



# Intro to Macro and Fixed Income



## Brain Teaser

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- Suppose you're playing a game where the goal is to construct the best poker hand. You can either choose from a pile of 10 cards with which to construct this hand, or a pile of 8 cards and a pile of 9 cards, but cards from the 8 card and 9 card piles cannot be mixed. Would you rather have the pile of 10 cards or the piles of 8 and 9 cards?





## Answer

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- You should choose the pile with 10 cards.
- The key is to notice that more options means a higher probability of a better hand.
  - A 10 card pile yields:  $10c5$  possibilities = 252
  - A 9 card pile yields:  $9c5$  possibilities = 126
  - An 8 card pile yields:  $8c5$  possibilities = 56
- Since  $252 > 126 + 56 = 182$ , choosing the pile with 10 cards creates more possibilities of hands which increases the likelihood of having a better poker hand





# Macro Investing

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- Analyzing broad market trends, political events, and global economies
- Developing a view on how something should trade based on a well researched opinion
- Identifying potential mispricings in different asset classes and trading on it



# Review of Different Asset Classes

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- Foreign Exchange (FX)
- Rates
- Fixed Income (Bonds)
- Derivatives
- Commodities
- Equity Indices



# Overview of Currency Markets

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- What drives currency movements?
  - Supply and Demand
- Think of currencies appreciating and depreciating against each other (relative valuation)
- **Importance of currencies:** Use currencies to trade a lot of other ideas
  - For example: how would you invest in a South African bond (denominated in ZAR)?
- **Risk-Off Currencies:** Currencies that perform well in environments where investors/traders are more focused on protecting capital
- **Risk-On Currencies:** Currencies that tend to outperform when risk appetite is high
  - What are some examples of risk-off currencies? risk-on currencies?



# Currency Trade Overview

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- **How are currencies quoted?**
  - USD/JPY (USD is the base currency, JPY is the quote/counter currency)
  - Buying one currency, selling the other (long/short pair)
  - Make money when currency appreciates or depreciates
- **Carry Costs**
  - Equals lending rate minus borrowing rate
  - Borrow currency we sell, lend currency we buy
  - Cost of being in an FX position



# Thought Exercise : EUR/USD

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- What do you think drives people to buy the US Dollar right now?
- Why would people to short the Euro?
- Do you think this is a good trade?





# Overview of Commodities

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- ❖ Moves on supply and demand and expectations of supply and demand disruptions
- ❖ Typically trade commodities through futures
- ❖ Commodity futures contracts are a standardized agreement to buy/sell a predetermined amount of commodities at a specific price on a specific date on the future
- ❖ Commodity futures are composed of speculators and hedgers – hedgers post less margin than speculators



# Lean Hogs Futures Example





# Overview of Fixed Income Markets

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- Relationship between bond price and yield
- Indicator of capital flows in a country
- Moves on economic data, geopolitical events, central bank policy changes
- Good reflection of “risk” priced into a country
- **Why would people buy US Treasuries?**
  - Return ?
  - Risk profile ?
  - How do people interpret the various Treasury yields?



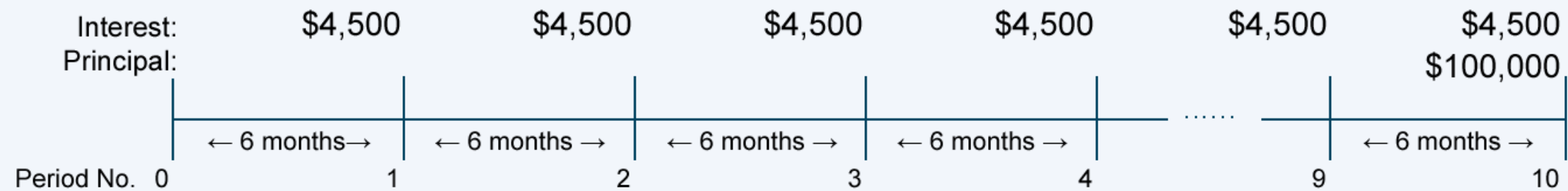
# What is a bond?

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- ❖ Face Value/Par: Value of a bond at maturity
- ❖ Principal: Exclusive of coupon and interest
- ❖ Coupon: semi-annual/annual payments from a bond
- ❖ Yield to Maturity(YTM): Total annualized return anticipated on a bond held to maturity
- ❖ Premium
- ❖ Discount



# Bond Pricing



Here is the formula for calculating a bond's price, which uses the basic present value (PV) formula:

$$\text{Bond Price} = \frac{C}{(1+i)} + \frac{C}{(1+i)^2} + \dots + \frac{C}{(1+i)^n} + \frac{M}{(1+i)^n}$$

