



Presents

Finance Interview Guide

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Introduction

Landing a Gig

Money makes the world go round, and those in charge of money are the financiers. Have thirst for relevance? The finance industry has always been a competitive field, due in large part to the glamour and prestige assigned to the working relationships with industry titans. Of course, the outstanding salaries explain much of the pull as well.

Finance career opportunities can be broadly divided into several categories, most prominently investment banking, commercial banking, asset management, venture capital and private equity, and finance positions at a corporation like P&G or The Coca-Cola Company (also referred to as "corporate finance"). There is considerable movement between these positions — I-bankers leave to take posts in industry, or with private equity firms, etc. Generally, the pinnacle for most finance professionals is either as a partner or managing director of a bank, a portfolio manager for an asset management firm, or as Chief Financial Officer (CFO) of a company. The interviews for each of these industries are very similar.

The Financial Industry

Investment banking

Tom Wolfe called them "Masters of the Universe" in *The Bonfire of the Vanities*; Michael Lewis called them a few unprintable things in *Liar's Poker*. Who are they? Investment bankers, salespeople, traders, and research analysts. Investment banks aren't like your local branch office with ubiquitous ATMs (those are commercial banks, like Citibank or Bank of America); instead, investment banks work with corporations, governments, institutional investors and extraordinarily wealthy individuals to raise capital and provide investment advice. The investment banks are also combining with commercial banks. These combinations and mergers mean big changes and big opportunities in the investment banking industry. Despite the turmoil, positions in these temples of lucre remain highly sought after.

Commercial banking

Generally, commercial banks are "lenders" rather than "bankers." In other words, they loan money rather than raise it. You can go to the local branch office of your bank and apply for a loan, but you can't ask them to find investors to fund your latest get-rich-quick scheme. Similarly, commercial banks will loan out large amounts of money to businesses (sometimes banding together with other banks for especially huge loans to issue what is called a "syndicated loan"). Commercial banks lend out money at interest rates that are largely determined by the Central Bank. The Central Bank loans out money to commercial banks, which turns around and lends it to its customers in a variety of forms — standard loans, mortgages, etc. Commercial banks also lend out money that they have on deposit from clients. Commercial bankers and investment bankers are notoriously different culturally: commercial bankers are typically less aggressive and more risk-averse than investment bankers. They also don't command the eye-popping bonuses that I-bankers can receive.

Investment management

The investment management industry, or, as it's also known, asset management, can be broken down into three basic categories: hedge funds and proprietary trading desks, mutual funds and the asset management divisions of investment banks, and 'other' - which includes insurance companies, universities, municipal governments, and other large institutions with money to invest. Asset managers are the "customers," or "buy-side" of an institutional sale of financial securities. On the "sell-side" are the traders and salespeople, who provide liquidity for the asset managers.

The name of the industry, investment management, is pretty much self-explanatory: a client gives money to an asset manager or fund manager, who then invests it to meet the client's objectives. The people on the sell-side provide

information to the buy-side (research, ideas, meetings with officials), and try to get the asset managers to trade through them (the sell-side makes a commission for every trade it facilitates). Asset managers are generally paid a percentage of the entire amount they handle, whether they make or lose money for the client. Because their salaries are based on the amount of money they manage, asset managers make less money than investment bankers (unless they work for hedge funds). They don't necessarily make big bonuses, but on the upside, they know what they're getting paid whether they make or lose money for the client.

Venture capital

Venture capital (VC), says one insider, is the R&D of the 1990s. For more than the past decade, venture capital firms have been on a roll - and the cream of the crop of MBA programs across the country are clawing for a spot in these tiny, highly profitable enterprises. Landing a VC job requires smarts, a thorough understanding of business operations (so one can tell how a company is operating and where it can improve), but perhaps most of all, great connections. Venture capital companies typically invest between \$250,000 and \$20 million in seed to private companies in exchange for equity - a piece of the firm. Venture firms raise their money from pension funds, endowments, corporations, and wealthy individuals. Venture capitalists are in it for the money - and with the Internet boom, that was quite a bit of money indeed. Imagine the profits enjoyed by Sequoia Capital, which took a 20 percent stake in Yahoo! for a mere \$1 million. The stake was worth billions in less than five years.

Private Equity

Equity capital that is not quoted on a public exchange. Private equity consists of investors and funds that make investments directly into private companies or conduct buyouts of public companies that result in a delisting of public equity. Capital for private equity is raised from retail and institutional investors, and can be used to fund new technologies, expand working capital within an owned company, make acquisitions, or to strengthen a balance sheet.

The majority of private equity consists of institutional investors and accredited investors who can commit large sums of money for long periods of time. Private equity investments often demand long holding periods to allow for a turnaround of a distressed company or a liquidity event such as an IPO or sale to a public company.

Industry

Finance officials with corporations can perform a wide variety of functions, which range from managing a company's stock buyback strategy, to internal auditing, to cost, pricing or profitability analysis. In some cases, these positions can be similar to investment banking positions. For example, many large companies maintain small internal M&A arms, which seek out acquisition opportunities, and help structure those deals. Companies with large international operations also often employ financial whizzes to help them hedge their foreign exchange risk.

The entry-level position in the finance function at corporations is usually called "financial analyst." The peak is the chief financial officer (CFO) position. Throughout a finance career in industry, employees work closely with other functions (most commonly marketing and operations), partly to report and explain financial statements, and partly to hash out both short-term and long-term strategy.

The Process

There are generally two parts to the finance hiring process: the "fit part" and the "technical part." The "fit part" is where the hiring firm deciphers whether or not you fit into their group's culture. The "technical part" is where the interviewer judges your analytical and technical skills. If you don't know the basic concepts of finance and accounting, your interviewers will believe (rightly) that you are either 1) not interested in the position or 2) not competent enough to handle the job. While a good deal of this document is devoted to helping you ace the technical part of finance interviews, it is arguably more important that you nail the fit interview, proving that you are someone the people in

the group would like to work with. As you go through recruiting in finance interviews, understand that you compete with yourself. Most firms are flexible enough to hire people that are a good fit.

The fit interview

They call it the O'Hare airport test, the Atlanta airport test, or the whatevercity-you-happen-to-be- applying-in airport test. They also call it the fit interview or the behavioural interview. It means: "Could you stand to be stranded in an airport for eight hours with this person?" Generally, while your performance in the fit interview partly depends - as the airport test suggests - on your personality, it also depends on your "career fit," or your ability to portray yourself as a good fit as an investment banker, asset manager, and so on. In other words, interviewers will try to figure out what your attitude towards work is like, how interested you are in a career in the industry, and how interested you are in the job for which you are applying.

I'm a hard worker

As a general rule, you should emphasize how hard you have worked in the past, giving evidence of your ability to take on a lot of work and pain. You don't have to make things up or pretend that there's nothing you'd want more than to work 100-hour weeks. In fact, interviewers are sure to see through such blatant lying. Says one I-banking interviewer, "If somebody acted too enthusiastic about the hours, that'd be weird." If you ask investment bankers and others in finance what they dislike most about their jobs, they will most likely talk about the long hours. Be honest about this unpleasant part of the job, and convince your interviewer that you can handle it well. For example, if you put yourself through school by working two jobs, mention that, too. And if no experience applies, at least acknowledge the hours as a necessary part of a career path you are choosing.

Got safe hands?

As with all job interviews, finance interviews will be focused on figuring out whether you can handle the responsibility required of the position, understandable considering that in many cases with finance positions, that responsibility may mean making decisions with millions or billions of dollars. An interviewer will try and figure out if you've got safe hands and won't be dropping the ball. "This is a critical I-banking concept," says one banker about safe hands. "The idea is: 'Can I give this person this analysis to do and feel comfortable that they will execute it promptly and correctly?'" The people with safe hands are the ones who advance in the company. They are not necessarily the hardest workers but they are the most competent." Make sure you bring up examples of taking responsibility and getting complex, detail-oriented jobs done right.

A mind to pick things apart

The world of finance involves a lot of number crunching and analytical ability. And while you don't have to be a world-class mathematician, you do have to have an analytic mind if you are going to succeed. Explains one insider at a numbers-heavy Wall Street firm, "you can't be any old English major. You've got to have a really logical, mathematical head." Make sure you have examples of your problem-solving and analytic strengths, particularly those involving quantitative analysis.

T-E-A-M! Go team!

Teamwork is a popular buzzword for employers of all industries. Every finance position (except, perhaps, for research) requires that an employee work closely with others - whether in investment banking deal teams or in cross-functional corporate teams such as the finance officials working with marketers at a large corporation. Interviewers will ask questions to make sure that you have experience and have excelled in team situations. Sure, you can break out those glory days' stories about the winning touchdown pass, but hopefully there are more poignant situations which can

also help describe your teamwork ability - previous work experience, volunteer activities, or school work in teams, to name a few.

Practice your interviews

One of the best ways to prepare answers to these questions is to use mock/practice interviews. You can practice by role-playing with your friends and classmates, or by taking advantage of interview training offered by your school.

Prepare questions

Finally, don't forget that finance interviewers often ask candidates whether they have any questions. Don't get caught looking like a job applicant who hasn't done research and is not curious about the opportunities. Read about the firms, read about the industries, and prepare some intelligent questions. Also, remember that, when in doubt, you can allow the interviewers to talk about themselves with questions like, "Tell me about your career path" and "Describe your typical day-to-day responsibilities."

Sample Interview Question

1. Why do you want to do investment banking/investment management/ whatever career you plan to pursue?

This is a question you are almost guaranteed to receive. First and foremost, you must emphasize that you know what the finance department in which you are interviewing does. Talk to as many people in the industry before the interview to get a good idea of the job function's day-to-day tasks as well as the general description of the work a person in that job is asked to perform. Then, when asked the question, you need not state that you've yearned to be in finance your life, but you should illustrate succinctly that you know the job functions of the position for which you are interviewing, that you enjoy performing these functions, and that you have developed the core skills required (i.e., analytical ability, good communication skills, and, of course, a strong work ethic and willingness to put in the hours to do the job).

2. What exactly do investment bankers (or investment managers, etc.) do?

Don't laugh. You'd be astonished at how many people go to interview with Goldman Sachs or Fidelity Investments without having a clear idea of what they'll be doing if they actually get the job. You are very likely to receive this question if you are a career-changer or if you have a non-financial background. You'd better know the basics of your industry - for example, that investment bankers raise capital for companies in the public or private marketplace or that investment managers manage money for individuals and institutions.

3. Walk me through your resume.

Again, highlight those activities and previous positions that are most applicable to the core finance skills. Also talk about the things you are proud of and that set you apart. Finally, illustrate that your educational and career moves follow a logical sequence.

4. Why should we hire you?

When answering an open-ended question like this, try to make them insightful and entertaining like you did for your school applications. Again, this question begs you to illustrate that you understand the position for which you are interviewing and that you are hardworking, analytical, and team-oriented. Prepare examples and as you do, think of

them as if they were speeches. What would your stories and anecdotes be? Would they be exciting? Funny? Insightful? Absorbing? Something that the audience would remember for a long time? Unique?

5. Why did you decide to do an MBA?

If you came from a finance background, you can talk about how you thought you would add to your skill set by going to business school, and how that expectation has panned out. If you did not, simply

answer the question as honestly as you can. As an aside, it is perfectly appropriate to respond that you are getting an MBA as a means for changing careers.

6. Give me an example of a project that you've done that involved heavy analytical thinking.

Candidates without a financial background should have an answer prepared for this question that describes a work or school project, focusing on the part that required a lot of number crunching.

7. Tell me about the stock price of a company in your prior line of work.

Make sure you're conversant with how your previous employers (or competitors) are doing before you interview.

8. Give me an example of a time you worked as part of a team.

You're sure to get this one. Draw on experiences from previous work experience, from volunteer activities, and from any other situation in which you worked with others toward a common goal. Highlight your strengths as a team member: empathy, collaboration and consensus-building are good themes to emphasize.

9. Describe a project you have worked on that you enjoyed.

Yet another opportunity to show that you are a hardworking, responsible, analytical team player.

10. What motivates you?

Think through this one. First of all, you should indicate that you are highly motivated. Second, remember the profile that finance interviews are generally looking for. Appropriate answers include financial security, problem-solving, deadlines and productivity. Be prepared with examples.

11. Can you give me an example of an experience of failure?

You should have an answer prepared for this question. Be modest and admit that you have experienced setbacks. Also, focus on how you bounced back from the setback and what you learned from the experience.

12. You don't seem like you are a very driven person. How will you be able to handle a job in banking?

A stress question that can easily hit you at the tail end of a long and tiring interview process. After meeting with more than a dozen people in a day, it may be very easy to appear worn out, which is precisely what you must avoid - you must convince your interviewer that you don't wear out easily by displaying good energy. Come up with good examples of a time when you were totally driven despite fatiguing circumstances.

13. What was your favourite course in school? Your least favourite? Why? What were your grades in each?

Have a few choices ready and be prepared to justify them. Don't say that you didn't like a class because it was "too hard" or "had too much math" or even that "the professor was unreasonable" (because your interviewer may wonder if you'll think your boss unreasonable as well). Remember that your interviewer most likely has your transcript in front of her, so don't try to inflate your grades.

14. Who have you talked to at our bank?

This is actually a good sign - your interviewer may ask them for impressions of you. You should remember the names of any representatives who have attended campus career events. Hopefully, in your research you've connected with people at that firm.

15. Can you tell me about a time when you handled many things at the same time?

In some finance positions, especially I-banking, multi-tasking is an important attribute. Think through your background and prepare for this question.

16. What would you like for me to tell you?

Remember, you will be asked if you have any questions. Do your research and impress your interviewer with your knowledge and insight. However, don't ask transparent questions that seem like you are only asking them because you have to. And, again, when in doubt, ask about their personal experiences.

Valuation Techniques

How much is it worth?

Imagine yourself as the CEO of a publicly traded company that makes widgets. You've had a highly successful business so far and want to sell the company to anyone interested in buying it. How do you know how much to sell it for? Likewise, consider the Tata Steel's acquisition of Corus. How did the Tatas decide how much it should pay to buy Corus?

For starters, you should understand that the value of a company is equal to the value of its assets, and that:

$$\text{Value of Assets} = \text{Debt} + \text{Equity or Assets} = D + E$$

If I buy a company, I buy its stock (equity) and assume its debt (bonds and loans). Buying a company's equity means that I actually gain ownership of the company - if I buy 50 percent of a company's equity, I own 50 percent of the company. Assuming a company's debt means that I promise to pay the company's lenders the amount owed by the previous owner.

The value of debt is easy to calculate: the market value of debt is equal to the book value of debt. (Unless the debt trades and thus has a real "market value" This information, however, is hard to come by, so it is safe to use the book value.) Figuring out the market value of equity is trickier, and that's where valuation techniques come into play.

The four most commonly used techniques are:

1. Discounted cash flow (DCF) analysis
2. Multiples method
3. Market valuation
4. Comparable transactions method

Generally, before we can understand valuation, we need to understand accounting, the language upon which valuation is based.

Before we look at these valuation techniques, let's take a look at basic accounting concepts that underpin valuation. MBAs interested in finance careers should definitely be comfortable with these concepts (and may find this overview to be very basic).

Basic Accounting Concepts

Accounting Principles

These are called Generally Accepted Accounting Principles, or GAAP. Key GAAPs are

1. **Going Concern Concept:** This principle assumes that a business will go on, that is, it will continue in the foreseeable future – it has no finite life. We use this principle to project cash flows in the future.
2. **Legal Entity:** The business is an entity separate from owners; even if it's a small, one person business running out of home. Therefore the business accounts are taken separate from the owners.
3. **Conservatism:** Be cautious and conservative while accounting. Recognize income only when it's definite.
4. **Accrual Concept:** Income and expense are recognized/recorded when a transaction occurs- not when cash changes hands. Income and expense are recorded irrespective of cash.
5. **Matching Concept:** The business must match the expenses incurred for a period, to the income earned during that period.
6. **Cost Concept:** All assets are recorded on the books at purchase price, not market price, with some exceptions.

Basic overview of financial statements

There are four basic financial statements that provide the information you need to evaluate a company:

- Balance Sheet
- Income Statement
- Statements of Cash Flows
- Statements of Retained Earnings

These four statements are provided in the annual reports (also referred to as "IOKs") published by public companies. In addition, a company's annual report is almost always accompanied by notes to the financial statements.

These notes provide additional information about each line item of numbers provided in the four basic financial statements.

The Balance Sheet

The Balance Sheet presents the financial position of a company at a given point in time. It is comprised of three parts: Assets, Liabilities, and Shareholder's Equity. Assets are the economic resources of a company. They are the resources that the company uses to operate its business and include Cash, Inventory, and Equipment. (Both financial statements and accounts in financial statements are capitalized.) A company normally obtains the resources it uses to operate its business by incurring debt, obtaining new investors, or through operating earnings. The Liabilities section of the Balance Sheet presents the debts of the company. Liabilities are the claims that creditors have on the company's resources. The Equity section of the Balance Sheet presents the net worth of a company, which equals the assets that the company owns less the debts it owes to creditors. In other words, equity is comprised of the claims that investors have on the company's resources after debt is paid off.

The most important equation to remember is that Assets (A) = Liabilities (L) + Shareholder's Equity (SE)

The structure of the Balance Sheet is based on that equation. This example uses the basic format of a Balance Sheet:

Media Entertainment, Inc Balance Sheet (December 31, 2005)			
<u>Assets</u>		<u>Liabilities</u>	
Cash	203,000	Accounts Payable	7,000
Accounts Receivable	26,000		
Building	19,000	<u>Equity</u>	
		Common Stock	10,000
		Retained Earnings	231,000
Total Assets	<u>248,000</u>	Total Liabilities & Equity	<u>248,000</u>

With respect to the right side of the balance sheet, because companies can obtain resources from both investors and creditors, they must distinguish between the two. Companies incur debt to obtain the economic resources necessary to operate their businesses and promise to pay the debt back over a specified period of time. This promise to pay is based on a fixed payment schedule and is not based upon the operating performance of the company. Companies also seek new investors to obtain economic resources. However, they don't promise to pay investors back a specified amount over a specified period of time. Instead, companies forecast for a return on their investment that is often contingent upon assumptions the company or investor makes about the level of operating performance. Since an equity holder's investment is not guaranteed, it is more risky in nature than a loan made by a creditor. If a company performs well, the upside to investors is higher. The promise-to-pay element makes loans made by creditors a Liability and, as an accountant would say, more "senior" than equity holdings, as it is paid back before distributions to equity-holders are made.

To summarize, the Balance Sheet represents the economic resources of a business. One side includes assets, the other includes liabilities (debt) and shareholder's equity, and $\text{Assets} = \text{L} + \text{E}$. On the liability side, debts owed to creditors are more senior than the investments of equity holders and are classified as Liabilities, while equity investments are accounted for in the Equity section of the Balance Sheet.

The Income Statement We have discussed two of the three ways in which a company normally obtains the economic resources necessary to operate its business: incurring debt and seeking new investors. A third way in which a company can obtain resources is through its own operations. The Income Statement presents the results of operations of a business over a specified period of time (e.g., one year, one quarter, one month) and is composed of Revenues, Expenses and Net Income.

Revenue: Revenue is a source of income that normally arises from the sale of goods or services and is recorded when it is earned. For example, when a retailer of roller blades makes a sale, the sale would be considered revenue.

Expenses: Expenses are the costs incurred by a business over a specified period of time to generate the revenues earned during that same period of time. For example, in order for a manufacturing company to sell a product, it must buy the materials it needs to make the product. In addition, that same company must pay people to both make and sell the product. The company must also pay salaries to the individuals who operate the business. These are all types of expenses that a company can incur during the normal operations of the business. When a company incurs an expense outside of its normal operations, it is considered a loss. Losses are expenses incurred as a result of one-

time or incidental transactions. The destruction of office equipment in a fire, for example, would be a loss. Incurring expenses and acquiring assets both involve the use of economic resources (i.e., cash or debt). So, when is a purchase considered an asset and when is it considered an expense?

Assets vs. expenses: A purchase is considered an asset if it provides future economic benefit to the company, while expenses only relate to the current period. For example, monthly salaries paid to employees for services they already provided to the company would be considered expenses. On the other hand, the purchase of a piece of manufacturing equipment would be classified as an asset, as it will probably be used to manufacture a product for more than one accounting period.

Net income: The Revenue a company earns, less its Expenses over a specified period of time, equals its Net Income. A positive Net Income number indicates a profit, while a negative Net Income number indicates that a company suffered a loss (called a "net loss"). Here is an example of an Income Statement:

Media Entertainment, Inc		
Income Statement		
(For the year ended December 31, 2005)		
Revenues		
Services Billed		100,000
Expenses		
Salaries and Wages	(33,000)	
Rent Expense	(17,000)	
Utilities Expense	(7,000)	(57,000)
Net Income		<u>43,000</u>

To summarize, the Income Statement measures the success of a company's operations; it provides investors and creditors with information needed to determine the enterprise's profitability and creditworthiness. A company has earned net income when its total revenues exceed its total expenses. A company has a net loss when total expenses exceed total revenues.

Statement of Retained Earnings

Retained earnings is the amount of profit a company invests in itself (i.e., profit that is not used to pay back debt or distributed to shareholders as a dividend). The Statement of Retained Earnings is a reconciliation of the Retained Earnings account from the beginning to the end of the year. When a company announces income or declares dividends, this information is reflected in the Statement of Retained Earnings. Net income increases the Retained Earnings account. Net losses and dividend payments decrease Retained Earnings.

