

## Corporate Securities

### A. Overview

Corporate securities are financial assets that give their owners two legal rights - rights to future cash flows and rights to control the use of their capital.

The really big picture: Firms sell financial assets to investors for cash; they invest the cash in real productive assets like factories; those real assets generate cash flow in the future, which is paid back to the owners of the financial assets. (And, of course, financial assets also trade between investors; e.g. shares of IBM stock trading on NYSE.)

What are the main types of securities that firms issue? The most important in many ways is equity or common stock.

#### Common Stock

The common stockholders are the owners of the corporation. They therefore have a general preemptive right to anything of value that the company may wish to distribute. They also have the ultimate control of the company's affairs. In practice this control is limited to a right to vote either in person, or by proxy, on appointments to the board of directors. Cash flow rights of common stockholders are rights to dividends. Common equity is characterized by very weak cash flow rights (because future dividends are uncertain) combined with very strong control rights.

We will talk a lot about the control rights that shareholders have, and how these are protected (or abused) when we go over corporate governance later in the course.

#### Long Term Debt

Long term debt (and preferred stock) are fixed income securities; this means that they provide the investors with a stipulated promised series of payments in the future. The interest and face value are specified for the bonds. The firm must pay the interest and the maturity values on its debt as agreed upon in the original debt contract or the company defaults and is subject to legal action. So:

Cash flow rights on debt are coupon payments and principal payments

Control rights are the ability of debt holders to constrain the use of funds under certain conditions; control rights are contingent on bad states of the firm - for example, sometimes debt repayment can be accelerated if the firm gets into trouble.

With preferred stock the firm promises to pay dividends on the preferred stock. If it fails to do so it is not bankrupt, however. It cannot pay dividends to common stockholders until the dividends on preferred stock are paid. Bondholders have a prior claim to the company's income and to the

firm's assets if the company liquidates. The claim of holders of preferred stock comes after bondholders but before that of equityholders.

Debt is by far the most important security in terms of quantity issued, equity is next and finally preferred stock is relatively insignificant.

Debt is characterized by a variety of attributes that make it more likely the issuer will make good on its promise to pay:

Collateral - specific asset that debtholder hold a lien against

Priority - Debt payments must be made before payments are made to equity holders.

Seniority: within the class of debt, some debtholder claims are senior to others

Sinking funds - some debt requires the firm to set up a sinking fund (pool of cash) used to pay back principal at the end of the life of the bond

Amortization - some debt combines interest and repayment of principal with each payment so that there is not balloon payment at the end of the life of the bond.

Callable debt - some bonds are callable, meaning the borrower has the option to prepay the bond early at a pre-determined price

Puttable debt - some debt (e.g. most bank debt) give the lender the option to force early repayment if the borrower gets into trouble

You should know how these feature affect bond prices and yields (we will talk about this in class).

Let's look at **callability** in detail. Almost all corporate long term debt is callable, meaning that the firm can repay their debt early. Usually this comes at a cost, meaning that if I owe \$1,000,000 but decide to pay back early, I will have to pay back \$1,000,000 + the call premium. So, I might have to repay \$1,050,000 if I call my bond.

To understand what is happening, we will compare a callable and non-callable bond that are the same otherwise. Imagine we have an interest rate of 10% today. We issue a two-year non-callable bond at face value. In this simple example, the coupon rate will equal 10%.

Here are the payments:

Year 1	\$100,000
Year 2	\$1,100,000

If the bond is callable, we can repay early. We might do that if interest rates have fallen. Let's say there is a 50% chance that interest rates fall to 8% and a 50% chance they rise to 12%. Should we call the bond in year 1? To answer, we have to compare the PV of payments as of year 1 if we call v. if we do not call. The \$100,000 coupon in year 1 has to be paid no matter what, so we can ignore it. So, if we call we pay \$1,050,000 if we do not call we pay 1,100,000 in 1 year's time. So, we call if the PV of future payments, discounted at the current market

interest rate, exceeds the call price. Very simple rule. In this example, we would not call if rates fell to 8% because

$$1,100,000 / 1.08 = 1,018,519 < 1,050,000$$

(If the bond were a perpetuity with coupon rate of 10%, we would call. Why the difference?)

Most debt come with covenants that restrict what the borrower may do. There are many kinds of common covenants (examples to be given in class). Why do you think bond covenants exist?

Public bonds are rated by Moody's and S&P to create a public signal of the likelihood of repayment. AAA, AA, and A rated bonds are very safe; BBB rated bonds are also safe. Bonds in these four categories are called investment grade. BB rated and below are known as speculative grade and have a higher risk of default. Some kinds of institutional investors can not hold speculative grade debt (or are limited).