C = coupon payment

n = number of payments

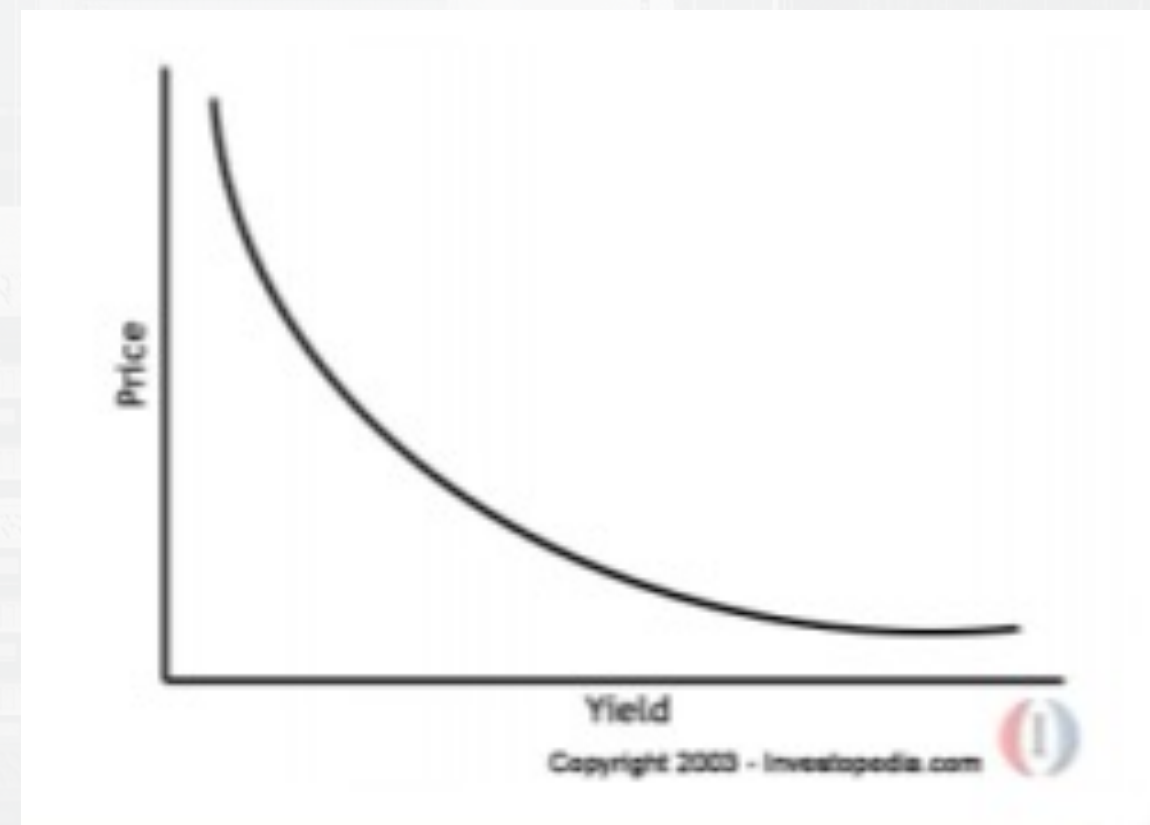
i = interest rate, or required yield

M = value at maturity, or par value



# Bond Prices and Yields

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**Inverse relationship between bond price and bond yield**




# Duration

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- ❖ Can be seen as approximation of average payback period of bond

**Example #1**


10 Year Zero-Coupon Bond



10.0 Years

**Example #2**

10 Year 5.0% Coupon Bond



7.99 Years





# Duration

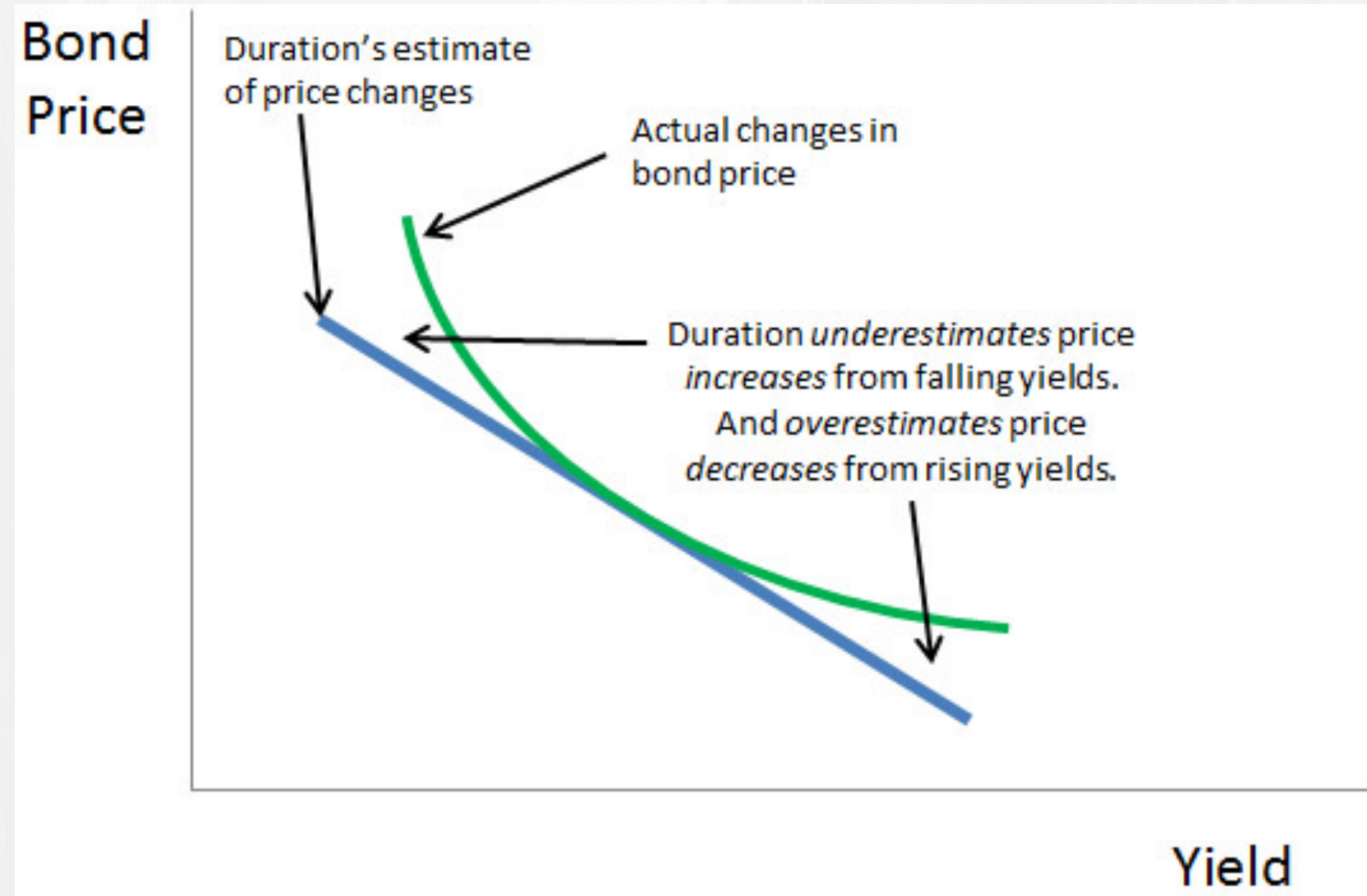
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- ❖ Is duration higher for a 5 year CZB or a 10 year ZCB?
- ❖ Is duration higher for a 1 year bond that pays a 5% or 10% interest rate?



