Fundamentals of Corporate Finance 9th edition Brealey Solutions Manual

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Solutions to Chapter 2

Financial Markets and Institutions

1. The story of Apple Computer provides three examples of financing sources: equity investments by the founders of the company, trade credit from suppliers, and investments by venture capitalists. Other sources include reinvested earnings of the company and loans from banks and other financial institutions.

Est time: 01–05
Raising capital

2. *Money markets:* where short-term debt instruments are bought and sold.

   Foreign-exchange markets: where currencies are traded; most trading takes place in over-the-counter transactions between the major international banks.

   Commodities markets: where agricultural commodities, fuels (including crude oil and natural gas), and metals (such as gold, silver, and platinum) are traded.

   Derivatives markets: where options and other derivative instruments are traded.

Est time: 01–05
Capital markets

3. a. False. Financing could flow through an intermediary, for example.

   b. False. Investors can buy shares in a private corporation, for example.

   c. False. There is no centralized FOREX exchange. Foreign exchange trading takes place in the over-the-counter market.

   d. False. Derivative markets are not sources of financing, but markets where the financial manager can adjust the firm's exposure to various business risks.

   e. False. The opportunity cost of capital is the expected rate of return that shareholders can earn in the financial markets on investments with the same risk as the firm's capital investments.

   f. False. The cost of capital is an *opportunity* cost determined by expected rates of return in the financial markets. The opportunity cost of capital for risky investments is normally higher than the firm's borrowing rate.

Est time: 06–10
Raising capital

4. a. Investor A buys shares in a mutual fund, which buys part of a new stock issue by a rapidly growing software company.

   b. Investor B buys shares issued by the Bank of New York, which lends money to a regional department store chain.

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c. Investor C buys part of a new stock issue by the Regional Life Insurance Company, which invests in corporate bonds issued by Neighborhood Refineries, Inc.

Est time: 01–05
Types of financial institutions

5. Buy shares in a mutual fund. Mutual funds pool savings from many individual investors and then invest in a diversified portfolio of securities. Each individual investor then owns a proportionate share of the mutual fund's portfolio.

Est time: 01–05
Financial institution functions

6. Yes, an insurance company is a financial intermediary. Insurance companies sell policies and then invest part of the proceeds in corporate bonds and stocks and in direct loans to corporations. The returns from these investments help pay for losses incurred by policyholders.

Est time: 01–05
Financial institution functions

7.

a. Equities. As a percentage of all investors, households are the largest investor in equities.

b. Pension funds. Banks own almost no corporate equities, but instead rely on fixed-income investments.

c. Commercial banks. In contrast, investment banks raise money for corporations.

Est time: 06–10
Financial institutions

8. NASDAQ and The Chicago Mercantile Exchange are financial markets.

Est time: 01–05
Financial institutions

9.

a. False. Exchange traded funds (ETFs) are portfolios of stocks that can be bought or sold in a single trade.

b. False. Hedge funds may provide diversification, but usually have very high fees.

c. True. Insurance policy premiums are used to pay claims, create reserves and provide financing for company operations.

d. True. The size of the pension investment is variable, depending on market conditions, while the amount contributed is somewhat fixed.

Est time: 06-10
Financial institution functions

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10. Liquidity is important because investors want to be able to convert their investments into cash quickly and easily when it becomes necessary or desirable to do so. Should personal circumstances or investment considerations lead an investor to conclude that it is desirable to sell a particular investment, the investor prefers to be able to sell the investment quickly and at a price that does not require a significant discount from market value.

    Liquidity is also important to mutual funds. When the mutual fund's shareholders want to redeem their shares, the mutual fund is often forced to sell its securities. In order to maintain liquidity for its shareholders, the mutual fund requires liquid securities.

Est time: 01–05
Liquidity

11. The key to the bank's ability to provide liquidity to depositors is the bank's ability to pool relatively small deposits from many investors into large, illiquid loans to corporate borrowers. A withdrawal by any one depositor can be satisfied from any of a number of sources, including new deposits, repayments of other loans made by the bank, bank reserves, and the bank's debt and equity financing.

Est time: 01–05
Financial institution functions

12. Commercial banks accept deposits and provide financing primarily for businesses. Investment banks do not accept deposits and do not loan money to businesses and individuals. Investment banks may make bridge loans as temporary financing for a takeover or acquisition. In addition, investment banks trade many different financial contracts, such as bonds and options, while providing investment advice and portfolio management for institutional and individual investors.

Est time: 01–05
Financial institution functions

13. Mutual funds collect money from small investors and invest the money in corporate stocks or bonds, thus channeling savings from investors to corporations. For individuals, the advantages of mutual funds are diversification, professional investment management, and record keeping.

Est time: 01–05
Money and capital markets

14. Financial markets and financial intermediaries channel savings to real investments. They also channel money from individuals who want to save for the future to those who need cash to spend today. A third function of financial markets is to allow individuals and businesses to adjust their risk. For example, mutual funds, such as the Vanguard Index fund, and ETFs, such as the SPDR's or "spiders," allow individuals to spread their risk across a large number of stocks. Financial markets provide other mechanisms for sharing risks. For example, a wheat farmer and a baker may use the commodity markets to reduce their exposure to wheat prices. Financial markets and intermediaries allow investors to turn an investment into cash when needed. For example, the shares of public companies are

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liquid because they are traded in huge volumes on the stock market. Banks are the main providers of payment services by offering checking accounts and electronic transfers. Finally, financial markets provide information. For example, the CFO of a company that is contemplating an issue of debt can look at the yields on existing bonds to gauge how much interest the company will need to pay.

Est time: 06-10
Capital markets

15. The major functions of financial markets and institutions in a modern financial system are:
    - *Channeling savings to real investment:* The savings of individual investors are made available for real investments by corporations and other business entities by way of financial markets and institutions.
    - *Transporting cash across time:* Savers can save money now to be withdrawn and spent at a later time, while borrowers can borrow cash today, in effect spending today income to be earned in the future.
    - *Risk transfer and diversification:* Insurance companies allow individuals and business firms to transfer risk to the insurance company, for a price. Financial institutions, such as mutual funds, allow an investor to reduce risk by diversification of the investor's holdings.
    - *Liquidity:* Financial markets and institutions provide investors with the ability to exchange an asset for cash on short notice, with minimal loss of value. A deposit in a bank savings account earns interest but can be withdrawn at almost any time. A share of stock in a publicly traded corporation can be sold at virtually any time.
    - *Payment mechanism:* Financial institutions provide alternatives to cash payments, such as checks and credit cards.
    - *Information provided by financial markets:* Financial markets reveal information about important economic and financial variables such as commodity prices, interest rates and company values (i.e., stock prices).

