

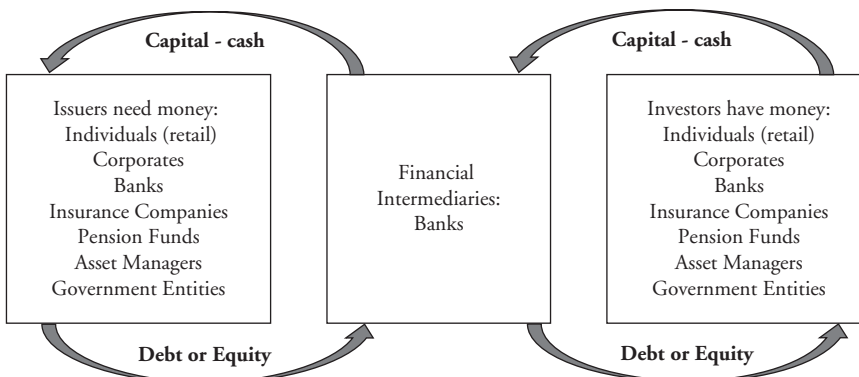
CHAPTER 1

What Are Financial Markets?

This chapter will provide the financial markets foundation, terminology and context to discuss the dynamics of the trading floor. The first step is to realize that every time a financial transaction occurs between two or more parties it has ramifications in the financial markets. Parties on one side of the transaction may include individuals investing in their pensions, saving up for a rainy day or buying insurance. Most of this retail activity gets funneled through larger financial companies such as pension funds, banks, insurance companies and asset managers, which are the main investors in the financial markets. On the other side of many financial transactions are the entities that need money and raise it either by borrowing (debt markets) or by selling part of their company (equity markets). These are generally referred to as the “issuers.” Extrapolate from there and the foundation of the financial markets becomes clear. It is where people with money (investors) meet people who need money (issuers). The place where the buyers and the sellers meet or where the issuers and the investors meet is called the “financial market” and the transfer itself often occurs via a bank trading floor. In other words, the buyers and sellers don’t physically meet in order to trade; they use the trading floor instead. Throughout this discussion, the broad role of banks as intermediators will become clear. This chapter will also answer questions such as: Who needs money? What is private equity vs. public equity? Why do banks give out loans and how are they different from bonds? Why do derivatives exist?

When I was a senior at MIT, I started doing interview rounds with Wall Street banks for a position in sales and trading. My first interview was conducted by an options trader from a boutique trading company. After a very brief introduction, the trader said, "Make me a market for this pencil." I literally had no idea what he had just said. So the trader says, "OK, let's play a game. I'm going to roll a die. Whatever number comes up, I'll pay you that amount in dollars. If I roll a one, I'll pay you one dollar. If I roll a two, I'll pay you two dollars, etc. How much will you pay me to play that game?" I still couldn't understand what he was trying to get me to say. What did it mean to pay someone to play a game? The trader said, "OK, whatever I roll, you'll at least get a dollar, right? Will you pay me a dollar to play this game?" I immediately said, "Yes." The trader then said, "Will you pay me two dollars to play this game?" I said "yes" again. The trader then said, "Will you pay me three dollars to play this game?" I said "yes" again. I now knew how to get to the right answer but the trader was clearly irritated and was asking rapid-fire questions so I had no time to think. He then said, "Will you pay me four dollars to play this game?" I said "yes" without thinking. The trader said, "Why?" At this point I knew I had made a mistake, but I was so frazzled and nervous that I couldn't think of a good answer. I decided to brazen it out and said, "I feel lucky?" Needless to say, the interview was immediately over and I didn't get the job.

The financial markets encompass everything from shares to derivatives to commodities. They are as broad and diverse in what they offer and who participates as any supermarket is. This seems a daunting space to then try to classify and explain; however, there is one primary driver of the financial markets that is a good framework on which to base an understanding. The financial markets are primarily driven by the supply of **issuers** and the demand of **investors**. Or in other words, the **financial markets** are a place where entities who need money meet with entities that have money. Where do banks and in particular trading floors come into this? They sit in the middle. They facilitate the meeting of the supply and the demand. Within the broader world of financial markets, this particular space is called **capital markets**, where **capital** refers to cash in any currency and the focus of these capital markets is capital raising by the issuers and investing by the investors. Who are the entities who need money? Doesn't everyone need money? Yes, at some point or another, everyone generally comes to the capital markets to raise some money. Figure 1.1 shows the position of banks in the capital markets.

FIGURE 1.1 Banks as intermediators in the capital markets.

Capital moves from the investors to the issuers via banks acting as financial intermediaries. Before going into details of who each of these entities is and what exactly they do in the capital markets, it is important to first distinguish between the equity capital markets and the debt capital markets. All issuers who need money must first decide whether they need **equity capital** or **debt capital**.

Throughout this book, there are references to the price of a financial product in the financial market. A **market** is where buyers and sellers meet. Think supermarket, flower market, flea market . . . Some of these are places which have fixed prices and others are places where a buyer and seller come to an agreement. In the latter case, the price is determined by the number of buyers compared to the number of sellers. This is no different in the financial market. Supply and demand are the drivers of the price of every **financial product**, such as equity and debt. We generally say the price of a financial product is where it recently traded unless some bit of financial news would have likely affected that price since the last trade. The key point to understand about financial products is that their price generally moves all day, every day based on new information. This information can be about the performance of a particular retailer, which will affect their equity or bond price or the state of a particular economy, which will affect financial products in that economy. However, while that information might give general direction of the price (in other words whether the price might go up or down), supply and demand determine the actual price.

Debt Markets

Almost all companies borrow money, or in other words **issue** debt. The easiest way to explain this is by using an example of a young couple buying a home. They don't have the money to buy the entire house, but they have savings which allow them to spend up to 30% of the house price, called "equity," and they are able to borrow the rest via a mortgage, called "debt." They also have an income that allows them to pay off the mortgage debt (plus the interest) over the years. In theory, over time, as the couple pay down the mortgage, their equity in the house increases until they eventually have 100% equity in their house and no debt. Most companies on the other hand almost never pay down their debt entirely. Instead, they continue to borrow more and more as they grow their business.

