CS 007: SESSION 3
PERSONAL FINANCE FOR ENGINEERS
NOBEL PRIZE IN ECONOMICS FOR 2017

• Richard Thaler (@R_Thaler)
• Professor @ University of Chicago, “Nudge”
• Key insights:
  • Mental Accounting
  • Endowment Effect
• Nice write-ups on NYT & Vox:
CS 007

GETTING PAID
COMPENSATION

Understanding how people are paid
• Attract talent to your company, by rewarding capability with competitive market-based pay.

• Motivate employees by rewarding performance aligned with company strategy & objectives.

• Retain employees by fairly matching their contribution to the company

• Compensation is only one part of culture, but it is a critical part.
COMPONENTS

- Base Pay
- Relocation / Signing Bonus
- Annual Bonus
- Equity Compensation
- Financial Benefits
- Perks
COMPONENTS: BASE PAY

• **Key factors:** Level, Function, Geography

• **Market data** easily accessible by companies, increasingly available to individuals.

• **Adjustments** are most commonly made due to annual inflation, internal audit, market competitiveness, promotion.
COMPONENTS: BONUS

- **Signing Bonus / Relocation:** Money paid up-front, at first pay period, to help with move / relocation or to improve offer without affecting base salary. *Be careful: usually has a clawback.*

- **Annual / Quarterly Performance Bonus:** Typically a company wide program, fixed potential % based on level, based on both individual & company results.

- **Spot Bonus:** Less common, but managers occasionally are empowered to give one-off bonus to teams / individuals to reward results.
COMPONENTS: EQUITY

• Designed to align employee compensation with shareholder results.

• Particularly attractive to companies that are cash sensitive.

• Very common at almost all levels & roles in technology. Other industries tend to skew towards executives.

• Two common forms: stock options & restricted stock.
COMPONENTS: FINANCIAL BENEFITS & PERKS

- Wide variety of benefits that either offer employees tax advantages or shift costs to employer.

- Health Insurance, Retirement, Stock Purchase likely the most significant.

- Increasingly common at large, well-funded tech companies to see fairly expensive perks (food, transit, fitness)

- Benefits tend to be very uneven in value to employees depending on their personal situation & needs.
EQUITY

Understanding how people are paid
WHAT IS EQUITY?

• Fancy name for the value of a share of ownership of the business.

• Company ownership is divided into shares, and those shares entitle owners to various rights.

• There can be different classes of shares. This is very common with private companies.

• In the simplest case, you can determine how much of a company you own with this fraction

\[
\frac{\text{# of shares you own}}{\text{# of shares total}}
\]
There are ~5.8 million employer businesses in the US. Fewer than 4,000 are publicly traded.

99.7% fewer than 500 employees.

Public companies tend to be larger, as measured in employees & revenue.

Strict regulations for public companies on timeliness and content of financial results published for the public.

Market price for both stock and stock options extremely transparent.

PRIVATE COMPANIES

• Most businesses are private, but for graduating engineers most relevant form are venture-backed startups.

• Private companies have multiple share classes, and are frequently cashflow negative.

• Future financing means dilution. Your share of the company will decrease as the company issues more shares.

• You cannot evaluate a company’s equity without knowing the amount raised and at what terms & preferences.

• Companies vary widely in how much they disclose to their employees & candidates.

• For the most part, you cannot sell your stock when a company is private.
Stock options are a “derivative,” a security based on another security. There are many types, but for compensation they represent “the right to buy.”

Key terms:
- **Grant date.** When you receive the options. Typically after the first board meeting when you start.
- **Vesting Start Date.** Typically your first day of work.
- **Vesting Schedule.** Typically 4 years, with a 1 year cliff.
- **Exercise / Strike Price.** Typically fair market value the day the options are granted.
- **Expiration Date.** Typically 10 years, although 7 is not uncommon. Expiration triggers early if you leave the company (90 days).