Est time: 06-10
Financial institution functions

16. The market price of gold can be observed from transactions in commodity markets. For example, gold is traded on the COMEX division of the New York Mercantile Exchange. Look up the price of gold and compare it to $2,500/6 = $416.67 per ounce.

Est time: 01–05
Primary and secondary markets

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17. Financial markets provide extensive data that can be useful to financial managers. Examples include:

- Prices for agricultural commodities, metals, and fuels.
- Interest rates for a wide array of loans and securities, including money market instruments, corporate and U.S. government bonds, and interest rates for loans and investments in foreign countries.
- Foreign exchange rates.
- Stock prices and overall market values for publicly listed corporations, as determined by trading on the New York Stock Exchange, NASDAQ, or stock markets in London, Frankfurt, Tokyo, and so on.

Est time: 01–05
Financial institution functions

18.

a. 178.5 × $90 = $16.065 billion
b. 3.03 %
c. The farmer sells cattle since he raises them. The meat packer buys cattle because he needs beef for processing.

Est time: 01–05
Financial institution functions

19.

a. False. The financial crisis had its roots in an easy monetary policy that provided funds for banks to expand the supply of subprime mortgages to low-income borrowers.
b. False. Subprime mortgages are for residential properties.
c. True. Most subprime mortgages were packaged together to be resold as mortgage-backed securities (MBSs), though many banks retained exposure to these securities.
d. False. The government arranged for Bank of America to take over Merrill but did nothing to rescue Lehman Brothers, which filed for bankruptcy protection.
e. False. Though the massive bailout of Greece calmed the markets somewhat, concerns over Greece and other weak eurozone countries, such as Portugal, Italy, Spain, and even Ireland, remain today.

Est time: 01–05
Money and capital markets

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Solution to Minicase for Chapter 4

Consult the accompanying Excel spreadsheet solution for this minicase.

Problems for HH are apparent in the areas of debt and assets. Leverage ratios improved between 2011 and 2015, but debt (both long-term and short-term) has increased significantly in 2016. Liquidity ratios began to deteriorate in 2015, at the same time that the number of employees increased substantially. Further deterioration in liquidity ratios occurred in 2016, when inventories more than doubled and current liabilities increased by more than 85%. At the same time, sales remained virtually unchanged from 2015.

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Chapter 2

Financial Markets and Institutions

The Instructor's Manual is divided into two parts. The first is an overview of the chapter, including a description of the material covered and a perspective on how the chapter content relates to the balance of the textbook. The second part reviews the learning objectives of the chapter and includes a list of challenges encountered by students when learning the material. Where appropriate, pedagogical ideas and tips are provided to improve student learning.

OVERVIEW

Chapter 2 covers the financial system, which is a significant part of the operating environment of any business, especially a large, public corporation. The primary focus of this chapter is on how financial markets and institutions supply financing for investments made by corporations. Financial markets offer a constant "performance evaluation" of company performance in the form of securities prices. The concept of opportunity cost of capital is expanded and presented as a method by which financial markets establish expected returns.

The material in this chapter can be very exciting for some students as they come to this course expecting to learn how to make money in the stock market. It is important to emphasize the reason for studying this material is to understand how financial markets and institutions supply financing for investment by corporations. Students can be enticed with this information to go on and take an investment course, but the primary focus here is on the decisions of the corporate financial manager.

REVIEW OF LEARNING OBJECTIVES (with teaching tips and notes)

The **first learning objective** of this chapter is an understanding of how financial markets and institutions channel savings to corporate investment. Households and foreign investors provide most of the savings for corporate financing; financial markets and institutions provide the process and contracts to channel funds from savers to corporations for real investment. Figures 2.1 and 2.2 are an excellent graphics for facilitating this discussion.

> **Teaching Note: The Stock Market –** The above warning notwithstanding, students may benefit from creating a shadow investment portfolio and following it throughout the course. This project can be run on paper or with one of the many stock simulation software programs available to instructors. After discussion of the material in later chapters, students can investigate the PE and Market-to-Book ratios of their portfolio companies, calculate individual betas and a portfolio beta, and calculate a weighted average cost of capital for each firm they are following. It may also be interesting, when discussing the efficient market hypothesis, to compare student results to a randomly selected portfolio.

The **second learning objective** of this chapter is an understanding of the basic structure of banks, insurance companies, mutual funds, and pension funds. The financial intermediaries described here include commercial banks, finance companies, life and casualty insurance

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companies, credit unions, and savings and loan associations. Mutual funds and pension funds are also explained.

> **Teaching Note: Capital Market Efficiency -** Finance in Practice Box *Micro Loans, Solid Returns,* offers insight into how interest rates are set. A beneficial exercise may incorporate students offering explanations as to the differences between the microfinance loan market and more traditional financial markets. Clearly, the size, liquidity and risk associated with this market are good topics students may quickly identify. It is interesting to see what other differences students see.

The **third learning objective** of this chapter is an explanation of the functions of financial markets and institutions. The five functions covered are transporting cash across time, risk transfer and diversification, liquidity, a payment mechanism, and information. The final function, information, is important to discuss as the pricing of securities imparts required rate of return information for new corporate investments (cost of capital) on a continuous basis.

> **Teaching Note: Capital Market Efficiency -** Finance in Practice Box *Prediction Markets,* provides an interesting example on how a market works. This example can prepare the students for the later more in-depth discussion of the efficient market hypothesis. The Iowa Electronic Markets is a good market to discuss if you are teaching during an election year.

The **fourth learning objective** of this chapter is an understanding of the main events behind the financial crisis of 2007–2009. The authors describe how a huge expansion in subprime mortgage lending led to a collapse of the banking system which the government was forced to bailout. The importance of the Federal Reserve to financial markets, the role of credit rating agencies, and agency problems at banks are all discussed here.

> **Teaching Note: Ethical Issues –** Section 2.4 includes a discussion of how banks expanded the supply of sub-prime mortgages and tempted many would-be homeowners with teaser introductory interest rates. The authors describe the agency problems surrounding bankers that may been guilty of promoting these financial products.