Here is an example of a basic Statement of Retained Earnings:

Media Entertainment, Inc Statement of Retained Earnings (For the year ended December 31, 2005)	
Retained Earnings, January 1, 2005	\$200,000
Plus: Net income for the year	43,000
	<u>243,000</u>
Less: Dividends declared	(12,000)
Retained Earnings, December 31, 2005	<u>\$ 231,000</u>

As you can probably tell by looking at this example, the Statement of Retained Earnings doesn't provide any new information not already reflected in other financial statements. But it does provide additional information about what management is doing with the company's earnings. Management may be reinvesting the company's net income into the business by retaining part or all of its earnings, distributing its current income to shareholders, or distributing current and accumulated income to shareholders. (Investors can use this information to align their investment strategy with the strategy of a company's management. An investor interested in growth and returns on capital may be more inclined to invest in a company that reinvests its resources into the company for the purpose of generating additional resources. Conversely, an investor interested in receiving current income is more inclined to invest in a company that pays quarterly dividend distributions to shareholders.)

Statement of Cash Flows

Remember that the Income Statement provides information about the economic resources involved in the operation of a company. However, the Income Statement does not provide information about the actual source and use of cash generated during its operations. That's because obtaining and using economic resources doesn't always involve cash. For example, let's say you went shopping and bought a new mountain bike on your credit card in July - but didn't pay the bill until August.

Although the store did not receive cash in July, the sale would still be considered July revenue. The Statement of Cash Flows presents a detailed summary of all of the cash inflows and outflows during the period and is divided into three sections based on three types of activity:

- **Cash flows from operating activities:** Includes the cash effects of transactions involved in calculating net income.
- **Cash flows from investing activities:** Basically, cash from non-operating activities or activities outside the normal scope of business. This involves items classified as assets in the Balance Sheet and includes the purchase and sale of equipment and investments.
- **Cash flows from financing activities:** Involves items classified as liabilities and equity in the Balance Sheet; it includes the payment of dividends as well as issuing payment of debt or equity.

This example shows the basic format of the Statement of Cash Flows:

Media Entertainment, Inc Statement of Cash Flows (For the year ended December 31, 2005)		
Cash flows provided from operating activities		
Net Income		33,000
Depreciation Expense		10,000
Increase in Accounts Receivable	(26,000)	
Increase in Accounts Payable	<u>7,000</u>	<u>(19,000)</u>
Net cash provided by operating activities		<u>24,000</u>
Cash flows provided from investing activities		
Purchase of Building	(19,000)	
Sale of Long-Term Investment	<u>35,000</u>	
Net cash provided by investing activities		<u>16,000</u>
Cash flows provided from financing activities		
Payment of Dividends	(12,000)	
Issuance of Common Stock	<u>10,000</u>	
Net cash provided by financing activities		<u>(2,000)</u>
Net increase (decrease) in cash		38,000
Cash at the beginning of the year		165,000
Cash at the end of the year		<u>203,000</u>

As you can tell be looking at the above example, the Statement of Cash Flows gets its information from all three of the other financial statements.

Market Valuation

Now let's look at the major techniques of valuation. We'll begin with market valuation, as it is the simplest way to value a publicly traded firm. A publicly traded firm is one that is registered on a stock exchange (like the New York Stock Exchange or Nasdaq). The company's stock can be bought and sold on that exchange. Most companies we are familiar with, such as The Coca-Cola Company, IBM, and General Motors, are publicly traded. Every publicly traded company is required to publish an annual report, which includes financial figures such as annual revenues, income, and expenses. The IOKs (Annual Financials) and IOQs (Quarterly Financials) for publicly traded firms are available online through the SEC Edgar database, www.edgar-online.com.

The value of a publicly traded firm is easy to calculate. All you need to do is ind the company's stock price (the price of a single share), multiply it by the number of shares outstanding, and you have the equity market value of the company. (This is also known as market capitalization or "market cap"). The market price of a single share of stock is readily available from publications like The Wall Street Journal and from various quote services available on the Internet; the number of shares outstanding can be obtained from the cover of the most recent 10-K or 10-Q of the company, or from web sites such as Yahoo! Finance, moneycontrol, etc.

Example:

Company A stock price = \$60/share No. of shares outstanding = 200 million

Equity Market Value (market cap) = \$60 x 200 million = \$12 billion

Once you determine the market value of a firm, you need to figure out either the discount or premium that it would sell for if the company were put on the market. When a company sells for a discount it is selling for a value lower than the market value; when it sells for a premium, it is selling for a value greater than the market value. Whether a company sells at a premium or a discount depends on those supply and demand forces. Typically, if someone wants to acquire a firm, it will sell for a price above the market value of the firm. This is referred to as an acquisition premium. If the acquisition is a hostile takeover, or if there is an auction, the premiums are pushed even higher. The premiums are generally decided by the perception of the synergies resulting from the purchase or merger.

Discounted Cash Flow (DCF)

Discounted cash flow (DCF) analysis is a method of valuing the intrinsic value of a company (or asset). In simple terms, discounted cash flow tries to work out the value today, based on projections of all of the cash that it could make available to investors in the future. It is described as "discounted" cash flow because of the principle of "time value of money" (i.e. cash in the future is worth less than cash today).

The advantage of DCF analysis is that it produces the closest thing to an intrinsic stock value - relative valuation metrics such as price-earnings (P/E) or EV/EBITDA ratios aren't very useful if an entire sector or market is overvalued. In addition, the DCF method is forward-looking and depends more on future expectations than historical results. The method is also based on free cash flow (FCF), which is less subject to manipulation than some other figures and ratios calculated out of the income statement or balance sheet.

So how does it work?

- A. Estimate Cashflows
- B. Estimate Growth Profile (1 stage, 2 stage, 3 stage etc) & Growth Rates
- C. Calculate Discount Rate
- D. Calculate the Terminal Value
- E. Calculate fair value of company and its equity
- F. Estimating Cashflows

A. Estimating Cash flows

$$\begin{aligned}
 \text{FCF}_t &= \text{Earnings Before Interest and Taxes} \times (1 - t) \\
 &+ \text{Depreciation \& Amortization} \\
 &- \text{Capital Expenditure ("CapEx")} \\
 &- \text{Net increase in working capital (or + net decrease in working capital)} \\
 &+ \text{Other relevant cash flows for an all equity firm}
 \end{aligned}$$

Free Cash Flow to the Firm (FCFF). This is the cash available to bond holders and stock holders after all expense and investments have taken place.

B. Forecasting Cash Flows growth profile

The next step is to estimate how fast will the company grow its free cash flow. This is a critical part of any valuation and is typically where the biggest errors creep in. People tend to overestimate how fast a company can grow

1. **Extrapolate from historic growth** - One option is to use historic growth rates
2. **Trust the Analysts** - The second approach is to trust the equity research analysts that follow the firm to come up with the right estimate of growth for the firm, and to use that growth rate in valuation.

3. **Fundamental Determinants** - With both historical and analyst estimates, growth is treated as an exogenous variable that affects value but is divorced from the operating details of the firm. As Professor Damodaran notes, the alternative way of incorporating growth into value is to make it endogenous, i.e., to make it a function of how much a firm reinvests for future growth and the quality of its reinvestment. When a firm has a stable return on capital, its expected growth in operating income (and therefore cashflow) is a product of the reinvestment rate, i.e., the proportion of the after-tax operating income that is invested in net capital expenditures and non-cash working capital, and the quality of these reinvestments, measured as the return on the capital invested.

Option 3 is probably the best option but may feel a bit involved. A simpler approach would be to look at historic growth over the past several years, take an average, and then reduce that in stages. A three-stage model might take the last 3-years' growth rate, apply it to the next five years, chop it in half for the next five years, and then reduce it to 3% (the long term rate of inflation, e.g. no "real" growth) from then on.

C. How do we choose a discount rate and calculate present value?

Having projected the company's free cash flow for the next X years, we need an appropriate discount rate which we can use to calculate the net present value (NPV) of the cash flows. This is a critical ingredient in discounted cashflow valuation. Errors in estimating the discount rate or mismatching cashflows and discount rates can lead to serious errors in valuation. It is important that the Discount Rate should be consistent with the cash flow being discounted. If the cash flows being discounted are cash flows to equity, the appropriate discount rate is a cost of equity. If the cash flows are cash flows to the firm, the appropriate discount rate is the cost of capital (or WACC - the weighted average cost of capital).

Cost of Equity

Equity shareholders expect to obtain a certain return on their equity investment in a company. From the company's perspective, the equity holders' required rate of return is a cost. However, unlike the cost of debt which is relatively easy to determine from observation of interest rates in the capital markets, a company's current cost of equity is unobservable and must be estimated

There are several ways of calculating discount rates? We'll now look at the most popular methods of discounted cash flow (DCF) analysis tested in finance interviews: the WACC (Weighted Average Cost of Capital). For WACC, we calculate the discount rate for leveraged equity (reL) using the capital asset pricing model (CAPM);

WACC

For WACC, the discount rate is calculated with the following formula:

$$r_{dWACC} = \frac{(E)}{(D + E)} (r_e^L) + \frac{(D)}{(D + E)} (1 - t)(r_D)$$

Here:

D = Market value of debt
E = Market value of equity

r_d = Discount rate for debt = Average interest rate on long-term debt

Discount rate for (leveraged) equity (calculated using the CAPM)

Note: The terms $(E)/(D + E)$ and $(D)/(D + E)$ represent the "target" equity and debt ratios (also referred to as the equity-to-debt and debt-to-equity ratios).

Capital Asset Pricing Model (CAPM)

In order to find the appropriate discount rate used to discount the company's cash flows, you use the Capital Asset Pricing Model, or (CAPM). This is a model used to calculate the expected return on your investment, also referred to as expected return on equity. It is a linear model with one independent variable, Beta. Beta represents relative volatility of the given investment with respect to the market. For example, if the Beta of an investment is 1, the returns on the investment (stock/bond/portfolio) vary identically with the market returns.

A Beta less than 1, like 0.5, means the investment is less volatile than the market. So if the Dow Jones Industrial Average goes up or down 20 percent the next day, a less volatile stock (i.e., $\text{Beta} < 1$) would be expected to go up or down 10 percent. A Beta of greater than 1, like 1.5, means the investment is more volatile than the market. A company in a volatile industry (think Internet Company) would be expected to have a Beta greater than 1. A company whose value does not vary much, like an electric utility, would be expected to have a Beta under 1.

Mathematically, CAPM is calculated as

Here:

$$r_e = r_f + \beta (r_m - r_f)$$

r_e = Discount rate for an all-equity firm

r_f = Risk-free rate (The Treasury bill rate for the period the cash projections are being considered. For example, if we are considering a 10-year period, then the risk-free rate is the rate for the 10-year U.S. Treasury note.)

$r_m - r_f$ = Excess market return (This is the excess annual return of the stock market over a U.S. Treasury bond over a long period of time. This is usually assumed to be 7% for the U.S. Market.)

β = Equity Beta

Equity Beta is given in various sources like Value Line. These days, Yahoo also carries the equity Beta of publicly traded firms. If the firm you are valuing is not publicly traded, then you need to get a firm with a similar Balance Sheet and Income Statement that is publicly traded. (When calculating CAPM you should be careful to use the "equity Beta" value and not "assets Beta."). If you have information for Beta assets rather than Beta equity, you can derive Beta equity using the following relationship:

$$\beta_A = \beta_E \frac{(E)}{(D+E)} + (1 - \frac{(D)}{(D+E)}) (\beta_D)$$

Here,

D = Market value of debt (usually the book value of debt)

E = Market value of equity (the number of shares outstanding \times share price) (Also known as "market cap.")

β_D = Beta debt (usually one can assume this to be equal to 0) t = Corporate taxes, (usually assumed to be 35%)

Therefore:

Net Present Value

We'll explain this important concept with a simple example. Let's say you had an arrangement under which you were set to receive \$20 from a friend one year from now. Now let's say for some reason that you decide you don't want to wait for a year and would rather have the money today. How much should you be willing to accept today? More than \$20, \$20, or less than \$20?

In general, a dollar today is worth more than a dollar tomorrow for two simple reasons. First, a dollar today can be invested at a risk-free interest rate (think savings account or U.S. government bonds), and can earn a return. A dollar tomorrow is worth less because it has missed out on the interest you would have earned on that dollar had you invested it today. Second, inflation diminishes the buying power of future money.

A discount rate is the rate you choose to discount the future value of your money. A discount rate can be understood as the expected return from a project that matches the risk profile of the project in which you'd invest your \$20.

Note: The discount rate is different than the opportunity cost of the money. Opportunity cost is a measure of the opportunity lost. Discount rate is a measure of the risk. These are two separate concepts.

To express the relationship between the present value and future value, we use the following formula:

$$\text{Present Value} = \frac{\text{Future Value}}{(1 + r_d)^n}$$

Here, " r_d " is the discount rate and " n " is the number of years in the future.

The method of calculating the discount rate is different depending on the method of valuation used (i.e., APV method vs. WACC method). Although the discount rate varies, the concept of NPV, or net present value, is the same.

Let's say a series of cash flows is expressed as the following:

Year	1	2	3	4	5	6	7	8
Free Cash Flows	FCF_1	FCF_2	FCF_3	FCF_4	FCF_5	FCF_6	FCF_7	FCF_8

Net present value (NPV) in Year 0 of future cash flows is calculated with the following formula:

$$NPV = \frac{FCF_1}{(1+r_d)^1} + \frac{FCF_2}{(1+r_d)^2} + \frac{FCF_3}{(1+r_d)^3} + \dots + \frac{FCF_8}{(1+r_d)^8}$$

or

$$NPV = \sum_{i=1}^n \left(\frac{FCF_i}{(1+r_d)^i} \right)$$

Here again, r_d is the discount rate, which is calculated differently depending on whether you use APV or WACC (to be explained later).

Terminal Year Calculation

The terminal year represents the year (usually 10 years in the future) when the growth of the company is considered stabilized.

In other words...

The cash flows of the first 10 years are determined by company management or a financial analyst, based on predictions and forecasts of what will happen. Then, a terminal year value needs to be calculated assuming that after year 10 the cash flows of the company keep growing at a constant "g." Values of "g" are typically not as high as the first 10 years of growth, which are considered un-stabilized growth periods.

Instead, "g" represents the amount the company can feasibly grow forever once it has stabilized (after 10 years).

The value of the terminal year cash flows (that is, the value in year 10) is given by:

$$TY\ FCF = \frac{FCF_{10} (1 + g)}{(r_d - g)}$$

The present value of the terminal year cash flows (that is, the value today) is given by:

$$PV\ (TY\ FCF) = \frac{TY\ FCF}{(1 + r_d)^{10}}$$

or

$$PV\ (TY\ FCF) = \frac{FCF_{10} (1 + g)}{(1 + r_d)^{10} (r_d - g)}$$

Adding it up

Adding the discounted value of the first 10 year FCFs, and the terminal year FCFs (CFs after year 10 into perpetuity) gives us the value of the company under the DCF analysis.

Step 1: Assumptions

You are given the following information for the company you are valuing:

	Year 1	Year 2	Year 3	Year 4
EBIT	7.0	7.5	7.9	8.4
Depreciation	2.9	2.7	2.7	2.6
Capital Expenditures	1.5	2.5	2.5	3.0
Increase in Working Capital	0.8	1.5	1.5	0.9

Tax Rate (t)	35%
Book Value Debt (D)	7.0
Book Value Equity (E_{book})	10.0
Market Value Equity (E_{market})	15.0
Beta (historical) (β_L)	1.5
Long-term T-Bond rate (r_f)	10.0%
Long-term debt rate (r_D)	12.0%
Long-term growth rate (g)	6.0%
Long-term risk premium ($r_m - r_f$)	8.0%

Step 2: Cash flows

Free cash flow to all equity firm = EBIT $(1 - t)$ + Depr. - CAPX - Δ NWC.

Plugging in our data, we get:

Year One = $7.0 (1 - 0.35) + 2.9 - 1.5 - 0.8 = 5.15$

Year Two = $7.5 (1 - 0.35) + 2.7 - 2.5 - 1.5 = 3.58$

Year Three = $7.9 (1 - 0.35) + 2.7 - 2.5 - 1.5 = 3.84$

Year Four = $8.4 (1 - 0.35) + 2.6 - 3.0 - 0.9 = 4.16$

So our free cash flows look like this:

	Year 1	Year 2	Year 3	Year 4
FCF	5.15	3.58	3.84	4.16

Step 3: Discount rates

WACC

Let's now look at the WACC method. For WACC, we need to know what the target (long-term) debt-to- capital ratio for this company is. Let's assume that it is 40 percent. That is, in the long run, this company expects to finance its projects with 40 percent debt and 60 percent equity.

$$\begin{aligned}
 r_{WACC} &= \frac{(E)}{(D+E)} (r_e^L) + \frac{(D)}{(D+E)} (1 - t)(r_D) \\
 &= 0.6 \times 0.2312 + 0.4 \times (1 - 0.35) \times 0.12 \\
 &= 0.1699 \text{ or } 17.0\%
 \end{aligned}$$

$$\begin{aligned}
 B^L &= 1.15 \left[1 + (1 - 0.35) \frac{(0.4)}{(0.6)} \right] \\
 &= 1.64
 \end{aligned}$$

$$\begin{aligned}
 r_e^L &= r_f + B^L (r_m - r_f) \\
 r_e^L &= (0.10) + (1.64)(0.08) = 0.2312 \text{ or } 23.12\%
 \end{aligned}$$

Note: Here we calculate our expected return on equity, or r_e^L , using the target debt-to-equity ratio. We use this r_e^L for all years whether or not that target ratio has been matched or not. Since our long-term debt rate is 12.0 percent, and our long-term debt is 40percent, we can now calculate WACC.

Step 4: Terminal value

We assume that the company operates forever. But, we only have four years of cash flow. We need to put a value on all the cash flows after Year Four. The Year Four cash flow is 4.16 and we expect it to grow at 5 percent a year. The value of all cash flows after Year Four (as of the end of Year Four) can be calculated with our Terminal Value formula

WACC

	Year 1	Year 2	Year 3	Year 4
FCF	5.15	3.58	3.84	4.16

Add terminal value = 36.4

FCF _{adjusted}	5.15	3.58	3.84	40.56
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Using these cash flows, with a discount rate of 17.0 percent, we can calculate an NPV($r = r_{WACC}$)

$$\begin{aligned}
 NPV &= \frac{FCF_1}{(1+r)^1} + \frac{FCF_2}{(1+r)^2} + \frac{FCF_3}{(1+r)^3} + \frac{FCF_4}{(1+r)^4} \\
 NPV &= \frac{5.15}{(1+0.17)} + \frac{3.58}{(1+0.17)^2} + \frac{3.84}{(1+0.17)^3} + \frac{40.56}{(1+0.17)^4} \\
 NPV &= 4.4 + 2.6 + 2.4 + 21.6 = \mathbf{31.0} \text{ (approximately)}
 \end{aligned}$$

Step 6: Figuring out the company's value

We are done with our calculation - the value of the company is approximately \$31.0

Economic Value Added (EVA)

A measure of a company's financial performance based on the residual wealth calculated by deducting cost of capital from its operating profit (adjusted for taxes on a cash basis). (Also referred to as "economic profit".)

The formula for calculating EVA is as follows:

$$EVA = \text{Net Operating Profit After Taxes (NOPAT)} - (\text{Capital} * \text{Cost of Capital})$$

Sample Questions

1. What is the difference between the Income Statement and the Statement of Cash Flows?

The Income Statement is a record of Revenues and Expenses while the Statement of Cash Flows records the actual cash that has either come into or left the company. The Statement of Cash Flows has the following categories: Operating Cash Flows, Investing Cash Flows, and Financing Cash Flows. Interestingly, a company can be profitable as shown in the Income Statement, but still go bankrupt if it doesn't have the cash flow to meet interest payments.

2. What is the link between the Balance Sheet and the Income Statement?

The main link between the two statements is that profits generated in the Income Statement get added to shareholder's equity on the Balance Sheet as Retained Earnings. Also, debt on the Balance Sheet is used to calculate interest expense in the Income Statement.

3. What is the link between the Balance Sheet and the Statement of Cash Flows?

The Statement of Cash Flows starts with the beginning cash balance, which comes from the Balance Sheet. Also, Cash from Operations is derived using the changes in Balance Sheet accounts (such as Accounts Payable, Accounts Receivable, etc.). The net increase in cash flow for the prior year goes back onto the next year's Balance Sheet.

4. What is EBITDA?

A proxy for cash flow, EBITDA is Earnings Before Interest, Taxes, Depreciation, and Amortization.

5. Say you knew a company's net income. How would you figure out its "free cash flow"?

Start with the company's Net Income. Then add back Depreciation and Amortization. Subtract the company's Capital Expenditures (called "CapEx" for short, this is how much money the company invests each year in plant and equipment). The number you get is the company's free cash flow:

$$\begin{array}{r}
 \text{Net Income} \\
 + \text{ Depreciation and Amortization} \\
 - \text{ Capital Expenditures} \\
 - \text{ Increase (or + decrease) in net working capital} \\
 \hline
 = \text{ Free Cash Flow (FCF)}
 \end{array}$$

6. Walk me through the major line items on a Cash Flow statement.

The answer: first the Beginning Cash Balance, then Cash from Operations, then Cash from Investing Activities, then Cash from Financing Activities, and finally the Ending Cash Balance.