There are tax consequences if the strike price does not match the current fair value, and when you exercise them. **Pro Tip: 83(b)**

There are tax consequences when you exercise a stock option based on type (ISO vs. NQSO), but not when you vest them.

Intrinsic value is market price - strike price. Time value adds the value of the option itself & the flexibility it provides.
• Restricted stock is a broad term for shares in a company that have restriction on their ownership (example: vesting).

• Restricted Stock Units (RSUs) are a promise from a company to issue shares to the employee. Restricted Stock are actual shares with a restriction on them.

• There is no strike price. You are granted a number of shares with a vesting schedule.

• You owe income taxes immediately when you vest restricted stock. Most companies withhold taxes by selling the portion of stock necessary at that time.

• Originally a feature at public companies (e.g. Google), became increasingly common at large private companies when strike price becomes prohibitive.

• Once vested, there is no meaningful tax difference between these shares and ones you could buy that same day with cash.
• Stock options can be worthless if the value of the stock drops below the exercise price. Restricted stock only becomes worthless if the stock price drops to zero.

• Employees typically receive more shares via stock options than via restricted stock, because the restricted stock lacks a strike price and is worth more than an option. Ratio can be 3:1.

• Both have liquidity concerns.
  • With stock options, not everyone has the cash to exercise their stock & pay related taxes when they leave the company.
  • With restricted stock, you likely will not be able to sell your earned shares until a liquidity event (IPO or acquisition).

• Significant tax benefits with stock options, because you do not owe taxes upon vesting & you can control when you exercise.

• Common stock is valued significantly below preferred stock in private companies, but that difference disappears when a company goes public. As a result, your strike price is typically at a discount to the preferred stock.

• Restricted stock is much easier to value in present day dollars.
EVALUATING OFFERS
Looking at real world offers from 2017-8
FOUR OFFERS: MEGATECH PUBLIC

- Based on real offer data
- Size: 10,000+ people
- Market capitalization of over $200B
- Title: Software Engineer
- Offer Terms:
  - Base compensation: $115,000
  - Relocation / Signing Bonus: $25,000
  - Annual Bonus: 10%
  - Equity: RSUs with a current value of $200,000, vesting over 4 years
  - Perks / Benefits: Too many to count, 401(k) match of 50%
FOUR OFFERS: UNICORNTECH PRIVATE

- Based on real offer data
- Size: 1,000+ people
- Market capitalization of over $2B
- Title: Software Engineer
- Offer Terms:
  - Base compensation: $105,000
  - Relocation / Signing Bonus: $10,000
  - Annual Bonus: None
  - Equity: Stock options for 0.01% of the company, vesting over 4 years
  - Perks / Benefits: Free food, lots of perks, no 401(k) matching.
FOUR OFFERS: NEXTBIGTHING

- Based on real offer data
- Size: 30 people
- Market capitalization: raised $10M Series A at $50M valuation
- Title: Software Engineer
- Offer Terms
  - Base compensation: $89,000
  - Relocation / Signing Bonus: $3,000
  - Annual Bonus: None
  - Equity: Stock options worth 0.5% of the company, vesting over 4 years
FOUR OFFERS: TOOBIGTOFAIL JUMBOBANK

• Based on real offer data
• Size: 100,000+ people
• Market capitalization: Over $200B
• Title: Analyst

Offer Terms
• Base compensation: $85,000
• Relocation / Signing Bonus: $5,000
• Annual Bonus: $60,000 (increased $20K every year)
• Equity: None
• Perks / Benefits: Generous financial benefits, not a lot of perks, quite a bit of travel & airline miles.
 WHICH OFFER IS BEST AFTER 1 YEAR?