# Convexity

- ❖ Convexity measures the change in duration as interest rates change





# What Affects Interest Rates?

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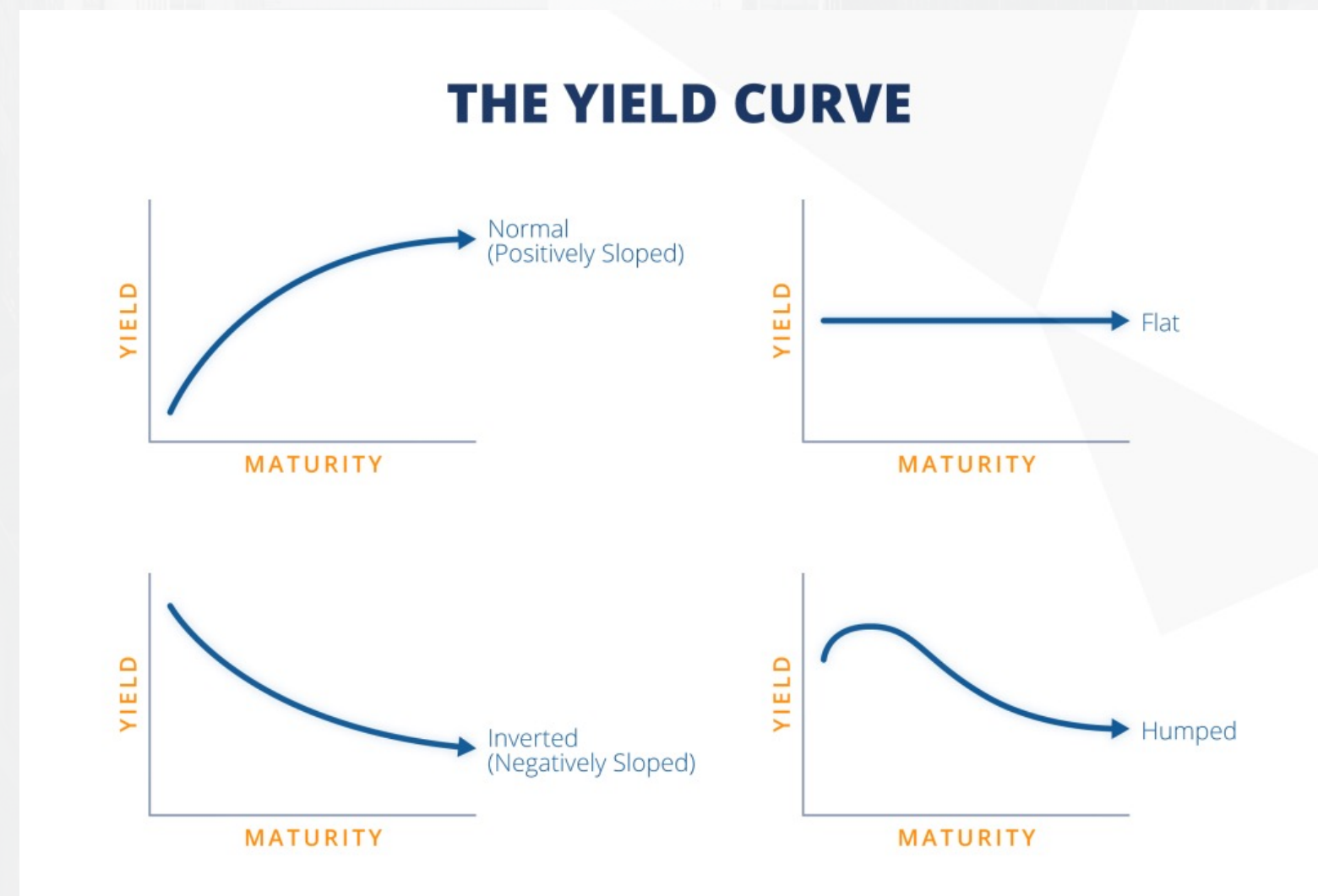
- ❖ Fischer Equation: Nominal rates = real + inflation expectations
- ❖ Central Bank
- ❖ Credit/Default Risk
- ❖ Term premium (risk premium)
- ❖ Demand for asset



