

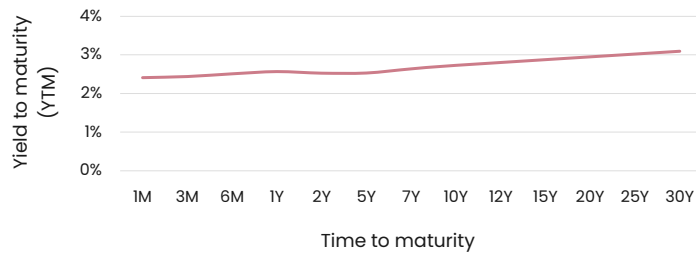


Yield Curve Fundamentals



What is a Yield Curve?

Yield curve



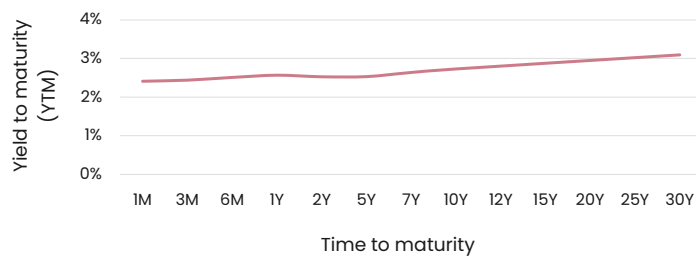
Yield to maturity



Bonds that have the **same credit quality** but **different maturities**

FINANCIALEDGE¹

Yield curve



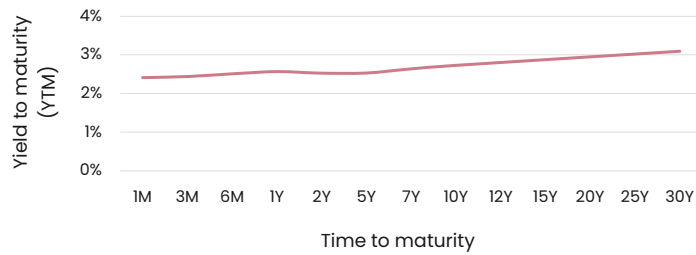
Accurate yield curve



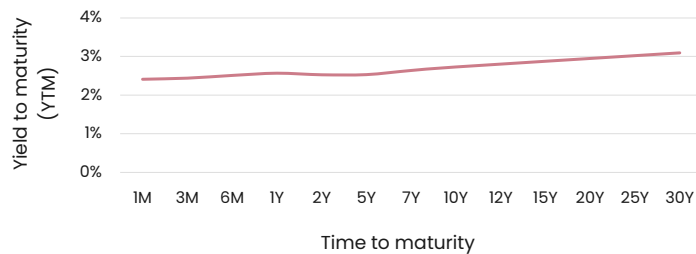
Use **bonds** from the **same issuer** and with the **same credit rating**

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Yield curve



Yield curve



Benchmark maturities



Yield Curve Shapes

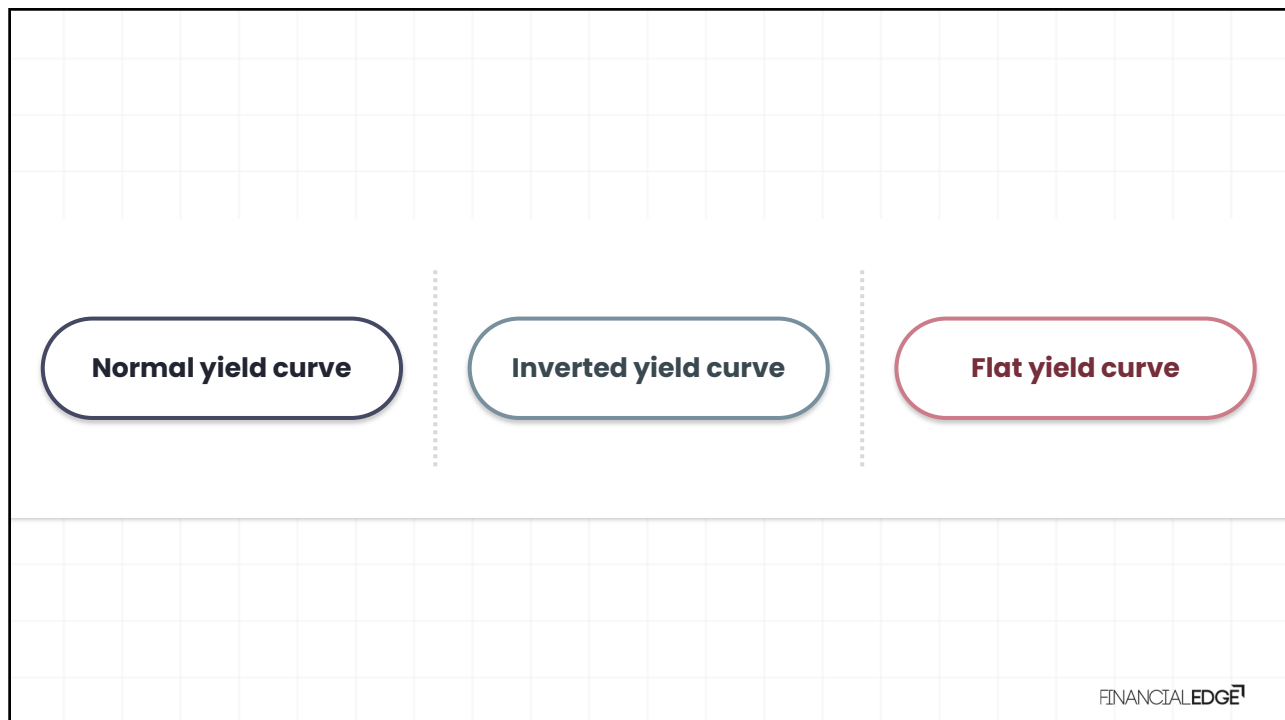
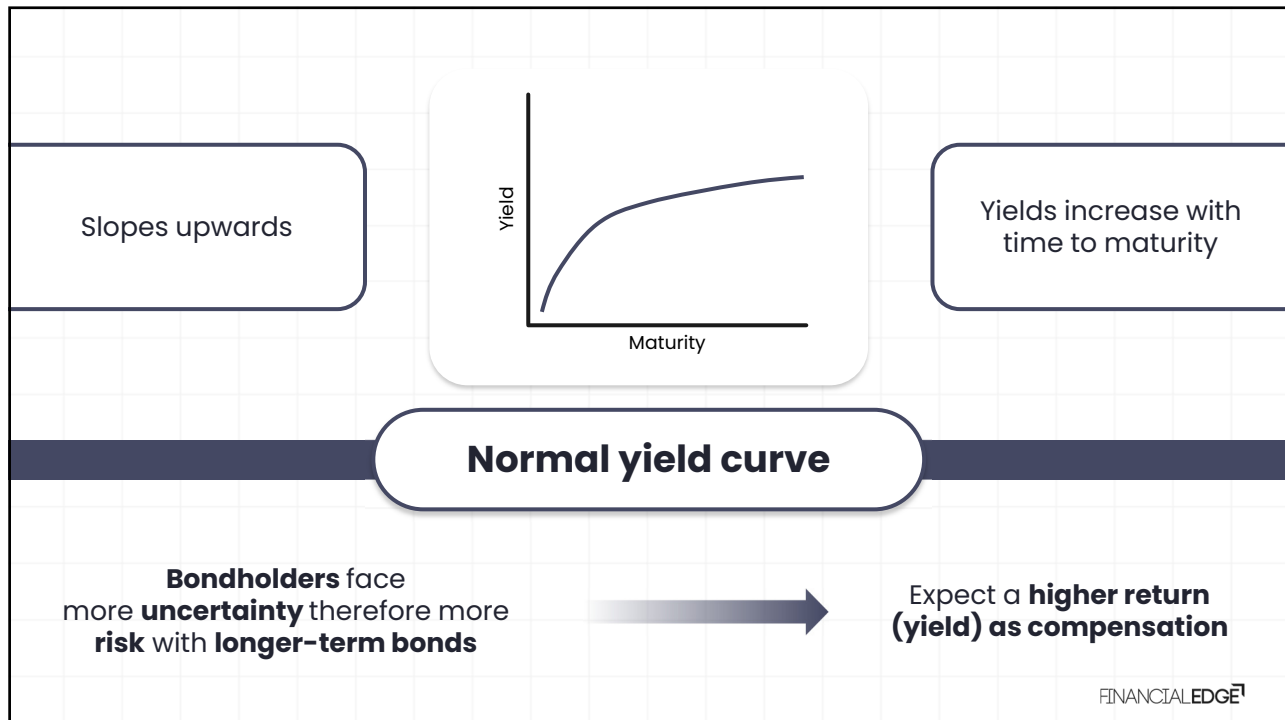
FINANCIALEDGE⁷

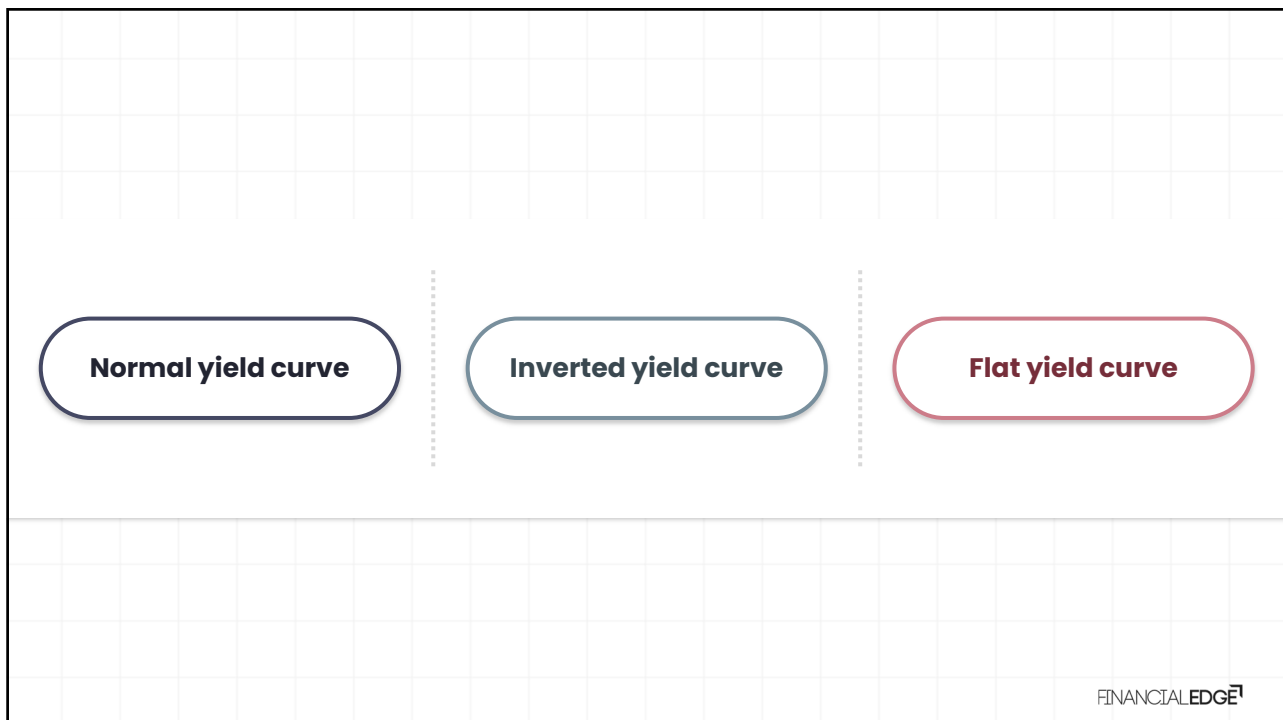
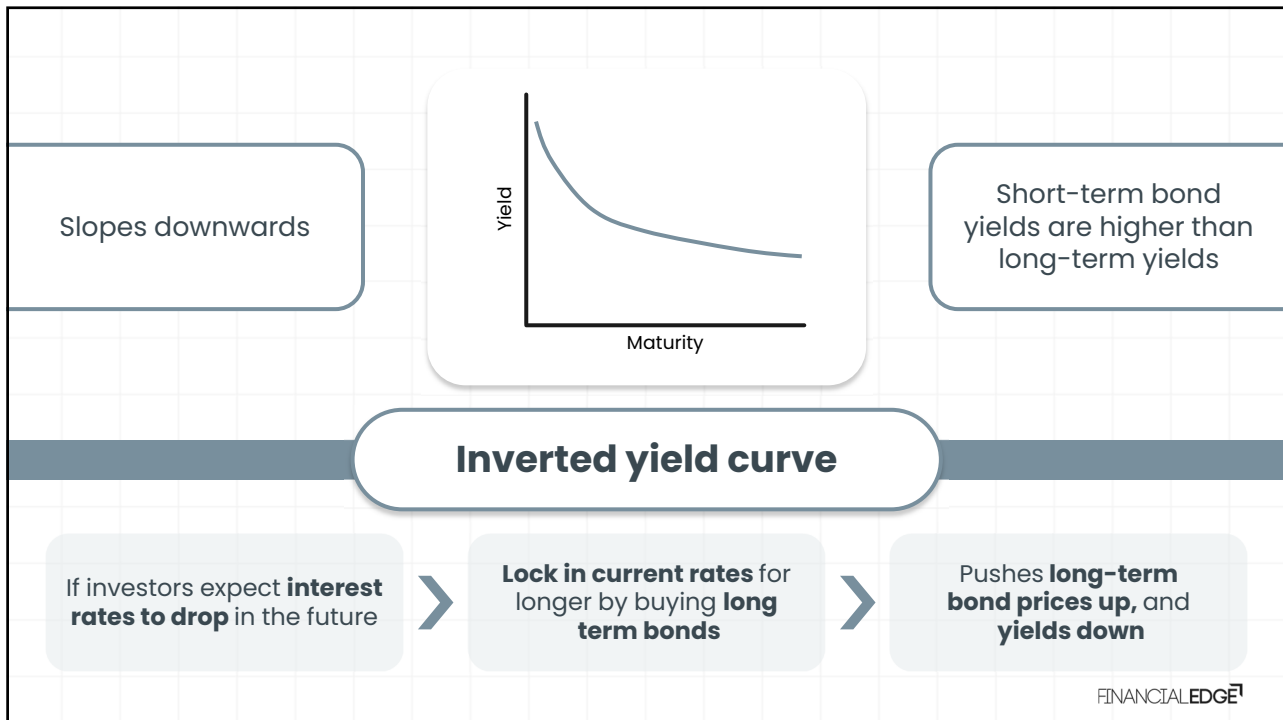
Normal yield curve

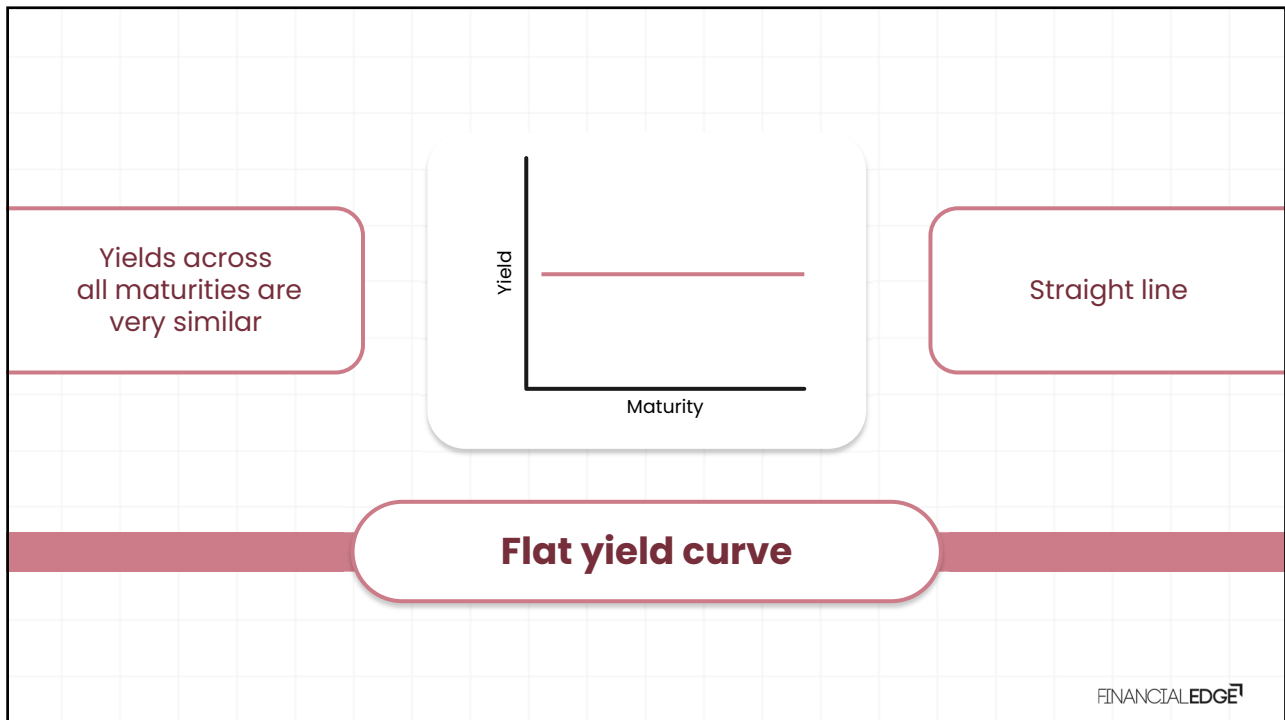
Inverted yield curve

Flat yield curve

FINANCIALEDGE⁷







Yield Curve Theories

What drives these changes?



