Investing Terminology & Notes

- **Black-Scholes** – A differential equations model used to price options contracts.
- **Bonds -** Yields and price are inversely related. If the interest rate goes up, then there are other investment options that pay more than the fixed interest given by the bond, so demand and price both decrease. If interest goes down, then bonds are a relatively safe investment option, driving demand and price up.
  - Duration - is a measure of the sensitivity of the price of a bond or other debt instrument to a change in interest rates.
  - Convexity – Convexity is a measure of the curvature, or the degree of the curve, in the relationship between bond prices and bond yields.
- **S&P Index** - Index is a good indication of large-cap companies. The top 500 companies are weighted by market capitalization. Not necessarily the top 500 market capitalization since other factors are weighed in.
- **Dow Jones Index** - Includes 30 bluechip companies, which are companies with stable earnings and revenue even in an economic downturn.
- **VIX** - 30-day projection of volatility/fear.
- **Fed Funds Rate** - The interest rate that banks charge each other to borrow or lend excess reserves overnight.

A 10-year Treasury is a bond that guarantees interest plus repayment of the borrowed money in a decade. The 10-year Treasury is just one of a handful of securities issued by the U.S. government. Others include:

- **Treasury bills**, also known as T-bills, are short-term securities, with maturities that range from a few days to 52 weeks. Treasury bills are sold at a discount to their face value, meaning they provide investors with returns by paying them back at the full, not discounted, rate.
- **Treasury notes**, also known as T-notes, are issued with maturities of two, three, five, seven, and ten years. They pay interest every six months and return their face value at maturity.

- **Treasury bonds**, also known as T-bonds, are the longest-term government securities, issued for 20 and 30 years. They pay interest every six months and return their face value at maturity.

The 10-year Treasury yield is the current rate Treasury notes would pay investors if they bought them today. Declines in the 10-year Treasury yield generally indicate caution about global economic conditions while gains signal global economic confidence.

WTI Oil - West Texas Intermediate oil serves as a benchmark for the price of oil along with Brent and Dubai Crude.

Copper - A metal, and can be used to indicate the overall strength of the market. The greatest determinants of copper prices are emerging markets, the U.S. housing market, supply disruptions, and substitution.

Latest Employment Data - Released at 8:30 AM EST on the first Friday of every month. However, the data can vary from months to months.

- Always be ready to pitch a stock. This is VERY common in Sales and Trading interviews. Be ready to pitch a stock with an accurate price target and reasoning behind it.

- Product knowledge – In internships you are not expected to have a significant amount of product knowledge. You should the following products:

    - **CDs (Certificate Deposit)** - a product offered by banks and credit unions that provides an interest rate premium in exchange for the customer agreeing to leave a lump-sum deposit untouched for a predetermined period of time. Unlike a savings account, you make a one-time initial deposit and cannot touch it for a certain time period at the benefit of higher interest rates.

    - **Interest Rate Swaps** - a forward contract in which one stream of future interest payments is exchanged for another based on a specified principal amount. Usually, it's an exchange between a fixed and floating interest rate. You're betting that you can get a lower interest rate when swapping.

    - **Vanilla Options** - a financial instrument that gives the holder the right, but not the obligation, to buy or sell an underlying asset at a predetermined price (strike price) within a given timeframe (expiry).

        - **American Options** - can be exercised if it is in the money (when market price > strike price) on or before the expiration date.