7. What happens to each of the three primary financial statements when you change a) gross margin b) capital expenditures c) any other change?

Think about the definitions of the variables that change. For example, gross margin is gross profit/sales, or the extent to which sales of sold inventory exceeds costs. Hence, if a) gross margin were to decrease, then gross profit decreases relative to sales. Thus, for the Income Statement, you would probably pay lower taxes, but if nothing else changed, you would likely have lower net income. The cash flow statement would be affected in the top line with less cash likely coming in. Hence, if everything else remained the same, you would likely have less cash. Going to the Balance Sheet, you would not only have less cash, but to balance that effect, you would have lower shareholder's equity.

b) If capital expenditure were to say, decrease, then first, the level of capital expenditures would decrease on the Statement of Cash Flows. This would increase the level of cash on the balance sheet, but decrease the level of property, plant and equipment, so total assets stay the same. On the income statement, the depreciation expense would be lower in subsequent years, so net income would be higher, which would increase cash and shareholder's equity in the future.

c) Just be sure you understand the interplay between the three sheets. Remember that changing one sheet has ramifications on all the other statements both today and in the future.

8. How do you value a company?

Valuing a company is one of the most popular technical tasks you will be asked to perform in finance interviews. Remember the several methods that we discussed, and good luck. MBAs looking for I- banking or finance in a company positions are sure to get this question.

One basic answer to this question is to discount the company's projected cash flows using a "risk- adjusted discount rate." This process involves several steps. First you must project a company's cash flows for 10 years. Then you must choose a constant growth rate after 10 years going forward. Finally, you must choose an appropriate discount rate. After projecting the first five or 10 years performance, you add in a "Terminal Value," which represents the present value of all the future cash flows another 10 years. You can calculate the Terminal Value in one of two ways: (1) you take the earnings of the last year you projected, say year 10, and multiply it by some market multiple like 20 times earnings, use that as your terminal value; or (2) you

take the last year, say year 10, and assume some constant growth rate after that like 10 percent. The present value of this growing stream of payments after year 10 is the Terminal Value. Finally, to figure out what "discount rate" you would use to discount the company's cash flows, tell your interviewer you would use the "Capital Asset Pricing Model" (or "CAPM"). (In a nutshell, CAPM says that the proper discount rate to use is the risk-free interest rate adjusted upwards to reflect this particular company's market risk or "Beta.") For a more advanced answer, discuss the APV and WACC methods. You should also mention other methods of valuing a company, including looking at "comparables" - that is, how other similar companies were valued recently as a multiple of their sales, net income, or some other measure.

9. The CEO of a \$500 million company has called you, her investment banker. She wants to sell the company. She wants to know how much she can expect for the company today.

It might sound different, but this is the same question as No. 8: How do you value a company?

10. What is the formula for the Capital Asset Pricing Model?

The Capital Asset Pricing Model is used to calculate the expected return on an investment. Beta for a company is a measure of the relative volatility of the given investment with respect to the market, i.e., if Beta is 1, the returns on the investment (stock/bond/portfolio) vary identically with the market's returns. Here "the market" refers to a well diversified index such as the S&P 500. The formula for

CAPM is as follows:

CAPM:

$$r_e^L = r_f + \beta^L (r_m - r_f)$$

Here:

r_f = Risk-free rate = the Treasury bond rate for the period for which the projections are being considered
 β^L = Leveraged Beta

r_e^L = Discount rate for (leveraged) equity (calculated using the CAPM)

11. Why might there be multiple valuations for a single company?

There are several different methods by which one can value a company. And even if you use the rigorously academic DCF analysis, the two main methods (the WACC and APV method) make different assumptions about interest tax shields, which can lead to different valuations.

12. How do you calculate the terminal value of a company?

Terminal year value is calculated by taking a given year in the future at which a company is stable (usually year 10), assuming perpetually stable growth after that year, using a perpetuity formula to come up with the value in that year based on future cash flows, and discounting that value back to the present day. This method uses the following formula.

$$TY FCF = \frac{FCF_{10} (1 + g)}{(r_d - g)}$$

Here "g" is an assumed growth rate and r_d is the discount rate. Remember that you could also calculate the terminal value of a company by taking a multiple of terminal year cash flows, and discounting that back to the present to arrive at an answer. This alternative method might be used in some instances because it is less dependent on the assumed growth rate (g).

13. Why are the P/E multiples for a company in London different than that of the same company in the States?

The P/E multiples can be different in the two countries even if all other factors are constant because of the difference in the way earnings are recorded. Overall market valuations in American markets tend to be higher than those in the U.K.

14. What are the different multiples that can be used to value a company?

The most commonly used multiple is price-to-earnings multiple, or "P/E ratio." Other multiples that are used include revenue, EBITDA, EBIT, and book value. The relevant multiple depends on the industry. For example, Internet companies are often valued with revenue multiples; this explains why companies with low profits can have such high market caps. Companies in the metals and mining industry are valued using EBITDA. As discussed in the section on valuation, not only should you be aware of the financial metric being used, you should know the time period the metric used represents: for example, earnings in a P/E ratio can be for the previous or projected 12 months, or for the previous or projected fiscal year.

15. How do you get the discount rate for an all-equity firm?

You use the Capital Asset Pricing Model, or CAPM.

16. Can I apply CAPM in Latin American markets?

CAPM was developed for use in the U.S. markets; however, it is presently the best known tool for calculating discount rates. Hence, while CAPM is not exact, it is a good framework for thinking about and analyzing discount rates outside of the U.S. as fundamentally, markets are based on similar principles.

17. How much would you pay for a company with \$50 million in revenue and \$5 million in profit?

If this is all the information you are given you can use the comparable transaction or multiples method to value this company (rather than the DCF method). To use the multiples method, you can examine common stock information of comparable companies in the same industry, to get average industry multiples of price-to-earnings. You can then apply that multiple to find the given company's value.

18. How would you value a company with no revenue?

First you would make reasonable assumptions about the company's projected revenues (and projected cash flows) for future years. Then you would calculate the Net Present Value of these cash flows.

19. What is Beta?

Beta is the value that represents a stock's volatility with respect to overall market volatility.

20. How do you unlever a company's Beta?

Unlevering a company's Beta means calculating the Beta under the assumption that it is an all-equity firm. The formula is as follows:

$$\beta^L = \beta^U \left[1 + (1 - t) \frac{(D)}{(E)} \right]$$

21. Name three companies that are undervalued and tell me why you think they are undervalued.

This is a very popular question for equity research and portfolio management jobs. Here you have to do your homework. Study the stocks you like and value them using various methods: DCF, multiples, comparable transactions, etc. Then choose several undervalued (and overvalued) stocks, and be prepared to back up your assessment, using financial and strategy information.

For example, let's say that Coke received some bad PR recently and its stock took a hammering in the market. However, the earnings of Coke are not expected to decrease significantly because of the negative publicity (or at least that's your analysis). Thus, Coke is trading at a lower P/E relative to Pepsi and others in the industry: it is undervalued. This is an example of a line of reasoning you might offer when asked this question (the more thorough and insightful the reasoning, the better). Using some of the techniques discussed earlier as well as regular readings of the WSJ and other publications will help you formulate real-world examples.

Also, keep in mind that there are no absolute right answers for a question like this: If everyone in the market believed that a stock was undervalued, the price would go up and it wouldn't be undervalued anymore!

22. Which industries are you interested in? What are the multiples that you use for those industries?

As discussed, different industries use different multiples. Answering the first part of the question, pick an industry and know any major events that are happening. Next, if you claim interest in a certain industry, you better know how companies in the industry are commonly valued. (Don't answer the first question without knowing the answer to the second!)

23. Is 10 a high P/E ratio?

The answer to this or any question like this is, "it depends." P/E ratios are relative measurements, and in order to know whether a P/E ratio is high or low, we need to know the general P/E ratios of comparable companies. Generally, higher growth firms will have higher P/E ratios because their earnings will be low relative to their price, with the idea that the earnings will eventually grow more rapidly than the stock's price.

24. Describe a typical company's capital structure.

A company's capital structure is just what it sounds like: the structure of the capital that makes up the firm, or its debts and equity. Capital structure includes permanent, long-term financing of a company, including long-term debt, preferred stock and common stock, and retained earnings. The statement of a company's capital structure as expressed above reflects the order in which contributors to the capital structure are paid back, and the order in which they have claims on company's assets should it liquidate. Debt has first priority,

then preferred stock holders, then common stock holders. Anything left over is put into the retained earnings account.

Equity Analysis and Portfolio Management

Investment Management and Portfolio Theory

Asset managers and portfolio managers (as well as the job candidates interviewing for these positions) are expected to understand basic portfolio theory. This section covers the basics of portfolio theory. Regardless of the type of portfolio he or she manages, the aim of every portfolio manager is the same: to achieve the highest rate of return possible given the asset class he or she is investing in while minimizing risk. As a portfolio manager, the type of risk you are allowed to assume depends on the type of assets or fund you are managing, but your job is still to keep the risk as low as you can while still achieving the expected returns.

Risk

In a nutshell, the riskiness of a portfolio is defined as the standard deviation of the portfolio's expected returns. Standard deviation is a measure of volatility. So, the more predictable a portfolio's returns are perceived to be, the less risky it is. Conversely, the less predictable a portfolio's returns are, the more risky the portfolio is. For example, a portfolio of stocks with relatively low revenue and high growth prospects, where the prices can move wildly from day to day, is a relatively "risky" portfolio.

A fact you need to face as a portfolio manager is that in order to receive an increased return from your investment portfolio, you need to accept an increased amount of risk. Keeping the assets in your portfolio in cash reduces the portfolio's risk, but it also reduces the potential return.

Portfolio risk vs. a single security's risk

Rather than look at risk at the individual security level, portfolio managers must constantly measure the risk of an entire portfolio. When an interviewer for a portfolio manager's job asks you whether you recommend adding a particular security to a portfolio, don't simply base your decision on the risk of the given security. Instead, consider how that security contributes to the overall risk of the portfolio. Using "correlation" is an effective technique for determining such portfolio-level risk.

Correlation

The tendency for two investments in a portfolio to move together in price under the same circumstances is called "correlation." If two investments have a strong positive correlation, they tend to move together. For example, the stocks of Microsoft and Intel have a strong positive correlation. Both are impacted by the demand for technology. Therefore, you can expect the stocks of these two companies to generally move in the same direction.

If two stocks have a strong negative correlation, they will tend to move in opposite directions. For example, high fuel prices might be good for oil companies, but bad for airlines that need to buy the fuel. As a result, you might expect that the stocks of companies in these two industries to move in opposite directions. These two industries have a negative correlation. You'll get better diversification in your portfolio if you own one airline and one oil company, rather than two oil companies. However, your returns may be lower.

Note that the correlation between two things can be measured by a number called a correlation coefficient. The correlation coefficient between two securities can range from -1 (i.e., a perfect negative correlation) to +1 (i.e., a perfect positive correlation). A correlation coefficient of zero implies that the two assets have no correlation.

with one another. You can calculate the correlation coefficient between two securities using a formula or a financial software program, though if you work at an investment bank you can usually just look up this number.

Diversification

When the term "diversification" is used, it usually means building a portfolio that includes securities from different asset classes, like stocks and bonds. However, realize that this is the case precisely because bonds often tend to do well when stocks don't (i.e., they have a low correlation).

Another way to diversify a portfolio is to buy securities in the same asset class that are not affected by the same variables and that therefore also have a low correlation (think oil and airlines). Conversely, a portfolio of securities with a strong positive correlation will be relatively undiversified and therefore more risky, but may garner higher returns.

Risk level of a portfolio with two securities

Type of Correlation	Correlation Coefficient	Risk Level	Example
Securities have a strong positive correlation	Close to 1	High	Microsoft and Intel
Securities have a weak or zero correlation	Close to zero	Medium	Microsoft and H&R Block
Securities have a strong negative correlation	Close to -1	Low	Exxon and Federal Express

Stock Analysis and Stock Picking

Technical analysis vs. fundamental analysis

Technical analysis involves looking at charts and patterns associated with a stock's historical price movements to try to profit from predictable patterns, regardless of fundamentals such as revenue growth or expense trends. While many on Wall Street look down upon technical analysis (and it is rarely taught at business schools), some Wall Street traders still rely on it or use it in conjunction with fundamental analysis to decide whether and when to buy and sell.

In contrast, fundamental analysis of a stock (or other security) involves using financial analysis to analyze the company's underlying business, such as sales growth, its balance sheet, etc., (its "fundamentals") to decide whether and when to buy and sell.

For the most part, your interviewers will be looking for your skills in fundamental analysis, though if you're interviewing for a trading position your interviewer might expect you to have some familiarity with technical analysis.

Stock valuation techniques

The most common forms of fundamental analysis involve the traditional valuation techniques (DCF, multiples analysis) as well as the various accounting and financial statement. For investment Management interviews, you should have a strong command for these techniques for valuing individual stocks.

Financial Ratios

Another important form of stock analysis is Ratio Analysis, which involves looking at a company's various financial ratios and how they have changed over time to spot trends or trouble spots in a company's operations. A financial ratio by itself doesn't necessarily tell you a lot. What more important is comparison of how a company's financial

ratios are changing from one quarter to the other, and how they compare a company's financial ratios with other companies within an industry.

Below are the most common ratios used in finance to analyze companies. Particularly if you are interviewing for investment management, equity research or similar finance positions, you may be asked questions about how to calculate common financial ratios and what they signify.

Solvency Ratios		
Quick Ratio	$\frac{\text{Cash + Accounts Receivable}}{\text{Total Current Liabilities}}$	Shows the amount of liquid assets (i.e., cash or assets that can be quickly converted to cash) on hand to cover current debts
Current Ratio	$\frac{\text{Total Current Assets}}{\text{Total Current Liabilities}}$	Similar to the Quick Ratio, but broader, since it includes less liquid assets that may be used to cover current debts
Cash Ratio (also called Liquidity Ratio)	$\frac{\text{Cash}}{\text{Total Current Liabilities}}$	Shows the cash on hand to cover current liabilities
Debt to Equity	$\frac{\text{Debt}}{\text{Equity}}$	Shows the amount of shareholders' equity available to cover debts
Current Liabilities to Inventory	$\frac{\text{Total Current Liabilities}}{\text{Inventory}}$	Shows how much a company can rely on unsold inventory to cover debts
Total Liabilities to Net Worth	$\frac{\text{Total Liabilities}}{\text{Net Worth}}$	Similar to the debt to equity ratio, but broader since it includes all the company's liabilities, not just debt

Efficiency Ratios

Collection Period (also called Day Sales Outstanding)	$\frac{\text{Accounts Receivable}}{\text{Sales}} \times 365$	Shows the average amount of time it takes a company to collect from customers
Inventory Turnover (also called Inventory Utilization Ratio)	$\frac{\text{Sales}}{\text{Inventory}}$	Shows how quickly a company is selling its inventory
Sales to Assets	$\frac{\text{Sales}}{\text{Total Assets}}$	Measures how efficiently a company is using its assets to generate sales
Sales to Net Working Capital	$\frac{\text{Sales}}{\text{Net Working Capital}}$	Shows a company's ability to use short-term assets and liabilities to generate revenue
Gross Profit Margin (also called Return on Sales)	$\frac{\text{Gross Profit}}{\text{Sales}}$	A measure of efficiency — shows profits earned per dollar of sales
Return on Assets	$\frac{\text{Net Profit After Taxes}}{\text{Total Assets}}$	Shows profits relative to a company's assets
Return on Equity (also called Return on Net Worth)	$\frac{\text{Net Profit After Taxes}}{\text{Net Worth}}$	Shows profits relative to equity

You can use these ratios to ascertain the financial health of a company. For example, a higher current ratio is better; a company's position is improving when the collection period declines. Here's a quick chart that explains whether a higher or lower ratio is better.

Ratio	Good Trend	Bad Trend
Quick Ratio	Rising	Falling
Current Ratio	Rising	Falling
Cash Ratio	Rising	Falling
Debt to Equity	Falling	Rising
Current Liabilities to Inventory	Falling	Rising
Total Liabilities to Net Worth	Falling	Rising
Collection Period	Falling	Rising
Inventory Turnover	Rising	Falling

Ratio	Good Trend	Bad Trend
Sales to Assets	Rising	Falling
Sales to Net Working Capital	Rising	Falling
Gross Profit Margin	Rising	Falling
Return on Assets	Rising	Falling
Return on Equity	Rising	Falling

1. If you add a risky stock into a portfolio, how is the overall portfolio risk affected?

A. It becomes riskier B. It becomes less risky C. Overall risk is unaffected D. It depends on the stock's risk relative to that of the portfolio

Answer: D. In modern portfolio theory, if you add a risky stock into a portfolio that is already risky, the resulting portfolio may be more or less risky than before. A portfolio's overall risk is determined not just by the riskiness of its individual positions, but also by how those positions are correlated with each other. For example, a portfolio with two high-tech stocks might at first glance be considered risky, but if those two stocks tend to move in opposite directions, then the riskiness of the portfolio overall could be significantly lower. So the risk effect of adding a new stock to an existing portfolio depends on how that stock correlates with the other stocks in the portfolio.

2. Put the following portfolios consisting of 2 stocks in order from the least risky to the most risky and explain why

- a. portfolio of a cable television company stock and an oil company stock
- b.
- c. A portfolio of an airline company stock and a cruise ship company stock
- d. A portfolio of an airline company stock and an oil company stock.

Answer: Least risky: C. Then A. B is the most risky.

The least risky portfolio is the one where the two securities have a strong negative correlation as they tend to move in the opposite direction under the same circumstances. Therefore, the value of the portfolio will remain relatively stable over time. In this question, since high fuel prices might be good for oil companies, but bad for airlines who need to buy the fuel, you would expect that the stocks of companies in these two industries to move in opposite directions. These two industries have a strong negative correlation and portfolio C is the least risky.

Portfolio B is the most risky because the stocks of airline companies and cruise ship companies have a strong positive correlation: they tend to move in the same direction under the same circumstances. For example, after the September 11 terrorist attacks all travel related businesses suffered from sharply lower demand. A portfolio of two securities with a strong positive correlation will be the most risky.

Portfolio A is in the middle because we would expect cable TV stocks and oil stocks to have a weak correlation. A weak correlation (correlation coefficient of around 0) means that the two securities generally do not move in the same direction under the same circumstances.

3. Gotham Energy just released second quarter financial results and you calculate that its Current Ratio went from 1.5 to 1.2. Does this make you more or less likely to buy the stock?

Less likely. This means that the company is less able to cover its immediate liabilities with cash on hand and other current assets than it was last quarter.

4. Xeron Software Corporation's days sales outstanding have gone from 58 days to 42 days. Does this make you more or less likely to issue a Buy rating on the stock?

More likely. When the company's day's sales outstanding (DSOs) decreases, it means the company is able to collect money from its customers faster. In other words, Xeron's customers went from taking an average of 58 days to pay their bills to 42 days. All things being equal, having faster paying customers is almost always a good thing. Of course, one caveat is that you want to make sure Xeron didn't achieve this by imposing much tighter credit terms on its customers and therefore. But if the company's sales grew at the same time its DSOs decreased, then as a research analyst or trader you'll be more likely to want to buy the stock.

Banking Business

Bank

The term 'bank' is used generically to refer to any financial institution that is licensed to accept deposits that are repayable on demand, and lend money.

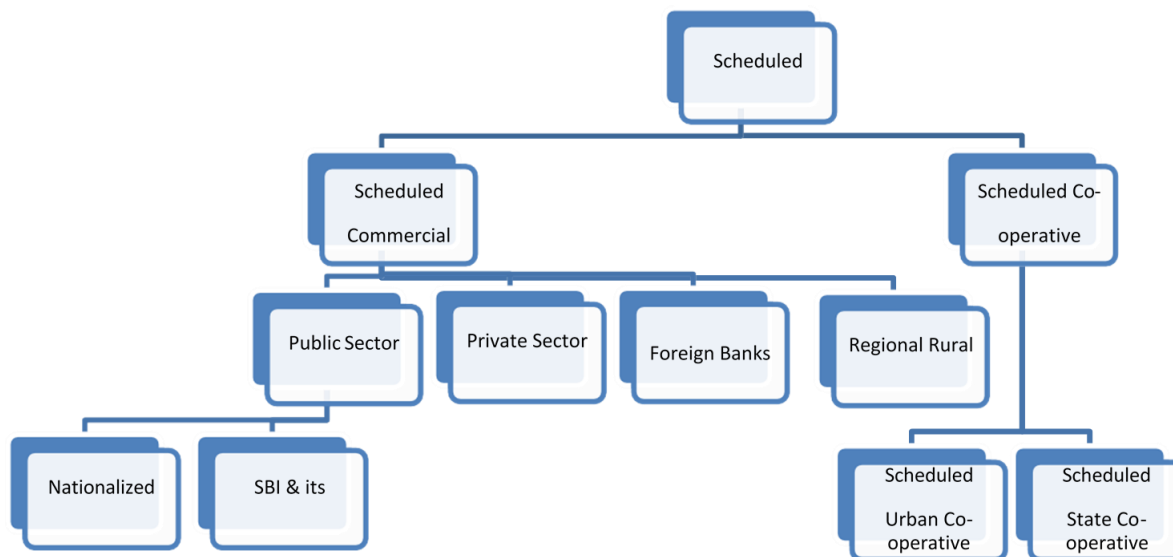
Services offered by a bank to a corporate:

- **Loans:** Banks provide short and long-term funds to businesses.
- **Cash Deposits:** Corporates deposit surplus funds in a bank.
- **Foreign exchange transactions:** Banks act as authorized dealers to facilitate foreign exchange transactions.
- **Advisory Services:** Banks provide financial advisory services such as valuations, issue management, mergers & acquisitions, etc. to corporates.
- **Trade Services:** Banks play the role of the trusted intermediary between parties involved in trade and facilitate trade and commerce.

