P1.T3. Financial Markets & Products

Hull, Risk Management and Financial Institutions

Banks

Bionic Turtle FRM Video Tutorials

By David Harper, CFA FRM

Banks

- Identify the major risks faced by a bank.
- Distinguish between economic capital and regulatory capital.
- Explain how deposit insurance gives rise to a moral hazard problem.
- Describe investment banking financing arrangements including private placement, public offering, best efforts, firm commitment, and Dutch auction approaches.
- Describe the potential conflicts of interest among commercial banking, securities services, and investment banking divisions of a bank and recommend solutions to the conflict of interest problems.
- Describe the distinctions between the “banking book” and the “trading book” of a bank
- Explain the originate-to-distribute model of a bank and discuss its benefits and drawbacks.

BIONIC TURTLE

Identify the major risks faced by a bank.

Credit Risk

The risk that the bank's counterparties in loan transactions and derivatives transactions will default. **This is one of the greatest risks facing a bank.** In order to address credit risk, regulators require banks to hold the most amount of capital. For example, the capital is chosen so that the chance of unexpected losses exceeding the capital in a year is 0.1%. A one-year time horizon is used by regulators to determine losses.

Market Risk

The risk associated with the probability that securities in a bank's trading book will decrease in value. It emerges from the bank's trading operations. The regulatory time horizon for calculating losses from a market risk is usually much less than a year.

Operational Risk

The risk related to losses that a bank will face due to failure of internal systems or due to external events. This is also considered one of the biggest risks facing the banks. Like in credit risk, regulators use a one-year time horizon to consider losses from operational risk.

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Distinguish between economic capital and regulatory capital.

Regulatory capital is the capital required to be held by banks as a requirement for meeting the central bank regulators objective of keeping the total capital of a bank adequately high, so that the chance of a bank failure is very low.

Economic capital is the capital that a bank thinks it requires in addition to regulatory capital, based on its own models rather than those prescribed by regulators. The form of economic capital to be held by the banks is decided by regulators though.

Economic capital is typically (or at least often) less than regulatory capital.

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Explain how deposit insurance gives rise to a moral hazard problem.

Moral hazard is the possibility that the existence of insurance changes the behavior of the insured party. The existence of deposit insurance allowed banks to follow risky strategies that would not otherwise be feasible.

- For example, banks could widen their deposit base by offering high rates of interest to depositors and use the funds to make risky loans.

  Without deposit insurance, such a scenario may not be possible as depositors would sense that the bank was too risky and withdraw their funds. With deposit insurance, depositors would be convinced that if the worst happens, they are protected under FDIC, so banks have an incentive to follow risky strategies. The introduction of risk-based deposit insurance premiums has reduced moral hazard to some extent.

BIONIC TURTLE

Describe investment banking financing arrangements: Private placement, public offering, best efforts, firm commitment, and Dutch auction approaches.

Private placement: The investment bank sells securities of the corporation to a small number of large institutional investors for a fee.

Public Offering: The securities of a corporation are offered to the general public through the investment bank. The two ways in which public offering may take place are based on a best effort or firm commitment basis.

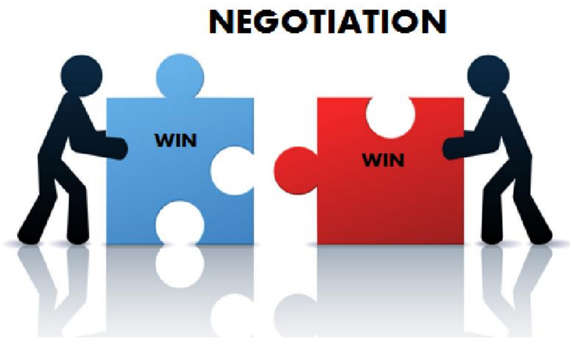
- In ***best efforts public offering***, the investment bank does the best it can to place the securities with investors. Based mostly on the success of this activity, the bank receives a fee.
- In a ***firm commitment public offering***, the investment bank buys the securities from the issuer at a particular price and sells it to the investors at slightly higher prices. The difference between the price at which it sells the securities and the price it pays the issuer is its profit. In case the investment bank is unable to sell the securities of the issuer, they own it themselves.