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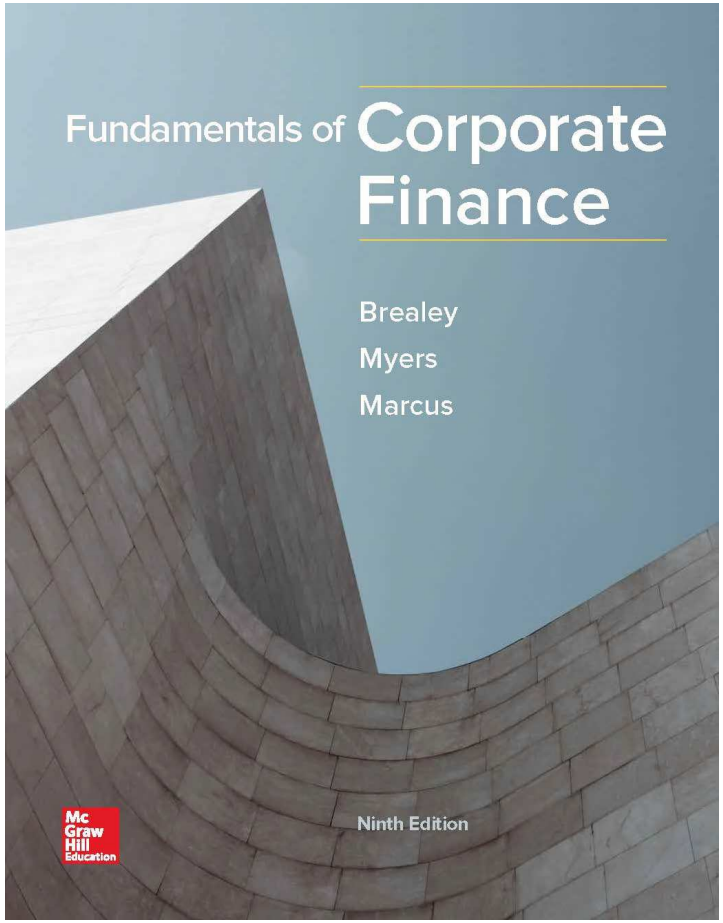
Chapter 2

Financial Markets and Institutions



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Topics Covered

2.1 The Importance of Financial Markets and Institutions

2.2 The Flow of Savings to Corporations

2.3 Functions of Financial Markets and Intermediaries

2.4 The Crisis of 2007-2009

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The Importance of Financial Markets (1 of 3)

- Businesses have to go to financial markets and institutions for the financing they need to grow
- Financing Decision
  - Source of Funds (Capital)
  - Capital Structure

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The Importance of Financial Markets (2 of 3)

Examples of financing decisions by Apple Computer

April 1976: Apple Computer Inc. founded	Mike Makkula, Apple's first chairman, invests $250,000 in Apple shares.
1976: First 200 computers sold	Parts suppliers give Apple 30 days to pay. (Financing from accounts payable.)
1978–79	Apple raises $3.5 million from venture capital investors.
December 1980: Initial public offering	Apple raises $91 million, after fees and expenses, by selling shares to public investors.
May 1981	Apple sells 2.6 million additional shares at $31.25 per share.
April 1987	Apple pays its first dividend at an annual rate of $.12 per share
Early 1990s	Apple carries out several share repurchase programs.
1994	Apple issues $300 million of debt at an interest rate of 6.5%.
1996–97: Apple reports a $740 million loss in the second quarter of 1996. Lays off 2,700 employees in 1997.	Dividend is suspended in February 1996. Apple sells $661 million of debt to private investors in June 1996. The borrowing provides "sufficient liquidity" to execute Apple's strategic plans and to "return the company to profitability."
September 1997: Acquires assets of Power Computing Corp.	Acquisition is financed with $100 million of Apple stock.

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The Importance of Financial Markets (3 of 3)

Examples of financing decisions by Apple Computer (continued)

2004: Apple is healthy and profitable, thanks to iMac, iPod, and other products.	Apple pays off the $300 million in long-term debt issued in 1994, leaving the company with no long-term debt outstanding.
2005–13	Apple's profits grow rapidly. It invests in marketable securities, which accumulate to $147 billion by June 2013.
2012–13	Apple announces plans to pay out $100 billion to shareholders over the next 3 years. It also borrows a record $17 billion.
2013–15	Apple's Capital Return Program distributes cash to shareholders by paying dividends and repurchasing shares. The planned total distribution is $200 billion by 2017.
2015	Apple issues $14.5 billion in dollar-denominated debt, €4.8 billion in euro debt, as well as debt issued in U.K. pounds, Swiss francs, and Japanese yen.
February 2016	Apple's market capitalization, the total market value of all its outstanding shares, is $521 billion, far in excess of the $119 billion cumulative investment by Apple's shareholders. The cumulative investment includes $92 billion of retained earnings.

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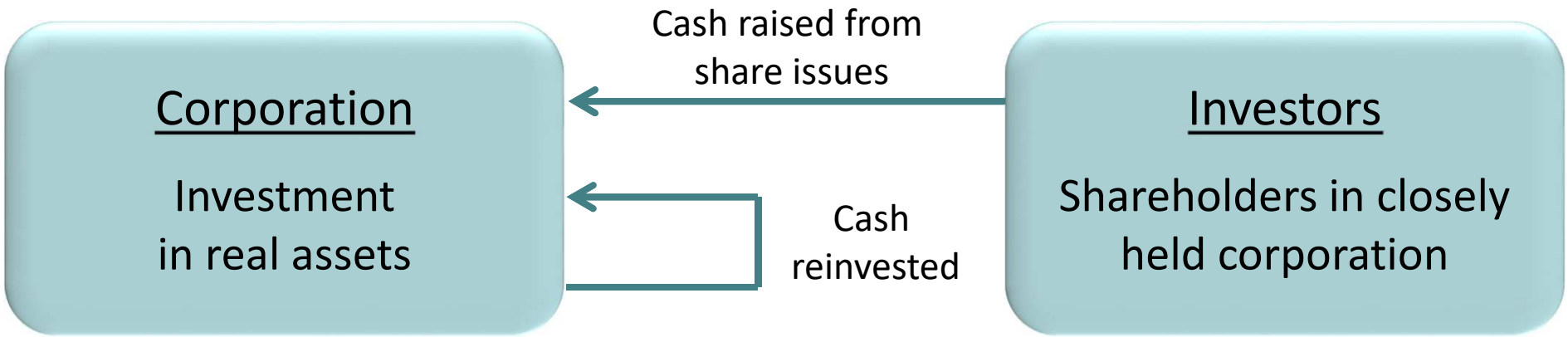
The Flow of Savings to Corporations (1 of 15)