Companies borrow for a number of reasons. For example, they want to expand their business or they want to buy a competitor. It is exactly the same as an individual going to the bank and asking for a loan. The **lender** wants to know why the **borrower** needs the money and how the borrower is going to pay the money back. If the lender doesn't believe the borrower will be able to pay the money back, the lender won't lend. Governments borrow money the same way and for the same reasons that companies do. For example, they borrow to build infrastructure such as roads or they borrow to expand their defensive capabilities. The lender asks the same questions to governments as to companies as to individuals. Why is the money needed and how will it be paid back?

Years ago, debt and equity were pieces of paper much like paper money is today. Whoever is holding paper money is the owner of it. It was the same with debt and equity. There are stories of people finding boxes of often worthless shares (another term for equity) or bonds (another term for debt) in their attics. They looked like a certificate. Some were very elaborate; others were very simple. Today, there is a legal contract for equities and debt which details the terms and conditions of them, but the ownership is not a function of who is physically holding the contract itself. The ownership is mostly listed in electronic registers.

What is **debt**? Very simply, in the financial markets debt is either a bond or a loan which represents an obligation of one party to make a payment to another party. It is a financial product which gives the borrower (generally called the issuer) an amount of money (called the **principal** amount) and in exchange requires the issuer to pay a **coupon** (also called **interest**) every year and then to repay the entire principal amount at maturity. The **maturity** can be anywhere from 1 day to 100 years, but most company debt has a maturity

of between two and seven years. As mentioned above, most issuers re-borrow their debt rather than pay it down. This means that if a corporate borrows \$100 million for five years, the corporate is still required to pay the \$100 million back to the investors at maturity in five years, but he will often do this by borrowing another \$100 million. Box 1.1 summarizes the main aspects of debt.

Box 1.1 Debt summary

- Bonds and loans are the two primary types of debt (Figures 1.2 and 1.3).
- Debt is borrowed money and needs to be paid back at maturity.
- Debt has a coupon (also called an interest payment) which is due until the principal is paid back.
- The maturity of debt can be overnight out to 50 or 100 years but is generally two to seven years.

The coupon on a bond or loan is where the term **fixed income** originates. We talk about the debt markets vs. equity markets but we also use the term “fixed income markets vs. equity markets.” Very broadly, the terms “debt” and “fixed income” are the same. The term fixed income is meant to distinguish between a coupon on a bond (Figure 1.2) or loan (Figure 1.3) in contrast to a dividend payment in equity that is an unknown amount and may or may not be paid to shareholders, which we will explore later in this chapter.

What is the difference between a bond and a loan? Historically, **bonds** are bought by investors and **loans** are given and held by banks. Generally, bonds are considered public financial products while loans are considered private financial products. A bond might have several hundred different investors, while a loan will often only be owned by the bank that originally gave the loan in the case of individuals and small companies or by a handful of banks in the case of larger companies. Table 1.1 compares bonds and loans.

In Figure 1.2, the bank facilitates the **issuance** of a bond by finding the investors in the bond. If Supermart needs to borrow \$100 million, the bank needs to find enough investors that add up to \$100 million. The bank manages both the relationship with the issuers (in this case Supermart) as well as with the investors. The bank facilitates this matchmaking between its issuer clients and its investor clients.

FIGURE 1.2 Example of a bond.

Supermart, a large supermarket chain, borrows \$100 million for five years in the bond market with a coupon of 3% per year.

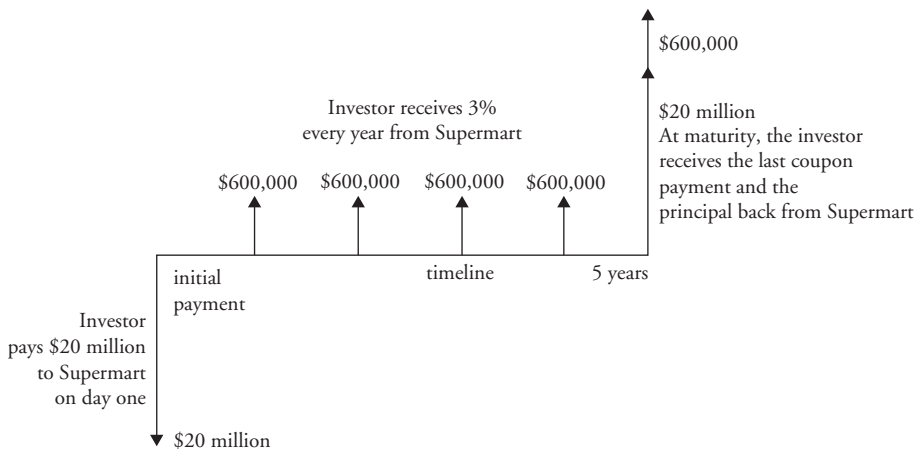
-The principal of the bond is \$100 million.

-The coupon on the bond is 3% per year or \$3 million per year.

-Supermart gets the principal of \$100 million on day one from investors who buy the bond.

-Supermart pays the investors \$3 million each year for five years and in five years also pays back the \$100 million.

Cashflow timeline for an investor who buys \$20 million of the Supermart bond



Another distinction that can generally be made between bonds and loans is that the larger the issuer, the more likely the issuer will use the bond market. This is a function of how familiar investors are with the issuer. While an entity such as a car manufacturer, like Ford or Toyota, can easily borrow in the form of bonds from investors, a small entity such as a coffee shop will likely need to go to its bank where it has a relationship and borrow in the form of a loan. Over time if the coffee shop expands and becomes a recognized brand nationally or internationally, such as Starbucks, it may eventually have access to the bond markets.

There is another distinction we make in the debt markets. It is between the two types of coupons debt can have: **fixed** and **floating**. The first is an interest rate that is fixed for the life of the bond or loan, for example a borrower issues a bond with a fixed rate of 3% per year for five years. The second is an interest rate that is reset with a set frequency based on where current interest rates are. For example, if the coupon is reset annually

FIGURE 1.3 Example of a loan.

Supermart, a large supermarket chain, borrows \$100 million for five years from its bank at a rate of 3% per year.

- The principal of the loan is \$100 million.
- The coupon or the interest rate on the loan is 3% per year or \$3 million per year.
- Supermart gets the principal of \$100 million on day one from its bank which gives out the loan.
- Supermart pays its bank \$3 million each year for five years and in five years also pays back the \$100 million principal.

