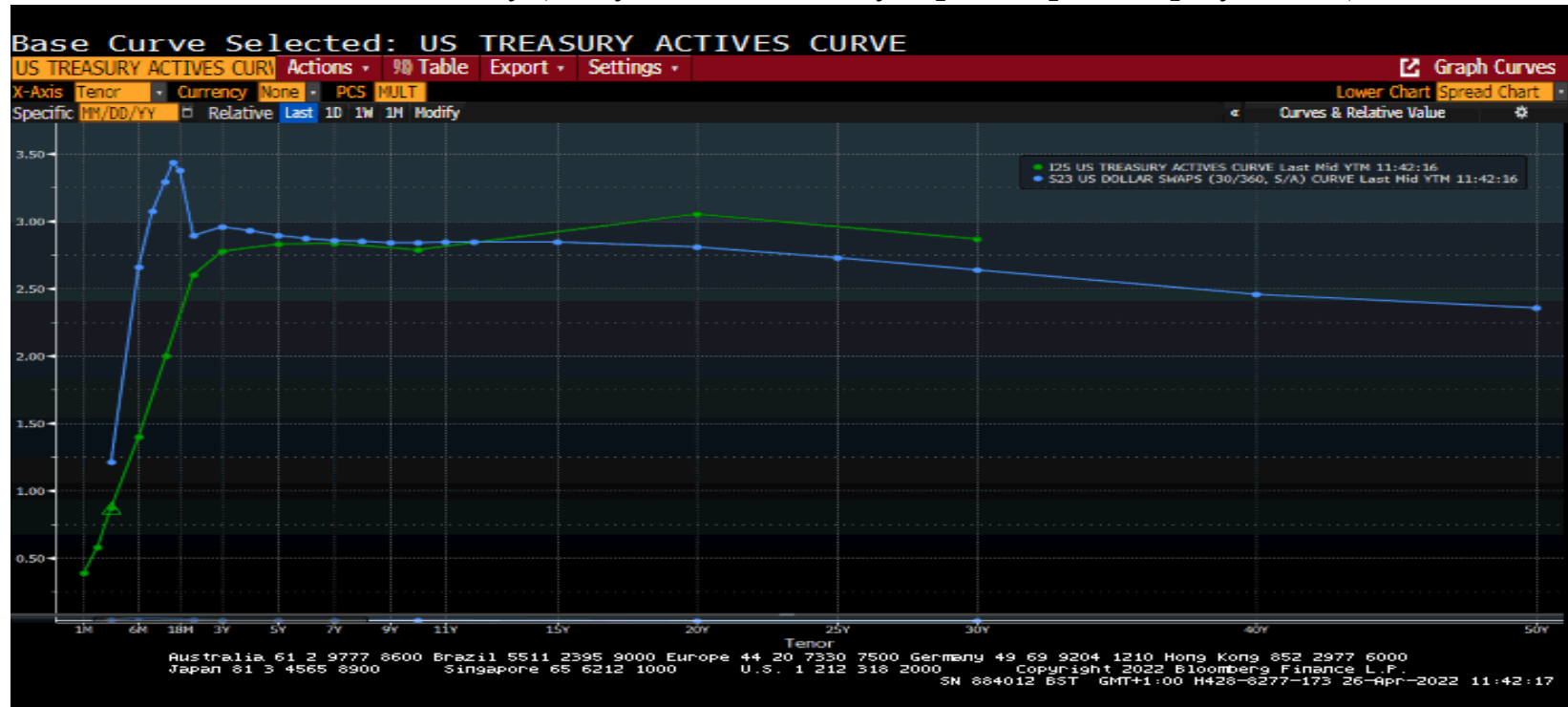


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Rates Curves

US Treasuries vs Swaps

- IRS Curve should always be > Treasury Curve
- Inversion in LT = Anomaly (> 10y market not very liquid, top rated players, etc)



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Rates Curves

Yield Curve Shape

Yield Curve Shape	Possible Explanation / Theory
Mildly Positive Slope	Liquidity Preferences
Too Steep / Flat / Inverted	Inflation / Growth expectations
Bumps / anomalies	Market Segmentation
Zero / negative rates	Demand-Supply imbalances (CBs, regulation, aging pop, intl reserves, fashion inv.,...)

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Rates Curves

Yield Curve Shape

- **Flattening / Steepening – ex. 2-10 Duration Weighted**

	ST rates lead	LT rates lead
YC Flattens	Bear Flattening ST rates up – ex: rate inc Cash	Bull Flattening LT rates down – ex: QE Bonds
YC Steepens	Bull Steepening ST rates down – ex: rate cut Gold	Bear Steepening LT rates up – ex: inflation Equities

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Yield Curves

Common Trades

- **InterMarket spreads** – Ex. EUUS 22, 55, 1010, 3030, **BOX**
- YC to concave / convex – **Barbell** ex. 2510, 21030, 51030
- **Treasury Bond x IRS** (Asset swap, Basis)
- **Credit curve** – normal shape = positive slope
flat / **inverted** = default (recovery value)

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Yield Curves

Common Trades

210US

- US YC has been flattening quite significantly, close to no YC spread
- Discounting aggressive monetary policy tightening and growth deceleration