Categories of banks in India

- **Scheduled banks:** Banks which have **deposits > INR 200 crore** are 'Scheduled Banks'.
- **Non-scheduled banks:** Banks which have **deposits ≤ INR 200 crore** are 'Non-scheduled Banks'.

Banking Structure in India :



Public sector banks: PSBs are those where the government holds a majority (>50%) ownership.

Private Banks: Private banks, are banks owned by private (i.e. non-government) Indian entities such as corporates and individuals.

Foreign Banks: Foreign Banks are those owned by multinational/non-Indian entities.

Regional Rural Banks: RRBs are also banks with a Government ownership. The idea was to create banks which will focus on the rural areas and serve the under banked sector. A scheduled commercial bank acts as a sponsor of an RRB.

Urban co-operative banks: Co-operative banks are formed by a group of members. Traditionally the thrust of UCBs has been, to mobilize savings from the middle and low income urban groups and ensure credit to their members - many of which belong to the weaker section.

State Co-operative banks: SCBs are set up with state government partnership to help agricultural and rural development.

The Central Bank

The 'Central Bank' (CB) of any country is the banker's bank. It acts as a regulator for other banks, while providing various facilities to facilitate their functioning. It also acts as the government's bank.

Responsibilities of a Central bank:

- Conducting the Monetary Policy of the country: i.e. directing interest rates in the economy
- **Ensuring sufficient pool of funds: increase or decrease money supply to manage inflation.**
- Maintaining the stability of financial system: by regulating banks
- Monitoring the foreign currency assets & liabilities: managing the money which India has invested in other countries
- Providing financial services to the government

National Housing Bank: National Housing Bank, a wholly owned subsidiary of RBI, governs the functioning of all housing finance companies.

Reserve requirements

Reserve requirements are a certain percentage of deposits taken which are to be maintained with the RBI. Reserve requirements in India are of two types:

Cash Reserve Ratio: A certain percentage of all deposits must be placed with the RBI in the form of cash. CRR defines this percentage.

Statutory Liquid Ratio: A certain percentage of all deposits must be used to purchase Government securities. SLR defines this percentage.

Key Concepts for Banks & NBFCs

Net Owned Funds: Essentially NOF is Owners' Equity – i.e., money belonging to the owners (Owner's equity – losses)



Capital adequacy ratio: A measure of a bank's capital. It is expressed as a percentage of a bank's risk weighted credit exposures. This ratio is used to protect depositors and promote the stability and efficiency of financial systems around the world. Two types of capital are measured: tier one capital, which can absorb losses without a bank being required to cease trading, and tier two capital, which can absorb losses in the event of a winding-up and so provides a lesser degree of protection to depositors.

$$\text{CAR} = (\text{Tier one Capital} + \text{Tier Two Capital}) / \text{Risk Weighted Assets}$$

Also known as "Capital to Risk Weighted Assets Ratio (CRAR)."

Bank Rate: Bank rate is the rate of interest which is levied on **Long-Term loans** and Advances taken by commercial banks from RBI. Changes in the bank rate are often used by central banks to control the money supply.

Repo Rate: Repo rate is the rate of interest which is levied on Short-Term loans taken by commercial banks from RBI. Whenever the banks have any shortage of funds they can borrow it from RBI. A reduction in the Repo rate will help banks to get money at a cheaper rate. When the repo rate increases, borrowing from RBI becomes more expensive.

Reverse Repo Rate: This is exact opposite of Repo rate. Reverse repo rate is the rate which RBI pays to the commercial banks on their surplus funds with RBI. An increase in Reverse repo rate can cause the banks to transfer more funds to RBI due to these attractive interest rates. In India, Reverse Repo = Repo - 1%

Cash Reserve Ratio: Cash reserve Ratio (CRR) is the amount of cash funds that the banks have to maintain with RBI. If RBI decides to increase the percent of this, the available amount with the banks comes down. RBI doesn't pay any interest on CRR deposits.

Statutory Liquidity Ratio: SLR (Statutory Liquidity Ratio) is the amount a commercial bank needs to maintain in the form of cash, or gold or government approved securities (Bonds) before providing credit to its customers. SLR is determined and maintained by the RBI in order to control the expansion of bank credit. SLR is determined as the percentage of total demand and time liabilities.

Understanding CRR and SLR

For the sake of simplicity, let's assume there are only four entities in India:

- 1) Household Savers
- 2) Businessmen
- 3) Commercial banks (like SBI)
- 4) Central Bank (RBI)

Common men save their money in bank. Bank gives them say 7% interest rate on savings.

Then Bank gives that money as loan to businessmen and charges 12% interest rate. So $12 - 7 = 5\%$ is the profit of Bank. (Although that's technically incorrect, because we've not counted bank's input cost like staff salary, telephone-internet-electricity bill, office rent etc. So actual profit will be less than 5%.)

SBI has only one branch in a small town. It was opened on Monday.

On the very same day, Total 100 Household Savers deposited 1 lakh each in their savings accounts here (total deposit is 1 crore) and SBI offered them 7% interest rate per year on their savings.

On Tuesday, SBI Branch manager gives away entire 1 crore to a businessman as loan for 12% interest rate for 5 years. From SBI's point of view, sounds very good right? $12 - 7 = 5\%$ profit!

But we've not considered the fact that on Wednesday, some of those Household Savers (account holders) will need to take out some money from their banks savings account- to pay for gas, electricity, mobile bills, college fees, writing cheques and demand drafts etc. But SBI's office doesn't have a single paisa left!

So condition #1: Banks must not give away all of the deposit money to businessmen for loans. Banks must keep some money with aside.

Ok but who'll decide how much minimum cash should a bank keep aside?

Ans. RBI via CRR (Cash reserve ratio)

Continuing the same example. SBI got 1 crore on Monday. But suppose, RBI gave him order, "you must keep Rs.10 lakhs aside." Thus, SBI is now left with 1 crore – 10 lakhs = 90 lakh rupees. So SBI manager decides to get maximum profit out of remaining money. Suppose ongoing rate for business loans is 12%. But there is one businessman Mr. Parajay. No bank is offering him loan, because his past track record is not good: his earlier business adventures were epic fail.

This Mr. Parajay comes to SBI and says, "Give me all of those 90 lakh rupees as loans, I'm ready to pay 36% interest rate on it! I'm going to make lot of money in my new business project. And I'm ready to mortgage all of my factories, cars, farmhouses. So if I can't repay loan, you can auction them and recover your money."

SBI manager verifies that his mortgage is worth more than 2 crores and gives him the loan. After six months, Mr. Parajay's new business project fails. He cannot pay back the EMIs. Although SBI can attach his assets and auction them to recover the money. But it'll take lot of time.

In the meantime, Household Savers also read this story in local newspapers and they panic that SBI will collapse and bank manager will shut down the office and run away. So all the Household Savers line up in front of bank and demand back their money. Recall that SBI still has 10 lakh left in CRR. But people want total 1 crore back!

So, Condition #2: Bank must not give away all its loans to risky loan takers. Banks must invest part of its money in "safe and liquid" investment. So during emergency, bank can sell those "liquid" investments and take out the money.

For example, Government securities, gold, corporate bonds of reputed companies are "safe" and "liquid" investments. But who will decide how much money should be invested in this sector?

Ans. RBI via SLR (Statutory liquidity ratio)

Let's assume RBI ordered SBI to keep Rs.25 lakhs under SLR.

Thus, out of original Rs.1 crore that SBI had, 10 lakhs (CRR) + 25 lakhs (SLR) are safe.

Suppose a rival bank of SBI hires some people to spread rumours against SBI that "Deposits with SBI are not safe." Out of the 100 Household Savers, 30 believe in this rumour and run to the SBI office. They demand SBI to return their entire savings deposit. Such panic movement of bank customers is known as "**bank run**". Thankfully, SBI has total 10 lakh (CRR), so they can directly give it back. SBI also has set aside Rs.25 lakhs under SLR, so SBI can sell away those Government securities/gold worth Rs. 25 lakhs and give that money back to account holders. **Thus, SLR+CRR protects a bank against Bank runs.**

MSF Rate: Marginal Standing Facility Rate is the rate at which banks can borrow overnight from RBI. This was introduced in the monetary policy of RBI for the year 2011-2012. Banks can borrow funds through MSF when there is a considerable shortfall of liquidity. This measure has been introduced by RBI to regulate short term asset liability mismatches more effectively.

Prime Lending Rate (PLR): The rate at which banks lend to their best (prime) customers. It is usually less than normal interest rate. This has now been replaced by base rate.

Base Rate: The Base Rate is the minimum interest rate of a Bank below which it cannot lend. The base rate was designed to replace the flawed benchmark prime lending rate (BPLR), which was introduced in 2003 to price bank loans on the actual cost of funds. The bulk of wholesale credit was contracted at sub-BPL rates and it comprised nearly 70% of all bank credit. Under this system, banks were subsidising corporate loans by charging high interest rates from retail and small and medium enterprise customers. This system defeated the purpose of having a prime lending rate, or the rate that banks charge from its best customers. It also resulted in another problem: bank interest rates ceased to respond to monetary policy changes that the RBI introduced periodically.

Open Market Operations: An open market operation is an instrument of monetary policy which involves buying or selling of government securities from or to the public and banks.

NPA Account: If interest and instalments and other bank dues are not paid in any loan account within a specified time limit, it is being treated as non-performing assets of a bank.

Capital Adequacy Ratio: Capital adequacy ratio measures the amount of a bank's capital expressed as a percentage of its credit exposure. Applying minimum capital adequacy ratios serves to protect depositors and promote the stability and efficiency of the financial system by reducing the likelihood of banks becoming insolvent.

Impacts of **Increase** in following rates on Money Supply:-


Increase in following Rate	Money Supply
Bank Rate	Decrease
Repo Rate	Decrease
Reverse Repo Rate	Decrease
CRR	Decrease
SLR	Decrease
MSF Rate	Decrease

Methods of securing a loan with security/ collateral:

- **Pledge:** Pledge is used when the lender (pledgee) takes actual possession of assets (i.e. certificates, goods). Such securities or goods are movable securities. In this case the pledger retains the possession of the goods until the pledger (i.e. borrower) repays the entire debt amount. In case there is default by the borrower, the pledger has a right to sell the goods in his possession and adjust its proceeds towards the amount due (i.e. principal and interest amount). Some examples of pledge are gold /jewelry loans, Advance against goods/stock, Advances against National Saving Certificates etc.
- **Hypothecation:** Hypothecation is used for creating charge against the security of movable assets, but here the possession of the security remains with the borrower itself. Thus, in case of default by the borrower, the lender (i.e. to whom the goods / security has been hypothecated) will have to first take possession of the security and then sell the same. The best example of this type of arrangement are Car Loans. In this case Car / Vehicle remains with the borrower but the same is hypothecated to the bank /financer. In case the borrower, defaults, banks take possession of the vehicle after giving notice and then sell the same and credit the proceeds to the loan account. Other examples of these hypothecation are loans against stock and debtors.
- **Mortgage:** Mortgage is used for creating charge against immovable property which includes land, buildings or anything that is attached to the earth or permanently fastened to anything attached to the earth (However, it does not include growing crops or grass as they can be easily detached from the earth). The best example when mortgage is created is when someone takes a Housing Loan / Home Loan. In this case house

is mortgaged in favor of the bank /financer but remains in possession of the borrower, which he uses for himself or even may give on rent.

- **Lien:** A lien means the claim of the lender on any asset used to secure the loan. The legal right of a creditor to sell the collateral property of a debtor who fails to meet the obligations of a loan contract. A lien exists, for example, when an individual takes out an automobile loan. The lien holder is the bank that grants the loan, and the lien is released when the loan is paid in full.
- **NPA:** An NPA is a 'Non Performing Asset'. Lenders must 'provision' for NPAs, which means they must keep aside a certain portion of their income to provide for the losses against these NPAs. For a bank, a loan becomes an NPA after 90 days 'past due' or overdue; for an NBFC, 180 days after repayment is due and hasn't been made. A non performing asset (NPA) is a loan or an advance where:
 - interest and/ or instalment of principal remain overdue for a period of more than 90 days in respect of a term loan
 - the account remains 'out of order' , in respect of an Overdraft/Cash Credit (OD/CC)
 - the bill remains overdue for a period of more than 90 days in the case of bills purchased and discounted,
 - the instalment of principal or interest thereon remains overdue for two crop seasons for short duration crops,
 - the instalment of principal or interest thereon remains overdue for one crop season for long duration crops

 The two ways in which NPA's can be removed are by Income recognition and Write off.

Banks are required to classify nonperforming assets further into the following three categories based on the period for which the asset has remained nonperforming and the realisability of the dues:

- Substandard Assets
- Doubtful Assets
- Loss Assets

A **substandard asset** would be one, which has remained NPA for a period less than or equal to 12 months. In such cases, the current net worth of the borrower/ guarantor or the current market value of the security charged is not enough to ensure recovery of the dues to the banks in full. In other words, such an asset will have well defined credit weaknesses that jeopardise the liquidation of the debt and are characterised by the distinct possibility that the banks will sustain some loss, if deficiencies are not corrected.

An asset would be classified as **doubtful** if it has remained in the substandard category for a period of 12 months. A loan classified as doubtful has all the weaknesses inherent in assets that were classified as substandard, with the added characteristic that the weaknesses make collection or liquidation in full, – on the basis of currently known facts, conditions and values – highly questionable and improbable.

A **loss asset** is one where loss has been identified by the bank or internal or external auditors or the RBI inspection but the amount has not been written off wholly. In other words, such an asset is considered uncollectible and of such little value that its continuance as a bankable asset is not warranted although there may be some salvage or recovery value.

Basel Norms

A set of international banking regulations put forth by the Basel Committee on Bank Supervision, which set out the minimum capital requirements of financial institutions with the goal of minimizing credit risk.

Tier I capital is core capital, this includes equity capital and disclosed reserves. Equity capital includes instruments that can't be redeemed at the option of the holder.

Tier 2 capital is supplementary bank capital that includes items such as revaluation reserves, undisclosed reserves, hybrid instruments and subordinated term debt. Components of Tier 2 Capital can be split into two levels: upper and lower. Upper Tier 2 maintains characteristics of being perpetual, senior to preferred capital and equity; having deferrable and cumulative coupons; and its interest and principal can be written down. Lower Tier 2 is relatively cheap for banks to issue; has coupons not deferrable without triggering default; and has subordinated debt with a maturity of a minimum of 10 years.

BASEL I

The first accord was the Basel I. It was issued in 1988 and focused mainly on credit risk by creating a bank asset classification system. This classification system grouped a bank's assets into five risk categories:

0% - cash, central bank and government debt and any OECD government debt

0%, 10%, 20% or 50% - public sector debt

20% - development bank debt, OECD bank debt, OECD securities firm debt, non-OECD bank debt (under one year maturity) and non-OECD public sector debt, cash in collection

50% - residential mortgages

100% - private sector debt, non-OECD bank debt (maturity over a year), real estate, plant and equipment, capital instruments issued at other banks

The bank must maintain capital (Tier 1 and Tier 2) equal to at least 8% of its risk-weighted assets. For example, if a bank has risk-weighted assets of \$100 million, it is required to maintain capital of at least \$8 million.

BASEL II

Basel II is the second of the Basel Committee on Bank Supervision's recommendations, and unlike the first accord, Basel I, where focus was mainly on credit risk, the purpose of Basel II was to create standards and regulations on how much capital financial institutions must have put aside. Banks need to put aside capital to reduce the risks associated with its investing and lending practices.

The guidelines were based on three parameters, which the committee calls it as pillars. - Capital Adequacy Requirements: Banks should maintain a minimum capital adequacy requirement of 8% of risk assets - Supervisory Review: According to this, banks were needed to develop and use better risk management techniques in monitoring and managing all the three types of risks that a bank faces, viz. credit, market and operational risks - Market Discipline: This need increased disclosure requirements. Banks need to mandatorily disclose their CAR, risk exposure, etc.

BASEL III

Post crisis, with a view to improving the quality and quantity of regulatory capital, it has been decided that the predominant form of Tier 1 capital must be Common Equity; since it is critical that banks' risk exposures are backed

by high quality capital base. Non-equity Tier 1 and Tier 2 capital would continue to form part of regulatory capital subject to eligibility criteria as laid down in Basel III. Accordingly, under revised guidelines (Basel III), total regulatory capital will consist of the sum of the following categories:

1. Tier 1 Capital (going-concern capital)
 - a. Common Equity Tier 1
 - b. Additional Tier 1
2. Tier 2 Capital (gone-concern capital)

Limits and Minima

1. As a matter of prudence, it has been decided that scheduled commercial banks operating in India shall maintain a minimum total capital (MTC) of 9% of total risk weighted assets (RWAs) as against a MTC of 8% of RWAs as prescribed in Basel III.
2. Common Equity Tier 1 (CET1) capital must be at least 5.5% of risk weighted assets (RWAs) i.e. for credit risk+ market risk + operational risk on an ongoing basis. Globally it is 4.5% as per Basel III but RBI asks for an additional 1%.
3. Tier 1 capital must be at least 7% of RWAs on an ongoing basis. Thus, within the minimum Tier 1 capital, Additional Tier 1 capital can be admitted maximum at 1.5% of RWAs.
4. Total Capital (Tier 1 Capital plus Tier 2 Capital) must be at least 9% of RWAs on an ongoing basis. Thus, within the minimum CRAR of 9%, Tier 2 capital can be admitted maximum up to 2%.
5. If a bank has complied with the minimum Common Equity Tier 1 and Tier 1 capital ratios, then the excess Additional Tier 1 capital can be admitted for compliance with the minimum CRAR of 9% of RWAs.
6. In addition to the minimum Common Equity Tier 1 capital of 5.5% of RWAs, banks are also required to maintain a capital conservation buffer (CCB) of 2.5% of RWAs in the form of Common Equity Tier 1 capital. Thus, with full implementation of capital ratios and CCB the capital requirements are summarised as follows:

	Regulatory Capital	As % to RWAs
(i)	Minimum Common Equity Tier 1 ratio	5.5
(ii)	Capital conservation buffer (comprised of Common Equity)	2.5
(iii)	Minimum Common Equity Tier 1 ratio plus capital conservation buffer [(i)+(ii)]	8.0
(iv)	Additional Tier 1 Capital	1.5
(v)	Minimum Tier 1 capital ratio [(i) +(iv)]	7.0
(vi)	Tier 2 capital	2.0
(vii)	Minimum Total Capital Ratio (MTC) [(v)+(vi)]	9.0
(viii)	Minimum Total Capital Ratio plus capital conservation buffer [(vii)+(ii)]	11.5

7. For the purpose of reporting Tier 1 capital and CRAR, any excess Additional Tier 1 (AT1) capital and Tier 2 (T2) capital will be recognised in the same proportion as that applicable towards minimum capital requirements. This would mean that to admit any excess AT1 and T2 capital, the bank should have excess CET1 over and above 8% (5.5%+2.5%).

8. In cases where the a bank does not have minimum Common Equity Tier 1 + capital conservation buffer of 2.5% of RWAs as required but, has excess Additional Tier 1 and / or Tier 2 capital, no such excess capital can be reckoned towards computation and reporting of Tier 1 capital and Total Capital.
9. For the purpose of all prudential exposure limits linked to capital funds, the 'capital funds'⁵ will exclude the applicable capital conservation buffer and countercyclical capital buffer as and when activated, but include Additional Tier 1 capital and Tier 2 capital which are supported by proportionate amount of Common Equity Tier 1 capital. Accordingly, capital funds will be defined as [(Common Equity Tier 1 capital) + (Additional Tier 1 capital and Tier 2 capital eligible for computing and reporting CRAR of the bank)]. It may be noted that the term 'Common Equity Tier 1 capital' does not include capital conservation buffer and countercyclical capital buffer.

Common Equity Tier 1 Capital

Elements of Common Equity Tier 1 Capital

Elements of Common Equity Tier 1 capital will remain the same under Basel III. Accordingly, the Common Equity component of Tier 1 capital will comprise the following:

- (i) Common shares (paid-up equity capital) issued by the bank which meet the criteria for classification as common shares for regulatory purposes;
- (ii) Stock surplus (share premium) resulting from the issue of common shares;
- (iii) Statutory reserves;
- (iv) Capital reserves representing surplus arising out of sale proceeds of assets;
- (v) Other disclosed free reserves, if any;
- (vi) Balance in Profit & Loss Account at the end of the previous financial year.