Cashflow timeline for a bank who lends \$100 million to Supermart

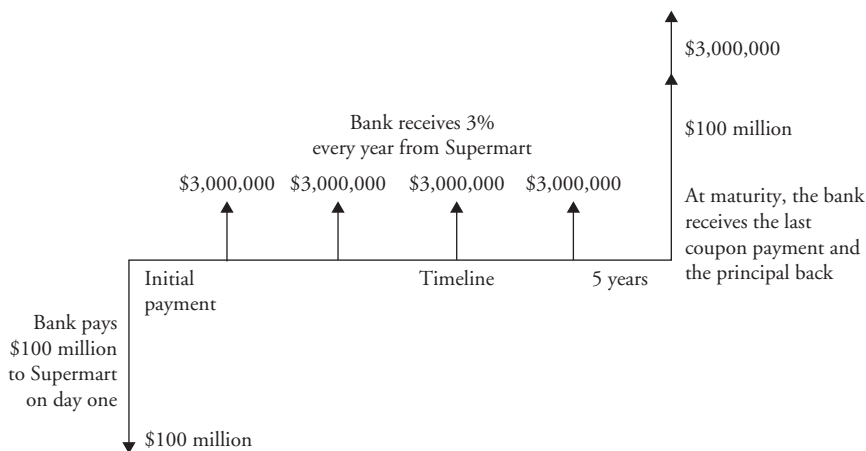


TABLE 1.1 Comparison of a Bond and a Loan

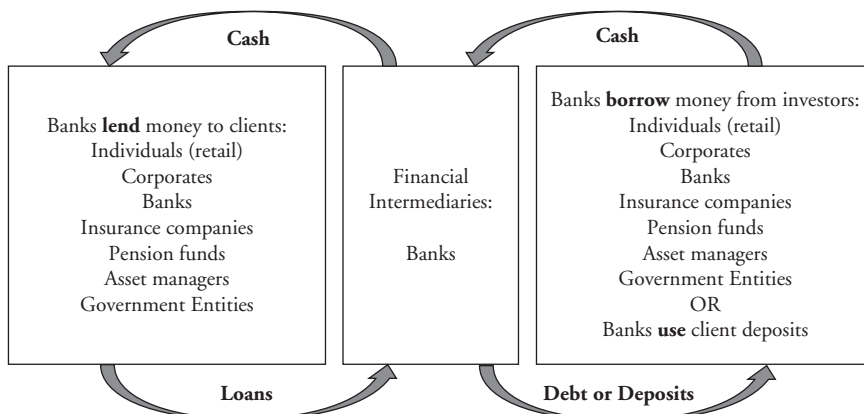
Bonds	Loans
Bonds are arranged by banks	Loans are arranged by banks
Banks distribute the bonds to their investor clients	Banks may distribute loans to other banks
A bank intermediates between the issuer and the investor	Banks will retain some or all of a loan
There are thousands of investors in some bonds	Loans generally have one to a handful of investors

the interest changes every year. On day one, the borrower knows what his interest is for the first year but has to wait till the end of the first year to know what his interest cost will be for the next year and so on. These are both considered fixed income as defined above because in both cases there is

definitely an interest payment to be made as opposed to dividends in the equity markets, which are unknown in both amount and whether they will be paid or not. Why borrowers choose fixed over floating interest payments is not always a case of their choosing as opposed to a case of what the investors are interested in buying at the time. Many borrowers are advised by their bank on what type of debt will be best received by the investors and will thus try to choose what they believe will be the cheapest for them. “Cheapest” means the one with the lowest interest cost. One generalization we can make however is that loans are generally floating rate and bonds are split evenly between fixed rate and floating rate coupons.

The role of the banks is crucial in the debt markets. They are either lending money to borrowers or **facilitating** (also called **intermediating**) the debt issuance to the appropriate investor base. “Appropriate” means that for some smaller borrowers they are only able to borrow from investors in their jurisdiction or region, for example a regional supermarket chain in the United States is likely only to have US investors, whereas a global brand such as a car manufacturer will have global investors. To be clear, the crucial role that banks play in the debt markets applies to the individual who needs a loan, a mortgage or a credit card, through to the largest corporate who needs to do a debt issuance. In fact, one could say that, historically, a bank’s main role, other than taking in deposits, was to lend money or facilitate the borrowing of money. Figure 1.4 illustrates how a bank intermediates access to capital.

FIGURE 1.4 Bank intermediating access to capital in the loan market.



There is an old saying in the banking world in London. Traditionally, bankers were the individuals who gave out loans. The rest of the financial community in London used to say that they operated on the “3–6–3 rule”: bankers borrowed money at 3%, lent money at 6% and went home by 3 p.m.

Another big difference between the bond and loan market is what happens after the bond or loan is issued. The bond will change hands (in other words trade) over time, while the loan generally won't. Once the bank has found the initial investors in the new issue bonds (called the **primary market**), the bank continues to play a crucial role in the debt markets because many investors don't keep the bonds for the full life of the bond. They will sell their bond investments for a variety of reasons, which include the price of the bond going up, which means the initial investor made a profit, or the price of the bond going down because the issuer was not performing very well or because the investor no longer liked the sector in which the company operated. All trading activity in that bond after the bank first sold it to its investors is called the **secondary market** (Box 1.2). Because loans are often given to smaller issuers who are less well known in the financial markets, once a bank has lent the money, it is not as easy to sell a loan even to other banks. In other words, there is very little secondary market trading in loans compared to bonds. Table 1.2 compares the primary and secondary markets.

Box 1.2 Reasons for trading in secondary markets

- An investor who purchased his bonds when they were first issued at a price of 100% sees that the price has gone up to 101%. He decides to sell them and make a profit.
- An investor who didn't purchase the debt when it was first issued has decided that he would like to invest in the Supermart bonds.
- An investor who purchased his bonds when they were first issued has a limit to how much the price of his bonds can change. They are now trading at 95% and he bought them at 100%. He is required to sell them now.

When an investor wants to sell a bond, he will ask a bank to buy it from him. He will not necessarily ask the bank that originally sold it to him.

TABLE 1.2 Comparison of Primary and Secondary Markets

Primary Market	Secondary Market
The first transaction of a new issue debt or equity	All trades in a product after the first
The arranging bank sells the new issue debt or equity to an investor for the first time	The investor of a new issue sells the new issue back to the arranging bank or to another bank
The investor buys the shares at the issue price and the debt at 100%	The trade price is likely different from the issue price

He can go to a different bank. A bank's job is to determine the price where the bank can sell it to another investor. The bank will often buy the bond without knowing exactly to whom it will sell the bond but knowing that it has enough investor clients that it will be able to sell the bond to one of its clients.