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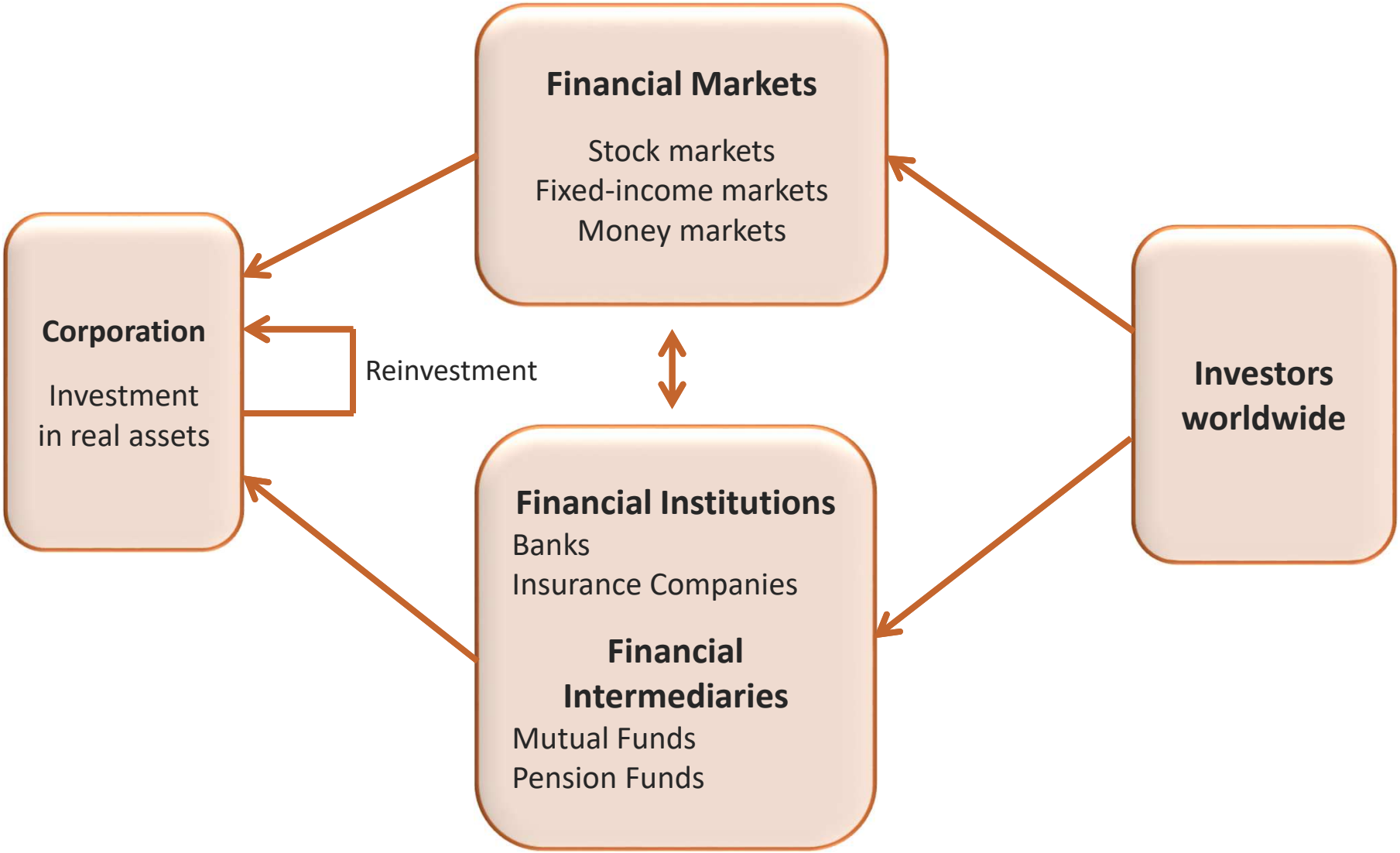
The Flow of Savings to Corporations (2 of 15)



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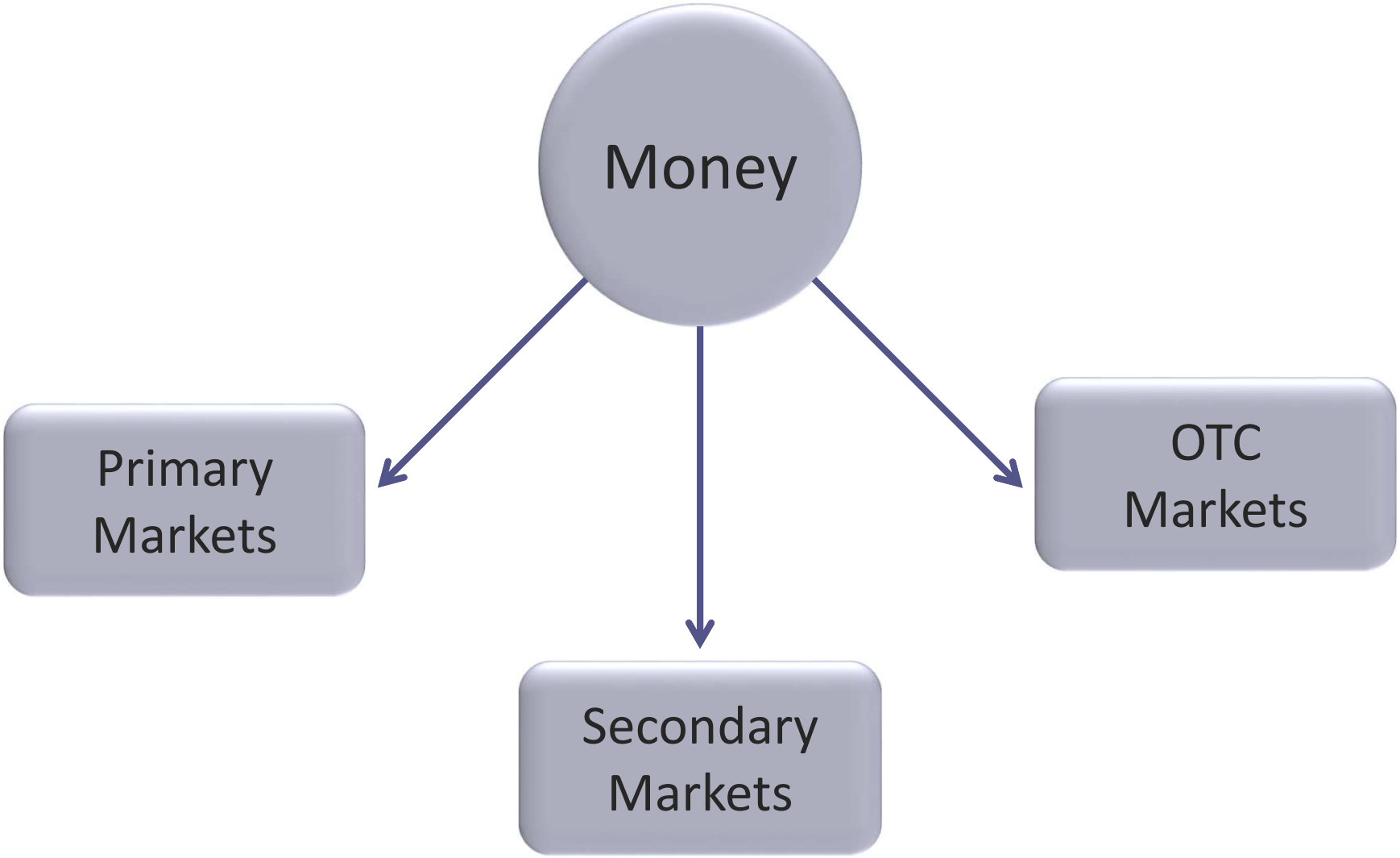
The Flow of Savings to Corporations (3 of 15)