No **single theory** can **fully explain** the yield curve's shape or changes in its shape



Expectations theory



Liquidity preference theory



Preferred habitat theory

FINANCIALEDGE¹



Expectations theory



Shape of the yield curve



Investors expectations

Future interest rates

Long-term rates are essentially an **average** of what investors expect **short-term rates** to be over that **longer period**

5-year yield



Average of 1-year yields over the next 5 years

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Expectations theory



Short term interest
rates to rise

Upward-sloping curve



Short term interest
rates to fall

Inverted curve

FINANCIALEDGE¹

What drives these changes?



No **single theory** can **fully explain** the yield
curve's shape or changes in its shape



Expectations theory



Liquidity preference theory



Preferred habitat theory

FINANCIALEDGE¹



Liquidity preference theory



Investors demand a **premium** for **holding longer-term bonds** because they **carry more risk**

Inflation or interest rate movements

Term Premium

The **extra return investors** get for **holding longer dated bond**

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Liquidity preference theory



Demand for a **higher return on longer-term bonds**

Upward-sloping curve

FINANCIALEDGE¹

What drives these changes?



No **single theory** can **fully explain** the yield curve's shape or changes in its shape



Expectations theory



Liquidity preference theory



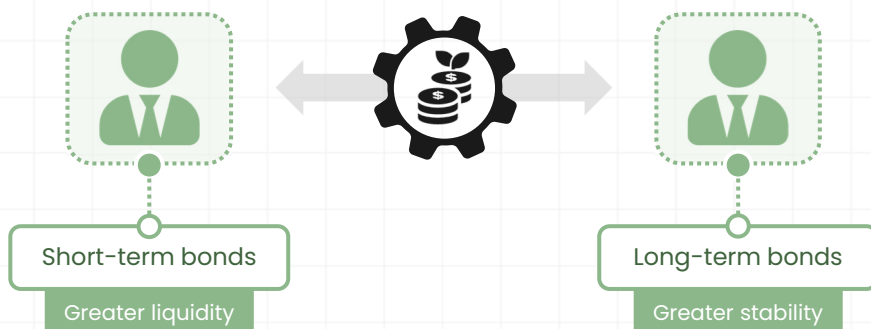
Preferred habitat theory

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Preferred habitat theory

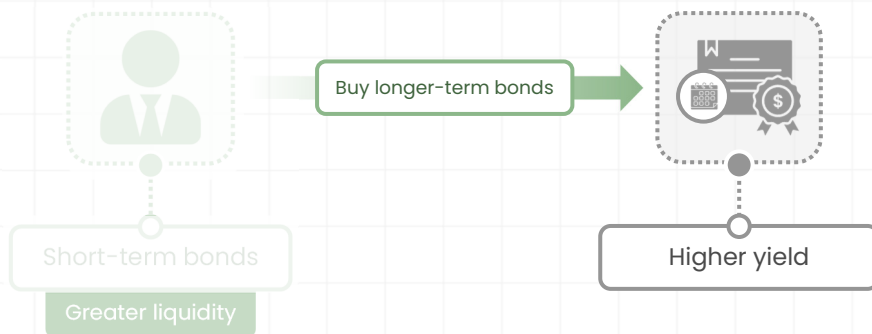
Different investors have **preferences** for bonds of certain maturities



FINANCIALEDGE[™]

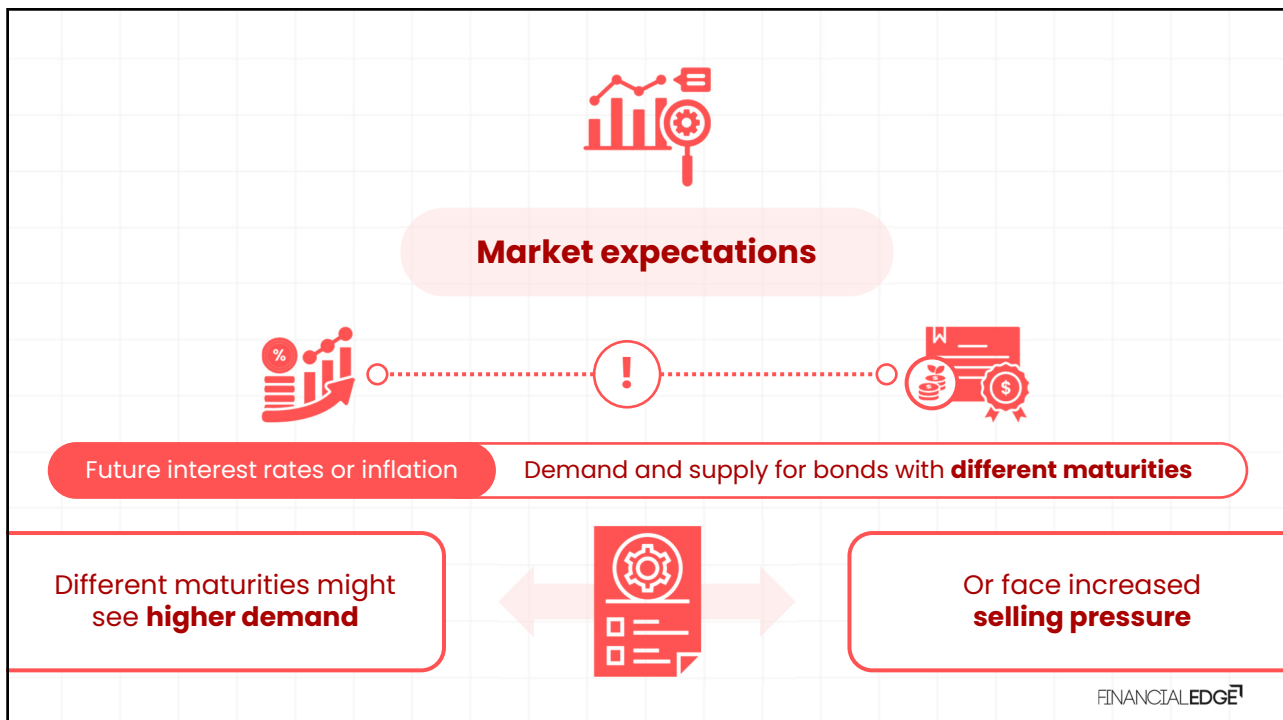
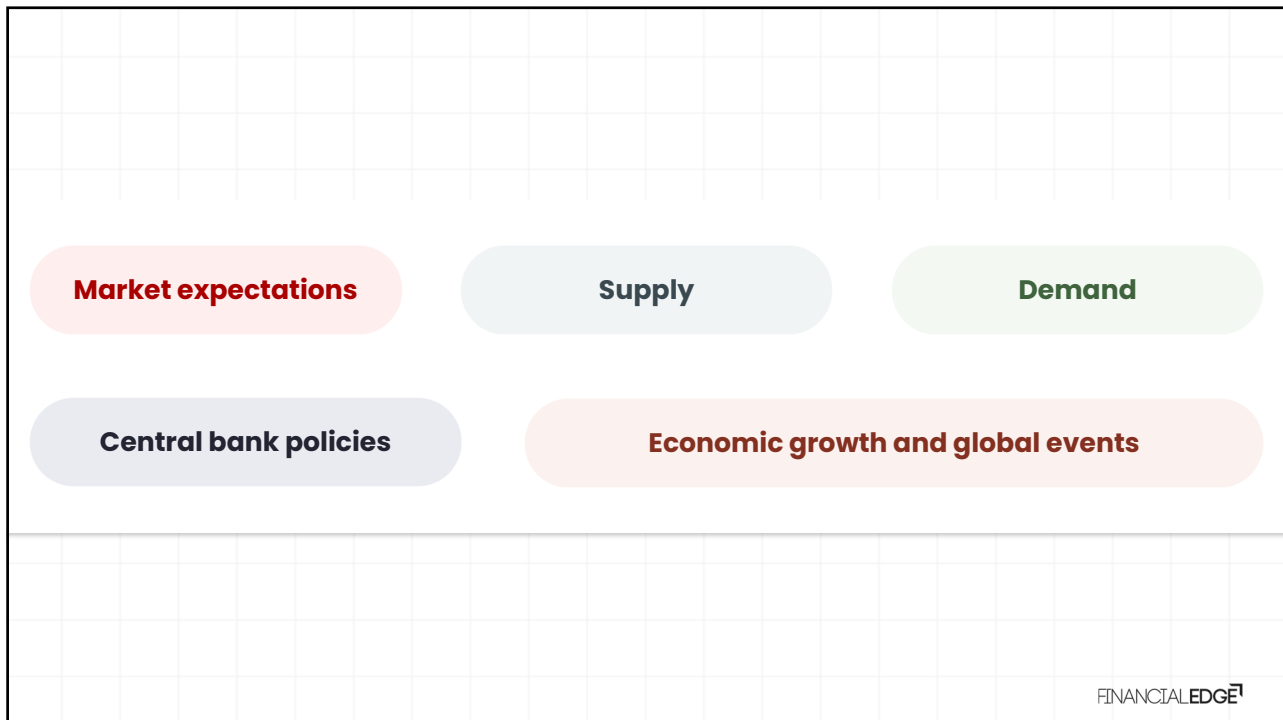


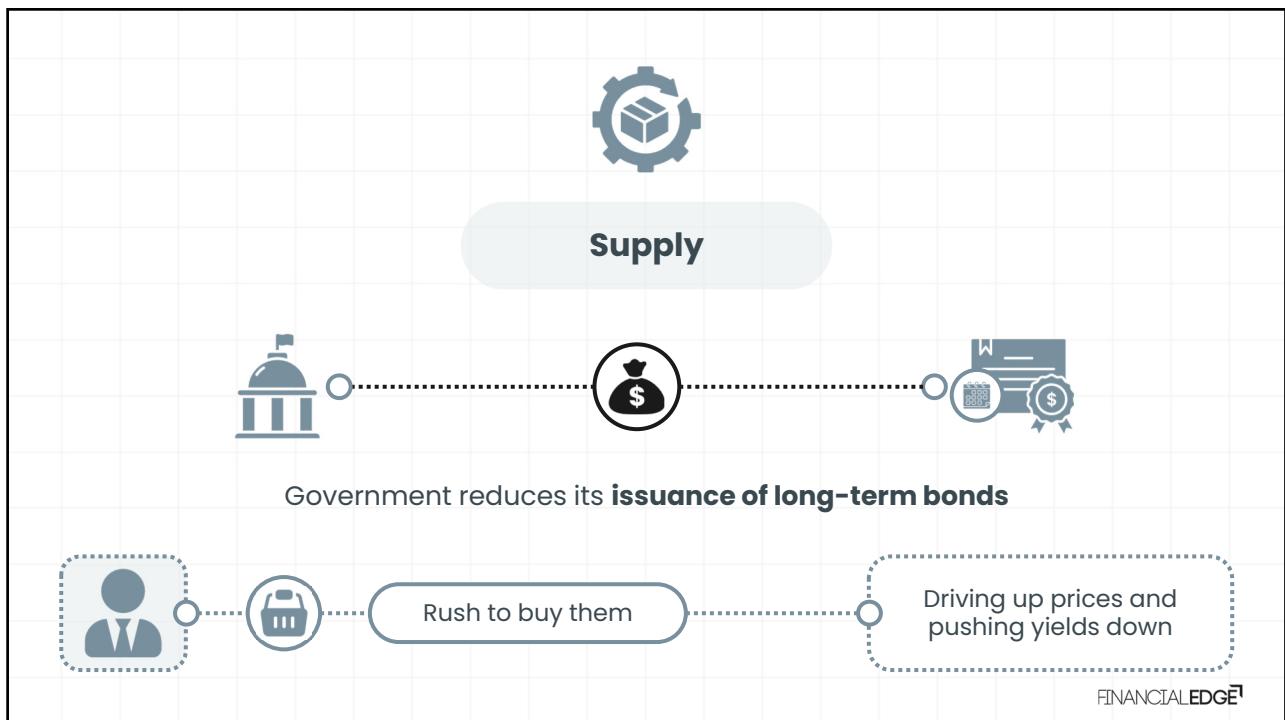
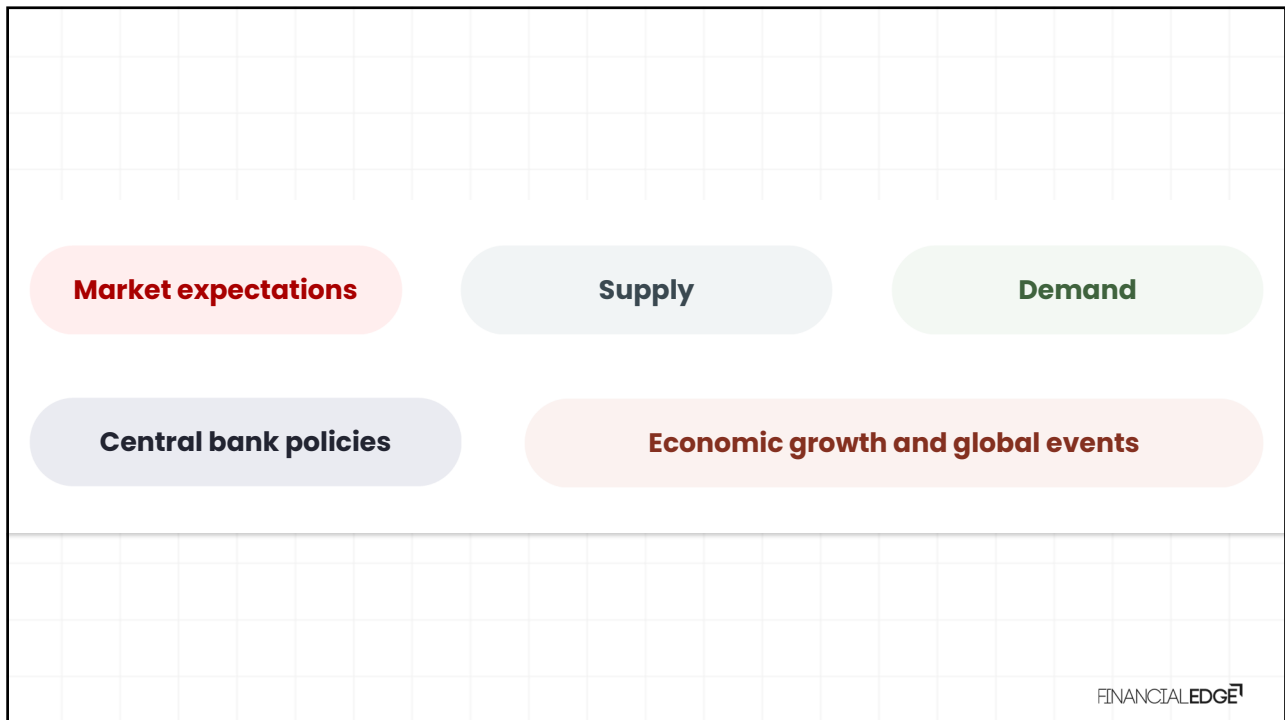
Preferred habitat theory