The price where debt trades is expressed as a percentage of the principal, for example 100% or 101% or 98%. Normally, a bond is originally issued at 100% (a bond price of 100% is called **par**) and over time – based on supply and demand, the performance of the issuer, the performance of the economy and interest rate changes – that price will move up and down. The key relationship in fixed income is between the price of the bond and how interest rates have changed since the bond was issued. If interest rates go up, the bond price will go down and vice versa. The idea is that if interest rates for five years are currently at 4% and a 5-year bond has a 3% coupon, investors will want to pay less for that bond because it is not paying 4%. This is explained in more detail in later chapters.

Trading debt

- An investor buys \$50 million of a bond at a price of 100% of the principal amount. Thus the cash price is \$50 million.
- The bond price moves up to 101% of the principal amount, which is \$50.5 million.
- The investor sells the bond and makes a profit of 1%.
- The cash exchange for a \$50 million trade is:
 - \$50 million (to buy the bond) + \$50.5 million (to sell the bond)
 - = \$0.5 million profit

Equity Markets

Now, let's focus on the equity part of the equation. As opposed to debt, which is borrowed money, **equity**, also called **shares** in a company, represents ownership in that company. A **shareholder**, also called an equity investor, is an owner of a portion of a company. While individuals and governments borrow money in the same way that companies do, issuing shares is exclusively done by companies and not by individuals or governments. The reason for this is that equity represents ownership, which doesn't make sense in the context of an individual or a government. A shareholder in a company gets a return on his investment via his ownership rights in the company. When a company earns profits, the company can either pay a dividend to its shareholders or reinvest the profits back into the company to fund growth, which will hopefully make the company increase in value. A **dividend** is the distribution of some of the profits of the company to the shareholders. Equity represents the shareholder's right to receive his pro rata portion of the dividend paid.

Supermart dividend payment

Supermart has 10 billion shares outstanding. The market price for them is \$10 today. This means that Supermart has a **market capitalization** of \$100 billion. Supermart has just gone through its financial year-end and has determined that it has a profit of \$10 billion. It has decided to retain \$5 billion of that profit for some expansion plans it has and to pay \$5 billion to its shareholders as a dividend. This means that each shareholder will receive \$0.50 for each share. This is a 5% return compared to the value of the shares.

- 10 billion shares outstanding
 - Market price of \$10 per share
 - \$100 billion market capitalization (10 billion shares \times \$10/share)
 - \$0.50 dividend per share (\$5 billion dividend/10 billion shares)
-

In the case where the company reinvests the profits back into the company, in theory the value of the shares should go up and thus the shareholder makes a gain. Of course, unless the shareholder actually sells his shares the gain in this instance is simply called a **paper gain**. It is not **locked in** because the price of the shares could go back down for any number of reasons.

Unrealized gains

An investor buys shares in Supermart for \$10 a share. He buys 100 shares. He has invested \$1,000 in Supermart. One week later, the investor looks at the price of Supermart shares and sees that the market price has gone up to \$12 a share. The investor is excited because his investment is now worth \$1,200. He goes out and buys a new TV with his \$200 of increased wealth. The next week, he looks at the price of Supermart shares and sees that the price has gone back down to \$10. His investment is now only worth \$1,000. This investor counted his chickens before they hatched.

How does this process of having shareholders start? For most entities, it starts in the private equity market then in some but not all cases moves to the public equity markets. Most entities start with a **founder** (also called an entrepreneur), which is the individual or individuals who have the original idea for a new company. They are the 100% owners of the company, called a **start-up**. As the company is starting up, in most cases, the founders will need to use their personal savings or borrow money to pay for the company's offices or general expenses. Any borrowing is generally done through a personal loan because most banks will not lend to a company until it either has a track record of profits or has assets the banks can take from the company and sell if the loan is not paid back. Then, once the founders have exhausted their personal savings or loans, they will sell portions of the company to investors. Initially, this will be to friends and family. Over time as the company grows, portions of the company may be sold to a **private equity company**, which specialize in investing in growing companies. Once investment is made by someone other than the founders, there is more than one shareholder. This private equity market is generally one in which many banks do not participate. While there are some very large private equity investments that a bank might facilitate, on the whole this is a marketplace without central facilitators, which is one of the challenges of this market.

The American reality TV show *Shark Tank* or the UK reality TV show *Dragons' Den* shows a slightly dramatic version of this process. They are good examples and can help to explain what shareholders equity means in the private equity markets, but they are not realistic in terms of the process that most company founders go through in order to find investors. It is a much longer and more arduous process of putting together presentations on the opportunity, the financial projections and assumptions, the growth

prospects and the various strategies. Then the founders go through the process of finding private investors to whom they pitch their company. This is sometimes the hardest part. There are a lot of new company ideas and a lot of start-ups looking for money on any given day, so there is a lot of competition.

An entrepreneur who needs a private equity investor

An entrepreneur has developed a lawnmower which automatically mows the lawn by itself every week without the owner needing to do anything. He has called his company Lawnbot and has already sold 1,000 of these at \$500 per Lawnbot. This means he has gross revenue of \$500,000 so far, but it cost him \$500,000 to develop the product and manufacture the first 1,000. He originally raised that money from friends and family and by taking out a second mortgage on his house, but now some of his friends and family need their money back and the entrepreneur would like to be able to pay himself a salary to continue to make the payments on his mortgage. Supermart, a large supermarket, has said it is interested in selling the Lawnbots. The entrepreneur has done some research and figures that he can get his costs on each Lawnbot down to \$200 and thus will make \$300 per Lawnbot sold. However, he can only reduce his costs in this way if he can build his own factory. The problem is that he doesn't have any more cash, neither do his friends or family, and he can't borrow any more personally. This is a company that doesn't have any earnings' history, hasn't yet made a profit and doesn't have a confirmed way to mass distribute its product; in other words, it is a company to whom a bank would never lend. He needs a private equity investor.