Elements of Additional Tier 1 Capital

Elements of Additional Tier 1 capital will remain the same. Additional Tier 1 capital consists of the sum of the following elements:

- (i) Perpetual Non-Cumulative Preference Shares (PNCPS), which comply with the regulatory requirements.
- (ii) Stock surplus (share premium) resulting from the issue of instruments included in Additional Tier 1 capital;
- (iii) Debt capital instruments eligible for inclusion in Additional Tier 1 capital, which comply with the regulatory requirements;
- (iv) Any other type of instrument generally notified by the Reserve Bank from time to time for inclusion in Additional Tier 1 capital;
- (v) While calculating capital adequacy at the consolidated level, Additional Tier 1 instruments issued by consolidated subsidiaries of the bank and held by third parties which meet the criteria for inclusion in Additional Tier 1 capital; and
- (vi) Less: Regulatory adjustments / deductions applied in the calculation of Additional Tier 1 capital

Elements of Tier 2 Capital

- (i) General Provisions and Loss Reserves

- a. Provisions or loan-loss reserves held against future, presently unidentified losses, which are freely available to meet losses which subsequently materialize, will qualify for inclusion within Tier 2 capital. Accordingly, General Provisions on Standard Assets, Floating Provisions, Provisions held for Country Exposures, Investment Reserve Account, excess provisions which arise on account of sale of NPAs and 'countercyclical provisioning buffer' will qualify for inclusion in Tier 2 capital. However, these items together will be admitted as Tier 2 capital up to a maximum of 1.25% of the total credit risk-weighted assets under the standardized approach. Under Internal Ratings Based (IRB) approach, where the total expected loss amount is less than total eligible provisions, banks may recognise the difference as Tier 2 capital up to a maximum of 0.6% of credit-risk weighted assets calculated under the IRB approach.
 - b. Provisions ascribed to identified deterioration of particular assets or loan liabilities, whether individual or grouped should be excluded. Accordingly, for instance, specific provisions on NPAs, both at individual account or at portfolio level, provisions in lieu of diminution in the fair value of assets in the case of restructured advances, provisions against depreciation in the value of investments will be excluded.
- (ii) Debt Capital Instruments issued by the banks;
 - (iii) Preference Share Capital Instruments [Perpetual Cumulative Preference Shares (PCPS) / Redeemable Non-Cumulative Preference Shares (RNCPS) / Redeemable Cumulative Preference Shares (RCPS)] issued by the banks;
 - (iv) Stock surplus (share premium) resulting from the issue of instruments included in Tier 2 capital;
 - (v) While calculating capital adequacy at the consolidated level, Tier 2 capital instruments issued by consolidated subsidiaries of the bank and held by third parties which meet the criteria for inclusion in Tier 2 capital;
 - (vi) Revaluation reserves at a discount of 55%;

Reporting for Capital Adequacy Norms Illustration

A commercial bank has the following capital funds and assets. Segregate the capital funds into Tier 1 and Tier 2 capitals. Find out the risk-adjusted asset and risk weighted assets ratio.

Capital Funds:

(Figures in ₹ Lakhs)

Equity Share Capital	4,80,00
Statutory Reserve	2,80,00
Capital Reserve (of which ₹ 280 lakhs were due to revaluation of assets and the balance due to sale)	12,10
Assets:	
Cash Balance with RBI	4,80
Balances with other Bank	12,50
Claims on Banks	28,50
Other Investments	782,50
Loans and Advances:	
(i) Guaranteed by government	128,20
(ii) Guaranteed by public sector undertakings of Government of India	702,10
(iii) Others	52,02,50
Premises, furniture and fixtures	182,00
Other Assets	201,20
Off-Balance Sheet Items:	
Acceptances, endorsements and letters of credit	37,02,50

Solution

(i) Capital Funds - Tier I :	₹ in lakhs	₹ in lakhs
Equity Share Capital		480,00
Statutory Reserve		280,00
Capital Reserve (arising out of sale of assets)		<u>9,30</u>
		769,30
Capital Funds - Tier II :		
Capital Reserve (arising out of revaluation of assets)	280	
Less : Discount to the extent of 55%	<u>(154)</u>	<u>1,26</u>
		<u>770,56</u>

(ii) Risk Adjusted Assets

Funded Risk Assets	₹ in lakhs	Percentage weight	Amount ₹ in lakhs
Cash Balance with RBI	4,80	0	—
Balances with other Banks	12,50	20	2,50
Claims on banks	28,50	20	5,70
Other Investments	782,50	100	782,50
Loans and Advances:			
(i) guaranteed by government	128,20	0	—
(ii) guaranteed by public sector undertakings of Central Govt.	702,10	0	—
(iii) Others	52,02,50	100	52,02,50
Premises, furniture and fixtures	1,82,00	100	1,82,00
Other Assets	2,01,20	100	<u>2,01,20</u>
			63,76,40
Off-Balance Sheet Item	₹ in Lakhs	Credit Conversion Factor	
Acceptances, Endorsements and Letters of credit	37,02,50	100	<u>37,02,50</u>
			100,78,90

$$\text{Risk Weighted Assets Ratio} = \frac{\text{Capital Funds (Tier I \& Tier II)}}{\text{Risk Adjusted Assets + off Balance sheet items}} \times 100$$

$$= \frac{769,30 + 1,26}{63,76,40 + 37,02,50}$$

$$\text{Capital Adequacy Ratio} = \frac{770,56}{100,78,90} \times 100 = 7.65\%$$

Expected ratio is 9%. So the bank has to improve the ratio by introducing further Tier I capital.

Understanding Risk

Risk is the probability that financial loss will occurred. Risk management is a three stage process:

Risk management is a three stage process:

1. Identify the Risk

A financial institution such as a bank, faces the following typical types of risks:

- **Credit risk** - This is the risk of default by a borrower.
- **Regulatory risk** - This refers to the risk of loss if a Financial Institution (FI) does not comply with the regulations needed by a country's regulator.
- **Liquidity risk** - This is the risk of not having cash when it is needed. This risk is critical for a bank, as it needs to always have sufficient money on hand to repay withdrawals by depositors.

- **Operational risk** - This is the risk of loss occurring from inefficiency in a bank's people, process and systems. This includes risk of theft, fraud, process inefficiency and so on.
- **Legal risk** - This is the risk of loss resulting from not being adequately protected by legal contract.
- **Market risk** - Any entity when trading in a market is exposed to the risk of loss, and a bank is no different, if it trades in financial markets. Depending on the specific market, the market risk can be further categorized into:
 - **Equity risk** (risk of loss in the stock markets),
 - **Interest rate risk** (risk of loss in bond markets), etc.

Credit risk, operational risk and market risk are regulated by a global standard called the Basel Norms. By 'global', we mean that, the norms are broadly similar across the world for all banks.

Managing Risk

Once the risk is identified and measured, steps can be taken to lessen its impact.

- **Diversification**- Diversification refers to spreading risk across different actions or options.
- **Hedging**- This refers to protecting oneself against risk, using specific financial instruments.
- **Insurance**- Another way to manage risk is to transfer it to an insuring party, paying a fee (called the premium).
- **Setting risk limits**- A business can set risk limits to the amount of risk it is willing to face, and thus manage risk.

The Risk-return Principle

The higher the expected return, the higher is the attached risk and the lower the risk; the lower is the potential reward. That means, if you expect higher returns from any investment, there will be a higher risk associated with it, and vice versa.

Revenue Streams

The primary function of a bank is to collect funds (deposits) at a lower interest rate and lend them out at a higher interest rate.

A bank makes money via 'Net Interest Income'

Net Interest Income (NII) = Interest Earned on Loans – Interest Paid on Deposits However, a sizeable portion of income comes from fee charged on various services such as

- Demand drafts
- Advisory services to corporate,
- Trading income,
- Commission via selling other (non-bank) financial products like insurance and mutual funds.

Corporate Banking

Products and Services

1. Fund Based Facilities
2. Non-Fund Based Facilities

Fund based facilities

These are products in which a bank is 'out of funds' by lending money to its customers - hence they are loan products. The earning of the bank for such facilities is mainly interest income.

Non – Fund Based Facilities:

Here, the bank primarily stands guarantee for its customer. Examples of non-fund based facilities are 'letters of credit' and 'guarantees'. They are called non-fund facilities as they do not involve actual lending of funds.

Further, both fund-based and non fund-based facilities can be classified on the basis of:

1. Purpose
2. Maturity
3. Revolving and one-off
4. Security

To understand the various facilities, we will use the funded and non funded classification.

Funded facilities:

1. Working Capital Loans
 - Overdraft Facility
 - Cash Credit Facility
 - Working Capital Demand Loans (WCDL)
2. Long-term Loans
3. Trade Finance
 - Pre-shipment Loans
 - Post-shipment Loans

Non Funded facilities:

1. Trade Finance
 - Intermediaries
 - Letter of Credit (LC)
2. Cash Management Services (CMS)

Working Capital Loans: Banks provide various forms of loans to meet the daily requirements of businesses. These are generally for a short term (up to 1 year).

Overdraft Facility: An overdraft facility or OD is a revolving credit facility that allows a borrower to overdraw funds beyond the available balance, up to an agreed limit, from her account.

Cash Credit Facility: As in an OD, the business can withdraw up to the sanctioned limit when needed, paying interest only on the amount withdrawn and for the period withdrawn. This is a facility against collateral of receivables and inventory of the business. The limit is typically 60- 70% of the value of the collateral. The buffer (30-40%) which the bank keeps on the value of the asset is called the 'margin'.

Working Capital Demand Loans (WCDL): Working Capital Demand Loan (WCDL) is, in essence, a short term revolving loan facility given for the working capital requirement of the company.

Long Term Loans: Banks provide secured or unsecured long term loans to corporations – these could be to finance expansions, buy real estate or machinery etc.

Trade Finance: Corporate banking provides services to facilitate international trade. These include loans to the seller, to bridge his funding requirements till he/she gets payment from the buyer. These can be both pre-shipment and post-shipment loans.

Banks also act as intermediaries for documents and funds flow in an international trade transaction. This is because transfer through banking channels is far more secure, than if the buyer were to send money directly to the seller, or the seller trying to send documents directly to the buyer.

Letter of Credit: The Letter of Credit (LC) allows the buyer and seller to contract a trusted intermediary (a bank), that will guarantee full payment to the seller provided he has shipped the goods and complied with the terms of the agreement.

Cash Management Services (CMS): CMS involves no credit risk for the bank. It provides a pure administrative service for the corporate, and hence credit evaluation (that is, evaluating whether or not to grant a credit limit for the company) is not relevant here.

Credit Evaluation: Before granting a facility/loan, the bank must follow a stringent credit evaluation process, to determine whether or not to give the loan to the company. This function analyses the 'credibility' of an organization. The credit process involves a qualitative and quantitative appraisal of the client.

Qualitative analysis includes analysis of:

1. Promoter's reputation
2. Industry outlook
3. Past track record
4. Extent of competition etc.

Quantitative analysis includes comparing the financials over a period of time to evaluate performance.

Merchant Banking: When a bank provides to a customer various types of financial services like accepting bills arising out of trade, arranging and providing underwriting, new issues, providing advice, information or assistance on starting new business, acquisitions, mergers and foreign exchange.

NBFC

Introduction

Non Banking Finance Companies (NBFCs) are financial institutions that provide services, similar to banks, but they do not hold a banking license. The main difference is that NBFCs cannot accept deposits repayable on demand.

Classification of NBFCs

NBFCs have been classified into three types:

1. **Asset Finance Company (AFC):** An AFC is an NBFC, whose principal business is the financing of physical assets. This includes financing of automobiles, tractors, lathe machines, generator sets, earth moving and material handling equipments and general purpose industrial machines.

An AFC may be either

- a. Giving loans to businesses for purchasing the physical assets – tractors, machinery etc.
- b. Leasing these assets to businesses.

Examples of AFCs are Infrastructure Finance Limited, Diganta Finance etc.

- 2. Investment Company (IC):** This is an NBFC whose primary business is purchase and sale of securities (financial instruments, such as stocks and bonds). A mutual fund would come under this category. Examples of an Investment Company (IC) are Motilal Oswal, UTI Mutual Fund etc.
- 3. Loan Company (LC):** Loan Company (LC) means any NBFC whose principal business is that of providing finance, by giving loans or advances. It does not include leasing or hire purchase. Example of a Loan Company (LC) is Tata Capital Limited.

NBFCs can be further classified into those taking deposits or those not taking deposits. Only those NBFCs can take deposits, that

- a) Hold a valid certificate of registration with authorization to accept public deposits.
- b) Have minimum stipulated Net Owned Funds (NOF – i.e. owners' funds)
- c) Comply with RBI directions such as investing part of the funds in liquid assets, maintain reserves, rating etc. issued by the bank.

The three key differences between a bank and NBFC are:

1. An NBFC cannot accept deposits which are repayable on demand. Some can accept fixed-term deposits.
2. Any deposits accepted by NBFCs (these will be of fixed maturity as explained above) are not insured
3. Only banks can participate in the payment system; hence NBFCs cannot issue cheque books to their customers.

Banking Laws

Some of the main laws in banking are:

SARFAESI Act: SARFAESI stands for Securitization And Reconstruction of Financial Assets and Enforcement of Security Interest Act. This Act covers the rights a lender has over the collateral, when a secured loan defaults. 'Reconstruction' of an asset, is banker-speak for reworking the terms of a loan to ensure that the money is repaid.

The SARFAESI Act in case of default, covers features such as:

1. **Securitization:** Issuing securities – financial instruments – against the recovered assets. It can be done only by specific registered entities called an asset reconstruction company or securitization company.
2. **Guidelines for Asset Reconstruction:** It covers how a defaulting business should be managed or controlled to ensure repayment. Payments can be rescheduled, and secured collateral repossessed.
3. **No court intervention needed:** One of the main features of this Act is, the lender can take over the collateral without court intervention, which was not possible earlier.

Access RBI circulars to know more about Banks

Stocks

A Remedial Lesson

What does the "Ltd" after the names of many companies mean? In short, Ltd. stands for "Limited," a legal term that makes an entity a legal company. There are many forms of incorporation from which a company can choose. With the help of a lawyer, a company files papers/applications in court to define itself as one of these forms. A company can be incorporated as a C Limited, an S Private Limited, an LLP (Limited Liability Partnership), or a partnership. There are different rules of ownership for each of these forms, which determine in part how a company pays out profits, are taxed, and so on.

The incorporation of a company can be regarded as its birth. And when a company is born, it has equity. This equity is also referred to as stock, and refers to ownership in a company. Most people unfamiliar with the finance world equate stock with the running tickers in the pits of Wall Street trading floors, and other symbols of publicly traded stock. You should realize that companies do not have to be publicly traded in order to have stock - they just have to be incorporated and owned. Equity vs. Debt (Stocks vs. Bonds)

Companies are traditionally financed through a combination of debt and equity. Equity, or ownership stake, is more volatile as its value fluctuates with the value of the firm. The equity of a company is represented by securities called stocks. Here, when we refer to stock, we are referring to common stock, or stock without a guaranteed return (as opposed to preferred stock).

Equity vs. Debt (Stocks vs. Bonds)

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Equity has a book value - this is a strictly defined value that can be calculated from the company's Balance Sheet. It also has a market value. The market value of equity or stock for a publicly traded firm can be found in The Wall Street Journal or any of the stock quote services available today. (Market value of a company's equity can be understood with the simple formula: stock price x number of shares outstanding [or common stock outstanding] = market value of equity.) The market value of a private company can be estimated using the valuation techniques discussed in the valuation section of this guide. However, any method used to measure either the book value or market value of a company depends on highly volatile factors such as performance of the company, the industry and the market as a whole - and is thus highly volatile itself. Investors can make lots of money based on their equity investment decisions and the subsequent changing value of those stocks after they are bought.

The other component of the financing of a company is debt, which is represented by securities called bonds. (In its simplest form, debt is issued when investors loan money to a company at a given interest rate.) Typically, banks and large financial institutions originate debt. The returns for debt investors are assured in the form of interest on the debt. Sometimes, the market value of the debt changes, but bond prices usually do not change as drastically as stock prices. On the downside, bonds also have lower expected returns than stocks. U.S. Treasury bonds, for example, can provide returns of 5 to 7 percent a year or so, while volatile stocks may rise 10 percent in a single day. On the other hand, bonds usually have less downside risk than stock. Though they won't post big gains, U.S. Treasury bonds won't lose 10 percent of their value in a single day, either. A simple analogy of how debt and equity make up financing for a company is to consider how most people buy homes. Homebuyers generally start with a down payment, which is a payment on the equity of the house. Then, the homebuyer makes mortgage payments that are a combination of debt (the interest on the mortgage) and equity (the principal payments). Initially, a homebuyer generally pays

primarily interest (debt), before gradually buying larger and large portions of the principal (equity). Common stock and debt are the two extremes in the continuum of the forms of investment in a company.

In the middle of the continuum is preferred stock. One type of preferred stock is referred to as convertible preferred. If the preferred stock is convertible, it can be converted into common stock as prescribed in the initial issuance of the preferred stock. Like bondholders, holders of preferred stock are assured an interest-like return - also referred to as the preferred stock's dividend. (A dividend is a payment made to stockholders, usually quarterly, that is intended to distribute some of the company's profits to shareholders.)

The other key difference between preferred and common stock comes into play when a company goes bankrupt. In what is referred to as the seniority of creditors, the debt holders have first claim on the assets of the firm if the company becomes insolvent. Preferred shareholders are next in line, while the common stock shareholders bring up the rear. This isn't just a matter of having to wait in line longer if you are a common stock shareholder. If the bondholders and owners of preferred stock have claims that exceed the value of the assets of a bankrupt company, the common stock shareholders won't see a dime.

Seniority of creditors:

1. Bondholders
2. Preferred stockholders
3. Common stockholders

Stock Terminology

Of course, a company's commitment to its stock doesn't end after the issuance of shares. Companies communicate with shareholders regarding the firm's past revenues, expenses and profits and the future of the business. There are also ways a company can manage their shares once the stock is on the open market to maximize shareholder value, the company's reputation and the company's future ability to raise funds. Here are several concepts and terms you'll need to be familiar with when you study stocks and how public companies manage their shares.

Dividends

Dividends are paid to many shareholders of common stock (and preferred stock). However, the directors cannot pay any dividends to the common stock shareholders until they have paid all outstanding dividends to the preferred stockholders. The incentive for company directors to issue dividends is that companies in industries that are particularly dividend sensitive have better market valuations if they regularly issue dividends. Issuing regular dividends is a signal to the market that the company is doing well.

Stock splits


As a company grows in value, it sometimes splits its stock so that the price does not become absurdly high. This enables the company to maintain the liquidity of the stock. If The Coca-Cola Company had never split its stock, the price of one share bought when the company's stock was first offered would be worth millions of dollars. If that were the case, buying and selling one share would be a very crucial decision. This would adversely affect a stock's liquidity (that is, its ability to be freely traded on the market). In theory, splitting the stock neither creates nor destroys value. However, splitting the stock is generally received as a positive signal to the market; therefore, the share price typically rises when a stock split is announced.

Stock buybacks

Often you will hear that a company has announced that it will buy back its own stock. Such an announcement is usually followed by an increase in the stock price. Why does a company buy back its stock? And why does its price increase after?

The reason behind the price increase is fairly complex, and involves three major reasons. The first has to do with the influence of earnings per share on market valuation. Many investors believe that if a company buys back shares, and the number of outstanding shares decreases, the company's earnings per share goes up. **If the P/E (price to earnings-per-share ratio) stays stable, investors reason, the price should go up. Thus investors drive the stock price up in anticipation of increased earnings per share.**

The second reason has to do with the signalling effect. This reason is simple to understand, and largely explains why a company buys back stock. No one understands the health of the company better than its senior managers. No one is in a better position to judge what will happen to the future performance of the company. So if a company decides to buy back stock (i.e., decides to invest in its own stock), these managers must believe that the stock price is undervalued and will rise (or so most observers would believe). This is the signal company management sends to the market, and the market pushes the stock up in anticipation.

 **The third reason the stock price goes up after a buyback can be understood in terms of the debt tax shield (a concept used in valuation methods). When a company buys back stock, its net debt goes up (net debt = debt - cash). Thus the debt tax shield associated with the company goes up and the valuation rises (see APV valuation).**

New stock issues

The reverse of a stock buyback is when a company issues new stock, which usually is followed by a drop in the company's stock price. As with stock buybacks, there are three main reasons for this movement. First, investors believe that issuing new shares dilutes earnings. That is, issuing new stock increases the number of outstanding shares, which decreases earnings per share, which - given a stable P/E ratio - decreases the share price. (Of course, the issuing of new stock will presumably be used in a way that will increase earnings, and thus the earnings per share figure won't necessarily decrease, but because investors believe in earnings dilution, they often drive stock prices down).

There is also the signalling effect. In other words, investors may ask why the company's senior managers decided to issue equity rather than debt to meet their financing requirements. Surely, investors may believe, management must believe that the valuation of their stock is high (possibly inflated) and that by issuing stock they can take advantage of this high price.

Finally, if the company believes that the project for which they need money will definitely be successful, it would have issued debt, thus keeping all of the upside of the investment within the firm rather than distributing it away in the form of additional equity. The stock price also drops because of debt tax shield reasons. Because cash is flushed into the firm through the sale of equity, the net debt decreases. As net debt decreases, so does the associated debt tax shield.

Sample Questions

1. What kind of stocks would you issue for a start-up?

A start-up typically has more risk than a well-established firm. The kind of stocks that one would issue for a start-up would be those that protect the downside of equity holders while giving them upside. Hence the

stock issued may be a combination of common stock, preferred stock and debt notes with warrants (options to buy stock).