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The Flow of Savings to Corporations (4 of 15)

- Financial Market
  - Market where securities are issued and traded
- Primary Market
  - Market for the sale of new securities by corporations
- Secondary Market
  - Market in which previously issued securities are traded among investors

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The Flow of Savings to Corporations (5 of 15)

Fixed-income market	• Market for debt securities
Capital market	• Market for long-term financing
Money market	• Market for short-term financing (less than 1 year)

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The Flow of Savings to Corporations (6 of 15)

Foreign exchange markets

- Chapter 22

Commodities markets

- Chapter 24

Markets for options and other derivatives

- Chapters 23 and 24

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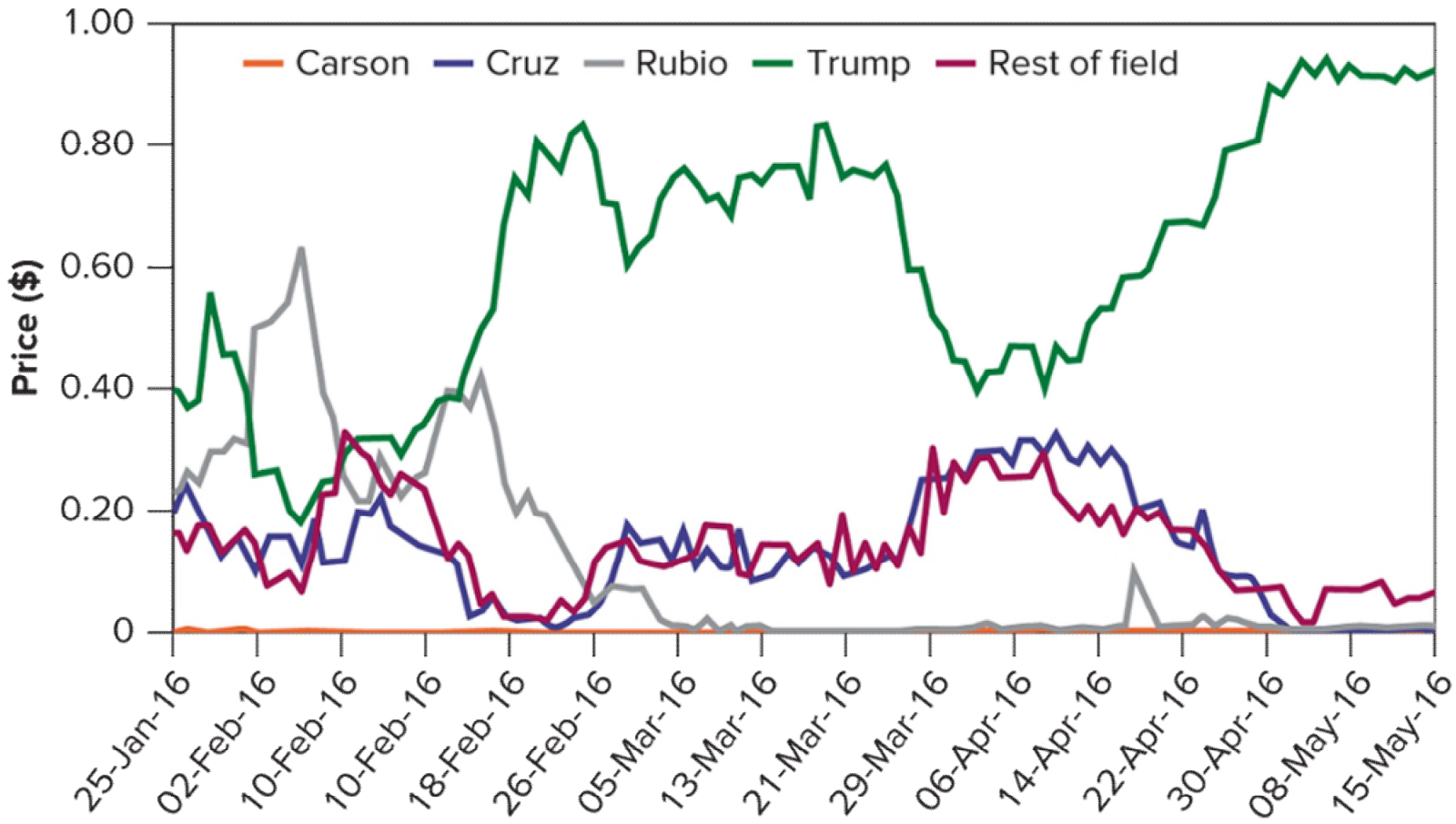
The Flow of Savings to Corporations (7 of 15)

2016 U.S. Republican Convention Nomination Market



Source: Iowa Electronic Markets: Iowa Electronic Markets

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The Flow of Savings to Corporations (8 of 15)

- Financial Intermediary
  - An organization that raises money from investors and provides financing for individuals, companies, and other organizations
- Financial Institution
  - A bank, insurance company, or similar financial intermediary

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The Flow of Savings to Corporations (9 of 15)

- Mutual Fund
  - An investment company that pools the savings of many investors and invests in a portfolio of securities
- Hedge Fund
  - A private investment pool, open to wealthy or institutional investors, that is only lightly regulated and therefore can pursue more speculative policies than mutual funds
- Pension Fund
  - Fund set up by an employer to provide for employees' retirement

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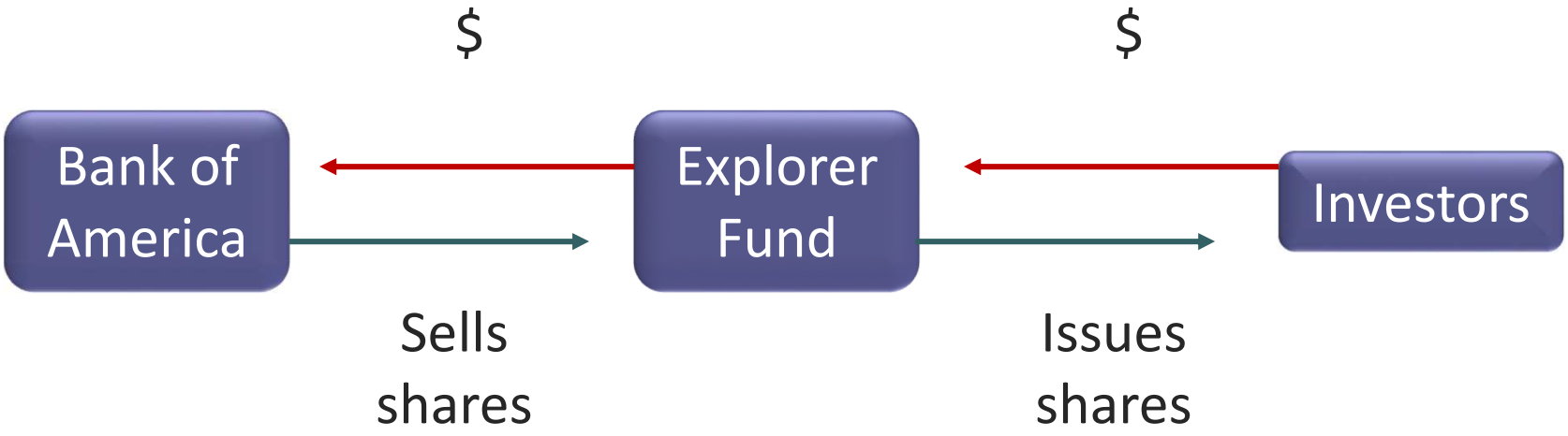
The Flow of Savings to Corporations (10 of 15)