The shareholders, as owners in the company, have a say in how the company is run. Generally this is a function of the percentage of the company they own. Irrespective of the size of the company, the management of the company ultimately reports to the shareholders, who can make changes, such as who runs the company, if they feel changes are warranted to protect their investment. In a small start-up, the founders generally try to retain a majority of the ownership of the company in order to build and grow the company consistently with their original vision. This may or may not be possible and there are several good reasons why it is rare. Many start-ups require more capital to grow than the founders can access through personal savings or loans. So the founders find themselves raising capital more than once. First they go to friends and family. Then they often go back to those friends and family to raise more money. The lucky entrepreneurs are those

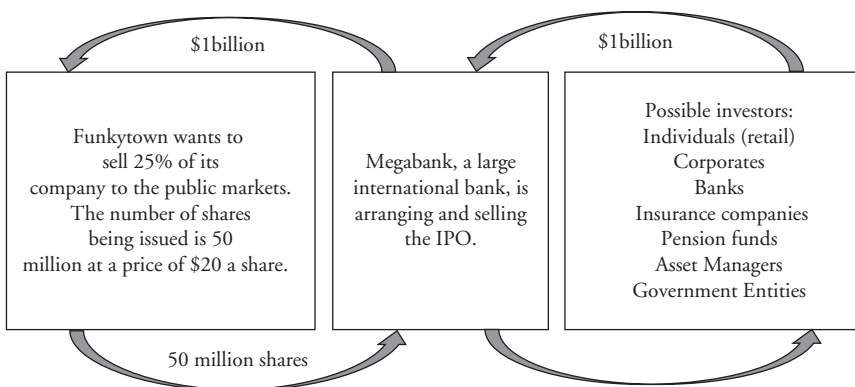
who are eventually successful enough and big enough to go to a private equity company.

Each time the entrepreneur raises money, the portion of the company he owns gets smaller and smaller. In some cases, the other private equity investors may believe in the business idea but not in the management capability of the entrepreneur. They want to buy a significant enough portion of the equity in order to control the company. This eventually causes tension in most start-ups. It often happens that an entrepreneur or founder of a company is generally not the right person to run the company once it reaches a certain size. One of the most famous of these stories was when Steve Jobs left Apple in 1985. Although officially he resigned, he himself referred to that event as “being fired.”

An entrepreneur who isn't the right CEO for his company ---

An entrepreneur has built an Internet company which sells fresh organic fruit. To build the company he has had to raise money several times. First he went to friends and family, then he went to private equity and then he went to the public markets and, as a result, he only owns 5% of the company now (although it is now a much bigger and more valuable company, of course). He is now the CEO of the company but his shareholders have decided that he's not the right person to build the company into other areas. He was great at starting the company but he's not that great at running large companies. At the recent board meeting, the shareholders decided they needed a new CEO and the entrepreneur officially resigned.

Eventually, if the company is large enough, well known enough and has enough profitability to go to the public equity markets, it can raise equity capital from the public. This is called the **IPO**, the **initial public offering**, of shares in a company. How much the company is able to sell and at what price is a function of the specifics of the company itself as well as down to supply and demand. In the United States, IPOs generally target selling around 20% of the company to the public markets. As opposed to the private equity investment process, which generally doesn't involve a bank to intermediate, an IPO is almost exclusively done through a bank as the intermediary (Figure 1.5). The bank identifies potential investors and helps the company put its **pitch** or presentation together. Then they go on a **road show** (also called a dog and pony show), where the company pitches to potential investors before the **launch** of the IPO.

FIGURE 1.5 Bank intermediating an initial public offering.

An initial public offering (IPO)

A fashion designer, Funkytown, has decided to go public. It had \$800 million of sales globally and \$160 million of profit last year. It has 3,000 employees and stores in 20 countries. In the IPO, it sells 50 million shares, which represent 25% of the company at \$20 per share. The IPO raises \$1 billion. The management and a private equity firm still own the other 75% of the company, which implies a company valuation (also called a market capitalization) of \$4 billion.

An IPO moves a company from the private to the public markets because the new shares from the IPO will now be traded on an exchange which allows any investor in the world to buy some. Whereas, before the shares were public, the number of shareholders is generally limited to a handful, there can now be hundreds or thousands of different shareholders. Whenever a company sells shares to new investors, be it privately or publicly, the money raised from the sale goes to the company itself. This is not the founder selling his share of the company; this is the company raising capital to invest in resources and assets to grow the business. As a result, the original shareholders in the company all now own a smaller portion of the company because their shares have been **diluted**.

In the Funkytown example, Funkytown sold 25% of its shares to the public markets. This diluted all the original shareholders by 25%. Thus the founder of Funkytown, who owned 35% of the company before

TABLE 1.3 Shareholder Numbers Pre and Post IPO

Pre IPO	Post IPO
Founder 35%	Founder 26.25%
Friends of founder 25%	Friends of founder 18.75%
Private equity firm 40%	Private equity firm 30%
	Public shareholders 25%

the IPO, now owns 35% of the 75% that is still private. In other words, the founder now owns 26.25% of Funkytown (Table 1.3).

Over time, depending on how well the share price of the IPO has performed, the founders or private equity investors may then decide to sell some of their shares to the public markets. This is called a **secondary market offering**. This is how the private shareholders can realize a gain on their investment. The shares which are still private are sold to the public markets. In contrast to an IPO, in which the money raised from the sale of shares to the public is kept by the company to fund growth, in a secondary market offering the money raised from the sale of the shares sold is kept by the selling shareholders.

A new hire in a large European bank was invited to attend a meeting with a senior banker and his client, an aeronautical engineering company. The client was interested in buying another company in the same industry and had authorized the bank to buy a small portion of shares in the other company in the public market on the client's behalf. The senior banker explained that the bank had bought different amounts of shares at different prices as the equity prices had been volatile recently. The senior banker then asked the new hire to calculate the weighted average stock price that the client had achieved. The new hire had no idea what the banker was asking but didn't want to embarrass anyone in front of the client so the new hire pulled out his calculator and furiously hit a bunch of buttons while the senior banker called out the prices and the amounts. The new hire then punched a bunch of ones into his calculator and showed the senior banker and said, "Does this look about right?" The senior banker said, "Let me check," and he quickly did the calculation himself and the meeting went on smoothly. After the client left, the senior banker took the new hire by his shirt and shoved him up against a wall and said, "If you ever embarrass me again in front of a client, you're fired." What's more amazing than anything about this true story is that the new hire still had a job.