2. When should a company buy back stock?

When it believes the stock is undervalued, has extra cash, and believes it can make money by investing in itself. This can happen in a variety of situations. For example, if a company has suffered some decreased earnings because of an inherently cyclical industry (such as the semiconductor industry), and believes its stock price is unjustifiably low; it will buy back its own stock. On other occasions, a company will buy back its stock if investors are driving down the price precipitously. In this situation, the company is attempting to send a signal to the market that it is optimistic that its falling stock price is not justified. Its saying: "We know more than anyone else about our company. We are buying our stock back. Do you really think our stock price should be this low?"

3. When should a company issue stock rather than debt to fund its operations?

There are several reasons for a company to issue stock rather than debt. If the company believes its stock price is inflated it can raise money (on very good terms) by issuing stock. Second, if the projects for which the money is being raised may not generate predictable cash flows in the immediate future, it may issue stock. A simple example of this is a start-up company. The owners of start-ups generally will issue stock rather than take on debt because their ventures will probably not generate predictable cash flows, which is needed to make regular debt payments, and also so that the risk of the venture is diffused among the company's shareholders. A third reason for a company to raise money by selling equity is if it wants to change its debt-to-equity ratio. This ratio in part determines a company's bond rating. If a company's bond rating is poor because it is struggling with large debts, the company may decide to issue equity to pay down the debt.

4. Why would an investor buy preferred stock?

- 1) An investor that wants the upside potential of equity but wants to minimize risk would buy preferred stock. The investor would receive steady interest-like payments (dividends) from the preferred stock that are more assured than the dividends from common stock.
- 2) The preferred stock owner gets a superior right to the company's assets should the company go bankrupt.
- 3) A corporation would invest in preferred stock because the dividends on preferred stock are taxed at a lower rate than the interest rates on bonds.

5. Why would a company distribute its earnings through dividends to common stockholders?

Regular dividend payments are signals that a company is healthy and profitable. Also, issuing dividends can attract investors (shareholders). Finally, a company may distribute earnings to shareholders if it lacks profitable investment opportunities.

6. What stocks do you like?

This is a question often asked of those applying for all equity (sales & trading, research, etc.) positions. (Applicants for investment banking and trading positions, as well as investment management positions, have also reported receiving this question.) If you're interviewing for one of these positions, you should

prepare to talk about a couple of stocks you believe are good buys and some that you don't. This is also a question asked of undergraduate finance candidates to gauge their level of interest in finance.

7. Which is riskier: a 30-year coupon bond or a 30-year zero coupon bond?

A 30-year zero coupon bond. Here's why: A coupon bond pays interest semi-annually, then pays the principal when the bond matures (after 30 years, in this case). A zero coupon bond pays no interest, but pays one lump sum upon maturity (after 30 years, in this case). The coupon bond is less risky because you receive some of your money back before over time, whereas with a zero coupon bond you must wait 30 years to receive any money back. (Another answer: The zero coupon bond is more risky because its price is more sensitive to changes in interest rates.)

8. What did the S&P 500 close at yesterday?

Another question designed to make sure that a candidate is sincerely interested in finance. This question (and others like it - "What's the Dow at now?" "What's the yield on the Long Bond?") can be expected especially of those looking for sales and trading positions.

9. Why did the stock price of XYZ Company decrease yesterday when it announced increased quarterly earnings?

A couple of possible explanations: 1) the entire market was down, (or the sector to which XYZ belongs was down), or 2) even though XYZ announced increased earnings, the Street was expecting earnings to increase even more.

9. Can you tell me about a recent IPO that you have followed?

Read Economic Times and stay current with recent offerings.

10. What is your investing strategy?

Different investors have different strategies. Some look for undervalued stocks, others for stocks with growth potential and yet others for stocks with steady performance. A strategy could also be focused on the long-term or short-term, and be more risky or less risky. Whatever your investing strategy is, you should be able to articulate these attributes.

11. How has your portfolio performed in the last five years?

If you are applying for an investment management firm as an MBA, you'd better have a good answer for this one. If you don't have a portfolio, start a mock one. Also, if you think you are going to say it has outperformed the benchmark each year, you better be well prepared to explain why you think this happened.

12. If you read that a given mutual fund has achieved 50 percent returns last year, would you invest in it?

You should look for more information, as past performance is not necessarily an indicator of future results. How has the overall market done? How did it do in the years before? Why did it give 50 percent returns last year? Can that strategy be expected to work continuously over the next five to 10 years? You need to look for answers to these questions before making a decision.

- 13. You are on the board of directors of a company and own a significant chunk of the company. The CEO, in his annual presentation, states that the company's stock is doing well, as it has gone up 20 percent in the last 12 months. Is the company's stock in fact doing well?**

Another sticky stock question that you should not answer too quickly. First, ask what the Beta of the company is. (Remember, the Beta represents the volatility of the stock with respect to the market.) If the Beta is 1 and the market (i.e. the Dow Jones Industrial Average) has gone up 35 percent, the company actually has not done too well compared to the broader market.

- 14. Which do you think has higher growth potential, a stock that is currently trading at \$2 or a stock that is trading at \$60?**

This question tests your fundamental understanding of a stock's value. The short answer to the question is, "It depends." While at first glance it may appear that the stock with the lower price has more room for growth, price does not tell the entire picture. Suppose the \$2 stock has 1 billion shares outstanding. That means it has \$2 billion market cap, hardly a small cap stock. On the flip side, if the \$60 stock has 20,000 shares gives it a market cap of \$1,200,000, and hence it is extremely small and is probably seen as having higher growth potential. Generally, high growth potential has little to do with a stock's price, and has more to do with its operations and revenue prospects.

- 15. What do you think is happening with ABC stock?**

Expect to be asked this question if you say you like to follow a given sector like technology or pharmaceuticals. Interviewers will test you to see how well you know your industry. In case you don't know that stock, admit it, and offer to describe a stock in that sector that you like or have been following.

- 16. Where do you think the DJIA will be in three months and six months - and why?**

Nobody knows the answer to this one. However, you should at least have some thoughts on the subject and be able to articulate why you take your stance. If you have been following the performance of major macroeconomic indicators, you can state your case well.

- 17. Why do some stocks rise so much on the first day of trading after their IPO and others don't? How is that money left on the table?**

By "money left on the table," bankers mean that the company could have successfully completed the offering at a higher price, and that the difference in valuation thus goes to initial investors rather than the company. Why this happens is not easy to predict from responses received from investors during road shows. Moreover, if the stock rises a lot the first day it is good publicity for the firm. But in many ways it is money left on the table because the company could have sold the same stock in its initial public offering at a higher price. However, bankers must honestly value a company and its stock over the long-term, rather than simply trying to guess what the market will do. Even if a stock trades up significantly initially, a banker looking at the long-term would expect the stock to come down, as long as the market eventually correctly values it.

- 18. What is insider trading and why is it illegal?**

Insider trading describes the illegal activity of buying or selling stock based on information that is not public information. The law against insider trading exists to prevent those with privileged information (company execs, I-bankers and lawyers) from using this information to make a tremendous amount of money unfairly.

Bonds and Interest

A Remedial Lesson

A bond is a borrowing arrangement through which the borrower (or seller of a bond) issues or sells an IOU document (the bond) to the investor (or buyer of the bond). The arrangement obligates the borrower to make specified payments to the bondholder on agreed-upon dates. For example, if you purchase a five-year U.S. Treasury note, the U.S. government is borrowing money from you for a period of five years. For this service, the government will pay you interest at the T-bill rate (the interest) and return the amount it borrowed (the principal) at the end of five years. Meanwhile, if you choose not to keep the bond until it matures, you can sell the bond in the market for the current value of the future interest payments and the end principal. Different types of organizations can issue bonds: companies like Ford Motor or Procter & Gamble, and municipal organizations, like counties and states.

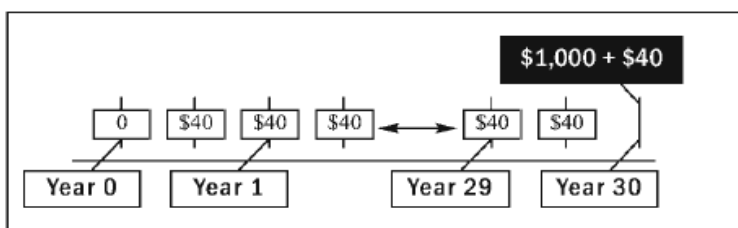
Bond Terminology

Before going any further in our discussion of bonds, we will introduce several terms you should be familiar with.

- **Par value or face value of a bond:** This is the total amount the bond issuer will commit to pay back at the end of the bond maturity period (when the bond expires).
- **Coupon payments:** The payments of interest that the bond issuer makes to the bondholder. These are often specified in terms of coupon rates. The coupon rate is the bond coupon payment divided by the bond's par value.
- **Bond price:** The price the bondholder (i.e. the lender) pays the bond issuer (i.e. the borrower) to hold the bond (to have a claim on the cash flows documented on the bond).
- **Default risk:** The risk that the company issuing the bond may go bankrupt, and default on its loans.
- **Default premium:** The difference between the promised yields on a corporate bond and the yield on an otherwise identical government bond. In theory, the difference compensates the bondholder for the corporation's default risk.
- **Credit ratings:** Bonds are rated by credit agencies (Moody's, Standard & Poor's), which examine a company's financial situation, outstanding debt, and other factors to determine the risk of default. Companies guard their credit ratings closely, because the higher the rating, the easier they can raise money and the lower the interest rate.
- **Investment grade bonds:** These bonds have high credit ratings, and pay a relatively low rate of interest.
- **Junk bonds:** Also known as high yield bonds, these bonds have poor credit ratings, and pay a relatively high rate of interest.
- **U.S. Treasury bills, notes, and bonds:** Bills mature in one year or less, notes in two to 10 years, and bonds in 30 years. (The 30-year U.S. Treasury bond is also called The Long Bond.)

To illustrate how a bond works, let's look at an 8% coupon, 30-year maturity bond with a par value of \$1,000, paying 60 coupon payments of \$40 each.

Let's illustrate this bond with the following schematic:



Coupon rate = 8%

Par value= \$1,000

Therefore the coupon = 8% x \$1,000 = \$80 per year

Because this bond is a semi-annual coupon, the payments are for \$40 every six months. We can also say that the semi-annual coupon rate is 4 percent.

Since the bond's time to maturity is 30 years, there are total of $30 \times 2 = 60$ semi-annual payments.

At the end of Year 30, the bondholder receives the last semi-annual payment of \$40 dollars plus the principal of \$1,000.

Pricing Bonds

The question now is, how much is a bond worth?

The price of a bond is the net present value of all future cash flows expected from that bond. (Recall net present value from our discussion on valuation.)

$$\text{Bond Value} = \sum_{t=1}^T \left(\frac{\text{Coupon}}{(1+r)^t} \right) + \frac{\text{Par Value}}{(1+r)^T}$$

Here:

r = Discount rate

t= Interval (for example, 6 months)

T = Total payments

First, we must ask what discount rate should be used. Remember from our discussion of valuation techniques that discount rate for a cash flow for a given period should be able to account for the risk associated with the cash flow for that period. In practice, there will be different discount rates for cash flows occurring in different periods. However, for the sake of simplicity, we will assume that the discount rate is the same as the interest rate on the bond.

So, what is the price of the bond described earlier? From the equation above we get:

$$\text{Price} = \sum_{t=1}^T \left(\frac{\$40}{(1+.04)^t} \right) + \frac{\$1000}{(1+.04)^{60}}$$

Calculating the answer for this equation is complex. Luckily, this can be solved using a financial calculator. It might be worth noting that the first term of this equation is the present value of an annuity with fixed payments, \$40 every 6 months for 30 years in this example.

Also, there are Present Value tables available that simplify the calculations. In this case, the interest rate is 4 percent and T is 60. Using the Present Value tables we get

= \$904.94 + \$95.06

= \$1000

Also, if we look at the bond price equation closely, we see that the bond price depends on the interest rate. If the interest rate is higher, the bond price is lower and vice versa. This is a fundamental rule that should be understood and remembered.

The **Yield to Maturity (YTM)** is the measure of the average rate of return that will be earned on a bond if it is bought now and held until maturity. To calculate this, we need the information on bond price, coupon rate and par value of the bond.

Example: Suppose an 8% coupon; 30-year bond is selling at \$1,276.76. What average rate of return would be earned if you purchase the bond at this price?

To answer this question, we must find the interest rate at which the present value of the bond payments equals the bond price. This is the rate that is consistent with the observed price of the bond. Therefore, we solve for r in the following equation.

$$\$1276.76 = \sum_{t=1}^{60} \left(\frac{\$40}{(1+r)^t} \right) + \frac{\$1,000}{(1+r)^{60}}$$

This equation can be solved using a financial calculator; in completing the calculation we see that the bond's yield to maturity is annually.

Callable Bonds

For the sake of simplification in our earlier discussions, we assumed that the discount rate was equal to the interest rate, and that the interest rate was constant at the coupon rate. However, in the real world, this is not always the case.

If the interest rate falls, bond prices can rise substantially, due to the concept of opportunity cost of investments.

We'll illustrate mathematically why this happens with an example. Let's say a company has a bond outstanding. It took \$810.71 and promised to make the coupon payments as described above, at \$40 every six months. Let's say the market interest rates dropped after a while (below 8 percent). According to the bond document, the company is still expected to pay the coupon at a rate of 8 percent.

If the interest rates were to drop in this manner, the company would be paying a coupon rate much higher than the market interest rate today. In such a situation, the company may want to buy the bond back so that it is not committed to paying large coupon payments in the future. This is referred to as calling the bond. However, an issuer can only call a bond if the bond was originally issued as a callable bond. The risk that a bond will be called is reflected in the bond's price. The yield calculated up to the period when the bond is called back is referred to as the yield to call.

Zero coupon bonds

This type of bond offers no coupon or interest payments to the bondholder. The only payment the zero coupon bondholder receives is the payment of the bond face value upon maturity. The returns on their coupon bonds must be obtained by paying a lower initial price than their face value for them. These bonds are priced at a considerable discount to par value.

Forward rates

These are agreed-upon interest rates for a bond to be issued in the future. For example, the one year forward rate for a five-year U.S. Treasury note represents the interest forward rate on a five-year T-note that will be issued one year from now (and that will mature six years from now). This "forward" rate changes daily just like the rates of already-issued bonds. It is essentially based on the market's expectation of what the interest rate a year from now will be, and can be calculated using the rates of current bonds.

The RBI and Interest Rates

The RBI has broad responsibility for the health of the U.S. financial system. In this role, the RBI sets the margin requirements on stocks and options, and regulates bank lending to securities market participants.

The RBI also has the responsibility of formulating the nation's monetary policy. In determining the monetary policy of the nation, the RBI manipulates the money supply to affect the macro economy. When the RBI increases the money supply going into the economy, the monetary policy set by the RBI is said to be expansionary. This encourages investment and subsequently increases consumption demand. In the long run, however, an expansionary policy can lead to higher prices and inflation. Therefore, it is the RBI's responsibility to maintain a proper balance and prevent the economy from both hyperinflation and recession.

The RBI uses several tools to regulate the money supply. The RBI can

1. use its check writing capabilities, using open market operations
2. raise or lower the interest rates, or
3. manipulate the reserve requirements for various banks to control the money flow and thereby the interest rate.

Let's look at these tools one by one:

1. Open market operations

The RBI can "write a check" to buy securities and thereby increase the money supply to do such things as buy back government bonds in the market. Unlike the rest of us, the RBI doesn't have to pay the money for a check it has written. As we will see, an increase in the country's money supply stimulates the economy. Likewise, if the RBI sells securities, the money paid for them leaves the money supply and slows the economy.

2. Changing interest rates

The RBI can raise or lower interest rates by changing: (a) the discount rate (the interest rate the RBI charges banks on short-term loans), and/or (b) the repo rate, the rate banks charge each other on short-term loans. When the RBI raises or lowers interest rates, banks usually quickly follow by raising or lowering their prime rate (the rate banks charge on loans to its most creditworthy customers). A reduction of the interest rate signals an expansionary monetary policy. Why? Because by reducing the interest of its loans to banks, the RBI allows banks to lend out money at lower rates. More businesses and individuals are willing to take out loans, thus pouring more money into the economy.

3. Reserve requirements

All banks that are governed by the RBI are required to maintain a minimum balance in a reserve account with the RBI. The amount of this minimum balance depends on the total deposits of the bank's customers. These minimum deposits are referred to as "reserve requirements." Lowering the reserve requirements for various banks has the same expansionary effect. This move allows banks to make more loans with the deposits it has and thereby stimulates the economy by increasing the money supply.

But why does an increase in money supply stimulate the economy? An increase in the money supply usually results in investors having too much money in their portfolios, which leads them to buy more stocks and bonds and gives them more discretionary income. In part, this action increases the demand for bonds, drives up bond prices, and thereby reduces interest rates. More money available also increases demand for stocks and real estate. This availability leads to higher investments and greater demand for goods.

The RBI and Inflation

Inflation is the rise of prices over time - it is why over the long-term, we are guaranteed to hear and (sorry, it's true) speak phrases like: "When I was your age, a can of Coke was only INR 10." Prices rise over time because of increases in population and resultant demands for products.

Inflation directly affects interest rates. Consider this: If lending money is healthy for the economy because it promotes growth, interest rates must be higher than inflation. (If I lent out money at a 5 percent annual interest rate, but inflation was at 10 percent, I would never lend money.) Thus, the RBI's Reserve watches inflation closely as part of its role of setting interest rates.

Lenders issuing long-term loans such as mortgages can also issue what are called floating rate (or adjustable) loans, whose yield depends on an interest rate (like the prime rate) which adjusts to account for changes in inflation. Using floating rates, lenders can be protected from inflation.

At the same time, some amount of inflation (usually around 1 to 2 percent) is a sign of a healthy economy. If the economy is healthy and the stock market is growing, consumer spending increases. This means that people are buying more goods, and by consequence, more goods are in demand. No inflation means that you do not have a robust economy - that there is no competitive demand for goods.

Either way, inflation must be watched closely. From basic microeconomics we know that if the demand rises because of higher personal income, the new equilibrium price is higher. Once prices rise, supply rises more (sellers of goods enter the market to take advantage of the opportunity (i.e., growth in macroeconomic terms). Hence, prices reach a new equilibrium above the previous equilibrium. Trends can theoretically spiral upward, as increased supply indicating a healthy economy further boosts the demand and supply. As an aside, this has always been RBI's Reserve Chairman Alan Greenspan's major concern with an "irrationally exuberant" stock market - that the economy will overheat as a result and inflation will spiral out of control.

Effect of Inflation on Bond Prices

The effect of inflation on bond prices is very simple: when inflation goes up, interest rates rise. And when interest rates rise, bond prices fall. Therefore, when inflation goes up, bond prices fall.

The ways in which economic events, inflation, interest rates, and bond prices interact are basic to an understanding of finance - these relationships are sure to be tested in finance interviews. In general, a positive economic event (such as a decrease in unemployment, greater consumer confidence, higher personal income, etc.) drives up inflation over the long term (because there are more people working, there is more money to be spent), which drives up interest rates, which causes a decrease in bond prices.

The following table summarizes this relationship with a variety of economic events.

Economic Event	Inflation	Interest Rates	Bond Prices
Unemployment figures low	Up	Up	Down
Dollar weakens against Yen	Up	Up	Down
Consumer confidence low	Down	Down	Up
Stock Market drops	Down	Down	Up
Companies report healthy earnings	Up	Up	Down

Leading Economic Indicators

The following table is a look at leading economic indicators, and whether their rise or fall signal positive economic events or negative economic events. For finance interviews, know this chart cold.

Indicator	Positive Economic Event	Negative Economic Event
GDP	Up	Down
Unemployment	Down	Up
Inflation	Down	Up
Consumer Price Index	Down	Up
Interest Rate	Down	Up
New Home Sales	Up	Down
Existing Home Sales	Up	Down
Housing Starts	Up	Down

Sample Questions

1. What is the relationship between a bond's price and its yield?

They are inversely related. That is, if a bond's price rises, its yield falls, and vice versa. Simply put, current yield = interest paid annually / market price * 100%.

2. How are bonds priced?

Bonds are priced based on the net present value of all future cash flows expected from the bond.

3. How would you value a perpetual bond that pays you \$1,000 a year in coupon?

Divide the coupon by the current interest rate. For example, a corporate bond with an interest rate of 10 percent that pays \$1,000 a year in coupons forever would be worth \$10,000.

4. When should a company issue debt instead of issuing equity?

First, a company needs a steady cash flow before it can consider issuing debt (otherwise, it can quickly fall behind interest payments and eventually see its assets seized). Once a company can issue debt, it should almost always prefer issuing debt to issuing equity. Generally, if the expected return on equity is higher than the expected return on debt, a company will issue debt. For example, say a company believes that projects completed with the \$1 million raised through either an equity or debt offering will increase its market value from \$4 million to \$10 million. It also knows that the same amount could be raised by issuing a \$1 million bond that requires \$300,000 in interest payments over its life. If the company issues equity, it will have to sell 20 percent of the company, or \$1 million/\$5 million (\$5 million is the new value of the company after the capital infusion). This would then grow to 20 percent of \$10 million, or \$2 million. Thus, issuing the equity will cost the company \$1 million (\$2 million - \$1 million). The debt, on the other hand, will only cost \$300,000. The company will therefore choose to issue debt in this case, as the debt is cheaper than the equity.