# Yield Curve

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- ❖ Plots yields of bonds across different maturities

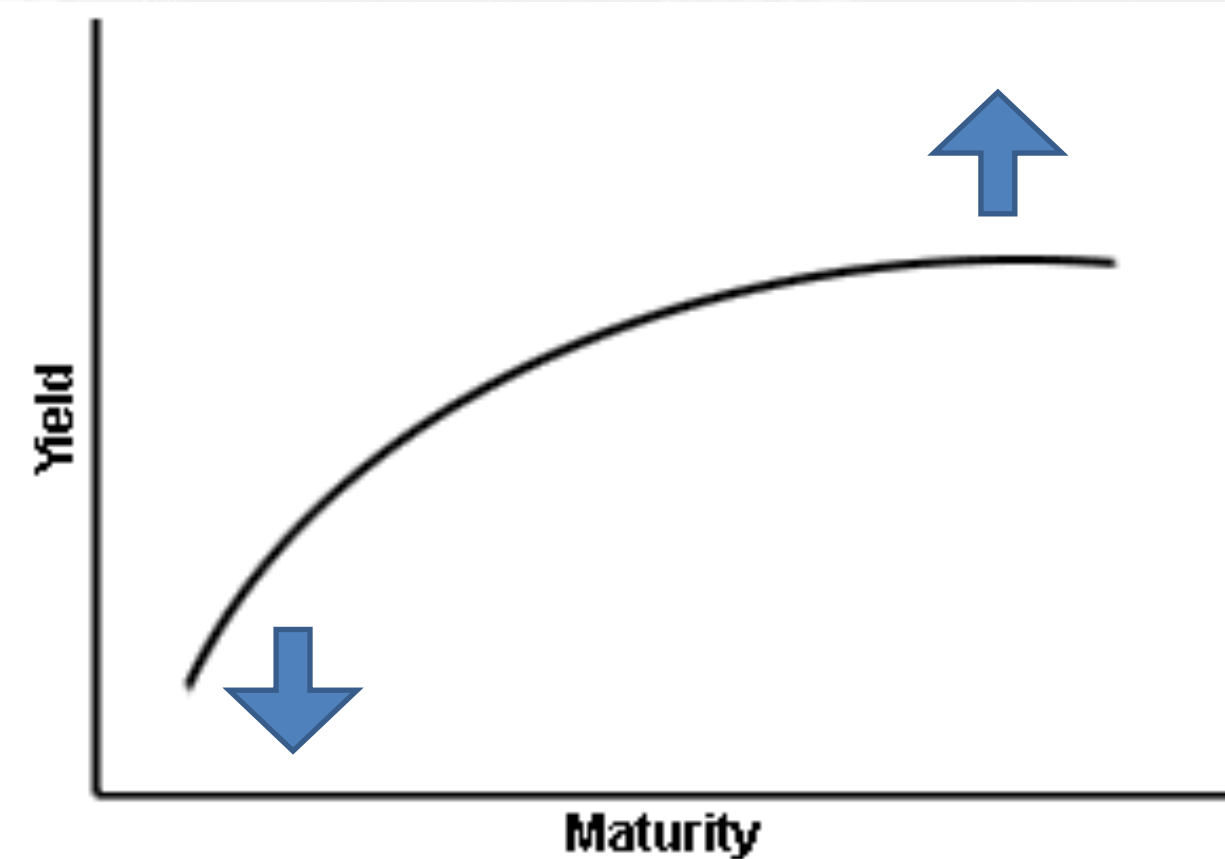




# Trading Bonds: Curve Steepener

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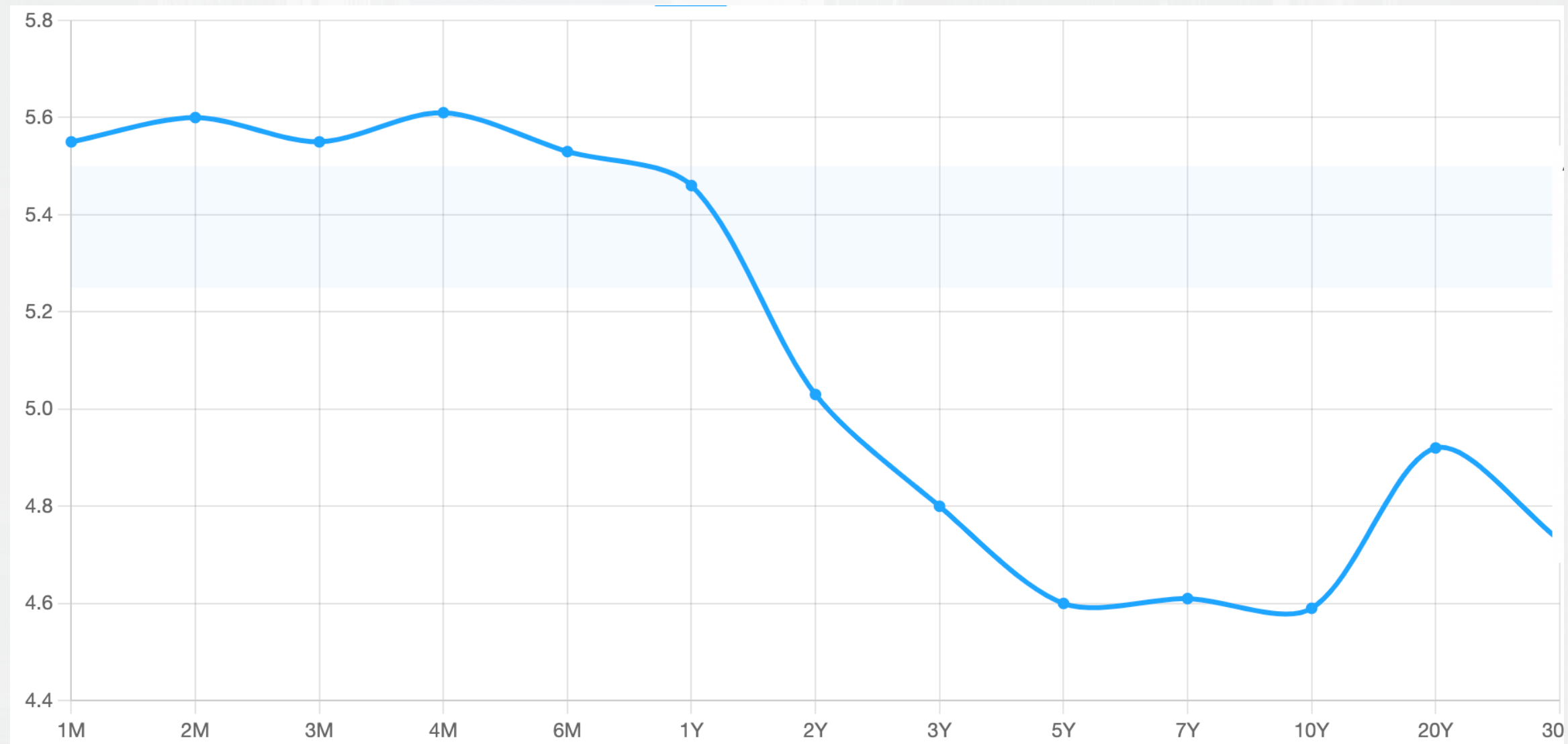
- ❖ Long near end of yield curve – yields go down
- ❖ Short far end of yield curve – yields go up
- ❖ Cost of the trade
  
- ❖ What would a flattener be?