BIONIC TURTLE

Describe investment banking financing arrangements including private placement, public offering, best efforts, firm commitment, and Dutch auction approaches (continued)

Example

A bank has agreed to underwrite an issue of 50 million shares by ABC Corporation. In negotiations between the bank and the corporation the target price to be received by the corporation has been set at $30 per share which means that corporation is expecting to raise $1.5 billion ($30 × 50 million shares = 1500 million dollars) in total.



The bank can either offer the client a best efforts arrangement where it charges a fee of $0.30 per share or it can offer a firm commitment where it agrees to buy the shares from ABC Corporation for $30 per share.

The bank is confident that it will be able to sell the shares, but is uncertain about the price. As part of its procedures for assessing risk, it considers two alternative scenarios.

Describe investment banking financing arrangements including private placement, public offering, best efforts, firm commitment, and Dutch auction approaches (continued)

Example (continued):

Scenarios	Profits – Best Efforts	Profits – Firm commitment
Can sell at $29/share	+ $15 million	- $50 million
Can sell at $32/share	+ $15 million	+ $100 million

- **In a best-efforts deal**, assuming all shares are sold, it obtains a total fee $15 million ($0.3 per share × 50 million shares) under both scenarios mentioned above.
- **In a firm commitment deal**, its profit depends on the price at which it can sell to the investors. If it sells the shares for $32, based on the price of $30 paid for acquiring the shares, we see it makes a profit of $100 million ((32 − 30)×50 million shares). As per the second scenario if it can only sell the shares for $29 per share, it loses $50 million ((29-30)× 50million shares) because it still has to pay ABC Corporation $30 per share. The decision taken is likely to depend on the probabilities assigned by the bank to different outcomes and is referred to as its “risk appetite”.

Describe investment banking financing arrangements including private placement, public offering, best efforts, firm commitment, and Dutch auction approaches (continued)

There are two types of public offerings.

- **Initial Public Offering**: When the company wishing to issue shares is not publicly traded, the share issue is known as an initial public offering (IPO). They are made on a best effort basis. The bank's best estimate of the market price is its assessment of the company's value divided by the number of shares currently outstanding. Since the bank does not want to take a chance that the issue will not sell, the offering price may be set below this best estimate of the market price. The fee it would earn per share sold would still be the same regardless of the offering price.

- **Secondary offerings**: If the company is already publicly traded and additional equity financing has to be raised, then as a guide to the issue price, the investment bank looks at the prices at which the company's shares are trading a few days before the issue is to be sold. New shares will be issued at a target price slightly below the current price. This leads to a possibility that the price of the company's shares will show a decline before the new shares are sold.

Describe investment banking financing arrangements including private placement, public offering, best efforts, firm commitment, and Dutch auction approaches (continued)

Dutch Auction Process:

- A prospectus is issued and there is road show just like any other regular IPO.
- In the subsequent auction process, investors bid for the quantity of shares they are likely to purchase at a particular price.
- Shares are offered to investors in the order of the highest to the lowest bid until all of the shares are sold.
- The price paid by all successful bidders is the lowest bid that leads to a share allocation.

Dutch auctions have two advantages over that of a traditional IPO.

- Firstly, the price that clears the market ($29.00 in the example) becomes the market price in the bidding process.
- Secondly, because it is an auction process, any potential investor and not only the favored clients of investment banker can obtain the shares.

Describe investment banking financing arrangements including private placement, public offering, best efforts, firm commitment, and Dutch auction approaches (continued)

Example:

For example, consider a company which wants to sell one million shares in an IPO through the Dutch auction approach.

From the table, based on the bid price as seen from the highest to the lowest, shares are allocated to C, F, E, H, and A, in that order. At this point, 800,000 shares have been allocated and only 200,000 remain unallocated.

The next highest bidder is D who has bid for 300,000 shares. Since only 200,000 shares are available now, D's order is only filled up to two-thirds of his quantity bid.

The price paid by others investors like A, C, D, E, F, and H is equal to the price bid by the lowest bidder D ($29.00), among whom the shares are allocated.

Bidder	Number of shares	Price
A	100,000	$30.00
B	200,000	$28.00
C	50,000	$33.00
D	300,000	$29.00
E	150,000	$30.50
F	300,000	$31.50
G	400,000	$25.00
H	200,000	$30.25

BIONIC TURTLE

Describe the potential conflicts of interest among commercial banking, securities services, and investment banking divisions of a bank and recommend solutions to the conflict of interest problems.