Also, interest payments on bonds are tax deductible. A company may also wish to issue debt if it has taxable income and can benefit from tax shields. Finally, issuing debt sends a quieter message to the market regarding a company's cash situation.

5. What major factors affect the yield on a corporate bond?

The short answer: 1) interest rates on comparable U.S. Treasury bonds and 2) the company's credit risk. A more elaborate answer would include a discussion of the fact that corporate bond yields trade at a premium, or spread, over the interest rate on comparable U.S. Treasury bonds. (For example, a five-year corporate bond that trades at a premium of 0.5 percent, or 50 basis points, over the five-year Treasury note is priced at 50 over.) The size of this spread depends on the company's credit risk: the riskier the company, the higher the interest rate the company must pay to convince investors to lend it money and, therefore, the wider the spread over U.S. Treasuries.

6. If you believe interest rates will fall, which should you buy: a 10-year coupon bond or a 10-year zero coupon bond?

The 10-year zero coupon bond. A zero coupon bond is more sensitive to changes in interest rates than an equivalent coupon bond, so its price will increase more if interest rates fall.

7. Which is riskier: a 30-year coupon bond or a 30-year zero coupon bond?

A 30-year zero coupon bond. Here's why: A coupon bond pays interest semi-annually, then pays the principal when the bond matures (after 30 years, in this case). A zero coupon bond pays no interest, but pays one lump sum upon maturity (after 30 years, in this case). The coupon bond is less risky because you receive some of your money back before over time, whereas with a zero coupon bond you must wait 30 years to receive any money back. (Another answer: The zero coupon bond is more risky because its price is more sensitive to changes in interest rates.)

8. What is The Long Bond trading at?

The Long Bond is the U.S. Treasury's 30-year bond. This question is particularly relevant for sales and trading positions, but also for corporate finance positions, as interviewers want to see that you're interested in the financial markets and follow them daily.

9. If the price of the 10-year Treasury note rises does the note's yield rise, fall or stay the same?

Since bond yields move in the opposite direction of bond prices, if the price of a 10-year note rises, its yield will fall.

10. If you believe interest rates will fall, should you buy bonds or sell bonds?

Since bond prices rise when interest rates fall, you should buy bonds.

11. How many basis points equal .5 percent?

Bond yields are measured in basis points, which are $1/100$ of 1 percent.
1 percent = 100 basis points. Therefore, .5 percent = 50 basis points.

12. Why can inflation hurt creditors?

Think of it this way: If you are a creditor lending out money at a fixed rate, inflation cuts into the percentage that you are actually making. If you lend out money at 7 percent a year, and inflation is 5 percent, you are only really clearing 2 percent.

13. How would the following scenario affect the interest rates: the President is impeached and convicted?

While it can't be said for certain, chances are that these kind of events will lead to fears that the economy will go into recession, so the RBI would want to balance those fears by lowering interest rates to expand the economy.

14. What does the government do when there is a fear of hyperinflation?

The government has fiscal and monetary policies it can use in order to control hyperinflation. The fiscal policies include the use of taxation and government spending to regulate the aggregate level of economic activity. Increasing taxes and decreasing government spending slows down growth in the economy and fights inflation.

15. Where do you think the U.S. economy will go over the next year?

The U.S. economy encompasses a lot of topics: the stock market, consumer spending, unemployment, to name a few. Underlying all these topics is the way interest rates, inflation, and bonds interact.

16. How would you value a perpetual zero coupon bond?

The value will be zero. A zero coupon doesn't pay any coupons, and if that continues on perpetually, when do you get paid? Never - so it is worth nothing!

17. Let's say a report released today showed that inflation last month was very low. However, bond prices closed lower. Why might this happen?

Bond prices are based on expectations of future inflation. In this case, you can assume that traders expect future inflation to be higher (regardless of the report on last month's inflation figures) and therefore they bid bond prices down today. (A report which showed that inflation last month was benign would benefit bond prices only to the extent that traders believed it was an indication of low future inflation as well.)

18. If the stock market falls, what would you expect to happen to bond prices, and interest rates?

You would expect that bond prices would increase and interest rates would fall.

19. If unemployment is low what happens to inflation, interest rates, and bond prices?

Inflation goes up, interest rates also increase, and bond prices decrease.

20. What is a bond's "Yield to Maturity"?

A bond's yield to maturity is the yield that would be realized through coupon and principal payments if the bond were to be held to the maturity date. If the yield is greater than the current yield (the coupon/price), it is said to be selling at a discount. If the yield is less than the current yield, it is said to be selling at a premium.

Currencies

A Remedial Lesson

In this global economy, an understanding of how currencies interact and what influences currency rates is vital for those interested in finance careers. The strength and stability of currencies influence trade and foreign investment. Why did so many U.S. investment banks suffer when Asian currencies plummeted in recent years? What does a strong dollar mean? When a company makes foreign investments or does business in foreign countries, how is it affected by the exchange rates among currencies? These are all issues that you'll need to know as you advance in your finance career.

Types of Exchange rates

Spot exchange rate: The price of one currency relative to another, i.e., the number of one currency you can buy using another currency for immediate delivery. (The exchange rate people commonly talk about is actually the spot exchange rate.)

Example: Let's say that today the spot rate of U.S. dollars to the British pound is \$1.5628/£1. If you go to the bank today, and present a teller with \$1,562.80, you will receive £1,000.

Forward exchange rate: The prices of currencies at which they can be bought and sold for future delivery.

Example: Let's say that today the one-month forward rate for British pound is \$1.5629, the three-month rate is \$1.5625, and the one-year rate is \$1.5619. These represent the prices at which the market (buyers and sellers) would agree (today) to exchange currencies one month, three months, or a year from now.

In this example, the dollar is said to be trading at a one-month forward discount, because you can get fewer pounds for the dollar in the future than you can today. Alternately, the dollar is trading at a forward premium for a three-month or one-year period, because you can get more pounds for the dollar in the future than you can today.

So what determines the rate at which dollars and pounds, or dollars and baht, or baht and roubles are exchanged? The perfect market exchange rate between two currencies is determined primarily by two factors: the interest rates in the two countries and the rate of inflation in the two countries. However, in the real world, governments of many countries regulate the exchange rate to control growth and investment of foreign capital in the economy. Economists believe that such artificial controls are the main reason currencies fall so drastically sometimes (such as the 1997-98 collapse of the Russian rouble and many Asian currencies).

Strong/weak currencies: When a currency is strong, that means its value is rising relative to other currencies. This is also called currency appreciation. When a currency is weak, its value is falling relative to other currencies. This is also called currency depreciation.

Example: Let's say the dollar-pound exchange rate on January 1 is \$1.50/£1. Three months later, on March 1, the exchange rate is \$1.60/£1. The dollar has weakened, or depreciated against the pound, because it takes more dollars to equal one pound.

Influence of Interest Rates on Foreign Exchange

The higher interest rates that can be earned tend to attract foreign investment, increasing the demand for and value of the country's currency. Conversely, lower interest rates tend to be unattractive for foreign investment and decrease the currency's relative value. (Note: We are talking here about the real interest rate or the interest rate

after inflation. After all, if interest rates and inflation were to go up by the same amount, the effect on the country's currency would generally be a wash, of no net effect.)

Example: Let's say the risk-free interest rate in the U.S. is 5 percent; and in the U.K. it is 10 percent. Let's also assume that the exchange rate today is \$1.5/£1. If the U.K. interest rate rises to 12 percent, the British pound will tend to strengthen against the dollar.

Explanation: When interest rates in a country rise, investments held in that country's currency (for example, bank deposits, bonds, CDs, etc.) will earn a higher rate of return. Therefore, when a country's interest rates rise, money and investments will tend to flow to that country, driving up the value of its currency. (The reverse is true when a country's interest rates fall.)

Influence of Inflation on Foreign Exchange

If the inflation in the foreign country goes up relative to the home currency, the foreign currency devalues or weakens relative to the home currency.

Example: Let us say that at the beginning of the year, silver costs \$1,500/lb in the U.S. and £1,000/lb in the U.K. At the same time it takes \$1.5 to buy £1. Let us now assume that inflation in the U.K. is at 10 percent while that in the U.S. is at 0 percent. At the end of the year, the silver still costs \$1,500/lb in the U.S., but it costs pounds £1,100 in U.K. because of inflation. Because of the U.K.'s higher inflation rate, the British pound will weaken relative to the dollar (so that, for example, it may take \$1.36 to buy £1).

Advanced Explanation: Let's say again that at the beginning of the year, silver costs \$1,500/lb in the U.S. and £1,000/lb in the U.K. At the same time, it takes \$1.5 to buy £1. Let us now assume that inflation in the U.K. is at 10 percent while inflation in the U.S. is at 0 percent.

At the end of the year, the silver still costs \$1,500/lb in the U.S., but it costs £1,100/lb in the U.K. because of inflation. If the exchange rate were to remain the same, people would start buying silver in the U.S., selling it in the U.K., and converting their money back to dollars, thus making a tidy profit. In other words, if you had \$1,500, you would buy a pound of silver in U.S., sell it in the U.K. for £1,100 at the end of the year, convert the British pounds into dollars at \$1.5/£1, thus receiving \$1,650. For each pound of silver with which you did this, you would make a neat profit of \$150. If you were to do that with a billion dollars' worth of silver, you could pay for the travel expenses and buy homes in London and New York. You would have been able to take advantage of the inflation in the U.K. and created an arbitrage opportunity.

In the real world, this does not happen. If there is inflation in the U.K., the value of the pound will weaken. This is given by the relationship below.

$$\frac{f\$/\pounds}{s\$/\pounds} = \frac{(1 + i\$)}{(1 + i\pounds)}$$

Here:

$i\$$ = the inflation in \$

$i\pounds$ = the inflation in £

$f\$$ = the forward rate

$s\$$ = the spot rate

Consider what would happen if this was not the case. Say the dollar/pound exchange rate was \$2/£1 instead of \$1.5/£1, but the rupee/dollar and Rupee/pound relationships remained the same (₹40/\$ and ₹60/£)? You could take \$100, convert it into 4,000 rupees, take those rupees and convert it into pounds 66.67, and finally, take those 66.67 pounds and convert that back into \$133.3. You could sit at home and churn out millions of dollars this

way!

Step 1: Convert dollars to rupees	$\frac{\$100 \times \text{Rs}40}{\$1} = 4,000 \text{ Rs}$
Step 2: Convert rupees to pounds	$\frac{4,000 \text{ Rs} \times \text{£}1}{60 \text{ Rs}} = \text{£}66.67$
Step 3: Convert pounds to dollars	$\frac{\text{£}66.67 \times \$2}{\text{£}1} = \$133.33$

The three factors

These three factors - interest rates, inflation, and the principle of capital market equilibrium - govern the valuation of various currencies. Because the U.S. dollar is generally considered the world's most stable currency, it is the widely accepted basis for foreign exchange valuation. Other currencies that are considered stable are the Japanese yen and the Euro. The relative movements of these currencies, as well as others, are monitored daily.

Exchange Rate Effects on Earnings

Companies that do business abroad are exposed to currency risk. For example, if a U.S. Company that manufactures goods in the U.S. sells them in England, its quarterly earnings will fluctuate based on fluctuations in dollar-pound exchange rates.

If the dollar weakens (i.e., one dollar can buy fewer pounds), the company's earnings will increase because when the pounds earned by selling the product are sent back to the U.S., they will be able to buy more dollars. If the dollar strengthens, then the earnings will go down. It is important to note that there are several complex accounting rules that govern how these earnings are accounted for. Let's look at another example.

Example: If Coca-Cola sells soda in the U.K. for £1 per 2-liter bottle, and the dollar-pound exchange rates is \$1.50/£1, Coca-Cola really gets \$1.50 per 2-liter bottle it sells in England. If the dollar weakens, so that the exchange rate is \$1.60/£1, Coca-Cola will in fact get \$1.60 per pound and its earnings will be positively impacted (all else being equal).

The following table summarizes the effect of exchange rates on multinational companies.

Economic Event	Effect on Earnings of U.S. Multinational Companies	Inflation	Interest Rates
U.S. Dollar Strengthens	Negative	Falls	Fall
U.S. Dollar Weakens	Positive	Rises	Rise

Effect of Exchange Rates on Interest Rates and Inflation

A weak dollar means that the prices of imported goods will rise when measured in U.S. dollars (i.e., it will take more dollars to buy the same good). When the prices of imported goods rise, this contributes to higher inflation, which also raises interest rates. Conversely, a strong dollar means that the prices of imported goods will fall, which will lower inflation (which will lower interest rates). The following table summarizes the relationship between interest rates, inflation, and exchange rates.

Economic Event	Effect on Dollar
U.S. (Real) Interest Rates Rise	Strengthens
U.S. (Real) Interest Rates Fall	Weakens
U.S. Inflation Rates Rise	Weakens
U.S. Inflation Rates Fall	Strengthens

A note on devaluation

Under a fixed-exchange-rate system in which exchange rates are changed only by official government action, a weakening of the currency is called devaluation. To take a recent example, devaluation is what occurred in Indonesia in 1998. The Indonesian government had pegged its currency, the rupiah, to the American dollar in an attempt to artificially maintain its strength. As this policy became untenable, the government devalued its currency, causing foreign investment to flee the country and throwing the country's economy into turmoil. A strengthening of the currency under fixed exchange rates is called revaluation, rather than appreciation. These terms can be summarized in the following chart.

Type of exchange rate system	Home currency strengthens	Home currency weakens
Flexible	Appreciation	Depreciation
Fixed	Revaluation	Devaluation

1. What is the currency risk for a company like Microsoft? What about Ford?

Microsoft and Ford have different currency risks. Let's take Microsoft first. Its currency risks are created by its sales in foreign countries. For example, if it markets software program for 100 RMB in China and the dollar strengthens against the RMB (and the company doesn't change its price), Microsoft will be making less in U.S. dollars than it had previously anticipated. (Of course, it can react by changing its prices.)

Now let's examine Ford's currency risks. Like Microsoft, Ford is vulnerable to currency risks because it sells products in foreign currencies. In addition, the auto giant is vulnerable because it manufactures cars overseas. Let's say the company has manufacturing operations in Mexico, where cars are built, and later sold in the U.S. The cost of those operations will be sensitive to the price of the peso relative to the dollar.

If the peso weakens, Ford can make its cars cheaper, sell them for lower prices, and thus gain a competitive advantage. But the opposite is also true. If the peso strengthens, Ford's labour costs will shoot up. In contrast, Microsoft doesn't have manufacturing costs overseas (most of its production costs are spent in Redmond rather than at cheaper production facilities overseas). Ford's currency risk is further complicated because some of its major competitors are in counties outside the U.S. For example, the price of the mark and the yen influences the prices at which German and Japanese competitors sell their cars. Thus Ford has greater currency risk than Microsoft.

2. When the currencies in countries like Thailand, Indonesia, and Russia fell drastically in 1998, why were U.S. and European-based investment banks hurt so badly?

I-banks were hurt on trading losses in Asia and Russia. If banks held currency or bonds in the currencies that dropped, these assets suddenly turned non-performing, in other words, essentially worthless. (In fact, Russia's government defaulted on its government-backed bonds, so firms weren't just hurt by dropping currencies but also by loan defaults.)

3. If the U.S. dollar weakens, should interest rates generally rise, fall or stay the same?

Rise. A weak dollar means that the prices of imported goods will rise when measured in U.S. dollars (i.e., it will take more dollars to buy the same good). Rising prices of imported goods contributes to higher inflation, which raises interest rates.

4. If U.S. inflation rates fall, what will happen to the relative strength of the dollar?

It will strengthen.

5. If the interest rate in Brazil increases relative to the interest rate in the U.S., what will happen to the exchange rate between the Brazilian real and the U.S. dollar?

The real will strengthen relative to the dollar.

6. If inflation rates in the U.S. fall relative to the inflation rate in Russia, what will happen to the exchange rate between the dollar and the rouble?

The dollar will strengthen relative to the rouble.

7. What is the difference between currency devaluation and currency depreciation?

Devaluation occurs in a fixed-exchange-rate system and is usually fixed as a function of government policy, while depreciation occurs when a country allows its currency to move according to the international currency exchange market.

8. What is the effect on U.S. multinational companies if the U.S. dollar strengthens?

U.S. multinationals see their earnings decrease when the dollar strengthens. Essentially, sales in foreign currencies don't amount to as many U.S. dollars when the dollar strengthens.

9. What are some of the main factors that govern foreign exchange rates?

Chiefly: interest rates, inflation, and capital market equilibrium.

Options and Derivatives

Introduction

In 2003, Warren Buffet, one of the most successful investors of all time, spoke out against derivatives, stating, "view them as time bombs, both for the parties that deal in them and the economic system." What are these scary things called derivatives? Quite simply, derivatives are financial instruments that derive their value out of or have their value contingent upon the values of other assets like stocks, bonds, commodity prices or market index values.

Derivatives are often used to hedge financial positions. Hedging is a financial strategy designed to reduce risk by balancing a position in the market. Often, hedges work like insurance: a small position pays off large amounts if the price of a certain security reaches a certain price. On other occasions, derivatives are used to hedge positions by locking in prices.

Options

We'll begin our discussion with a look at options, the most common derivative. Options, as the word suggests, give the bearers the "option" to buy or sell a security - without the obligation to do so. Two of the simplest forms of options are call options and put options.

Call options

A call option gives the holder the right to purchase an asset for a specified price on or before a specified expiration date. (Technically, this definition refers to an "American option." Standard European call options can only be converted on the expiration date. For simplicity's sake, our examples will assume the call options are American.) The specified price is called the "exercise price" or "strike price."

Let's take a look at an example. A July 1 call option on IBM stock has an exercise price of \$70. The owner of this option is entitled to purchase IBM stock at \$70 at any time up to and including the expiration date of July 1. If in June, the price of IBM stock jumps up to \$80, the holder can exercise the option to buy stock from the option seller for \$70. The holder can then turn around and sell it to the market for \$80 and make a neat profit of \$10 per share (minus the price of the option, which we will discuss later). Or the holder can hold onto the number of shares purchased through the option.

Note: When a call option's exercise price is exactly equal to the current stock price, the option is called an "at the money" call. When a call option has an exercise price that is less than the current stock price, it is called an "in the money" call. When a call option's exercise price is greater than the current stock price, it is called an "out of the money" call.

Put options

The other common form of option is a put option. A put option gives its holder the right to sell an asset for a specified exercise price on or before a specified expiration date. (Again, options in Europe can be exercised only on the expiration date.) For example, a July 1 put option on IBM with an exercise price of \$70 entitles its owner to sell IBM stock at \$70 at any time before it expires in July, even if market price is lower than \$70. So if the price drops to \$60, the holder of the put option would buy the stock at \$60, sell it for \$70 by exercising her option, and make a neat profit of \$10 (minus the price of the option).

On the other hand, if the price goes over \$70, the holder of the put option will not exercise the option and will lose the amount he paid to buy the option.

Writing Options

Sounds pretty neat, eh? But how are these options created? And who buys and sells the stock that the options give holders the right to buy and sell?

Well, there is an entire market - called the options market - that helps these transactions go through. For every option holder there must be an option seller. This seller is often referred to as the writer of the option. So selling a put option is called writing a put. Anyone who owns the underlying asset, such as an individual or a mutual fund - can write options.

Let's go back to our previous example. If you buy the July 1 call option on IBM stock with an exercise price of \$70, you are betting that the price of IBM will go above \$70 before July 1. You can make this bet only if there is someone who believes that the price of IBM will not go above \$70 before July 1. That person is the seller, or "writer," of the call option. He or she first gets a non-refundable fee for selling the option, which you pay. If the price goes to \$80 in June and you exercise your option, the person who sold the call option has to buy the stock from the market at \$80

(assuming he does not already own it) and sell it to you at \$70, thus incurring a loss of \$10.

But remember that you had to buy the option originally. The seller of the option, who has just incurred a loss of \$10, already received the price of the option when you bought the option. On the other hand, say the price had stayed below \$70 and closed at \$60 on June 30. The seller would have made the amount he sold the option for, but would not make the difference between the \$70 strike price and the \$60 June 30 closing price. Why not? Because as the buyer of the call option, you have the right to buy at \$70 but is not obligated to. If the stock price of IBM stays below \$70, you as the option buyer will not exercise the option.

Note: If the writer of the call option already owns IBM stock, he is essentially selling you his upside on his IBM stock, or the right to all gains above \$70. Obviously, he doesn't think it's very likely that IBM will rise above \$70 and he hopes to simply pocket the option price.

Summary options chart

Action to take	
Person believes a stock will go up	Buy a call
	Write a put
Person believes a stock will go down	Buy a put
	Write a call

Options Pricing

Understanding how an option writer makes money brings up the natural question: How does an option get priced? There are at least six factors that affect the value of an option: the stock price, exercise price, the volatility of the stock price, the time to expiration, the interest rate and the dividend rate of the stock. To understand how these factors affect option values, we will look at their effect on call options (the option to buy a security).