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# Current Treasury Yield Curve





# TIPS

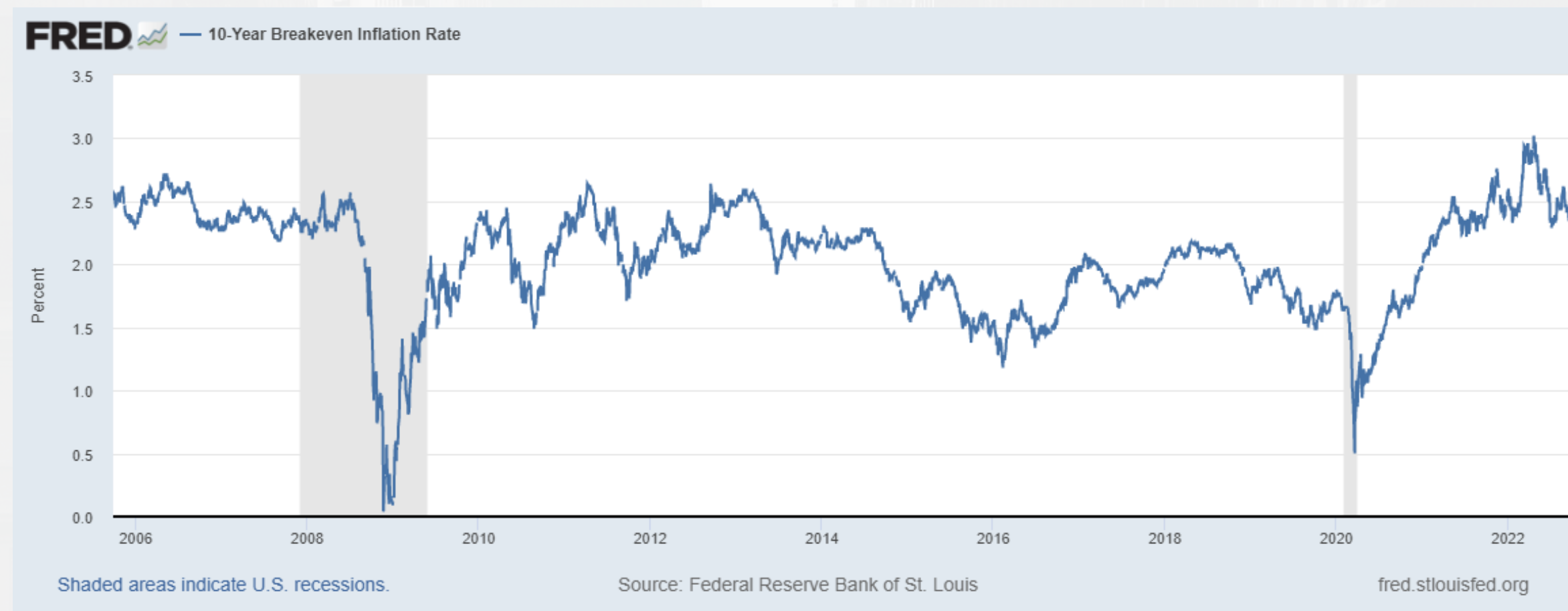
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- Treasury Inflation Protected Securities
- How it works:
  - Interest Payments increase with increases in inflation
  - Example :
    - Principle : 100
    - Interest: 5%
    - CPI inflation measure: 2%
    - Interest:  $(100 \times 1.02) \times 0.05$
- Nominal vs. Real Returns – Which is this?
- When would you want to own TIPS?