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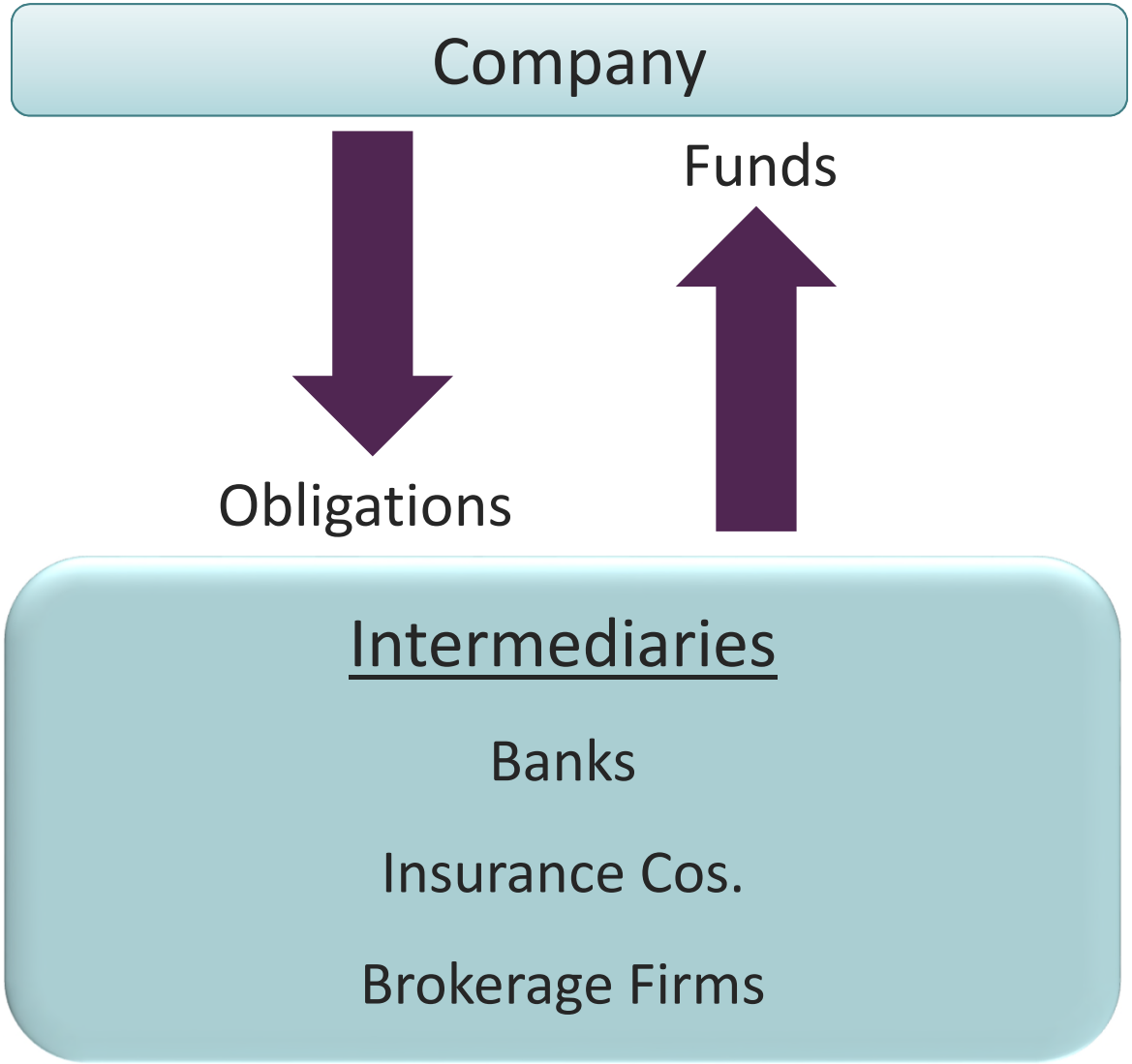
The Flow of Savings to Corporations (11 of 15)