- Price of underlying security:** If an option is purchased at a fixed exercise price, and the price of the underlying stock increases, the value of a call option increases. Clearly, if you have the option to buy IBM stock at \$100, the value of your option will increase with any increase in stock price: from \$95 to \$100, from \$100 to \$105, from \$105 to \$106, etc. (The value of a put option in this scenario decreases.)
- Exercise ("strike") price:** Call options can be bought at various exercise prices. For example, you can buy an option to buy stock in IBM at \$100, or you can buy an option to buy stock in IBM at \$110. The higher the exercise price, the lower the value of the call option, as the stock price has to go up higher for you to be in the money. (Here, the value of the put option increases, as the stock price does not need to fall as low.)
- Volatility of underlying security:** The option value increases if the volatility of the underlying stock increases. Let's compare similar options on a volatile Internet stock like Google and a more steady stock like Wal-Mart. Say that the Google stock price has been fluctuating from \$70 to \$130 in the last three months. Let's also say that Wal-Mart has been fluctuating from \$90 to \$110. Now let's compare call options with an exercise price of \$100 and a time until expiration of three months. Although the average price for both stocks in the past three months has been \$100, you would value the option to buy Google stock more because there is a greater possibility that it will increase well above \$100. (Perhaps Google would rise to \$130, rather than Wal-Mart's \$110, if the previous three months were replicated.) The reason this potential upside increases the option's value is that the downside loss that you can incur is fixed. You have the option to exercise and not the obligation to buy at \$100. No matter how low

Google's stock might go, the most you would lose is the cost of the option. Volatility increases the value of both call and put options.

- **Time to expiration:** The more time the holder has to exercise the option, the more valuable the option. This makes common sense. The further away the exercise date, the more time for unpredictable things to happen and the broader the range of likely stock price increases. Moreover, the more time the option holder has, the lower the present value of the exercise price will be (thus increasing the option value). Like volatility, time to expiration increases the value of both put and call options.
- **Interest rates:** If interest rates are higher, the exercise price has a lower present value. This also increases the value of the call option.
- **Dividends:** A higher dividend rate policy of the company means that out of the total expected return on the stock, some is being delivered in the form of dividends. This means that the expected capital gain of the stock will be lower, and the potential increase in stock price will be lower. Hence, larger dividend pay outs lower the call value.

- The following table summarizes the relationships between these factors and the value of options:

If this variable increases	The value of a call option
Stock price	Increases
Exercise price	Decreases
Volatility	Increases
Time to expiration	Increases
Interest rate	Increases
Dividend payouts	Decreases

- In the end, the price of an option, like any security, is determined by the market. However, as with the various valuation techniques for companies discussed previously, there are standard methods of pricing options, most prominently the **Black-Scholes model**. This model has essentially become the industry standard, and is a fairly good predictor of how the market prices options.

Forwards

A forward contract is an agreement that calls for future delivery of an asset at an agreed-upon price. Let's say a farmer grows a single crop, wheat. The revenue from the entire planting season depends critically on the highly volatile price of wheat. The farmer can't easily diversify his position because virtually his entire wealth is tied up in the crop. The miller who must purchase wheat for processing faces a portfolio problem is same as that of farmer's problem. He is subject to profit uncertainty because of the unpredictable future of the wheat price when the day comes for him to buy his wheat.

Both parties can reduce their risk if they enter into a forward contract requiring the farmer to deliver the wheat at a previously agreed upon price, regardless of what the market price is at harvest time. No money needs to change hands at the time the agreement is made. A forward contract is simply a deferred delivery sale of some asset with an agreed-upon sales price. The contract is designed to protect each party from future price fluctuations. These forwards are generally used by large companies that deal with immense quantities of commodities, like Cargill or Archer Daniels Midland.

Futures

The futures contract is a type of forward that calls for the delivery of an asset or its cash value at a specified delivery or maturity date for an agreed upon price. This price is called the futures price, and is to be paid when the contract matures. The trader who commits to purchasing the commodity on the delivery date is said to be in the long position. The trader who takes the short position commits to delivering the commodity when the contract matures.

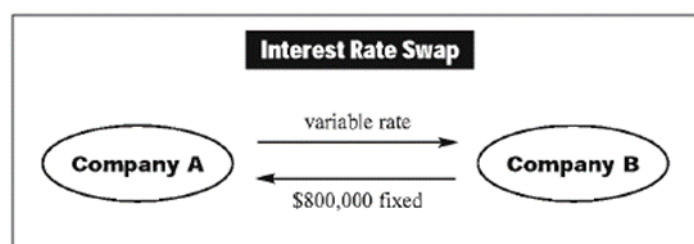
Futures differ from other forwards in the fact that they are liquid, standardized, traded on an exchange, and their prices are settled at the end of each trading day (that is, the futures traders collect/pay their day's gains and losses at the end of each day). Futures are actively traded and liquid

securities. For example, for agricultural commodities, the exchange sets allowable grades of a commodity (for example, No. 2 hard winter wheat or No. 1 soft red wheat). The place or means of delivery of the commodity is specified as issued by approved warehouses. The dates of delivery are also standardized. The prices of the major agricultural futures appear in The Wall Street Journal. Futures are also available on other commodities, like gold and oil.

Swaps

Another derivative, a swap, is a simple exchange of future cash flows. Some popular forms of swaps include foreign exchange swaps and interest rate swaps. Let's first examine foreign exchange swaps. Say Sun Microsystems outsources its software development to India on a regular basis. In such a situation, it would make payments to the firms in India in rupees, thus find itself exposed to foreign exchange rate fluctuation risks. To hedge these exchange risks, Sun would want to enter into a foreign exchange swap - a predetermined exchange of currency - with another party. For example, Sun might want to swap \$1.0 million for Rs 40 million for each of the next five years. For instance, it could enter into a swap with the Birla Group in India, which has many expenses in U.S. dollars and is thus also subject to the same exchange rate fluctuation risk. By agreeing to a foreign exchange swap, both companies protect their business from exchange rate risks.

Interest rate swaps work similarly. Consider a firm (Company A) that has issued bonds (which, remember, means essentially that it has taken loans) with a total par value of \$10 million at a fixed interest rate of 8 percent. By issuing the bonds, the firm is obligated to pay a fixed interest rate of \$800,000 at the end of each year. In a situation like this, it can enter into an interest rate swap with another party (Company B), where Company A pays Company B the LIBOR rate (a floating, or variable, short-term interest rate measure) and Company B agrees to pay Company A the fixed rate. In such a case, Company A would receive \$800,000 each year that it could use to make its loan payment. For its part, Company A would be obligated to pay \$10 million x LIBOR each year to Company B. Hence Company A has swapped its fixed interest rate debt to a floating rate debt. (The company swaps rates with Company B, called the counterparty. The counterparty gains because presumably it wants to swap its floating rate debt for fixed rate debt, thus locking in a fixed rate.) The chart below illustrates this swap.



1. When would you write a call option on Disney stock?

When you expect the price of Disney stock to fall (or stay the same). Because a call option on a stock is a

bet that the value of the stock will increase, you would be willing to write (sell) a call option on Disney stock to an investor if you believed Disney stock would not rise. (In this case, the profit you would make would be equal to the option premium you received when you sold the option.)

2. Explain how a swap works.

A swap is an exchange of future cash flows. The most popular forms include foreign exchange swaps and interest rate swaps. They are used to hedge volatile rates, such as currency exchange rates or interest rates.

3. Say I hold a put option on Microsoft stock with an exercise price of \$60, the expiration date is today, and Microsoft is trading at \$50. About how much is my put worth, and why?

Your put is worth about \$ 10, because today, you can sell a share of stock for \$60, and buy it for \$50. (If the expiration date were in the future, the option would be more valuable, because the stock could conceivably drop more.)

4. When would a trader seeking profit from a long-term possession of a future be in the long position?

The trader in the long position is committed to buying a commodity on a delivery date. She would hold this position if she believes the commodity price will increase.

5. All else being equal, which would be less valuable: a December put option on Amazon.com stock or a December put option on Bell Atlantic stock?

The put option on Bell Atlantic should be less valuable. Amazon.com is a more volatile stock, and the more volatile the underlying asset, the more valuable the option.

6. All else being equal, which would be more valuable: a December call option for eBay or a January call option for eBay?

The January option: The later an option's expiration date, the more valuable the option.

7. Why do interest rates matter when figuring the price of options?

Because of the ever-important concept of net present value, all else being equal; higher interest rates lower the value of call options.

8. If the strike price on a put option is below the current price, is the option holder at the money, in the money or out of the money?

Because a put option gives the holder the right to sell a security at a certain price, the fact that the strike (or exercise) price is below the current price would mean that the option holder would lose money. Translate that knowledge into option lingo, and you know that the option holder is out of the money.

9. If the current price of a stock is above the strike price of a call option, is the option holder at the money, in the money, or out of the money?

Because a call option gives the holder the right to buy a security, the holder in this scenario is in the money (making money).

10. When would you buy a put option on General Mills stock?

Because buying a put option gives you the option to sell the stock at a certain price, you would do this if you expect the price of General Mills stock to fall.

11. What is the main difference between futures contracts and forward contracts?

The main difference between forward and futures contracts is that futures contracts are traded on exchanges and forwards are traded over-the-counter. Because of this distinction, you can only trade

specific futures contracts that are traded on the exchange. Forward contracts are more flexible because they are privately negotiated, and can represent any assets and can change settlement dates should both parties agree.

Glossary

Balance Sheet: One of the four basic financial statements, the Balance Sheet presents the financial position of a company at a given point in time, including Assets, Liabilities, and Equity.

Beta: A value that represents the relative volatility of a given investment with respect to the market.

Bond price: The price the bondholder (the lender) pays the bond issuer (the borrower) to hold the bond (i.e., to have a claim on the cash flows documented on the bond).

Bond spreads: The difference between the yield of a corporate bond and a U.S. Treasury security of similar time to maturity.

Buy-side: The clients of investment banks (mutual funds, pension funds and other entities often called "institutional investors") that buy the stocks, bonds and securities sold by the investment banks. (The investment banks that sell these products to investors are known as the "sell-side.")

Callable bond: A bond that can be bought back by the issuer so that it is not committed to paying large coupon payments in the future.

Call option: An option that gives the holder the right to purchase an asset for a specified price on or before a specified expiration date.

Capital Asset Pricing Model (CAPM): A model used to calculate the discount rate of a company's cash flows.

Commercial bank: A bank that lends, rather than raises money. For example, if a company wants \$30 million to open a new production plant, it can approach a commercial bank like Bank of America or Citibank for a loan. (Increasingly, commercial banks are also providing investment banking services to clients.)

Commercial paper: Short-term corporate debt, typically maturing in nine months or less.

Commodities: Assets (usually agricultural products or metals) that are generally interchangeable with one another and therefore share a common price. For example, corn, wheat, and rubber generally trade at one price on commodity markets worldwide.

Common stock: Also called common equity, common stock represents an ownership interest in a company (as opposed to preferred stock, see below). The vast majority of stock traded in the markets today is common, as common stock enables investors to vote on company matters. An individual with 51 percent or more of shares owned controls a company and can appoint anyone he/she wishes to the board of directors or to the management team.

Comparable transactions (comps): A method of valuing a company for a merger or acquisition that involves studying similar transactions.

Convertible preferred stock: A type of equity issued by a company, convertible preferred stock is often issued when it cannot successfully sell either straight common stock or straight debt. Preferred stock pays a dividend, similar to how a bond pays coupon payments, but ultimately converts to common stock after a period of time. It is essentially a mix of debt and equity, and most often used as a means for a risky company to obtain capital when neither debt nor equity works.

Capital market equilibrium: The principle that there should be equilibrium in the global interest rate markets.

Convertible bonds: Bonds that can be converted into a specified number of shares of stock.

Cost of Goods Sold: The direct costs of producing merchandise. Includes costs of labour, equipment, and materials to create the finished product, for example.

Coupon payments: The payments of interest that the bond issuer makes to the bondholder.

Credit ratings: The ratings given to bonds by credit agencies. These ratings indicate the risk of default.

Currency appreciation: When a currency's value is rising relative to other currencies. **Currency depreciation:** When a currency's value is falling relative to other currencies. **Currency devaluation:** When a currency weakens under fixed exchange rates.

Currency revaluation: When a currency strengthens under fixed exchange rates.

Default premium: The difference between the promised yields on a corporate bond and the yield on an otherwise identical government bond.

Default risk: The risk that the company issuing a bond may go bankrupt and "default" on its loans.

Derivatives: An asset whose value is derived from the price of another asset. Examples include call options, put options, futures, and interest-rate swaps.

Discount rate: A rate that measures the risk of an investment. It can be understood as the expected return from a project of a certain amount of risk.

Discounted Cash Flow analysis (DCF): A method of valuation that takes the net present value of the free cash flows of a company.

Dividend: A payment by a company to shareholders of its stock, usually as a way to distribute some or all of the profits to shareholders.

EBIAT: Earnings Before Interest After Taxes. Used to approximate earnings for the purposes of creating free cash flow for a discounted cash flow.

EBIT: Earnings Before Interest and Taxes.

EBITDA: Earnings Before Interest, Taxes, Depreciation and Amortization.

Enterprise Value: Levered value of the company, the Equity Value plus the market value of debt.

Equity: In short, stock. Equity means ownership in a company that is usually represented by stock.

Fixed income: Bonds and other securities that earn a fixed rate of return. Bonds are typically issued by governments, corporations and municipalities.

Float: The number of shares available for trade in the market times the price. Generally speaking, the bigger the float, the greater the stock's liquidity.

Floating rate: An interest rate that is pegged to other rates (such as the rate paid on U.S. Treasuries), allowing the

interest rate to change as market conditions change.

Forward contract: A contract that calls for future delivery of an asset at an agreed-upon price.

Forward exchange rate: The price of currencies at which they can be bought and sold for future delivery.

Forward rates (for bonds): The agreed-upon interest rates for a bond to be issued in the future.

Futures contract: A contract that calls for the delivery of an asset or its cash value at a specified delivery or maturity date for an agreed upon price. A future is a type of forward contract that is liquid, standardized, traded on an exchange, and whose prices are settled at the end of each trading day.

Glass-Steagall Act: Part of the legislation passed during the Depression (Glass-Steagall was passed in 1933) designed to help prevent future bank failure - the establishment of the F.D.I.C. was also part of this movement. The Glass-Steagall Act split America's investment banking (issuing and trading securities) operations from commercial banking (lending). For example, J.P. Morgan was forced to spin off its securities unit as Morgan Stanley. Since the late 1980s, the Federal Reserve has steadily weakened the act, allowing commercial banks to buy investment banks.

Goodwill: An account that includes intangible assets a company may have, such as brand image.

Hedge: A balance on a position in the market in order to reduce risk.

High-yield bonds (a.k.a. junk bonds): Bonds with poor credit ratings that pay a relatively high rate of interest, or can be bought for cents per dollar of face value.

Holding Period Return: The income earned over a period as a percentage of the bond price at the start of the period.

Income Statement: One of the four basic financial statements, the Income Statement presents the results of operations of a business over a specified period of time, and is composed of Revenues, Expenses, and Net Income.

Initial Public Offering (IPO): The dream of every entrepreneur, the IPO is the first time a company issues stock to the public. "Going public" means more than raising money for the company: By agreeing to take on public shareholders, a company enters a whole world of required SEC filings and quarterly revenue and earnings reports, not to mention possible shareholder lawsuits.

Investment grade bonds: Bonds with high credit ratings that pay a relatively low rate of interest, but are very low risk.

Liquidity: The amount of a particular stock or bond available for trading in the market. For commonly traded securities, such as large cap stocks and U.S. government bonds, they are said to be highly liquid instruments. Small cap stocks and smaller fixed income issues often are called illiquid (as they are not actively traded) and suffer a liquidity discount, i.e., they trade at lower valuations to similar, but more liquid, securities.

The Long Bond: The 30-year U.S. Treasury bond. Treasury bonds are used as the starting point for pricing many other bonds, because Treasury bonds are assumed to have zero credit risk take into account factors such as inflation. For example, a company will issue a bond that trades "40 over Treasuries." The 40 refers to 40 basis points (100 basis points = 1 percentage point).

Market Capitalization: The total value of a company in the stock market (total shares outstanding x price per share).

Money market securities: This term is generally used to represent the market for securities maturing within one year. These include short-term CDs, Repurchase Agreements, Commercial Paper (low-risk corporate issues), among others. These are low risk, short-term securities that have yields similar to Treasuries.

Mortgage-backed bonds: Bonds collateralized by a pool of mortgages. Interest and principal payments are based on the individual homeowners making their mortgage payments. The more diverse the pool of mortgages backing the bond, the less risky they are.

Multiples method: A method of valuing a company that involves taking a multiple of an indicator such as price-to-earnings, EBITDA, or revenues.

Municipal bonds: Bonds issued by local and state governments, a.k.a., municipalities. Municipal bonds are structured as tax-free for the investor, which means investors in muni's earn interest payments without having to pay RBleral taxes. Sometimes investors are exempt from state and local taxes, too. Consequently, municipalities can pay lower interest rates on muni bonds than other bonds of similar risk.

Net present value (NPV): The present value of a series of cash flows generated by an investment, minus the initial investment. NPV is calculated because of the important concept that money today is worth more than the same money tomorrow.

Non-convertible preferred stock: Sometimes companies issue nonconvertible preferred stock, which remains outstanding in perpetuity and trades like stocks. Utilities are the most common issuers of non-convertible preferred stock.

Par value: The amount a bond issuer will commit to pay back, the principal, when the bond expires. **P/E ratio:** The price to earnings ratio. This is the ratio of a company's stock price to its earnings-per-share. The higher the P/E ratio, the faster investors believe the company will grow.

Prime rate: The average rate U.S. banks charge to companies for loans.

Put option: An option that gives the holder the ight to sell an asset for a specified price on or before a specified expiration date.

Securities and Exchange Commission (SEC): A RBleral agency that, like the Glass-Steagall Act, was established as a result of the stock market crash of 1929 and the ensuing depression. The SEC monitors disclosure of financial information to stockholders, and protects against fraud. Publicly traded securities must first be approved by the SEC prior to trading.

Securitize: To convert an asset into a security that can then be sold to investors. Nearly any income- generating asset can be turned into a security. For example, a 20-year mortgage on a home can be packaged with other mortgages just like it, and shares in this pool of mortgages can then be sold to investors.

Selling, General & Administrative Expense (SG&A): Costs not directly involved in the production of revenues. SG&A is subtracted as part of expenses from Gross Profit to get EBIT.

Spot exchange rate: The price of currencies for immediate delivery.

Statement of Cash Flows: One of the four basic financial statements, the Statement of Cash Flows presents a detailed summary of all of the cash inflows and outflows during a specified period.

Statement of Retained Earnings: One of the four basic financial statements, the Statement of Retained Earnings is a reconciliation of the Retained Earnings account. Information such as dividends or announced income is provided in the statement. The Statement of Retained Earnings provides information about what a company's management is doing with the company's earnings.

Stock: Ownership in a company.

Stock swap: A form of M&A activity in whereby the stock of one company is exchanged for the stock of another.

Strong currency: A currency whose value is rising relative to other currencies.

Swap: A type of derivative, a swap is an exchange of future cash flows. Popular swaps include foreign exchange swaps and interest rate swaps.

10K: An annual report filed by a public company with the Securities and Exchange Commission (SEC). Includes financial information, company information, risk factors, etc.

Tender offers: A method by which a hostile acquirer renders an offer to the shareholders of a company in an attempt to gather a controlling interest in the company. Generally, the potential acquirer will offer to buy stock from shareholders at a much higher value than the market value. **Treasury securities:** Securities issued by the U.S. government. These are divided into Treasury bills (maturity of up to 2 years), Treasury notes (from 2 years to 10 years maturity), and Treasury bonds (10 years to 30 years). As they are government guaranteed, often treasuries are considered risk-free. In fact, while U.S. Treasuries have no default risk, they do have interest rate risk; if rates increase, then the price of UST's will decrease.

Underwrite: Most commonly, the valuing of a pre-IPO stock performed by investment banks when they help companies issue securities to investors. Technically, the investment bank buys the securities from the company and immediately resells the securities to investors for a slightly higher price, making money on the spread.

Weak currency: A currency whose value is falling relative to other currencies.

Yield to call: The yield of a bond calculated up to the period when the bond is called (paid off by the bond issuer).

Yield: The annual return on investment. A high-yield bond, for example, pays a high rate of interest.

Yield to maturity: The measure of the average rate of return that will be earned on a bond if it is bought now and held to maturity.

Zero coupon bonds: A bond that offers no coupon or interest payments to the bondholder.

Numbers you should know

Monetary Tools (20 June, 2016):

Bank Rate 7.00 %
Repo rate 6.50%
Reverse Repo rate 6.00%
Marginal Standing Facility Rate 7.00%
CRR 4.00%
SLR 21.25 %

For latest figures refer: <https://www.rbi.org.in/>

Exchange Rate (20 June, 2015):

1 USD = 67.4087 INR
1 Euro = 76.5358 INR
100 Jap Yen = 64.4400 INR
1 GBP = 98.1538 INR

For latest figures refer: <https://www.rbi.org.in/>

Inflation (May 2016)

WPI 1.4% rise over last month to 179.40
CPI 5.76%
IIP -0.80% (Negative)

For latest figures refer: <http://eaindustry.nic.in/>

FDI (Jan – March 2016):

Inflow - \$424,167 Million

For latest figures refer: http://dipp.nic.in/English/Publications/FDI_Statistics/FDI_Statistics.aspx