When a bank conducts activities related to these banking divisions, many potential conflicts of interest arise.

- While selling advisory services to investors, a bank may promote securities that its investment banking division is trying to sell. When a bank has the fiduciary responsibility, the bank can allocate the difficult-to-sell securities into this account.
- The confidential information obtained about the company to which a bank lends may be misused. This is done by sharing information with its mergers and acquisitions arm to render advice to another one of its clients on potential takeover opportunities.
- The research side of the securities division might be enticed to rate a company's share as a “buy” to please the company's management and get more investment banking business.

Describe potential conflicts of interest among commercial banking, securities services, and investment banking divisions of a bank and recommend solutions to the conflict of interest problems (continued).

Possible solutions to handle potential conflicts of interest

The potential conflicts of interest results in degradation of a bank's reputation and may lead to fines and lawsuits. **One of the ways in which these types of conflicts can be addressed is by separating the commercial banking division from investment banking.**

- The **Glass-Steagall Act of 1933** in the U.S. limited the ability of commercial banks and investment banks to engage in each other's activities in areas such as public offerings. Investment banks were not allowed to take deposits and make commercial loans.
- In 1999, under the **Financial Services Modernization Act**, all restrictions on the operations of banks, insurance companies, and securities firms were eliminated.
- Although investment banks and commercial banks may be held by the same entity, banks are required to keep the financial transactions of their commercial banking activities separate so they are not affected by losses.

Describe the distinctions between the "banking book" and the "trading book" of a bank

Trading book includes all the assets and liabilities the bank has as a result of its trading operations; i.e., instruments the bank intends to trade.

- The values of these assets and liabilities are ***marked to market*** daily. The value of the book is adjusted daily to reflect changes in market prices.
  - For example, if a bank buys an asset for $100 on one day and the price falls to $60 the next day, it records an immediate loss of $40, even though it may not be selling the asset in the immediate future.
- Sometimes it becomes difficult to estimate the value of a security or contract when market prices of comparable transactions may not be available.
  - Even during these circumstances, often a model has to be assumed by the bank. This process of coming up with a "market price" is then knows as ***marking to model***.

Describe the distinctions between the "banking book" and the "trading book" of a bank (continued)

Banking book includes loans made to corporations and individuals.

These loans are **not** marked to market.

- ❑ When a borrower makes principal and interest payments of a loan on time, the loan is recorded in the bank's books at the principal amount owed plus accrued interest.
- ❑ If payments due are more than 90 days past due, the loan is classified as a non-performing loan. The bank does not then accrue interest on the loan when calculating its profit.
- ❑ When it becomes likely that principal of the loan will not be repaid, the loan is classified as a loan loss.

Explain the originate-to-distribute model of a bank and discuss its benefits and drawbacks.

In the originate-to-distribute model, the bank originates the loans but does not keep the loans in its books. Instead portfolios of loans are packaged into tranches which are then sold to investors.

Three government sponsored entities exist in the United States to facilitate this originate-to-distribute model for mortgages.

1. **Government National Mortgage Association (GNMA) "Ginnie Mae,"**
2. **Federal National Mortgage Association (FNMA) or "Fannie Mae,"**
3. **Federal Home Loan Mortgage Corporation (FHLMC) or "Freddie Mac."**

Explain the originate-to-distribute model of a bank and discuss its benefits and drawbacks (continued)

Benefits

- By securitizing loans, banks can keep them off of their balance sheet, which frees up funds to enable it to make more loans.
- Securitization frees up capital that can be used to cover risks being taken elsewhere in the bank.
- A bank earns a fee for originating a loan and a further fee if it services the loan after it has been sold.

Drawbacks

- When the loans are packaged and sold, it transfers the prepayment risk from the bank to the investors. This is the risk that interest rates will decrease and mortgages will be paid off earlier than expected. When mortgages are guaranteed by GNMA, FNMA, or FHLMC, credit risk faced by investors may be avoided, but where there is no guarantee, investors bear the credit risk
- The originate-to-distribute models were not effective during the 2000- 2006 period when banks relaxed their mortgage lending standards and the credit quality of the securities originated diminished. This resulted in a credit crisis.

The End

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