        - **European Options -** requires the option to be in the money on the expiration date in order for it to be exercised.
    - **Asian options -** Same as vanilla but uses average price. Rather than market price - strike price, it becomes average price - strike price. There are many ways to calculate the average.
    - **Barrier options -** A barrier option is a type of derivative where the payoff depends on whether or not the underlying asset has reached or exceeded a predetermined price. A barrier option can be a knock-out, meaning it expires worthless if the underlying exceeds a certain price, limiting profits for the holder and limiting losses for the writer. It can also be a knock-in, meaning it has no value until the underlying reaches a certain price.
    - **Corporate Bonds -** A corporate bond is a type of debt security that is issued by a firm and sold to investors. The company gets the capital it needs and in return, the investor is paid a pre-established number of interest payments at either a fixed or variable interest rate. When the bond expires, or "reaches maturity," the payments cease and the original investment is returned.
    - **MBS (Mortgage Backed Security) -** A mortgage-backed security (MBS) is an investment similar to a bond that is made up of a bundle of home loans bought from the banks that issued them. Investors in MBS receive periodic payments similar to bond coupon payments. Basically, you are lending money to home buyers.
    - **CDO (Collateralized Debt Obligation) -** A collateralized debt obligation (CDO) is a complex structured finance product that is backed by a pool of loans and other assets and sold to institutional investors. A CDO is a particular type of derivative because, as its name implies, its value is derived from another underlying asset. These assets become the collateral if the loan defaults.
    - **Index's -** An index is a method to track the performance of a group of assets in a standardized way. Indexes typically measure the performance of a basket of securities intended to replicate a certain area of the market. Like S&P 500 and DJI.
    - **Equity -** typically referred to as shareholders' equity (or owners' equity for privately held companies), represents the amount of money that would be returned to a company's shareholders if all of the assets were liquidated and all of the company's debt was paid off in the case of liquidation. In the case

of acquisition, it is the value of the company's sale minus any liabilities owed by the company not transferred with the sale.

- **Futures** - are derivative financial contracts that obligate the parties to transact an asset at a predetermined future date and price. The buyer must purchase or the seller must sell the underlying asset at the set price, regardless of the current market price at the expiration date. For example, company A and company B may benefit/suffer differently from a rise or fall in the price. To prevent this volatility, companies A and B can sign a futures contract and fix the price.
- **Forwards** - A forward contract is a customized contract between two parties to buy or sell an asset at a specified price on a future date. Similar to futures, but
    - It does not trade on an exchange
    - Settled at end of the contract term
    - In future contracts, you bet the change in volatility for profit. In forwards, you hedge the volatility in the underlying asset.

Basics of Choosing Stocks

3 + 1 technique

1. Revenue/Profit: Net profit margin, gross profit margin (for companies that have negative profit, like many stocks in the tech industry). COGS (Cost of goods sold)
    a. Gross Profit: $p = Revenue - COGS$
    b. Gross Profit Margin:

$$p = \frac{Revenue - COGS}{Revenue} * 100$$

   Net profit is gross profit but with all additional costs like taxes, marketing, advertising, etc. Net profit margin = net profit/revenue.

2. Financial Health: Current ratio (Recommend to be greater than 1.5)
3. Price Level: PE ratio (lower means more undervalued). However, the ratio varies from different industries since many PE could be negative.

4. **The product can't be copied (护城河).**

Public vs Private

Going public will make stocks much more liquid as people will trust you.

Public Benefits

1. Easier to get money/raise value of the company (融资)
2. Founders can more easily buy/sell stocks（套现）
3. The company is perceived to be better and well known
4. Easier to raise money in future

Private Benefits

1. Retain stock more ownership/control if you are CEO
2. No need to disclose company information like revenue/profit strategies
3. Going public takes time, money, and no guarantee for success since there are strict requirements as well
4. Maintain company information to make sure it's good and correct (some fake it)
5. Price influenced by Wall Street in the short term (短期利益)

Ways to go public

1. **IPO -** You work out details with investment bank like how many shares to create/price target. The bank then buys a chunk of that and sells it to the market.
2. **Direct Listing -** No need to find initial investors or anything. You don't create additional shares or anything and directly put the stock on the market. Usually, the company needs to be quite well known, or else people won't trust the company at all. Examples that were directed listed include Spotify, Roblox, and Coinbase. Also, employers can sell the stock with no lockup period.
3. **Reverse takeover (借壳上市)** - A private company acquires a public company
4. **SPAC** - A private company combined with a special purpose acquisition company. The SPAC acts like a shell that fits well with a private company, the slug. Usually, founders of SPAC are well-known and trustworthy so private companies are willing to combine.

Some Links

QuantNet Post

List of places hiring interns/new grads