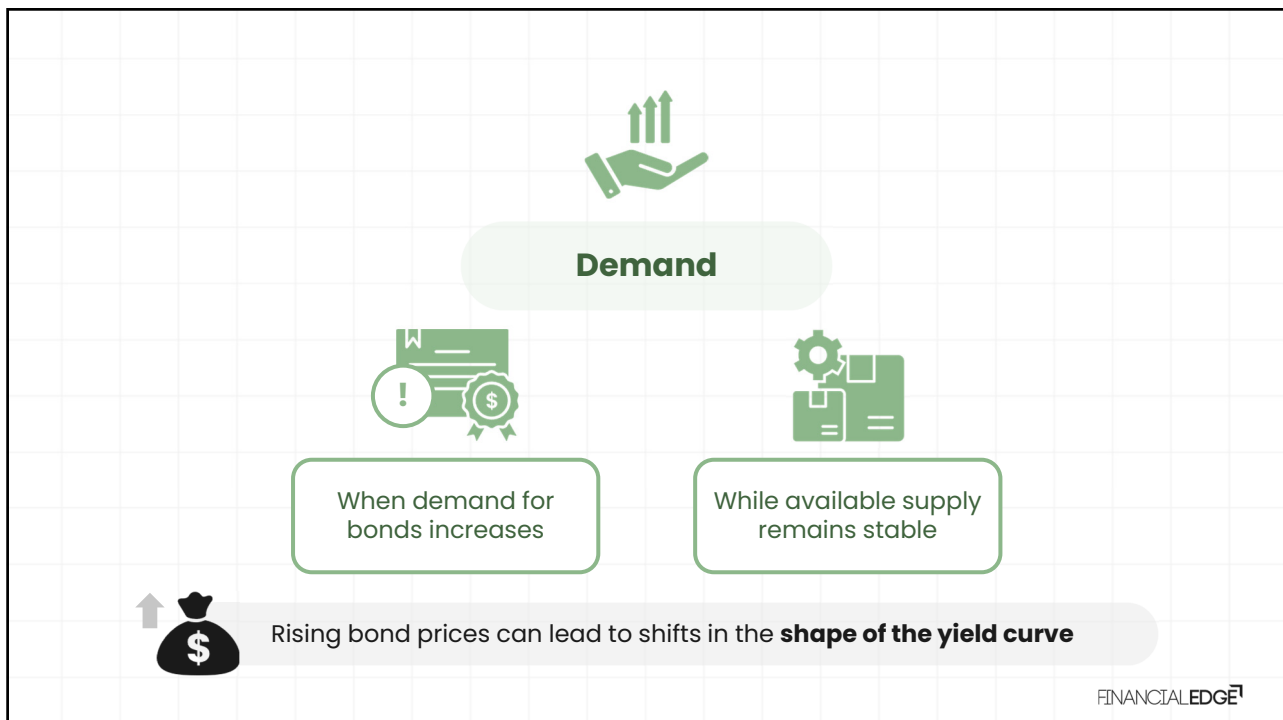
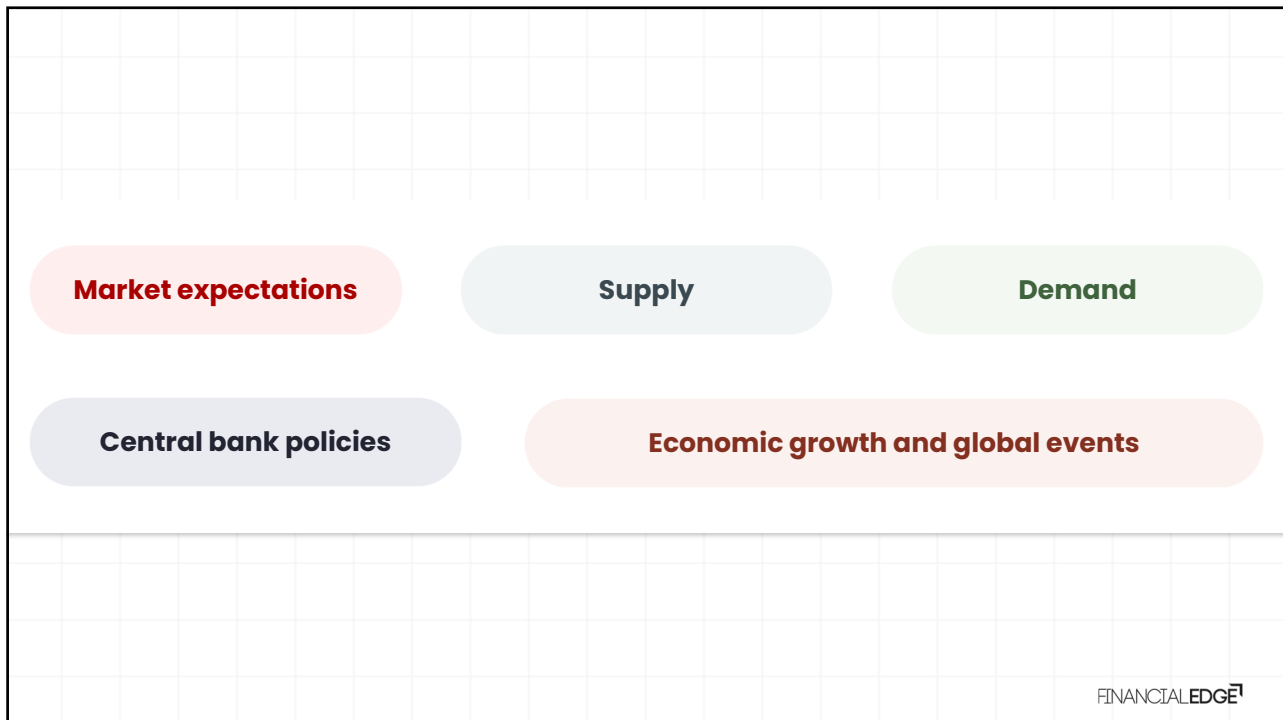
FINANCIALEDGE¹

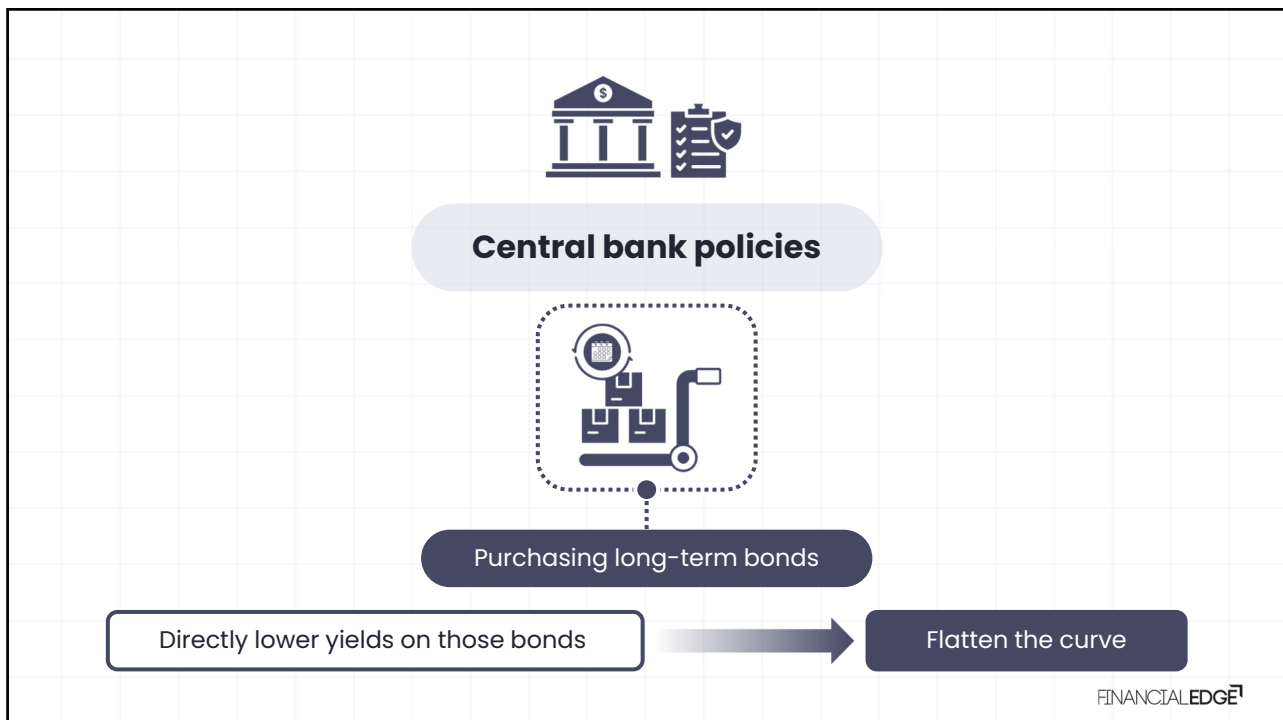
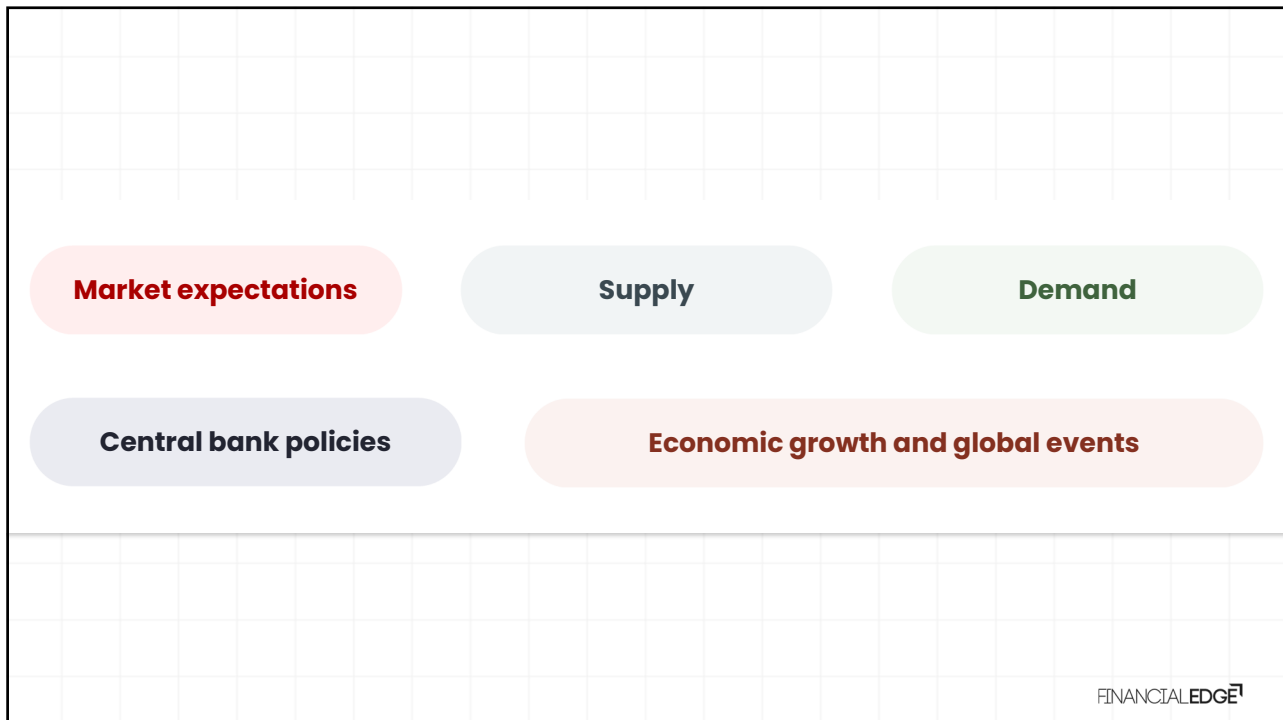
What Drives Yield Curves in Practice?

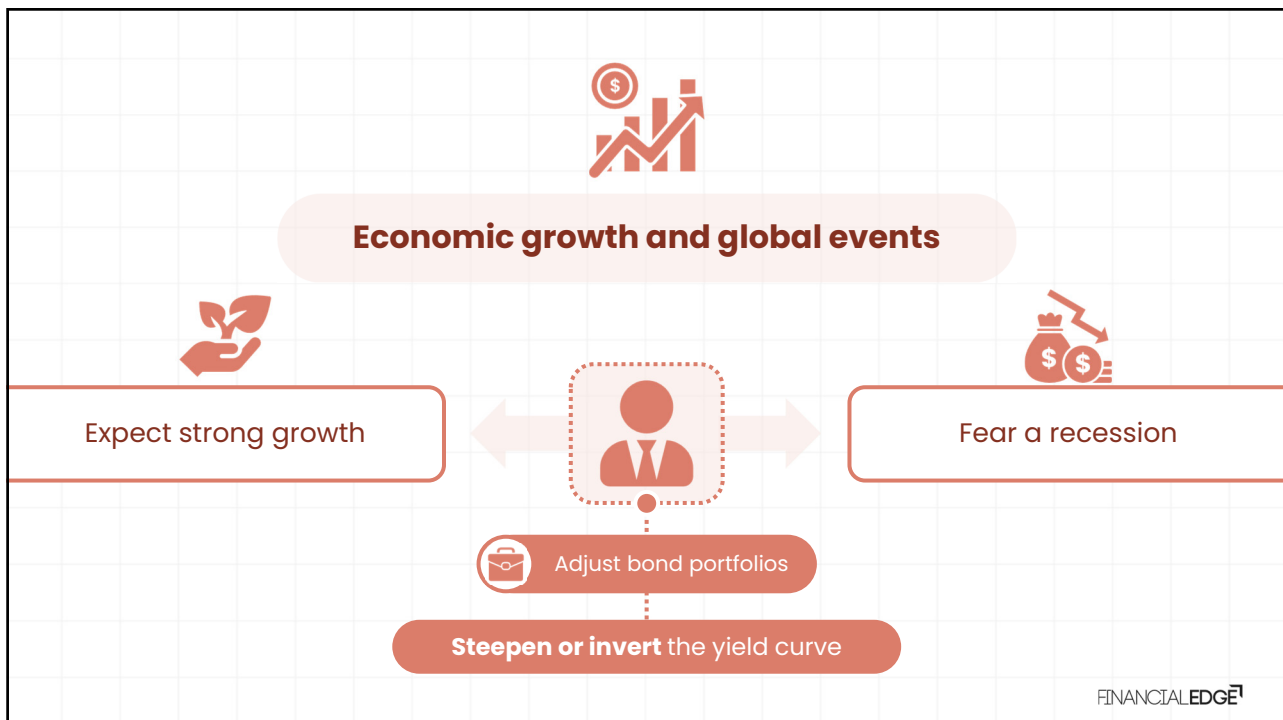
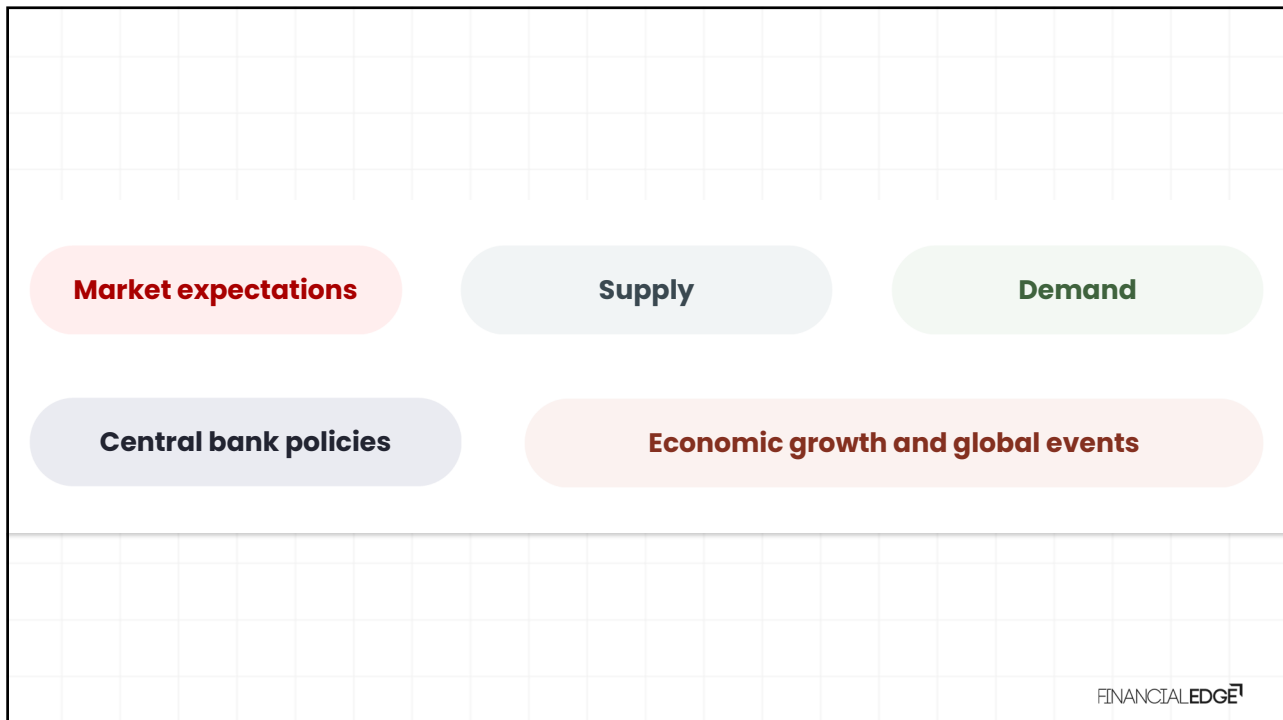
FINANCIALEDGE¹







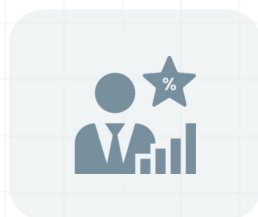




Yield Curve Segments

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Shape of the yield curve and various market forces