• Guaranteed Pay (Base + Signing)
  • MP: $140K
  • UP: $115K
  • NBT: $92K
  • TBTF: $90K

• + Variable Pay (Bonus)
  • MP: $151.5K
  • UP: $115K
  • NBT: $92K
  • TBTF: $150K

• Equity
  • MP: $50K RSUs (at today’s price)
  • UP: $0 (same strike) / 0.0025%
  • NBT: $0 (same strike) / 0.125%
  • TBTF: $0

Of the four offers presented, which do you believe will offer the most compensation in the first year?

52 out of 52 people answered this question

1. MegaTech Public: 30 / 58%
2. TooBigToFail JumboBank, Inc.: 13 / 25%
3. NextBigThing: 8 / 15%
4. UnicornTech Private: 1 / 2%

Typical answer: “MegaTech: it’s more guaranteed money”
WHICH OFFER IS BEST AFTER 5 YEARS?

- A number of complicating factors
  - Promotions?
  - Switching jobs?
  - Switching companies?
  - Raises?

- How to think about Equity? (odds x payout)
  - MP: 2x vs. 50% drop? $400K vs. $100K
  - UP: 10x vs. 75% drop? $2M vs. $50K
  - NBT: 100x vs. 10x vs. 5x vs. 0? $500M vs. $0
  - TBTF: No equity, but variable bonuses

- What about dilution?
  - IPO: 10-15% dilution
  - Each financing can be 10 - 30%
  - Compounds
  - From Series A, can easily be 3:1 or more
  - Affects NBT the most, but UP also

- What happens in acquisition?
  - Have to clear the “preference” hurdle
  - Can receive cash or stock (or both.

Of the four offers, which do you believe will result in the most compensation after five years?

52 out of 52 people answered this question

<table>
<thead>
<tr>
<th>Offer</th>
<th>Votes</th>
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<tbody>
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<td>TooBigToFail JumboBank</td>
<td>19</td>
<td>37%</td>
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Typical answer: “TBTF: Fantastic Bonus!”
WHICH OFFER DO YOU PREFER?

• Risk Tolerance
• Liquidity vs. Value
• Guaranteed results vs. the potential for the exceptional?
• Long term career vs. short term?
• Quality of team / people / network?
• Will you be excellent at your job?
• What will make you happy?

Typical answer: “MegaTech: I really love perks” and “Steady & Reliable”
Favorite answer: “Most potential for growth & learning opportunities”
WHAT DRIVES THE MOST VALUE LONG TERM?

• Equity is most commonly associated with exceptional outcomes in Silicon Valley.

• Career drives so many of the others, so easy to make that the default.

• Company success can be a significant driver of almost all others.

• Significant benefits to joining mid-size, hyper-growth companies for repeated tours of duty.

• There are hundreds more ways to succeed that you might think. And hundreds more ways to fail.

Favorite Answer: “I’m not sure ¯\_(ツ)_/¯”
IT’S NEVER JUST ABOUT MONEY

• For equity, what is the potential for upside in the value of the company? Downside?

• Company success disproportionately affects job offers from future companies, but success in technology can be fleeting.

• Title vs. Compensation vs. Quality

• Talent & network matters significantly

• Building skills / experiences / achievements with lasting value

• The market is fairly efficient, but it does not compensate for all types of risk.
The market is fairly efficient, but companies vary significantly in their approach.

Some reward negotiation. Others explicitly work against it. Lack of negotiation is one of the contributing causes to pay disparity. Polite but firm is often the right approach.

High quality companies do a lot of work on fair compensation, but startups can vary widely. Know the market data.

Some terms are more flexible than others. Base comp is often more difficult to move than signing bonus or equity. If you are going to a private company, it’s almost always a bet on equity anyway.

Don’t be afraid to approach the topic of fair compensation with your manager. Understand the difference in roles between a recruiter & a manager.

Be emotionally honest with yourself on what is a deal breaker. Lines in the sand can be hard to erase.
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QUESTIONS
WEEK 4: SPEND LESS THAN YOU MAKE

- Income vs. Spending
- Time frames
- Budgets
- Savings Rates
- Personal Income Statement