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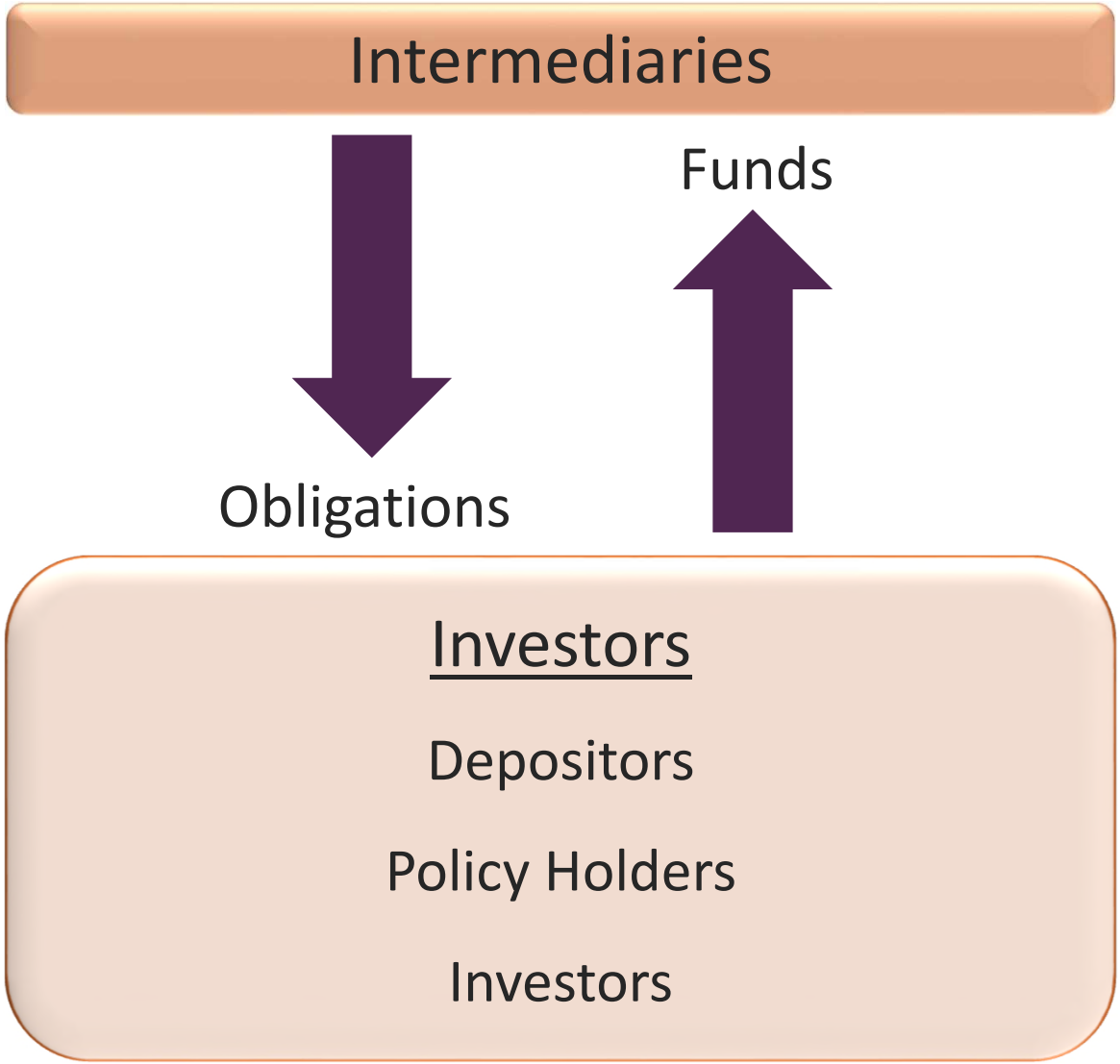
The Flow of Savings to Corporations (12 of 15)



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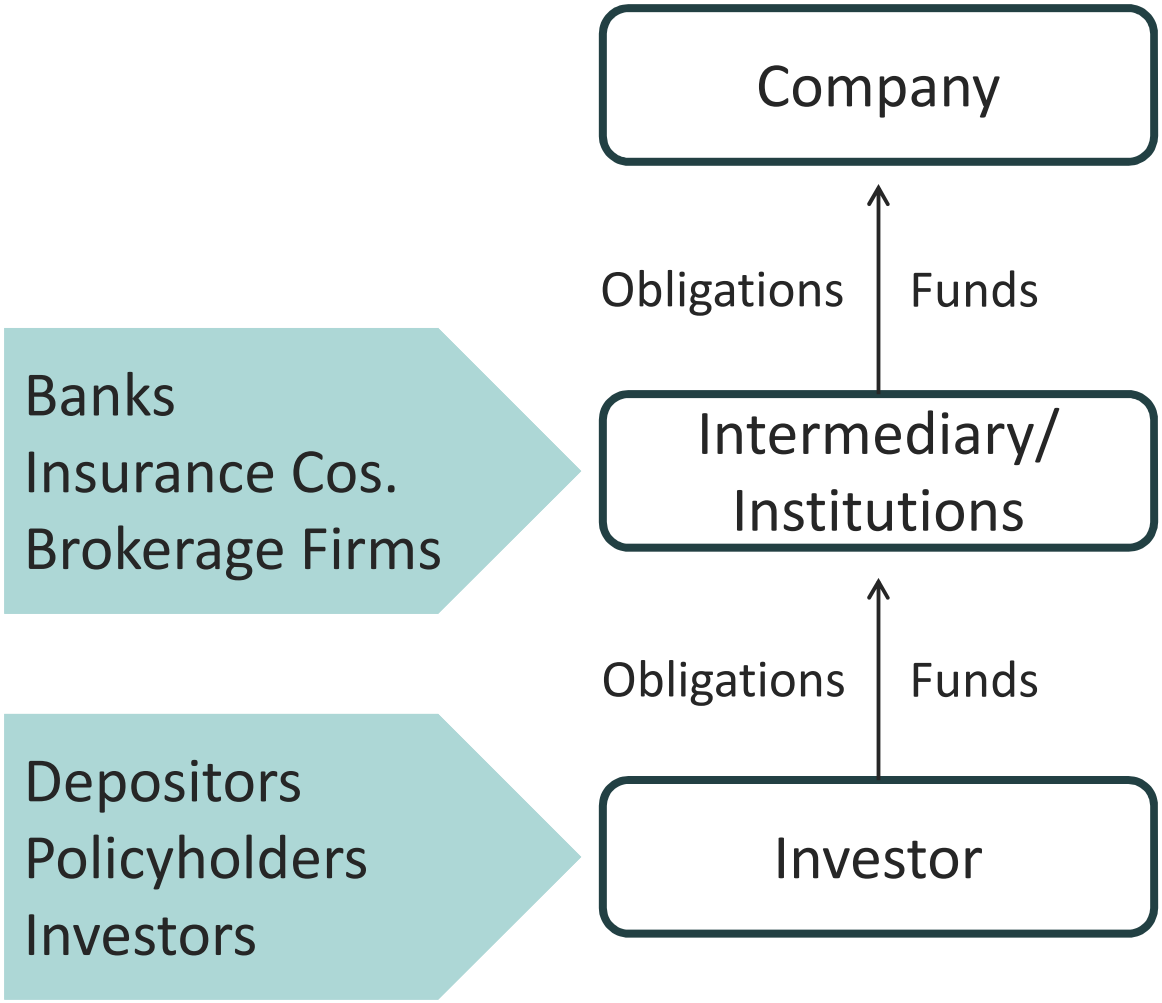
The Flow of Savings to Corporations (13 of 15)