**Investor
expectations**



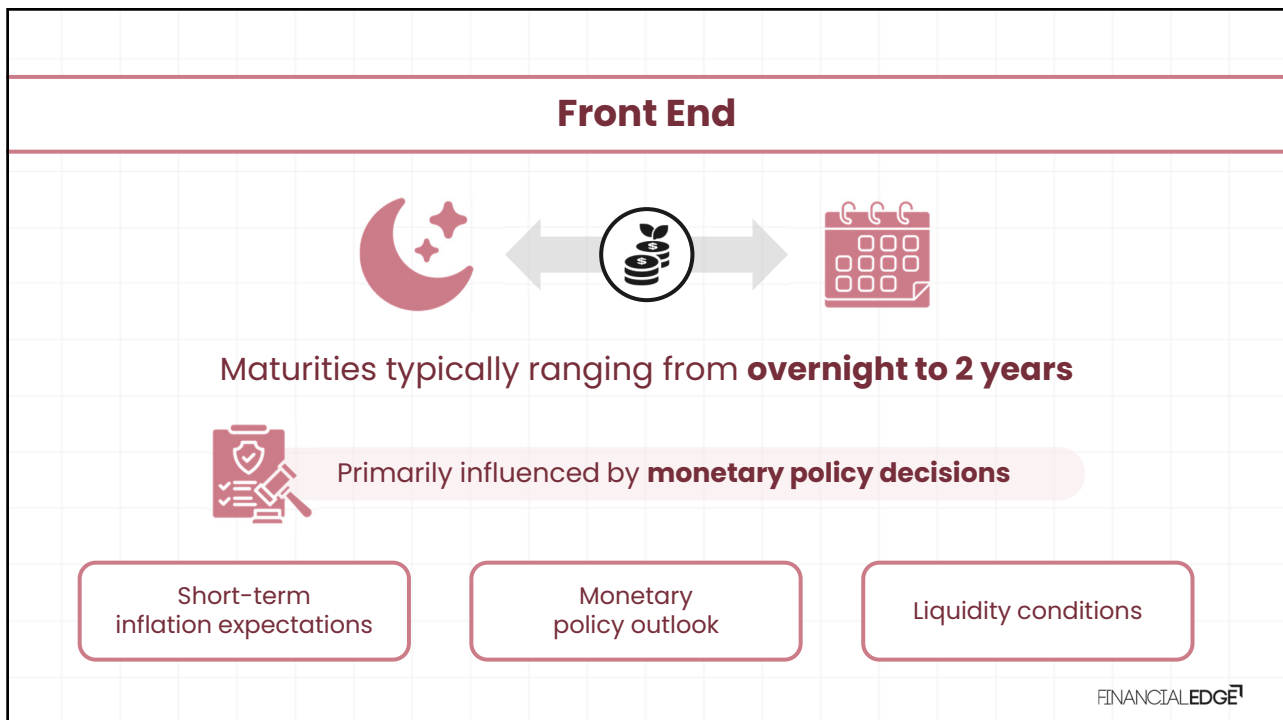
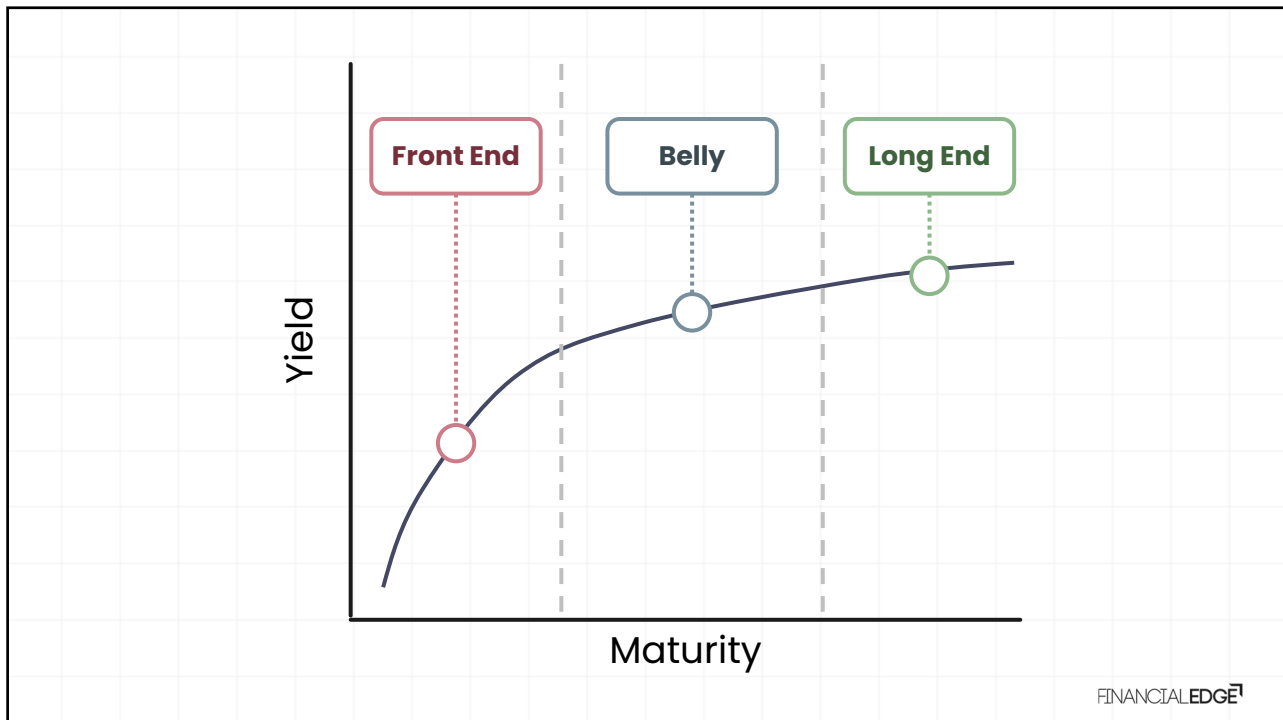
**Supply and
demand**

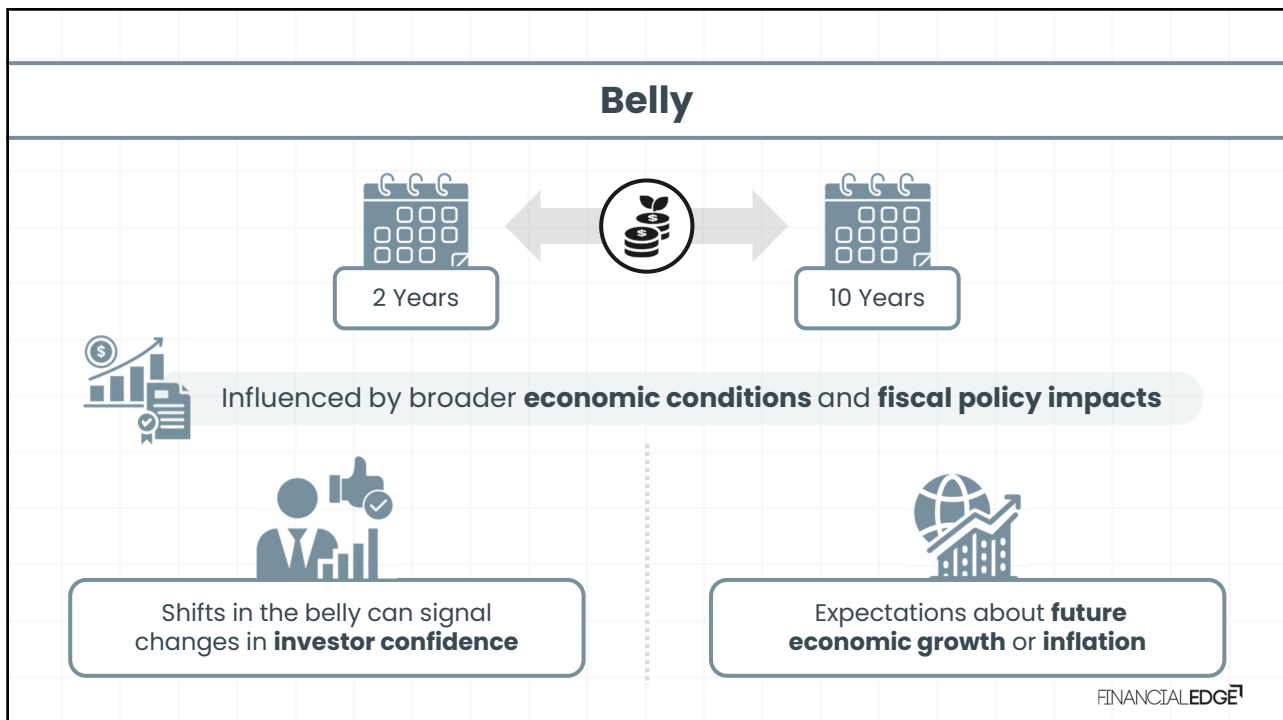
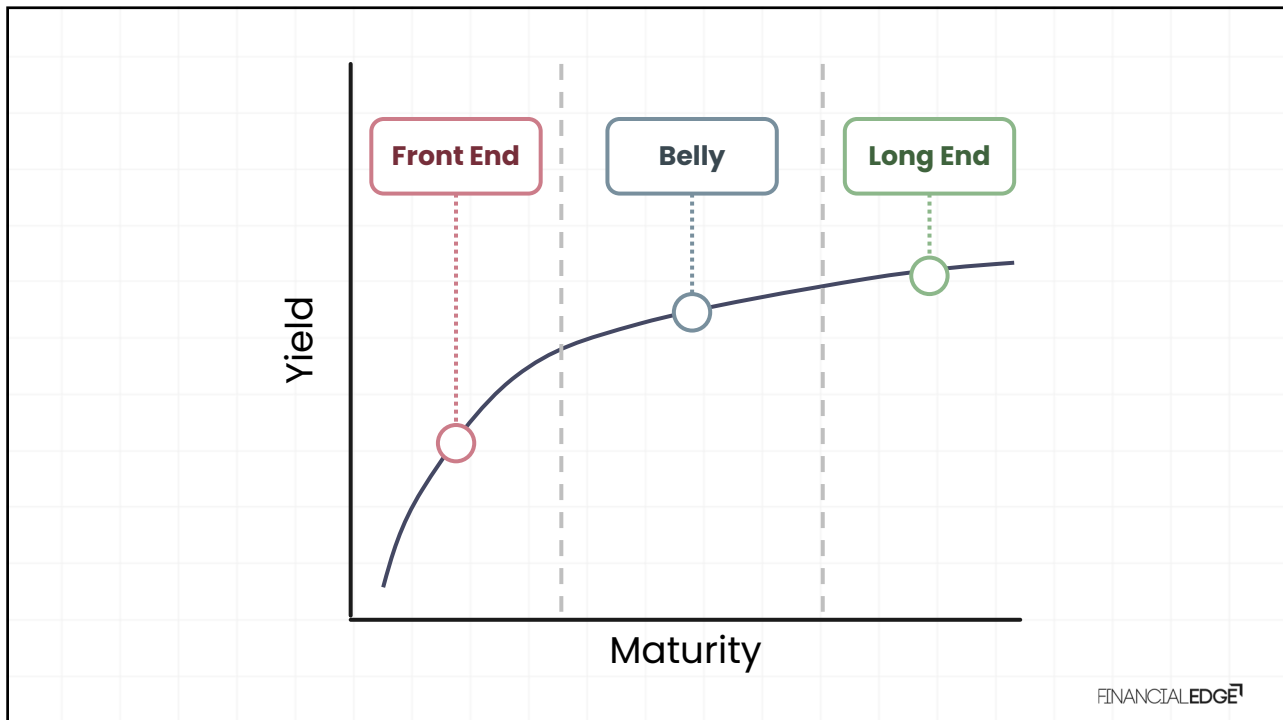


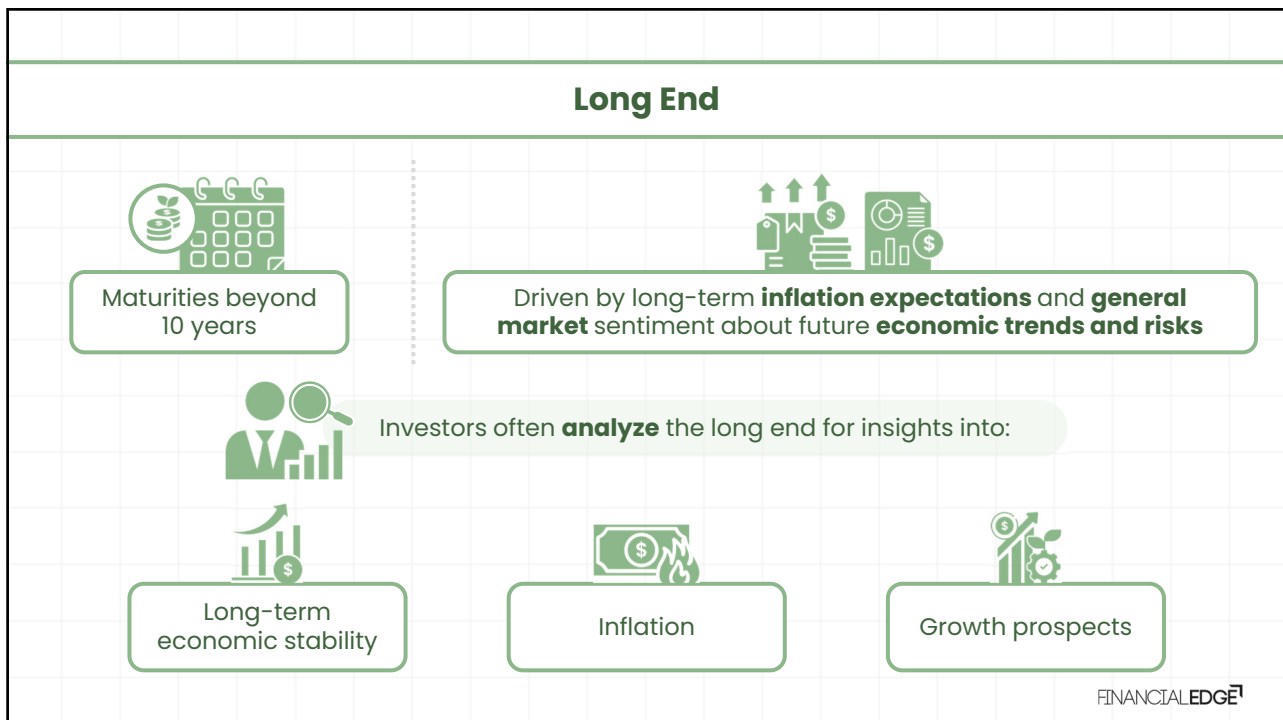
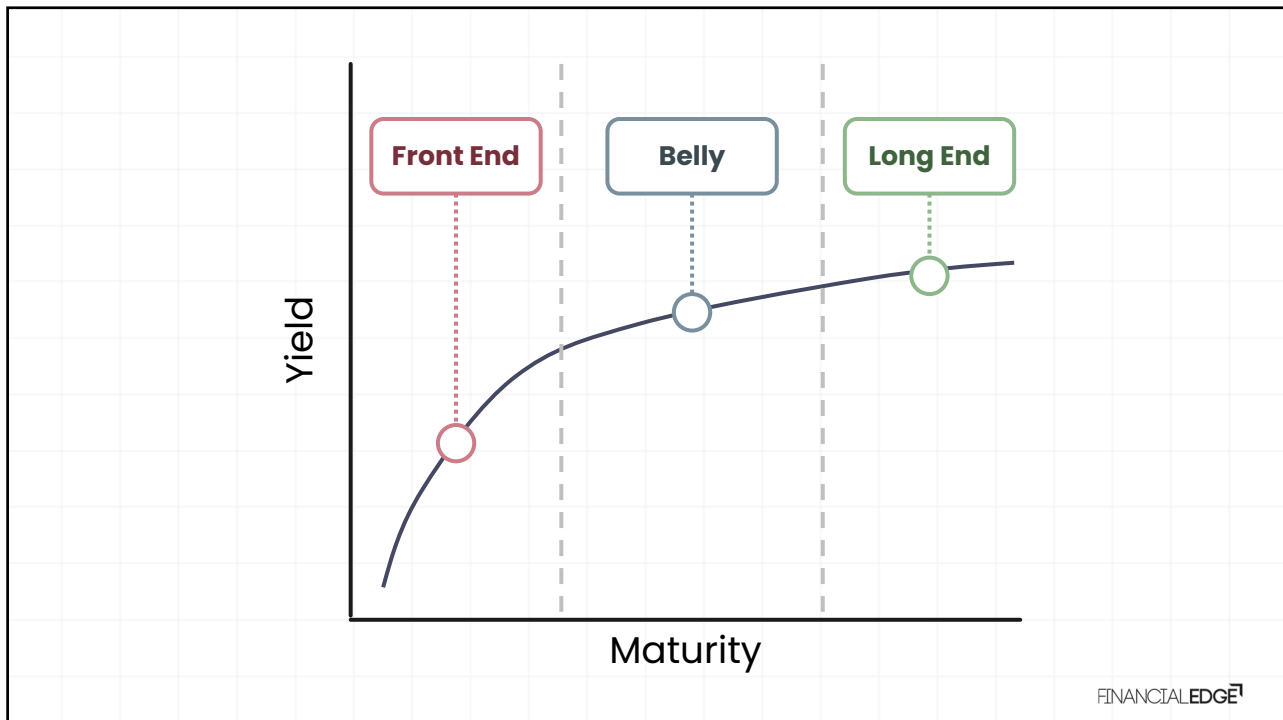
**Central bank
policies**