### Short-term debt

Most companies also have short term debt to finance short term assets like inventory. Very large companies issue commercial paper, which has maturity from 7-days to 1 year. Most other companies use bank loans as their main source of short term debt.

### Convertible Securities

Corporations often issue securities with terms that can be altered subsequently at the option of the holder of the security. For example, convertible bonds can be transformed into the common stock of the corporation at the option of the holder. The purchase of a warrant entitles the holder to purchase the company's common stock at a specified price on any date preceding the warrant's expiration.

## **B. How firms Issue Securities**

One of the most critical components in the success of any firm is the strategy it uses for financing its investments, particularly in its first few years. A good example is provided by Compaq Computer Corporation which was one of the fastest growing companies ever. Compaq was founded in 1982 to produce IBM-compatible portable computers. By 1983 the company's sales hit \$100M. This was the fastest any company starting from scratch had reached that level. Compaq went on to set another record when its sales reached \$1 billion in 1987.

Compaq started out with money provided by venture capitalists. We'll be spending some time looking at how this works. However, it grew so fast that it quickly ran out of funds. It decided to go public by making an unseasoned issue or Initial Public Offering ("IPO") in December 1983. It sold 6.5 million shares at \$11 each to raise a total of \$71.5 million. The issue had two lead

underwriters. These were L.F. Rothschild, Unterberg, Towbin, an investment banking house with expertise taking small high-tech companies public, and E.F. Hutton, a large brokerage house with a broad retail customer base. Compaq's timing was ideal; just after the issue the stock market softened and the price of the stock fell to \$3.50. Compaq had its money and was able to pursue its expansion plans while most of its competitors were unable to get the capital they needed.

Compaq continued to grow so fast that it had to return to the market to raise more capital at the beginning of 1985. It considered making a seasoned issue of equity but felt this was not its best course of action. Instead the firm decided to use convertible bonds to raise another \$75 million. The convertibles carried an interest rate of 5.25% whereas nonconvertibles had an interest rate of around 12 percent at that time.

**Question:** Why do convertible bonds have much lower yields than regular bonds? Why don't all companies use convertibles?

Let's look at the various different ways that firms can raise money.

### Venture Capital and the Private Equity Market

There are a number of important differences between venture capital and other types of private equity finance and other sources of finance. One of the most important is that the providers tend to have a very close relationship with the firms they back. They provide management and business advice as well as capital. Another important difference is the probability distribution of returns. Many of the firms that are backed are unsuccessful and yield no return. However, at the other end of the spectrum it is possible to make huge returns. Venture capitalist Arthur Beck, who invested \$57,600 in Apple when it was founded, saw his investment grow to \$14 million in 3 years.

Venture capital comes from many sources. Historically the tax code has provided incentives to wealthy individuals to form partnerships. Typically these partnerships have a total capital of \$5-\$30 million to invest in several firms. The reason that it has been attractive to wealthy individuals to do this in the past is that most of the return comes in the form of capital gains and this was taxed at a lower rate than ordinary income before the Tax Reform Act of 1986. Much of the debate about raising the capital gains tax was concerned with the possibility that it would reduce the amount of venture capital available to starting businesses.

More recently venture capital and other types of private equity have been undertaken by professional private equity managers on behalf of institutional investors.

### Issuing Public Securities

Successful firms usually reach a point in their development where their needs for capital are sufficiently large that they have to turn to the public markets to obtain the level of financing they

need. The first public issue by a company is known as an unseasoned issue or initial public offering (IPO). Once the firm has done this it can make additional public offerings of its securities.

How do you do an IPO?

First, you must register with the SEC. This involves lots of paperwork. Then, you must have the assistance of an underwriter. IPOs are typically arranged by a syndicate of underwriters, but it is the lead underwriter that does most of the work. The underwriters will sell your shares to their clients.

The key thing that the underwrite must do is come up with the offer price. The offer price is the first price at which the shares will be sold to investors. After that, they can be traded in secondary markets.

### Setting the IPO Offer Price

Management knows the firm's operations well, but is less well-equipped to value the firm. Underwriters have clients (investors) who are better equipped to value the firm. The underwriters job is to set the offer price and market the share to clients.