TABLE 1.4 Private vs. Public Markets

	Private	Public
Equity Markets	Private equity markets are for smaller or younger companies. These shares do not trade on exchanges, although they can be traded	Public equity markets are for larger companies whose shares trade on exchanges
Debt Markets	Private debt markets can generally be considered loan markets. They involve smaller companies who can borrow via their banks but aren't large enough for other investors to know who they are	Public debt markets are generally bonds which are issued by larger companies who are well known to large investors

TABLE 1.5 Comparison of Equity and Debt

Debt	Equity
Bonds and loans are the two primary types of debt	Equity is also called stock or shares
Debt is borrowed money and needs to be paid back at maturity	Equity is ownership in a company; it does not have to ever be paid back
Debt has a coupon or an interest payment which is due annually until the principal is paid back	Equity may or may not pay a dividend
The maturity of debt can be overnight out to 50 or 100 years but is generally three to seven years	Equity does not have a maturity

In the debt and equity markets, the smaller the entity, the more likely it is to raise capital in the private loan and private equity markets (Table 1.4). As they grow, the more successful companies end up in the public bond and public equity markets. While there are millions of small companies around the world operating in the private markets, there are only thousands of large companies operating in the public markets. However, when people talk about the financial markets they are almost exclusively talking about the public markets. These are the ones people can see and track and that people can easily invest in. And it is on them that the financial media focuses.

Even within those public markets, the focus of most people is on the equity markets. Everyone hears about the S&P500, the Dow Jones, the NASDAQ, the FTSE 100, the DAX, the CAC40, the Nikkei and

TABLE 1.6 Comparison of Upsides and Downsides of Debt and Equity

Debt Investor	Equity Investor
Invests \$100 in a 5-year Supermart bond with a 3% coupon	Invests \$100 in the equity of Supermart at \$10/share
His extreme risk is that Supermart defaults and he doesn't get all his money back	His extreme risk is that Supermart defaults and he doesn't get any money back
His downside is that interest rates go up and he is only earning 3% per year, when he could be earning higher, thus the bond price should go down	His downside is that the equity markets or Supermart don't perform that well and his \$100 is now worth \$80, for example (or each share is now worth \$8)
His upside is that interest rates go down and he is earning 3% per year when he could be earning lower, thus the bond price should go up	His upside is that the equity markets or Supermart perform very well and his \$100 is now worth \$150, for example (each share is now worth \$15), and on top of that Supermart is paying dividends

the Hang Seng. These are all equity market indices in different locations. Why is this the case? One reason is that most investors don't want to invest money to only get a small fixed return, which is what the debt market is about (Table 1.5). Most investors want the opportunity to invest their money and watch this investment grow with the growth of the companies. Table 1.6 compares the pros and cons of debt and equity.

Another reason that most people focus on equity markets is because equity prices are simpler to think about. The price either goes up or down, indicating that the company is doing well or not, and there is some history to show how the price has behaved in the past compared to equity markets generally. Debt prices aren't that meaningful to investors. Debt prices go up and down as well, but they depend largely on interest rates, the coupon of the debt, the maturity of the debt as well as the performance of the issuer so more information is necessary to determine what that means for the investor. (See the Supermart example.)

Supermart shares vs. Supermart bonds and their pricing

Supermart has 10 billion shares outstanding. The current share price is \$10. On average, five million shares trade every day. Every one of the 10 billion shares looks the same and trades at the same price.

Supermart has also borrowed \$50 billion via 50 different bonds and loans. Some of the bonds and loans are:

- Supermart 5% coupon \$1 billion principal due in Jan 2016: price is 110%
- Supermart 3% coupon \$0.5 billion principal due in Feb 2020: price is 99%
- Supermart 6% coupon \$2 billion principal due in Dec 2038: price is 117%
- Supermart 8% coupon \$0.3 billion principal due in May 2043: price is 112%

They have different coupons, different principal amounts and different maturities; as a result, they have different prices.

This doesn't mean that people are necessarily missing out on vital information about a large portion of the financial markets by only focusing on equity markets. Most investors consider share prices and in particular share indices to be the key indicators of what is happening in the financial markets generally. **Indices** in particular are very helpful because they do not represent just the price of one company. For example, in the case of the FTSE 100 the index represents the price of the 100 largest UK companies. As the FTSE 100 goes up or down, it is an indication of how investors feel about the UK economy and in some cases it is their view on the global economy.

Sample key equity index commentary

Some of the most watched indices globally are the S&P500 in the United States, the FTSE 100 in the United Kingdom, the DAX in Germany, the Hang Seng in Hong Kong and the NIKKEI 225 in Tokyo. Some classic comments on these indices:

- The Hang Seng had the best January in 20 years: it was up 1% for the month.
 - The S&P500 is in the red today. (This means that the price is down from yesterday. Negative numbers are generally shown in red and positive numbers are generally shown in green.)
-

Like the debt markets, after the IPO, the original IPO investors will also sell their shares after a period of time. The reasons are the same as those in the debt market, which include the price of the equity going up so the investor made a profit, the price of the equity going down because the issuer was not performing very well or because the investor no longer liked the sector in which the company operated.

Reasons for secondary trading

- An investor who purchased his shares in the IPO when they were first issued at \$20 sees that the price has gone up to \$24. He decides to sell them and make a profit.
 - An investor who didn't purchase the shares in the IPO has decided that he would like to invest in the shares.
 - An investor who purchased his shares in the IPO has a limit to how much the price of his shares can change. They are now trading at \$15 and he bought them at \$20. He is required to sell them now.
-

The bank continues to play a crucial role in facilitating this secondary market trading of the shares. Again, investors don't have to go back to the bank that sold them the shares in the IPO; they can go to a number of banks and ask for a price. Secondary equity trading is slightly different from secondary debt trading because investors don't have to ask the bank for a price, they can see the prices on the exchange and decide at which price they want to trade, but most trading is still executed through a bank nonetheless. Chapter 2 explains this in more detail.

Secondary equity trading

- An investor buys 100 shares at the IPO share price of \$20.
- The share price moves up to \$21.
- The investor sells the shares and makes a profit of \$1 per share.
- The profit for 100 shares is:

$$- \$2,000(\text{to buy the shares}) + \$2,100(\text{to sell the shares}) = \$100\text{profit}$$

There is always a tremendous amount of competition for trading floor jobs in the financial markets from university graduates. In particular, they all want to be sales people or traders. There seems to be even more interest than usual post the 2008–2009 credit crisis when the press has vilified the banks. What they say about the media must be true: Any publicity is good publicity.

Other Asset Classes

Having provided the basis of the financial markets in the form of the two asset classes, equity and fixed income, we can now easily expand into other asset classes, such as currencies, commodities and emerging markets. The **currency market** (also called the **foreign exchange market** or the **FX market**) is simply where different currencies are exchanged. The drivers of the currency market are numerous, although the main ones are global entities with operations in different locations, investors who have cash in one currency but want to invest in a financial product in another currency, governments who are managing their exchange rate and speculators who have a view on one currency vs. another. Like other asset classes, banks play a big role as intermediators in the currency markets.