Drive changes of the yield curve shape

FINANCIALEDGE¹







Tracking Yield Curve Movements

FINANCIALEDGE¹

Yield curve shape can provide valuable insights into the **market's mood**



Optimistic

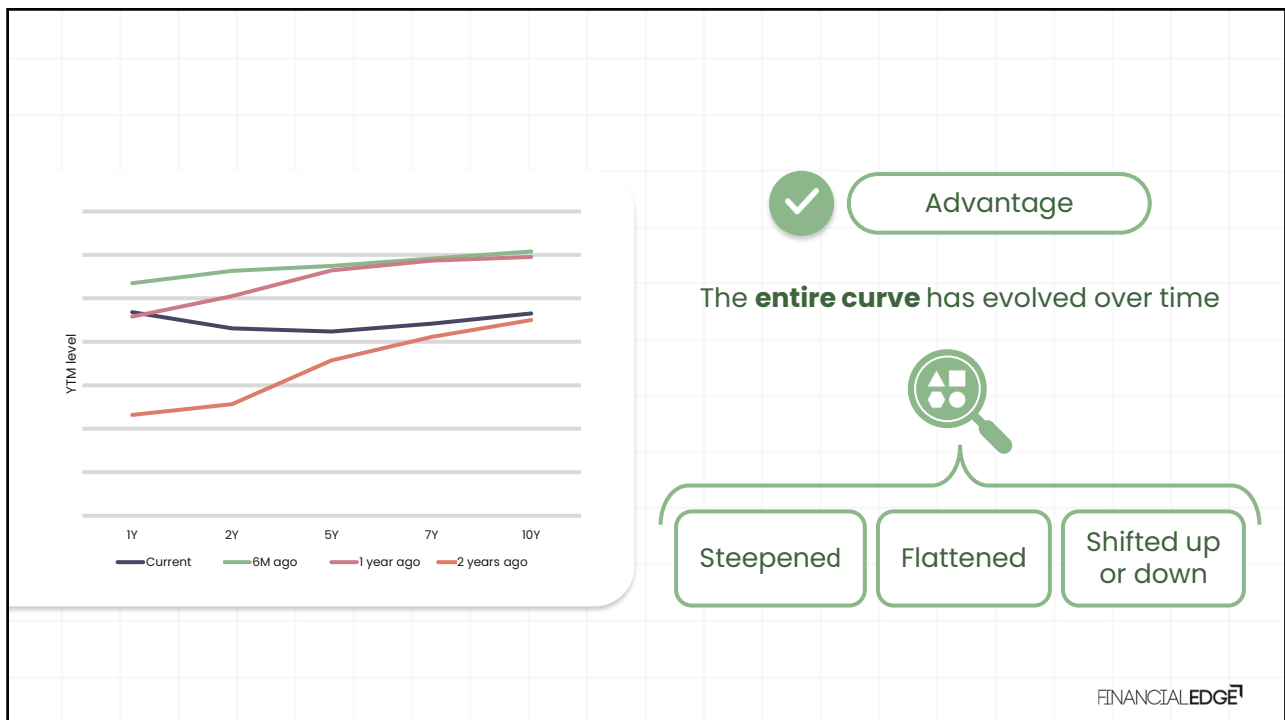
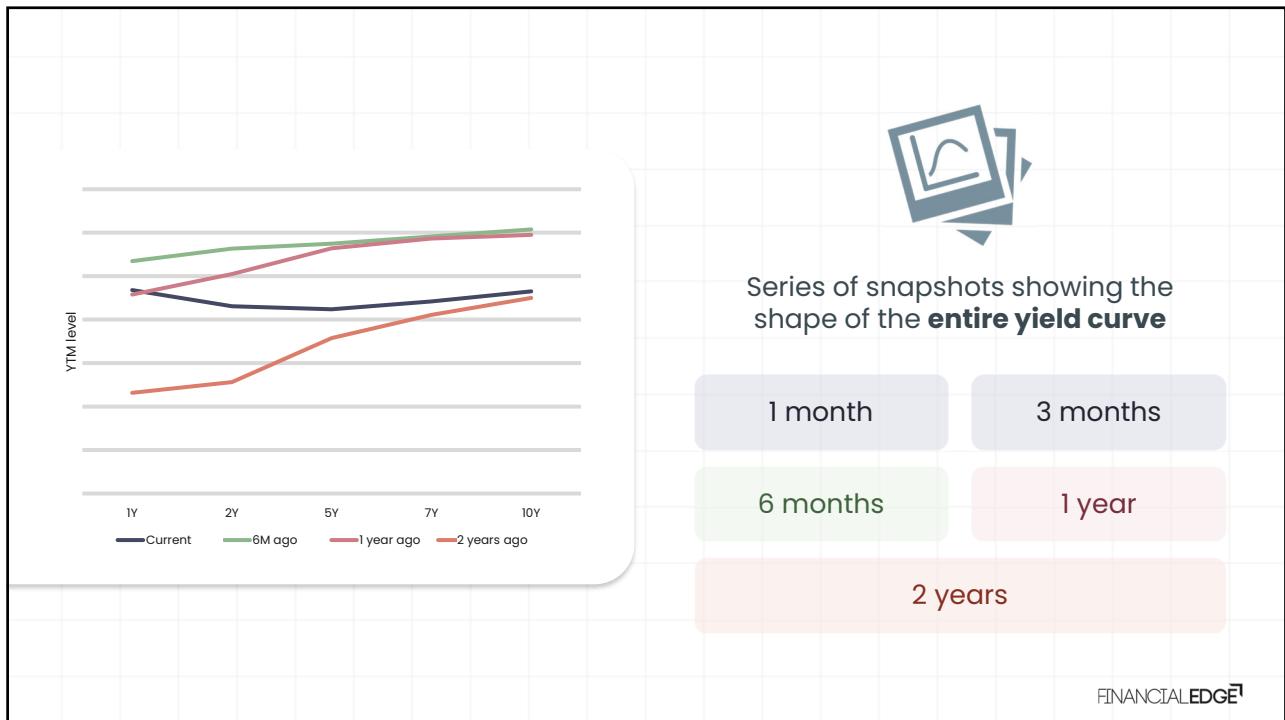
Concerned

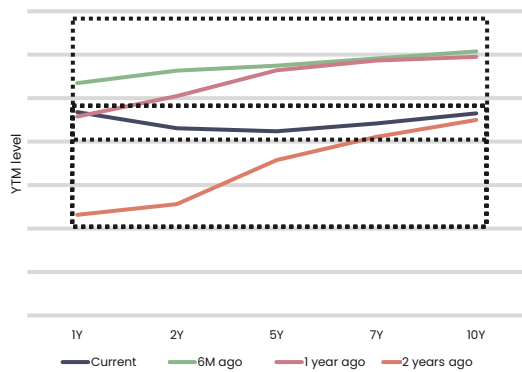
In between



Track these changes as close as possible

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Comparing the **current yield curve** to **two years ago** reveals some **key insights**:



Overall yield curve has shifted to a **higher level**



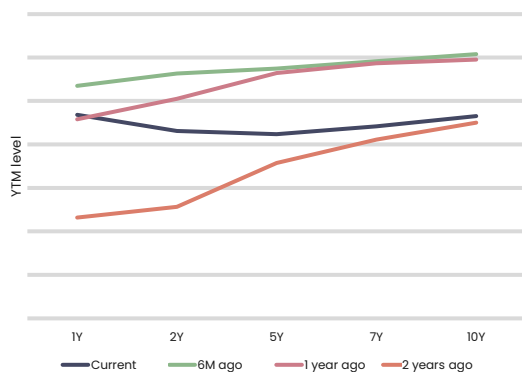
Compared to **6 months or 1 year ago**, current **yields are lower**



Yields higher than **two years ago**



The **yield curve** has also **flattened**



Only shows **specific points** in the past



May miss significant changes between these snapshots

Increasing the number of **sample points** can give more **data**



Make the chart **cluttered** and **harder to interpret**



Track the yield differential, or "spread,"
between **two specific maturities**
over time



Positive spread

Upward-sloping
yield curve

Negative spread

Inverted yield curve

Advantage



Monitor changes in the **yield curve** on a daily basis



Downside

Only tracks the **relationship** between **two points on the curve**

**Solution**

Track **multiple** spreads

2s10s

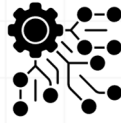
2s30s

5s10s

10s30s



Yield Curve Terminology



Yield curve movements can be complex



Wide range of terms used
by market practitioners

These terms help describe how the yield curve is **changing**
and what might be **driving those changes**



Steepening



Flattening

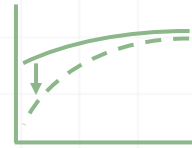


Steepening

The difference between **yields on long-term bonds** and **short-term bonds increases**



Long term yields rise faster
than **short term yields**



Short term yields fall faster
than **long term yields**

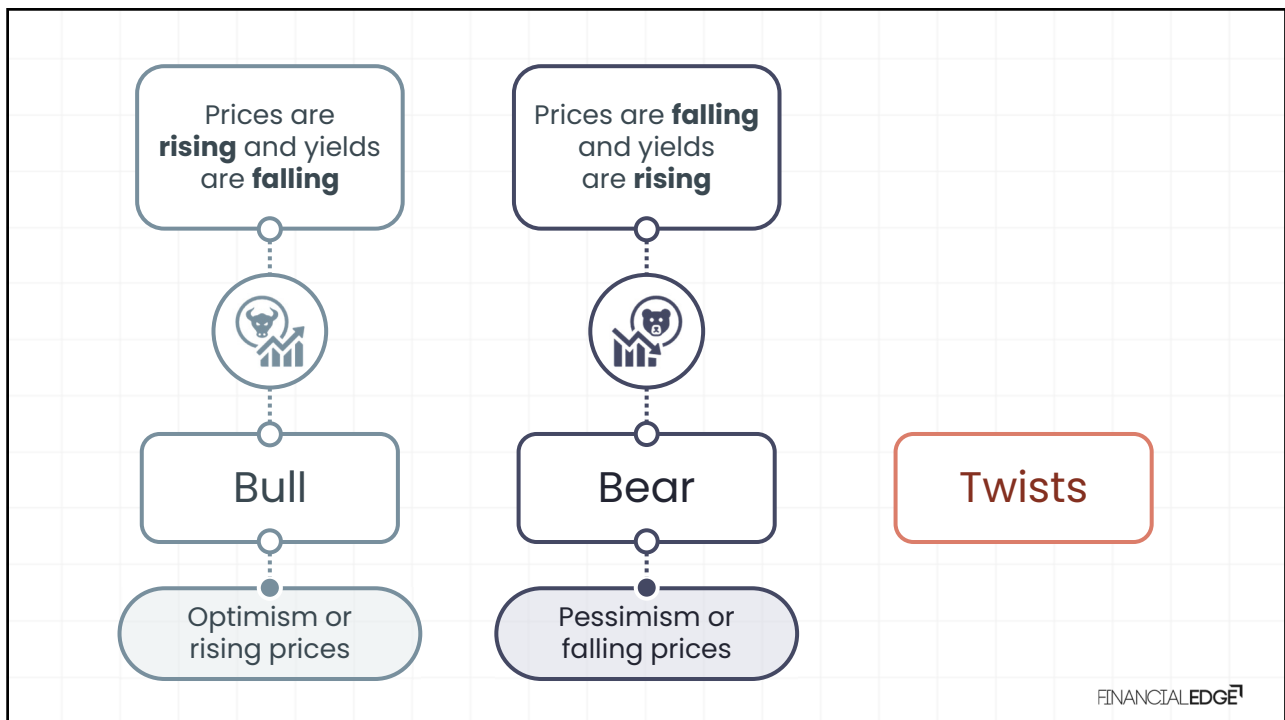
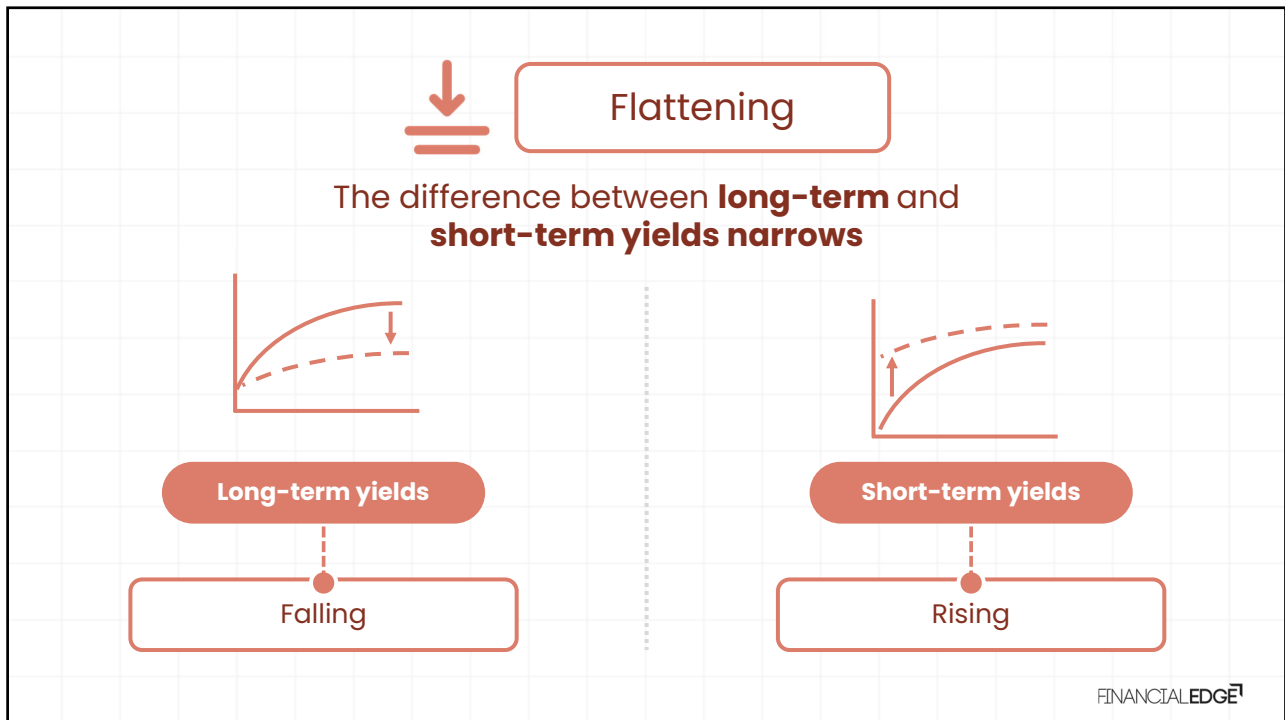
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Steepening



Flattening

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**Bull flattening**

Curve flattening driven by long-term yields dropping more than **short-term yields**

**Bear flattening**

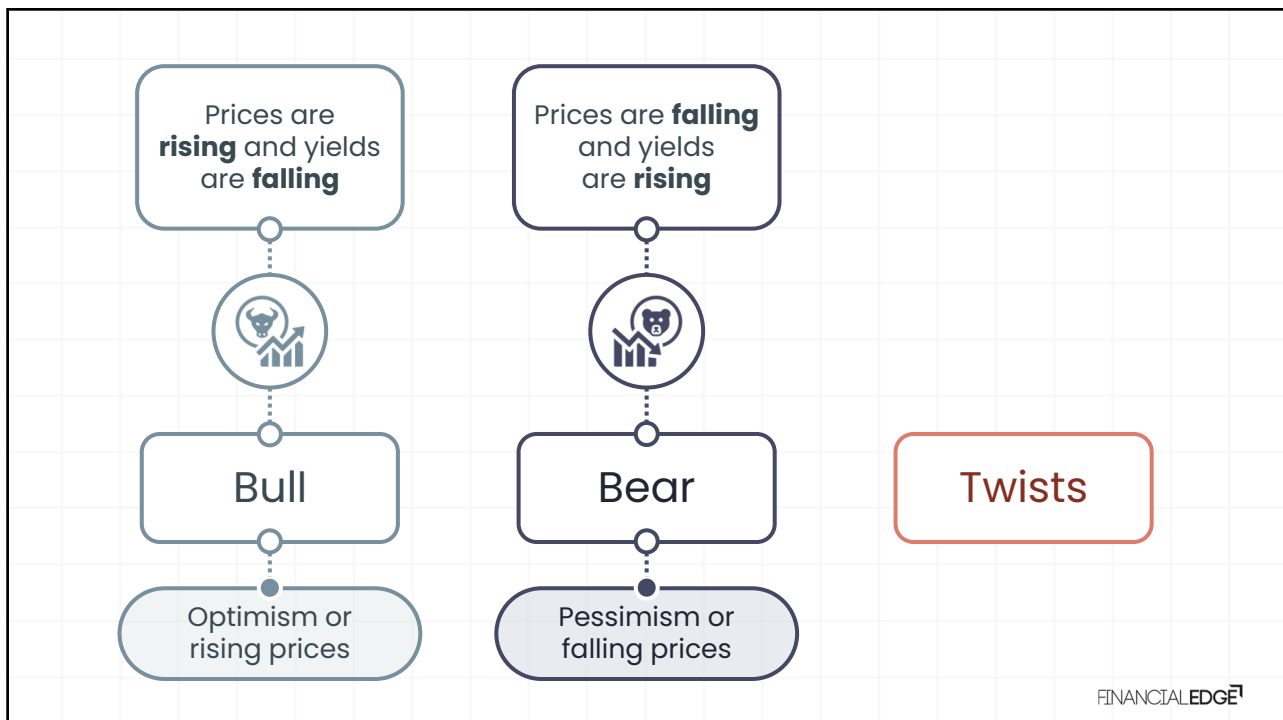
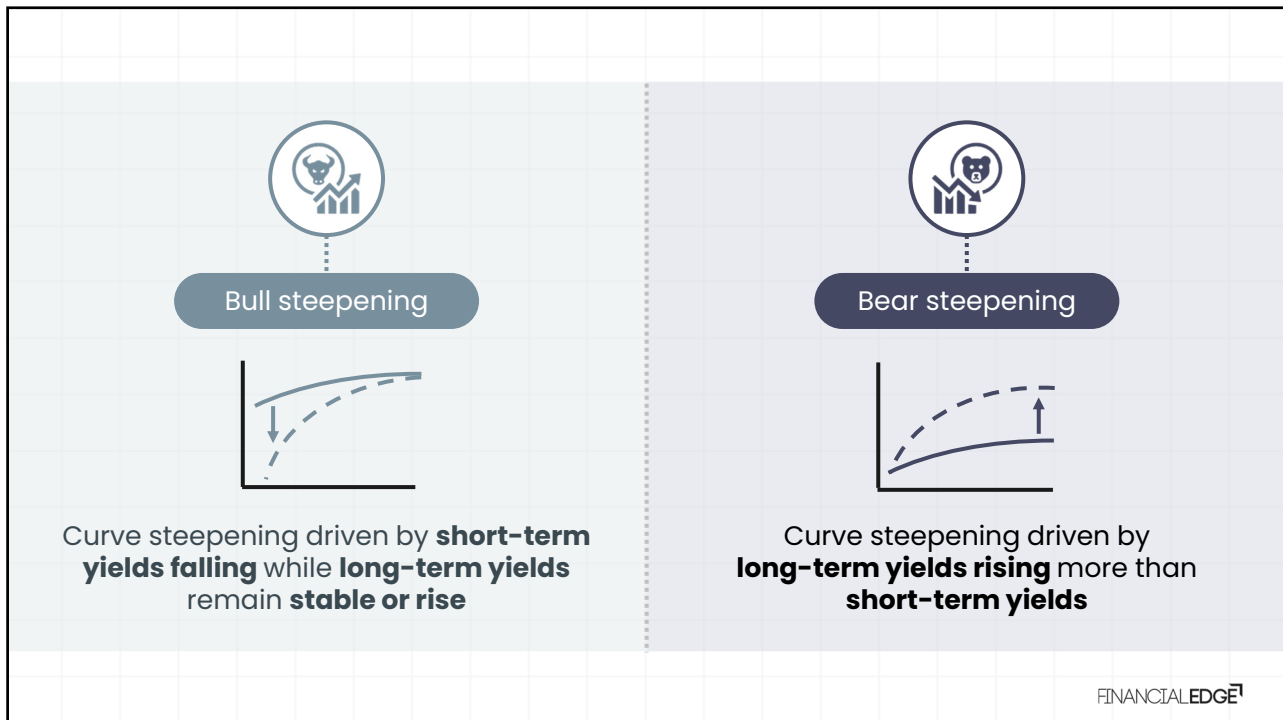
Curve flattening driven by an increase in **short-term yields**