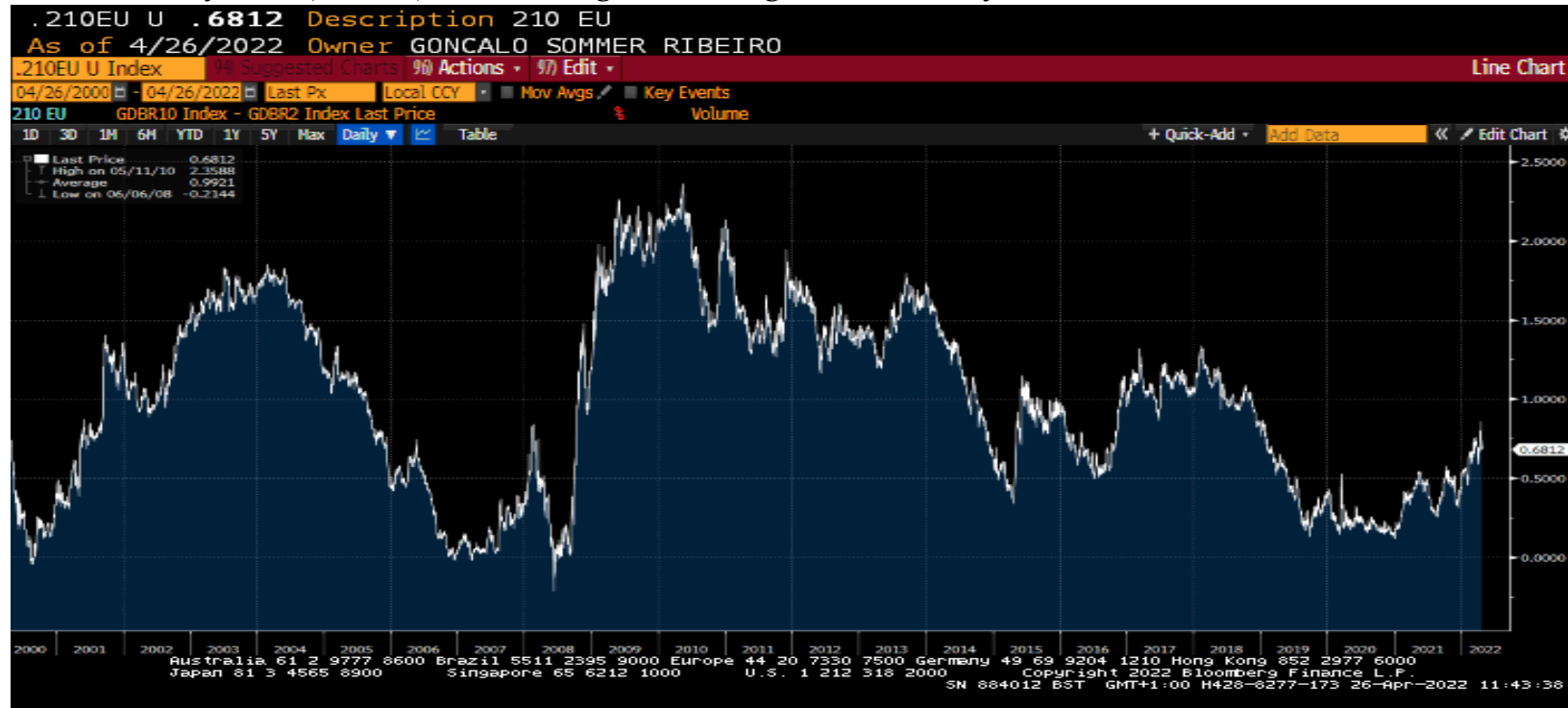
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Yield Curves

Common Trades

210EU

- EU YC has been steeping somewhat, breaking the previous tight range
- The 10y rate (Bunds) are coming out of negative territory while s-t rates are still anchored



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Yield Curves

Common Trades

Box USEU 210

- $\text{BOX 210} = (\text{US10Yr} - \text{US2Yr}) - (\text{EU10Yr} - \text{EU2Yr})$
- Byproduct of last two graphs, US flattening and EU steepening



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Yield Curves

Common Trades

USEU 1010

- US10Yr - EU10Yr
- US monetary policy normalization starting ahead of EU's, pushing l-t rates higher



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Yield Curves

Common Trades

21030US

- US Barbell 21030 = 2Yr + 30Yr - 2 x 10Yr
- Usually negative \rightarrow YC is slightly concave



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Yield Curves

Common Trades

US10Yr Swap Spread

Bank risk premia
over treasuries
LT Mean = 35/40 bps

Russian Crisis
TY = Safe Heaven
LTCM crisis

Subprime Crisis
Bank nationalizations
Bank risk = Sovereign risk

Why negative ???
Regulation - less B/S, repos ?
Corp Issuance + Swap ?



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Yield Curve Anomalies

Inverted Sovereign YC

Greek YC

- Greek YC pre-Restructuring - completely inverted – Why?
- Recovery value = in all tenors => bonds start trade in price logic instead of yield



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Yield Curve Anomalies

Inverted Sovereign YC

Portuguese YC

- Portuguese YC pre-PSI – also starting to invert
- Fear of restructuring



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Trading Example

Steepening

Example

- Place a **Steepening** trade in US bonds (2x10) ... with Usd 10,000\$ BPVs from 31 Dec 2021 to 1 March 22
- 1) **Why** would one investor want to do this trade?
- 2) **Which bond** does he have **to buy** and **which bond** does he have **to sell**?
- 3) How much does he have to invest in each bond to be **duration neutral**?

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BPV Map

- Ex. of portfolio positioned for **YC Flatening**