# Breakeven Inflation

- ❖ Market expectations for future inflation
- ❖ Difference in yield of TIPS and respective US Treasury







# Famous Macro Trades!

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- ❖ George Soros / Bank of England
- ❖ LTCM Convergence Trades



# How George Soros Broke the Bank of England

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- British pound was pegged to German mark
- Germany was stronger economically than Britain so German mark should have been fundamentally stronger
  - To keep up with German economy, the BoE set high interest rates and the UK economy had very high inflation
- Soros, along with other speculators realized the Bank of England could not keep their currency tied to the mark and started shorting the currency (Soros borrowed a lot of money to establish a large position)
  - In response, BoE raised interest rates to strengthen currency
  - Eventually British government realized they couldn't keep up with short sellers and was forced to devalue the pound
- Moral of the story : Soros made a LOT of money \$\$\$\$\$





# LTCM Convergence Trades

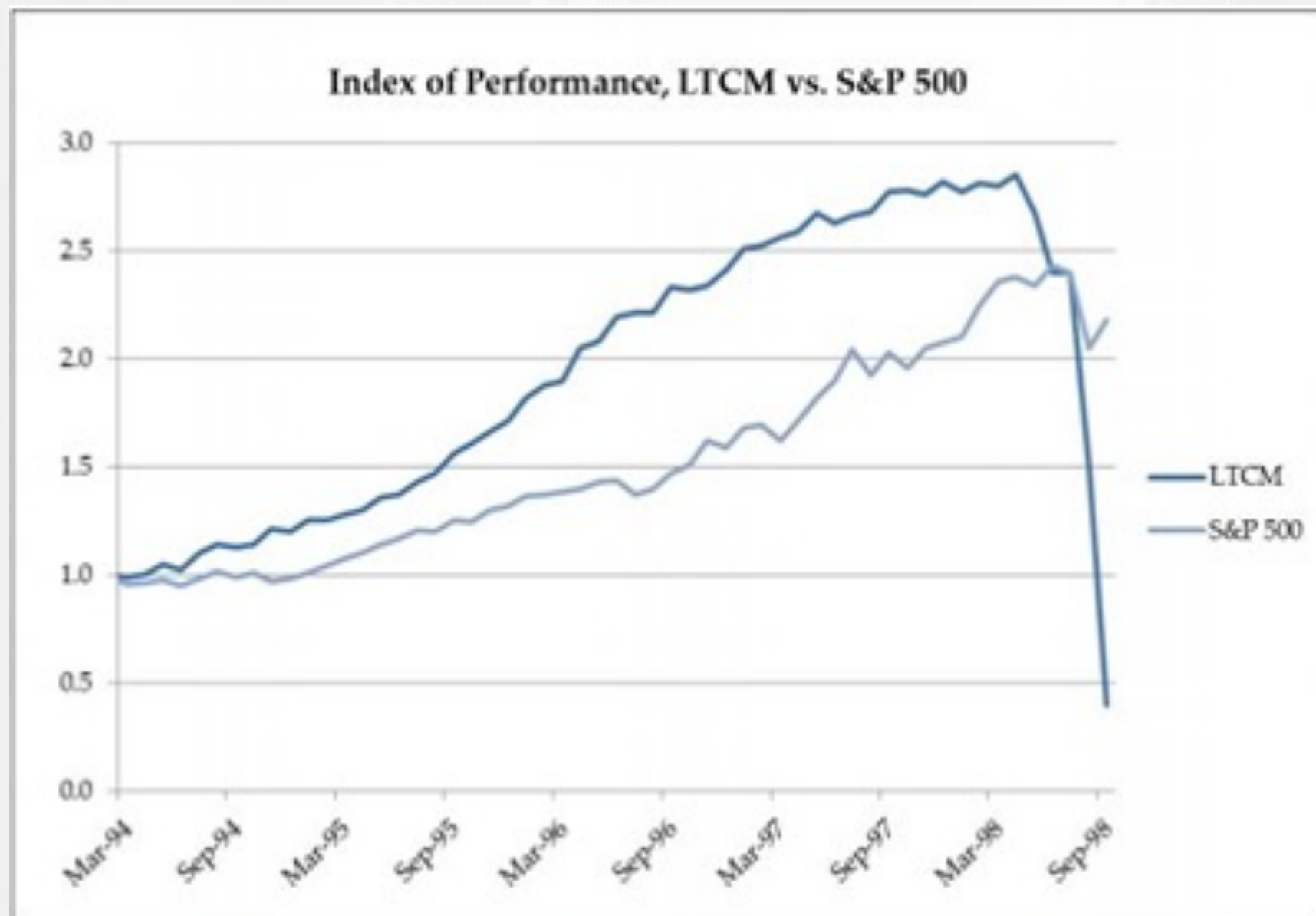
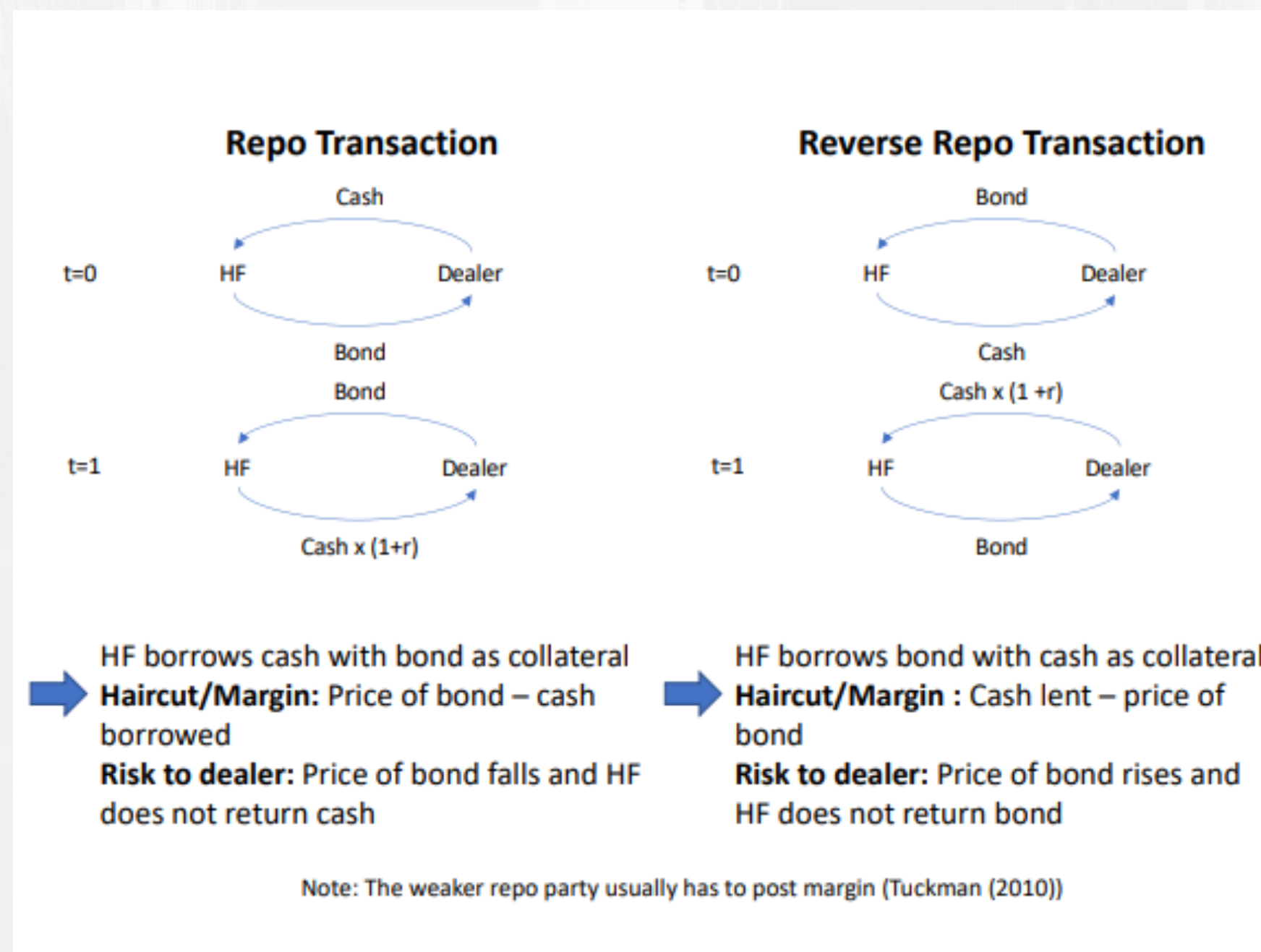


Figure 1. Index of Net Performance of LTCM vs. S&P 500 (March 1994 - September 1998). Based on data presented in Perold, Andre F. 1999a. Long-Term Capital Management, L. P. (C). Harvard Business School Publishing.