A currency trade

Often investors around the world invest in financial products which are not in their main currency. An asset manager in Europe who has a fund in euros will need to do a currency transaction in order to buy a bond which is denominated in US dollars. The investor wants to buy \$10 million of the bond which has a price of 100%.

European asset manager investing in a US dollar bond

- His investors invest money with him in euros.
 - He buys a bond denominated in US dollars.
 - The bond price is 100% and the notional is \$10 million.
 - The current FX rate is €1 = \$1.2.
 - The European asset manager sells €8.33 million in exchange for \$10 million with a bank.
 - He uses the \$10 million to buy the US dollar bond.
-

The **commodity market** is the most unique in the financial markets. While most financial markets are about financial products (e.g. shares, bonds or currency), the commodity markets are about physical products (e.g. oil, gold and cotton). Similar to currency markets, the focus is not on issuers vs. investors but on the physical supply chain (e.g. the producers, miners, refiners, distributors and end users). The participants in this market are often those who are part of the physical supply chain. Not all banks intermediate in commodity markets.

A commodity trade ---

An oil company has one million barrels of oil to sell. It wants to get the highest price possible so goes to the commodity market to sell its oil. The oil company may sell its oil to some oil refiners, who will refine it and then sell the refined product, or the oil company may go to some investors who believe that if they hold the oil for a while they can sell it later at a higher price to other commodity market participants.

Finally, there is a category within financial markets which isn't actually a separate asset class, although it is often considered one. **Emerging markets** are financial markets that are located in countries which are rapidly developing and growing. Examples are countries in Latin and South America, Eastern Europe, Asia (excluding Japan) and some Middle Eastern and African countries. These financial markets are generally less developed and as a result are much smaller than more developed financial markets. They are also more volatile, which means they have a higher tendency to have boom and bust cycles. One historical distinction in these markets is that they were in countries in which the country itself had a real probability of going bankrupt, in contrast to developed market governments, which didn't. This is clearly not always the case today. In fact, there is a commonly used term in the financial markets to talk about the emerging markets that are considered the most stable: **BRICS**. This stands for Brazil, Russia, India, China and South Africa.

The reason emerging markets are not really an asset class is because they are a microcosm of the global financial markets. They consist of equities, fixed income, currencies and commodities, just like any other financial market. The difference is that the equities and the debt are issued by entities within an emerging market country including the emerging market government. The reason they are treated like a separate asset class is because they are more volatile markets and investors will allocate generally only a small portion of their investments into emerging market financial products.

Derivative Markets

Overriding these different asset classes and their markets are the derivative markets. A **derivative** is a financial product which is *derived* from the price of other financial products. The three broad types of derivatives can be categorized as futures/forwards, options and swaps. Every asset class has

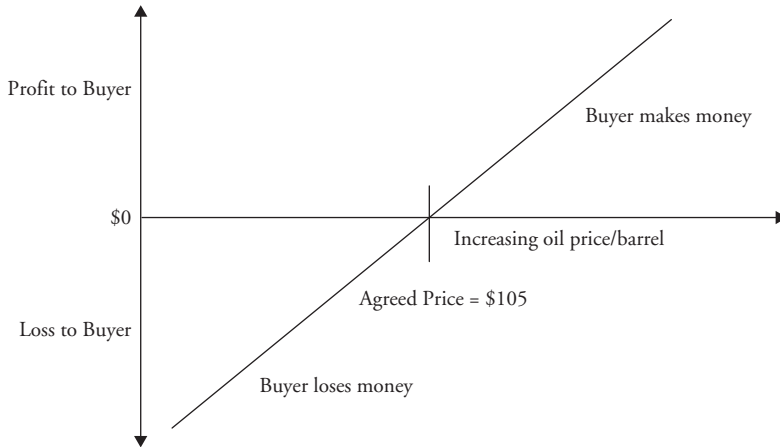
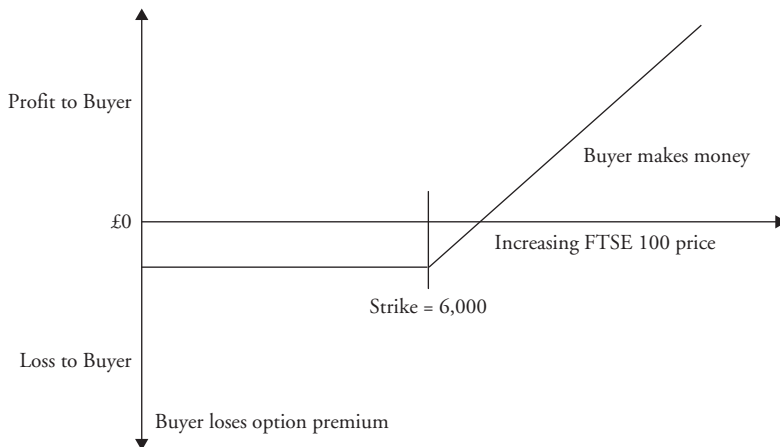
derivatives of all three types. Because the derivative market is constantly evolving, there are many derivatives which don't necessarily fall easily into these three categories, but on the whole most do.

A future and a forward are similar financial products. The difference is that futures are standardized and traded on exchanges and forwards are more tailored and do not trade on exchanges. This will be explained in more detail in Chapter 2. For now, let's just focus on how the products work. A **future/forward** is a financial product that allows an investor to buy from a seller a specific amount of an **underlying** financial product at a fixed price at a specified time in the future. For example, in September 2012, the buyer of the December 2012 oil future for 1,000 barrels of oil at a fixed price of \$105/barrel has agreed to buy 1,000 barrels of oil at \$105/barrel in December 2012. Rather than waiting to sell its barrels of oil when they are produced, an oil company could decide to use oil futures to sell its barrels of oil in the future and lock in a price today. It would do this if it were concerned about the price of oil going down before the barrels of oil were produced.

If the price of oil/barrel is lower than \$105 in December 2012, the oil company has locked in the price of \$105/barrel and is happy about its financial transaction. On the other hand, if the price of oil/barrel is higher than \$105 in December 2012, the oil company may feel that it has missed an opportunity because it is now obligated to sell its oil at \$105/barrel.