- Setting the offer price begins with the underwriter's estimate of firm value. They will typically perform a DCF analysis using pro-forma cash flow forecasts and also use ratio-based measures of firm value for comparable public companies. However, the market ultimately determines the worth of the firm

- Next, the underwriters go to the public with some of the firm's management to pitch the firm to investors on "road shows". The "public" consists mainly of large institutional investors. During the road show the underwriter markets the new issue - that is, tries to convince potential investors that the firm is a good investment. At the same time, the underwriter solicits interest from clients in order to 'build a book.' For example, in its roadshow, Goldman Sachs will want to know how many shares the Harvard Endowment will purchase at various potential offer prices.

By combining information from their own analysts and from the road show, the investment banker constructs the offer price. When the offer price is set, investors can bid to purchase shares. In many cases there is more demand for shares than there are supplies of shares to be had. For example, if the offer price were set at \$40 per share and there are 1,000,000 shares to be sold, there may be bids to purchase 1,200,000 shares by investors. This is known as an IPO being over-subscribed. In these cases, the investment banker has the ability to decide who gets share and who does not. So, big clients with deep pockets (and thus clients that the i-bank wants to keep happy), tend to get all the shares they want (as opposed to small retail investors).

### Underpricing

One of the most interesting things about IPOs is that they are underpriced on average. That is, the offer price is usually lower than the price that would satisfy the demand for the stock. How do we know this? First, many times deals are oversubscribed, which suggests that the offer price could be a bit higher and still allow the bank to sell all of the shares to investors. Second, the first-day return on IPOs averages about 15%. Most of this return occurs on the first trade!

So, what the investment banker seems to do is figure out what the market clearing price of the share is, then lower it by some amount. You might think this hurts the issuer because they are getting less for their shares than they are really worth. It also seems to hurt the investment banker, who's fee is typically 7% of the amount of funds raised by the IPO.

Here is a numerical example: Suppose the offer price is \$40 per share and the firm issues 10 million shares to the public. That means that, in total, the issue raised \$400 million in cash. Of the \$400 million, 93% goes to the issuer (the firm) and 7% goes to the underwriters.

Now, suppose that the price jumps from \$40 to \$48 on the first day. That would be a first-day return of 20%, which would be common for an oversubscribed IPO. The issuing firm is said to have 'left money on the table' of \$80 million. The idea of this calculation is that the market value of the stock is \$48 per share (as revealed after the first day), but the issuer only get \$40.

Why would the issuer / investment banker do this? There are lots of possible reasons:

1. Underpricing reduces the risk that the deal fails due to insufficient demand for shares.
2. Underpricing reduces risk to the underwriter, both legal and reputational
3. Underpricing allows uninformed investors, such as retail investors, to be willing to take part in the IPO (otherwise they would be afraid of being duped by sophisticated players.)
4. Underpricing allows the investment bank to 'spin' shares of 'hot' IPOs to their best customers.
5. Underpricing and oversubscribed IPOs increases interest in the offering (just like lines at good restaurants increase interest in eating there)
6. Underpricing makes it easier for I-banks to 'build their book' by making it profitable for most investors
7. Underpricing generates good publicity for the issuer
8. Underpricing makes it easier for the issuer to sell stock to the public later in a seasoned equity offering (SEO).
9. Underpricing is profitable for the underwriter with an over-allotment or 'Greenshoe' option. This option allows the bank to sell additional shares to the market (15% is common) if the price is higher than the offer price (it's profitable because the bank pays the offer price but gets the higher market price).

Here are some more facts to deepen the puzzles surrounding IPOs and underpricing:

IPOs come in waves (high ebb in 1999-2000, low ebb now)

Underpricing is higher at the crest of wave (underpricing in 1999 was 71%!!!)

Long-term returns tend to be VERY POOR! IPOs *underperform* the market over the first 5 years. (And, they underperform a portfolio of stocks with similar risk characteristics.)

The worst 10% of IPOs have returns of -90% in the first 5 years!

Long-term under-performance is worse if the IPO is sold in a hot year.

## SEO

Some firms will sell shares to the market after going public in a Seasoned Equity Offering (SEO). Fees for SEOs are much lower because setting the price is relatively easy (since the market price is observable). But, the market price usually falls when SEOs are announced.

## Costs of a Public Issue

The administrative costs of preparing the documents for issuing public securities is high. There may also be the costs of underwriting the issue. As mentioned above, underwriting involves setting the offer price by the investment bankers handling the sale. The two key things to remember are:

1. It is more expensive to issue common stocks than bonds because of higher administrative costs and greater risk in underwriting.
2. A large part of the issue cost is fixed, and so it is something you should avoid having to do too often. You should issue large amounts rarely, rather than small amounts frequently.