# Repo and Reverse Repo Transaction





# Repo and Reverse Repo Transaction

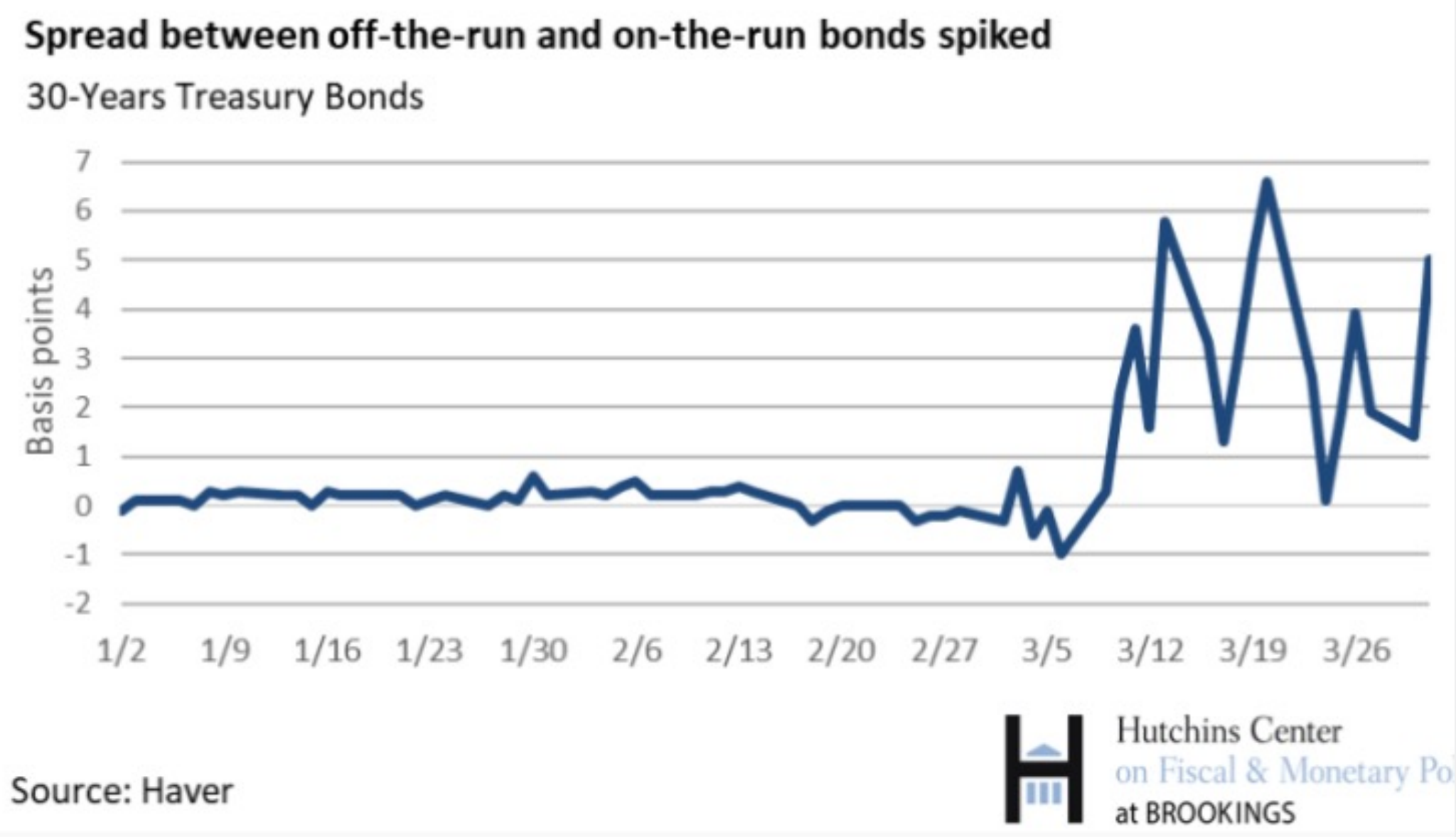
Repo Off-the-run bond	T=0	T=1
Buy off-the-run bond	-100	100
Borrow cash through Repo	+90	-90
Payments off-the-run leg	= -10	= 10
Reverse Repo On-the-run bond	T=0	T=1
Sell on-the-run bond	+101	-100
Borrow the bond through Reverse Repo	-111.1	+111.1
Payments on-the-run leg	= -10.1	= 11.1
Total Payments	= -20.1	= 21.1

Margin

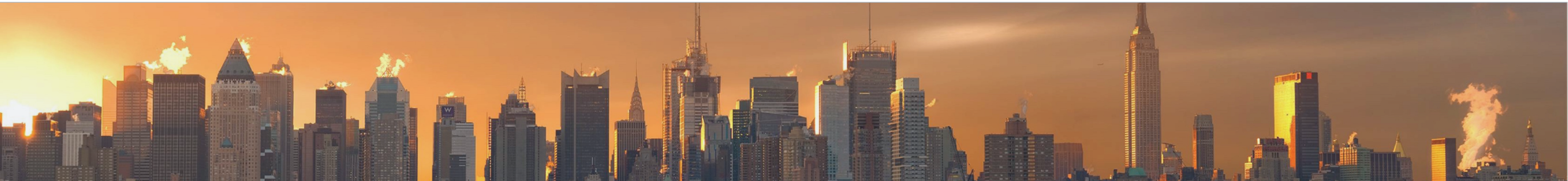
Return on Investment:  $\frac{1}{20.1} = 5\%$



# Spread Widened During COVID







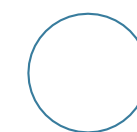
## Get in Touch

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### Mailing List



### Coffee Chats







## Get in Touch (Cont'd)

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Feel free to reach out to us over Facebook or email if you have any questions

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