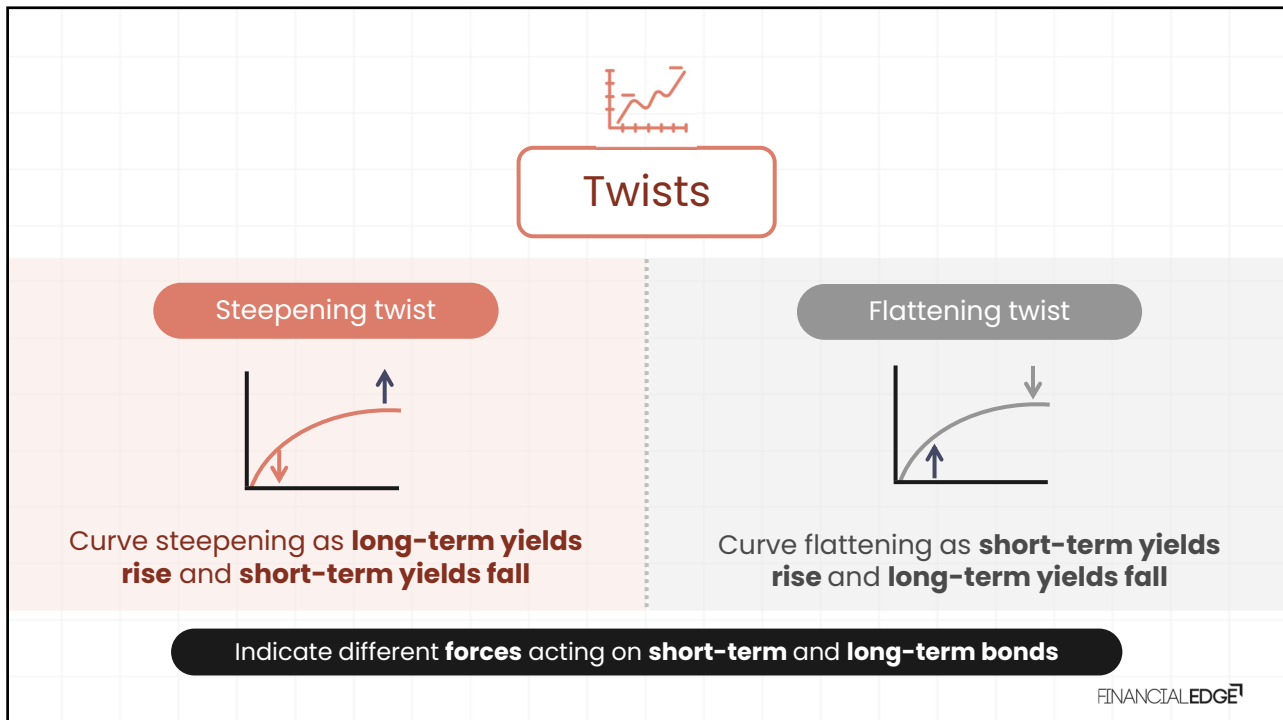
**Bull steepening**

Curve steepening driven by **short-term yields falling** while **long-term yields** remain **stable or rise**

**Bear steepening**

Curve steepening driven by **long-term yields rising** more than **short-term yields**





Trading the Slope



Investors monitor yield curve shifts for **informational purposes**

Profit from their expectations for changes in the **shape of the yield curve**



Overall direction
of yields is unclear



Believe the yield curve
is going to steepen
or flatten



Enter into
a curve trade

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Curve trade



Minimal exposure



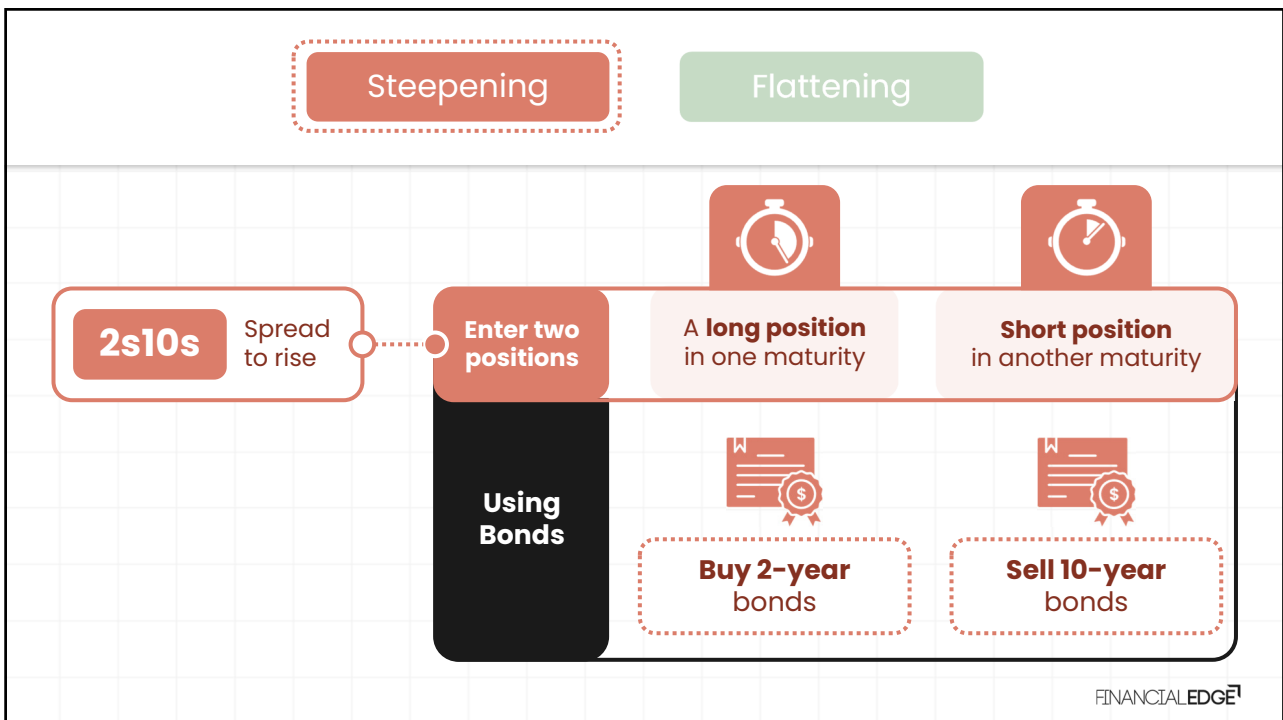
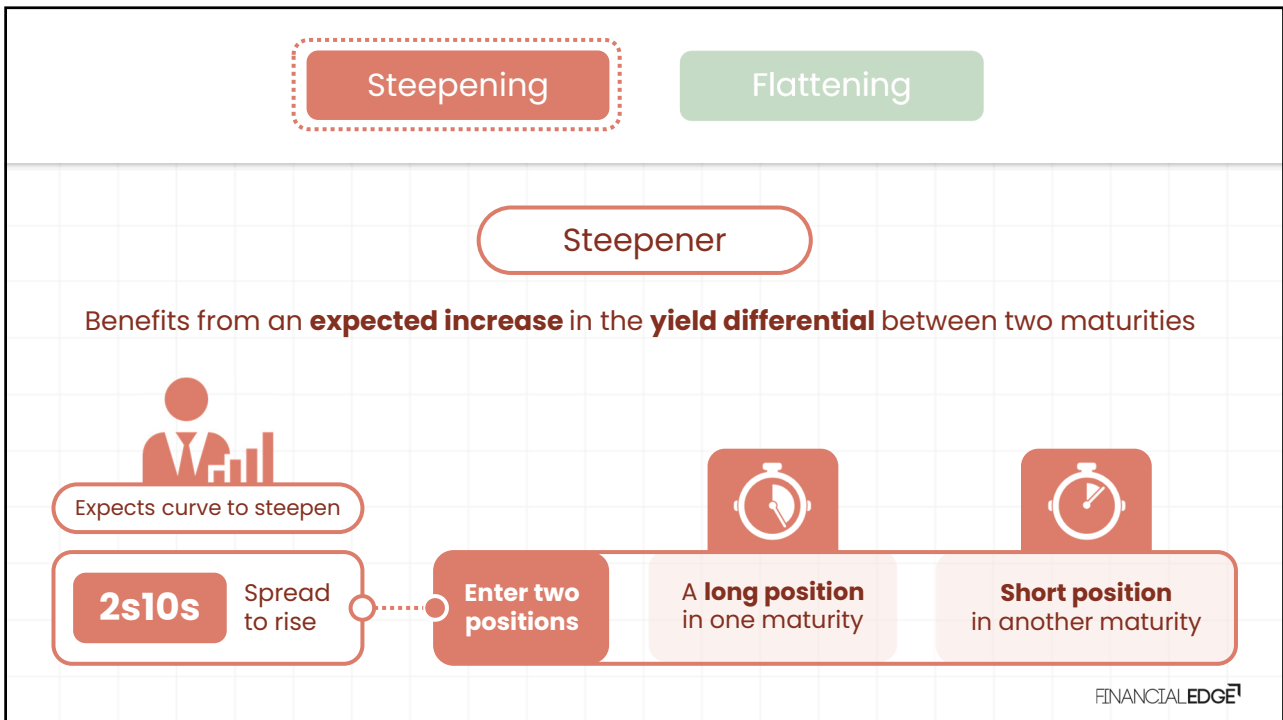
Increases in yield levels

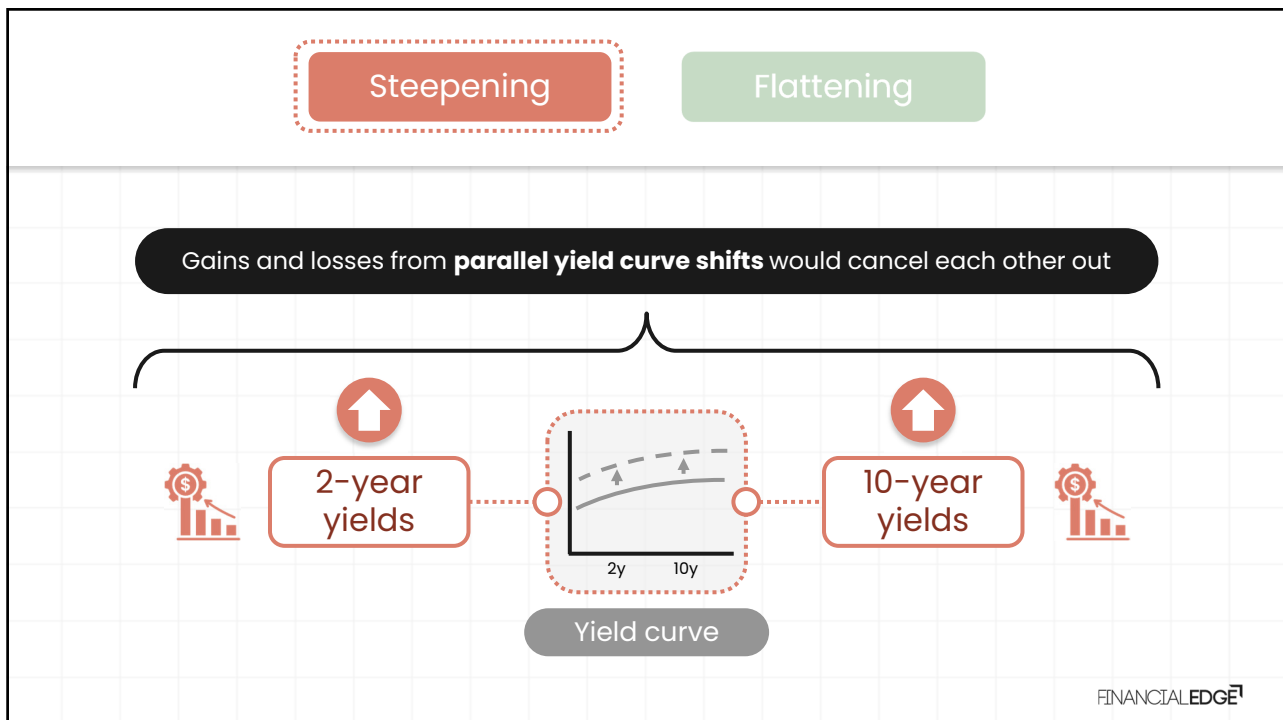
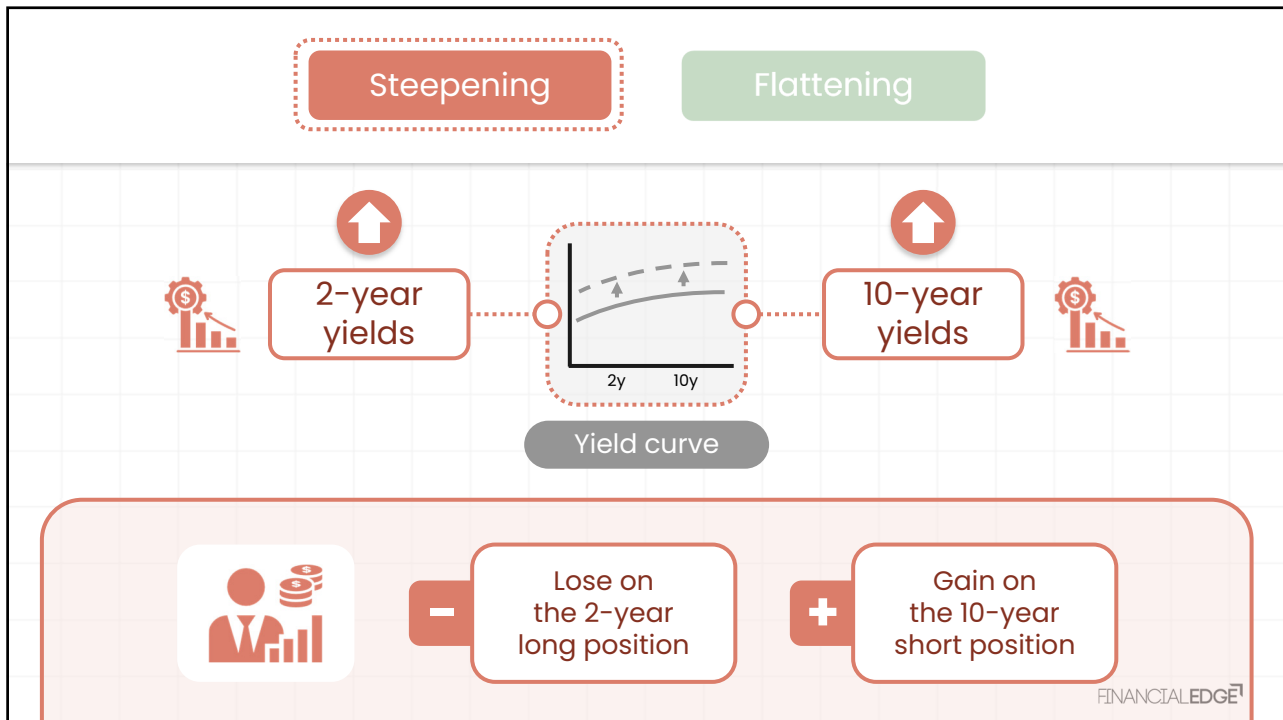
Decreases in yield levels