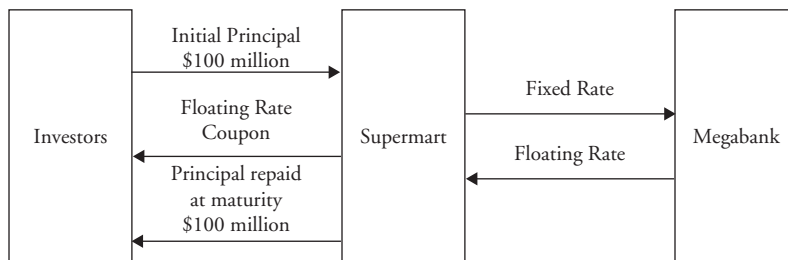
In the example of an oil future traded at \$105/barrel, if the price of oil/barrel goes higher than \$105 in December 2012, the buyer of the future has made money. If the price of oil/barrel goes lower than \$105 in December 2012, the buyer has lost money. We normally show this as a graph (Figure 1.6).

An **option** is similar to a future/forward except that the buyer of the option has the right but not the obligation to buy the underlying financial product in the future. For example, an investor has bought a 3-month option on the FTSE 100 (the UK stock market index) struck at 6,000. In September, the investor believes that the UK stock market prices will go higher by December; however, the investor isn't 100% sure of this view so, rather than buy shares in the UK stock market, he buys a 3-month option on the FTSE 100 with a **strike** of 6,000. If the FTSE 100 is higher than 6,000 in three months' time, the investor will exercise his option and will make money. If the FTSE 100 is lower than 6,000 in three months' time, the investor will not exercise his option because it would mean losing money. The right to buy at 6,000 in the future has a cost, though. That is called the **option premium**. If the investor doesn't exercise his option, he will have lost the option premium that he paid in the first place.

FIGURE 1.6 Graph of an oil future.**FIGURE 1.7** Graph of an equity option.

The graph of an option is different from the graph of a future/forward because the option buyer does not lose money if the price is below the strike (Figure 1.7). The option buyer only loses his option premium.

An **interest rate swap** is when two parties exchange a fixed rate for a floating rate on the same notional amount. These were originally driven by loan borrowers who wanted to pay fixed coupons rather than floating coupons, which are more common in loans.

FIGURE 1.8 An example of an interest rate swap.

In Figure 1.8, Supermart has borrowed money with a floating rate coupon and has exchanged that coupon for a fixed rate with Megabank. The risk that Supermart wants to manage is the unknown coupon that it had on its debt. If interest rates changed over time, in particular if they went higher, Supermart may not be able to afford the coupon payments. If it can swap the floating rate with a fixed rate, then Supermart knows exactly how much it has to pay each year. The key is that the floating rate coupons cancel out and Supermart is only left with a fixed rate coupon it has to pay to Megabank.

An important point to make about derivative markets is that there is no concept of primary or secondary markets. Derivatives are individual contracts between two parties. A derivative can be created by two parties' agreeing to a contract, and the two parties can agree to **unwind** (i.e. tear up) the contract when one party wants to get out of the trade. However, like every other financial product, market prices move, so there is generally a cost for one party or the other to get out of a derivative early. The size of the derivative market is simply the outstanding notional of derivative contracts between two parties.

To put derivative markets in perspective, the approximate size of some derivative markets are:

- The interest rate derivative market is by far the largest, with approximately \$600 trillion notional of contracts outstanding in 2011.
- The currency derivative market has approximately \$60 trillion notional amount of contracts outstanding in 2011.
- The equity derivative market has approximately \$11 trillion notional amount of contracts outstanding in 2011.

Source: www.bis.org

Because financial markets are global, different cultures are constantly coming into contact with often amusing results. One day, a team of people from the London trading floor of a major European bank went to Madrid to meet some of the clients with whom they often traded. The sales team in the Madrid office told them the day was packed with client meeting so they started early that morning. At around 1 p.m., the Madrid team brought the London team back to the Madrid office and showed them to the boardroom, where there were some sandwiches laid out on the table. The London team said, "Who are we meeting here?" The Madrid team said, "No one. We assumed you wanted to work through lunch." At the time, the working day in Spain was cut in half by a long lunch break, when people often went home to have lunch. The Madrid team were baffled by the fact that their London colleagues worked through lunch but were aware of the practice so had provided a "working lunch" for their London colleagues while they went home to have lunch with their families.

Conclusion

In most cases, entities that need cash go to the equity or debt markets to raise that cash as facilitated by a bank. In almost all instances, a bank will facilitate the raising of cash in the debt markets whether the borrower is large or small. This is because the bank will either lend the money itself in the case of small borrowers (e.g. individual borrowers) or facilitate the access to larger investors in the case of large borrowers (e.g. international companies). In contrast, the equity markets have slightly less facilitation by banks. In the case of private equity, the smaller the issuer of equity, the less likely a bank will be involved even in the facilitation of the meeting of the issuer and the investor. But as the issuer becomes larger, and almost certainly in the case of all public equity, a bank will be involved in the facilitation of the meeting of the issuer and the investor during the IPO.

After the initial sale of a new issue equity or debt product, there is secondary trading that occurs as investors decide whether to sell or buy equities and debt products over time. Banks facilitate this meeting of buyers and sellers in a similar way to the meeting of issuers and investors. And beyond equity and debt there are other asset classes as well as all of the derivative products. Banks are the main facilitators of all of these financial products. Another way to think about a bank's role is that it provides access to global financial markets for all of its clients, both issuers and investors.

In all the upheaval following the 2008–2009 credit crisis, the value that banks add to the financial system has been obscured by the huge losses they and their clients have sustained. The entire world is looking at the banking system and questioning what the point of it is and, in particular, wondering what role trading floors, which is where a lot of these losses originated, should have going forward. Very simply, banks, and in particular trading floors, have a valid purpose and are necessary for the smooth operation of the global financial markets. This book will expand on the role of the trading floor and give many examples to demonstrate that the trading floor remains a vital part of the world's financial systems. Of course, it doesn't mean that banks always get it right.

Discussion Questions

For what reasons does a borrower choose a bond over a loan when he needs to borrow money?

What are the cashflows of a \$100-million investment in a bond with a 5% annual coupon, a 5-year maturity and an initial price of 101%?

After the iPad was introduced, why would anyone sell their shares in Apple?

Why don't technology companies generally pay dividends?

How do private equity companies make money?

See www.terriduhon.co for answers and discussion.