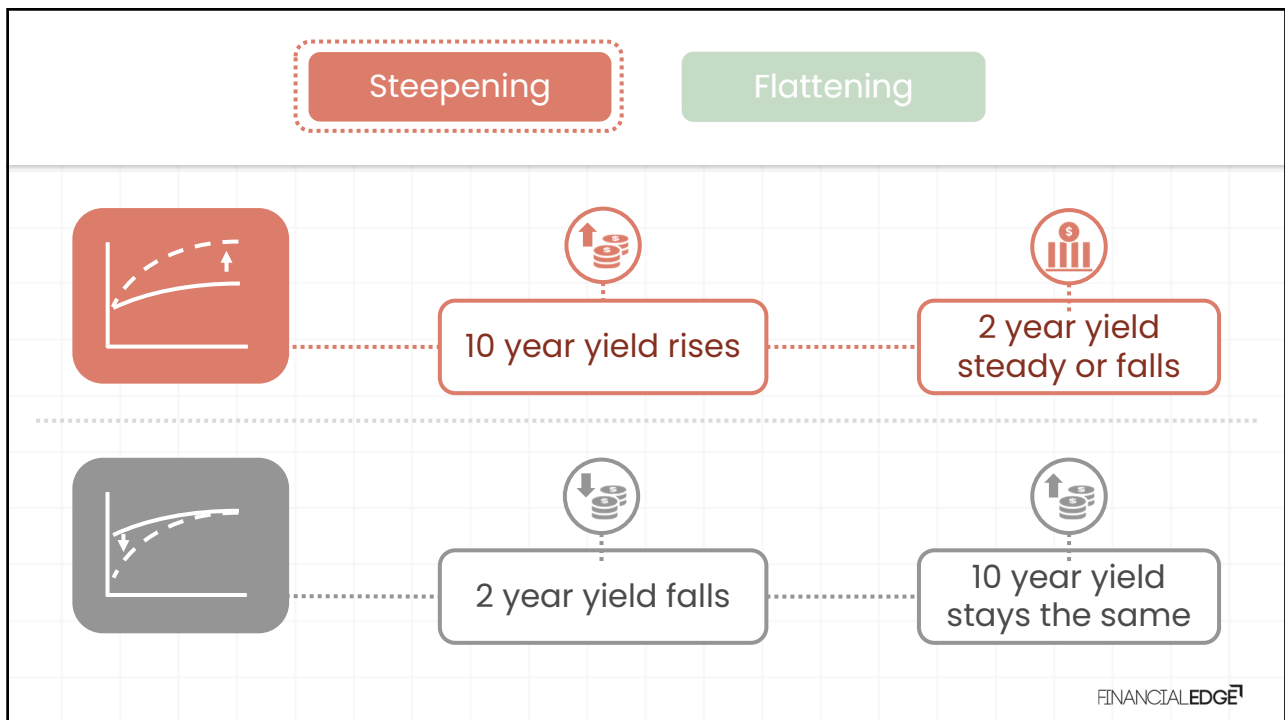
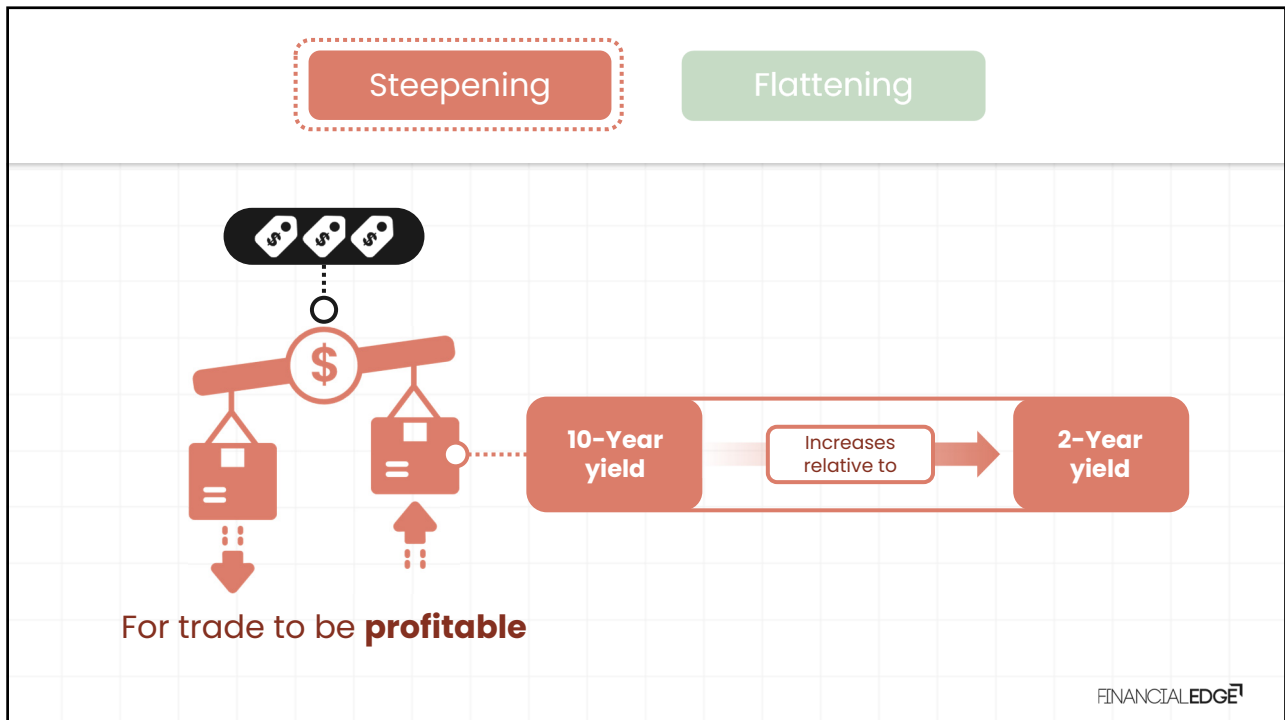


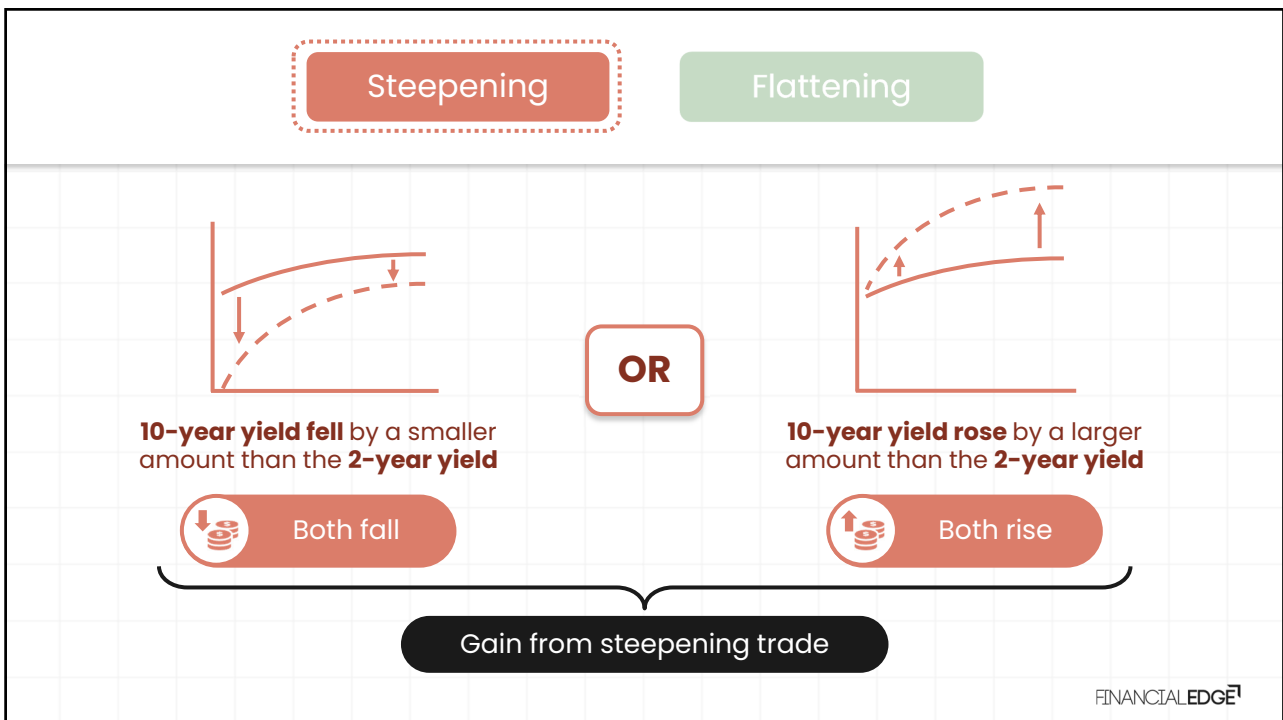
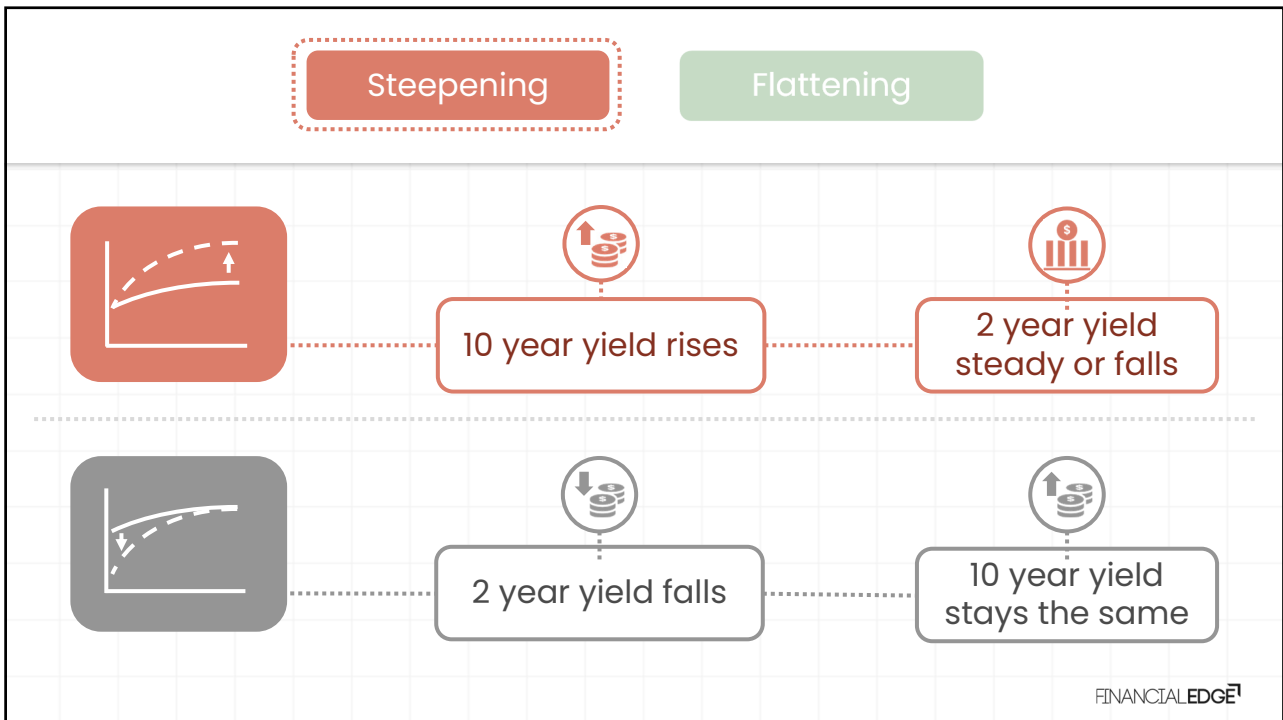
Profit from an **expected change** in the shape of the yield curve

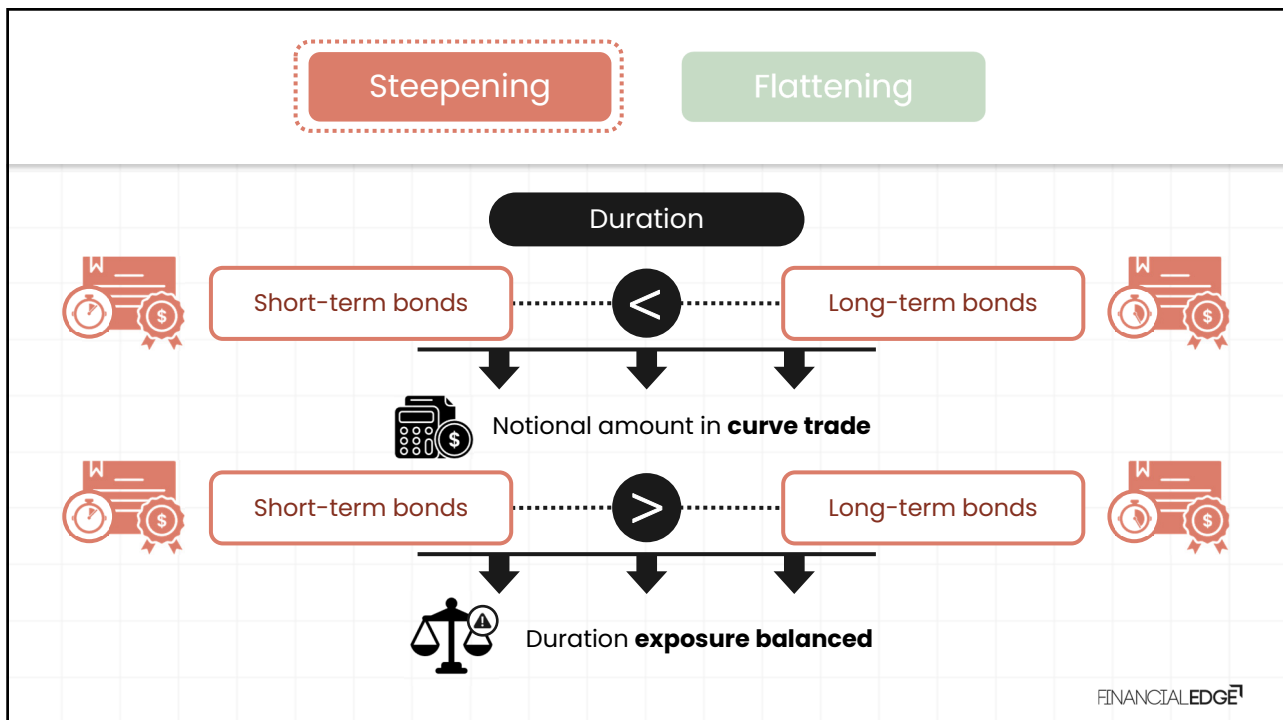
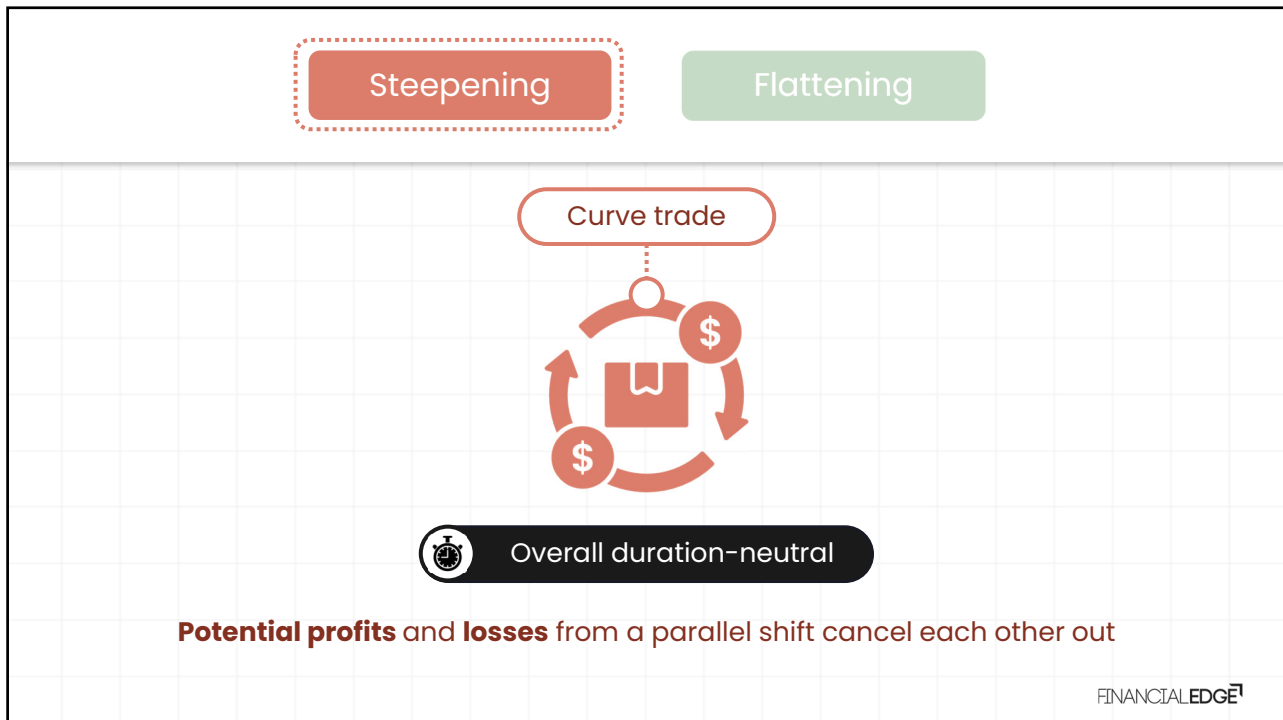
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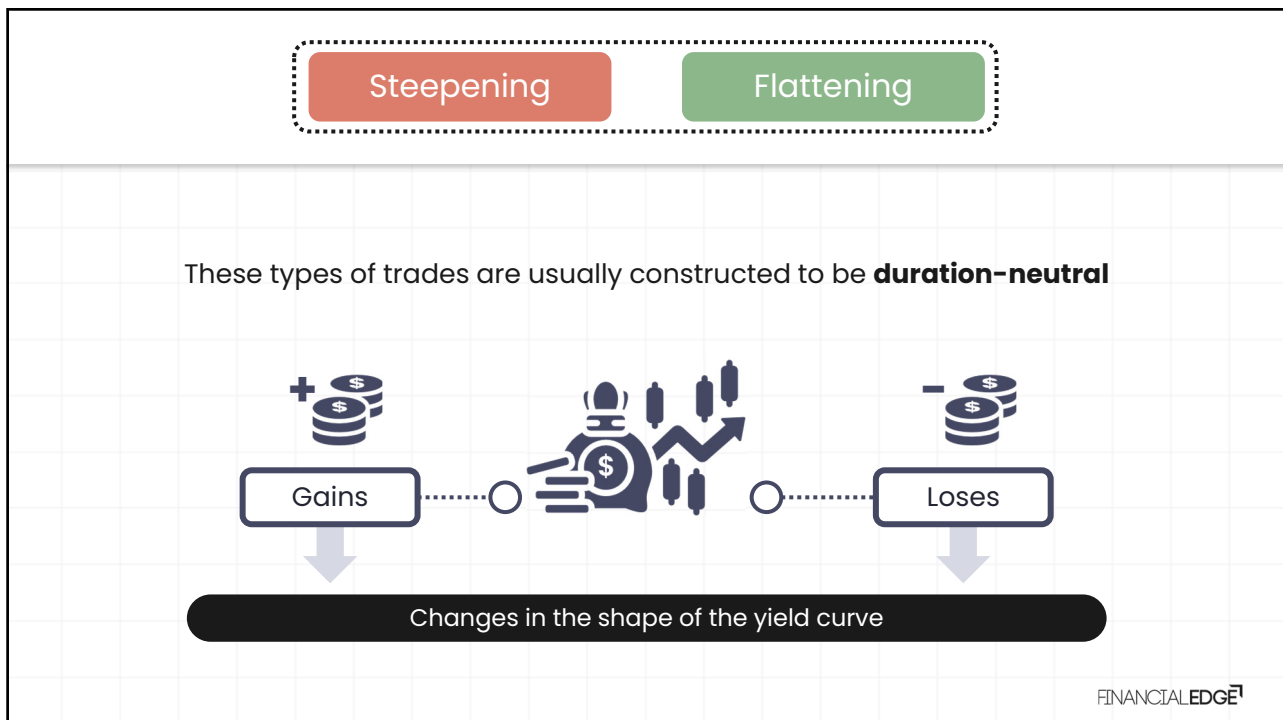
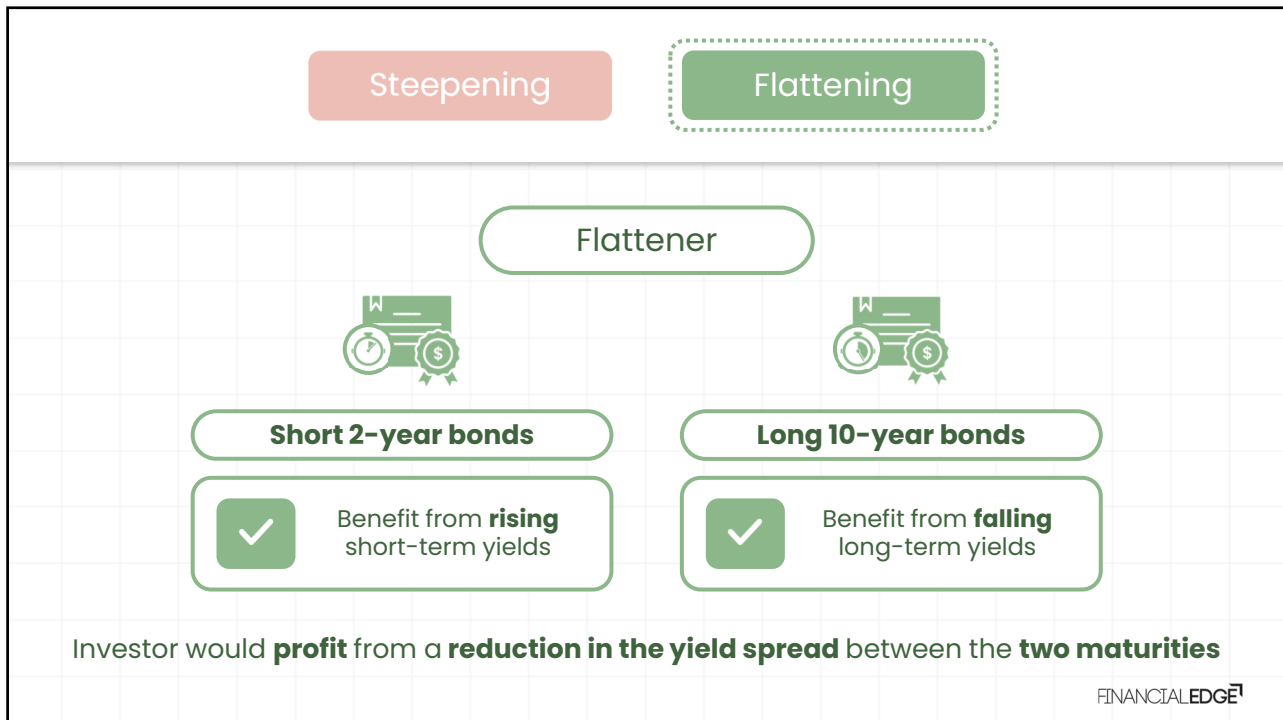


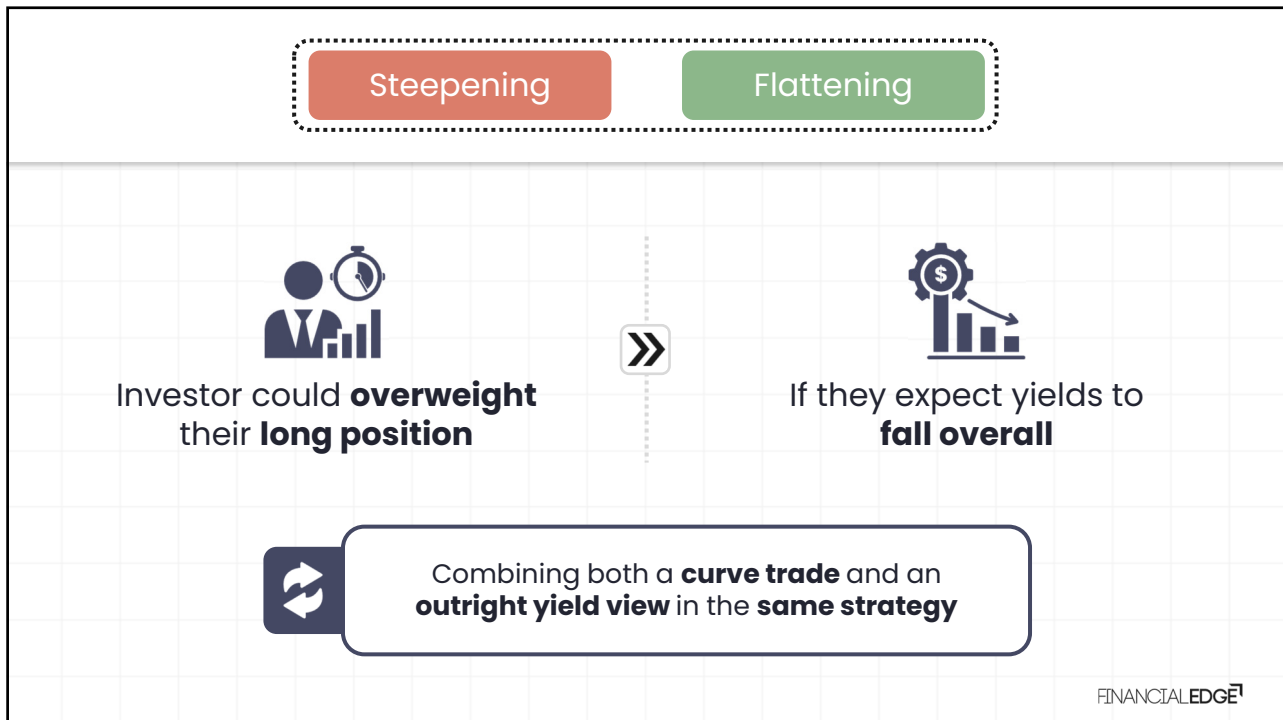












Trading the Curvature



Focuses on the **curvature** of the yield curve

Butterflies

Curvature Trades

Butterfly trade

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Butterfly trade

A particular maturity or segment of the **curve** is **mispriced** relative to **shorter and longer-term maturities**

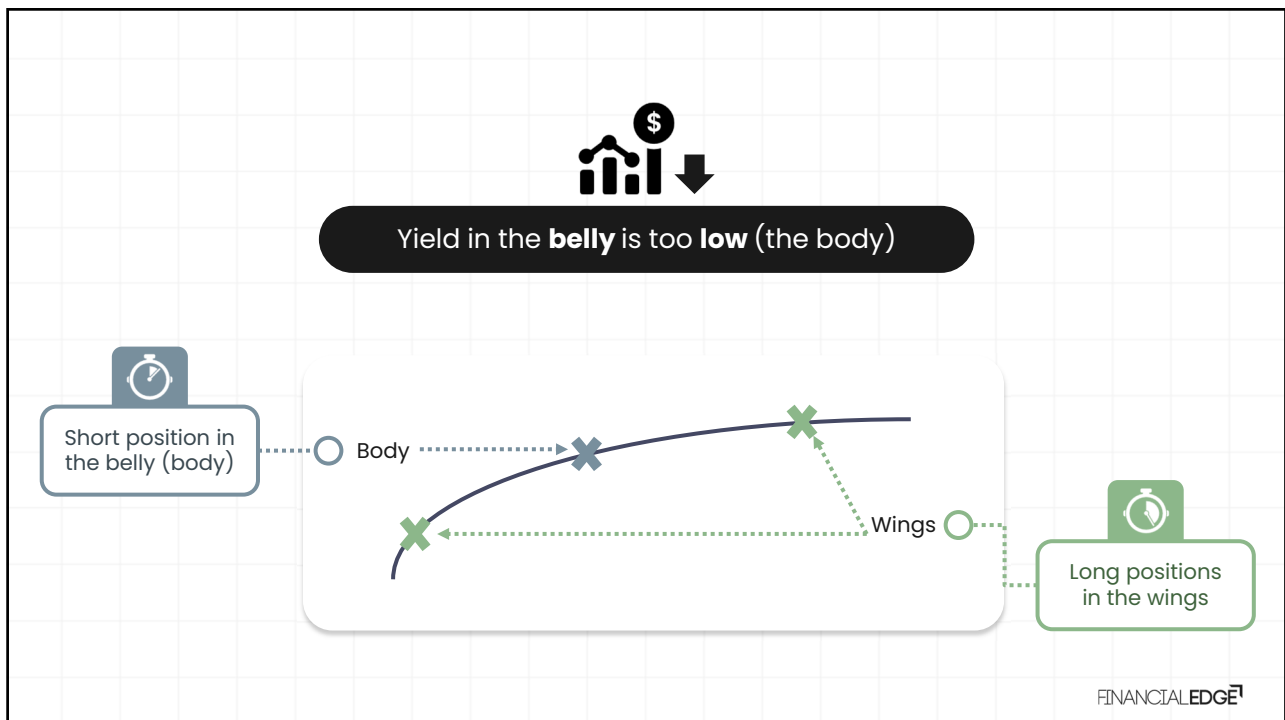
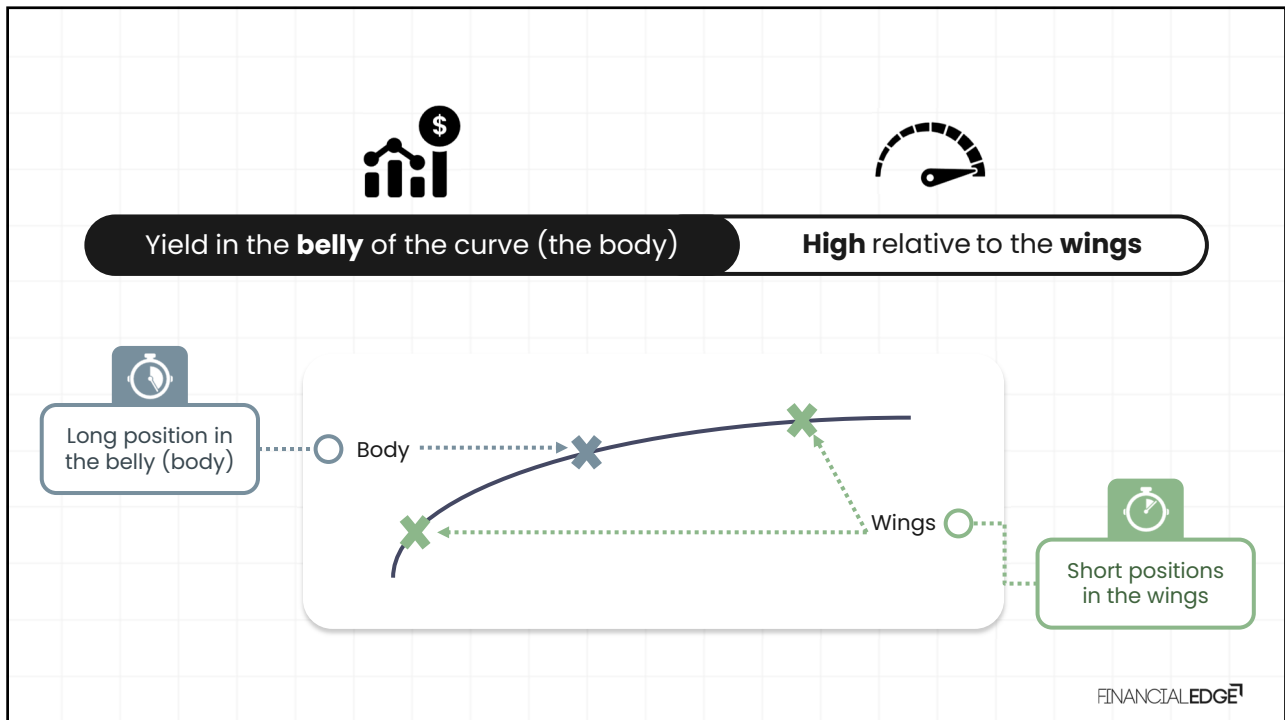


Combines a **long position** in one maturity (**the body**)



Short positions in two other maturities (**the wings**)

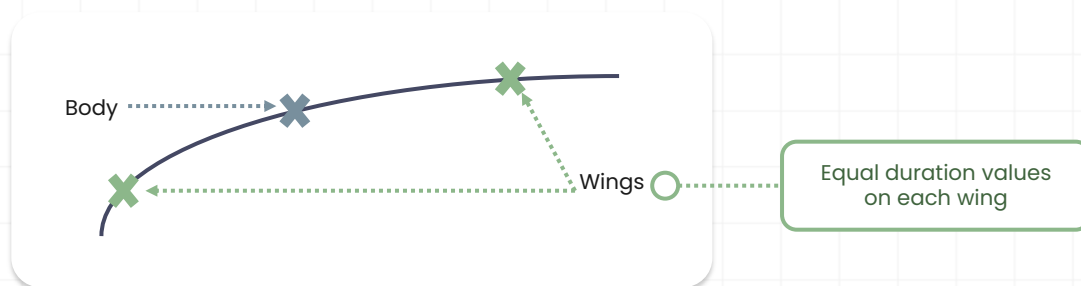
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Most common butterfly trade is the **50:50 weighted butterfly**

Duration-neutral

FINANCIALEDGE¹

2 * yield of **body**

-

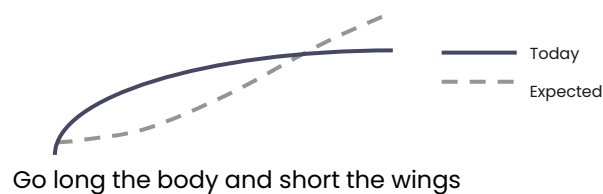
Yield of **short tenor wing**

-

Yield of **long tenor wing**

Example:
long body
short wings

Fly spread is expected to decrease as curve turns convex



If yield in the **belly** to **falls** relative to the **wings**



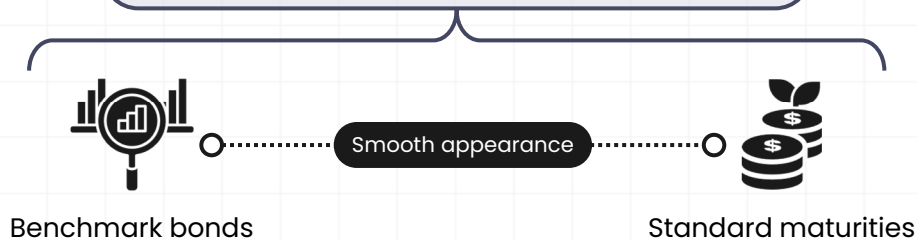
The trade will be **profitable**

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U.S. Treasuries Yield Curve – Zooming In

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Yield curves are often created using:



When yield curves include:

All **outstanding bonds** from a particular **issuer**

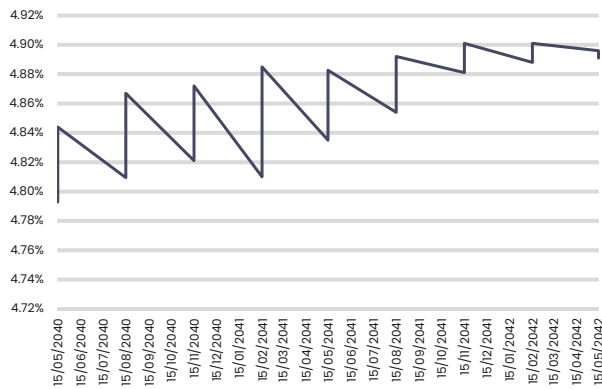
Less smooth

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U.S. Treasury yield curve



Bonds with maturities from 2040 to 2042



Source: Infront

Bond	YTM:
US Treasury 4.375% 20400515	4.79%
US Treasury 1.125% 20400515	4.84%
US Treasury 3.875% 20400815	4.81%
US Treasury 1.125% 20400815	4.87%
US Treasury 4.25% 20401115	4.82%
US Treasury 1.375% 20401115	4.87%
US Treasury 4.75% 20410215	4.81%
US Treasury 1.875% 20410215	4.89%
US Treasury 4.375% 20410515	4.84%
US Treasury 2.25% 20410515	4.88%
US Treasury 3.75% 20410815	4.85%
US Treasury 1.75% 20410815	4.89%
US Treasury 3.125% 20411115	4.88%
US Treasury 2% 20411115	4.90%
US Treasury 3.125% 20420215	4.89%
US Treasury 2.375% 20420215	4.90%
US Treasury 3% 20420515	4.90%
US Treasury 3.25% 20420515	4.89%

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Same issuer



Bonds aren't created equal



Similar maturity dates

Coupon rates

Duration risk

Tax treatment

Liquidity

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