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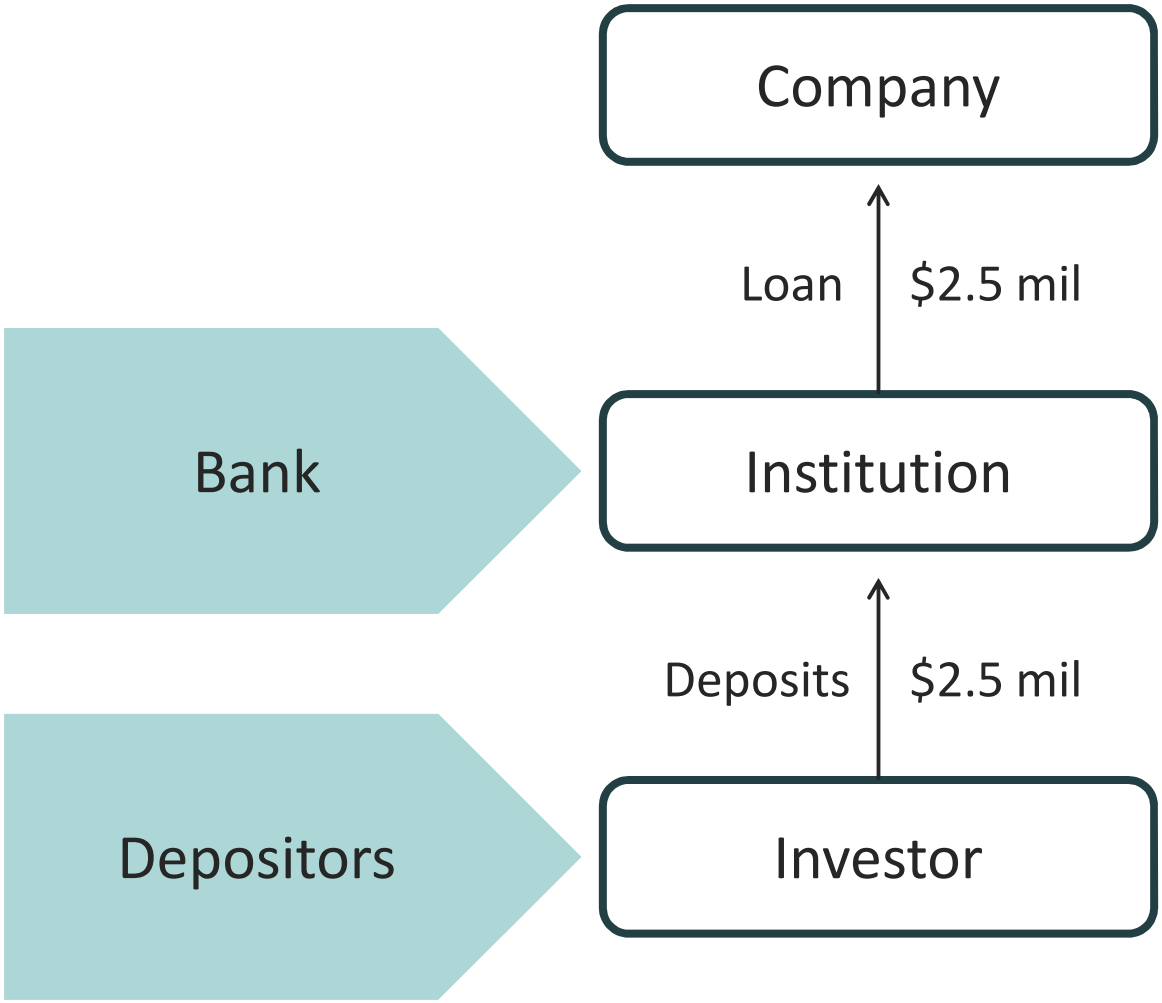
The Flow of Savings to Corporations (14 of 15)



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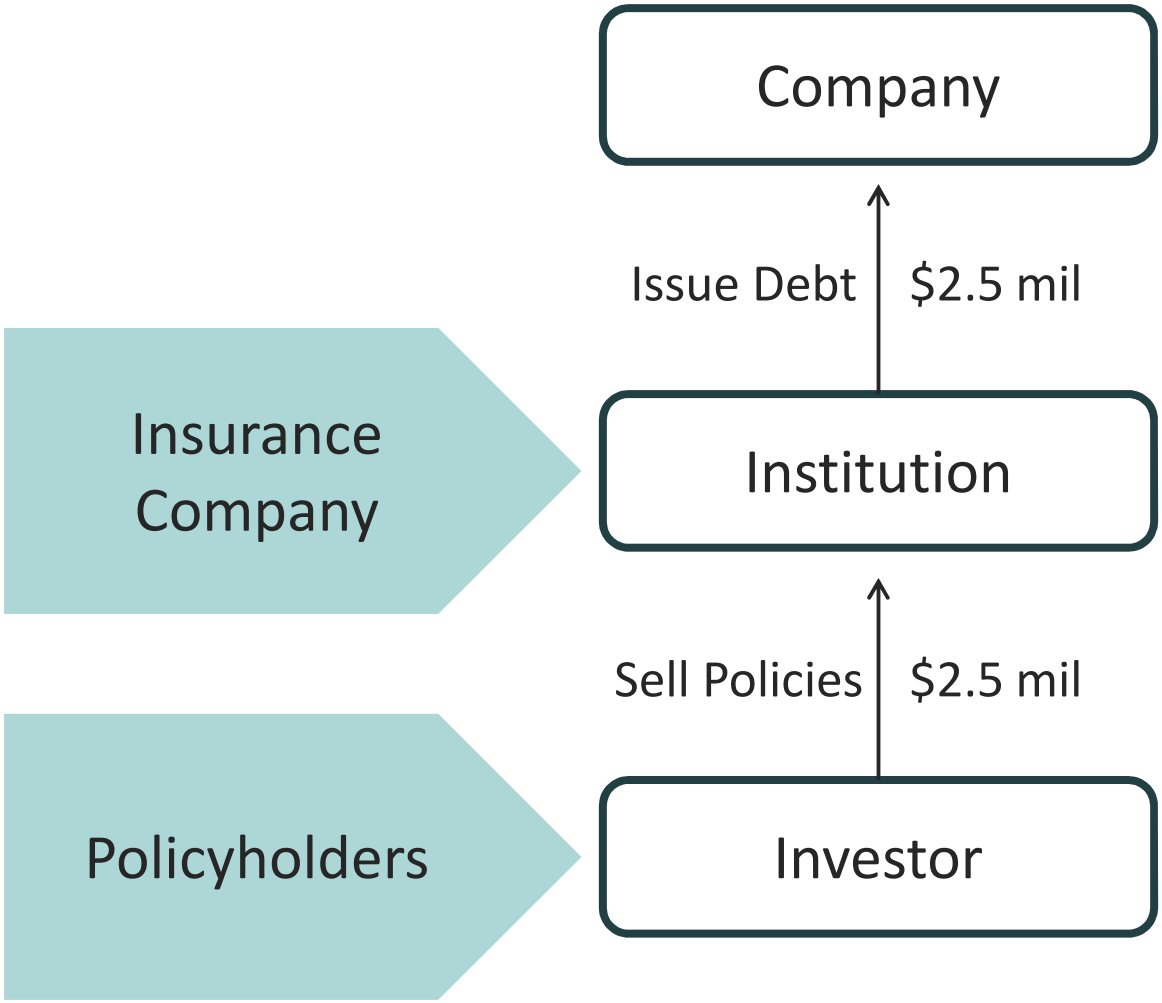
The Flow of Savings to Corporations (15 of 15)



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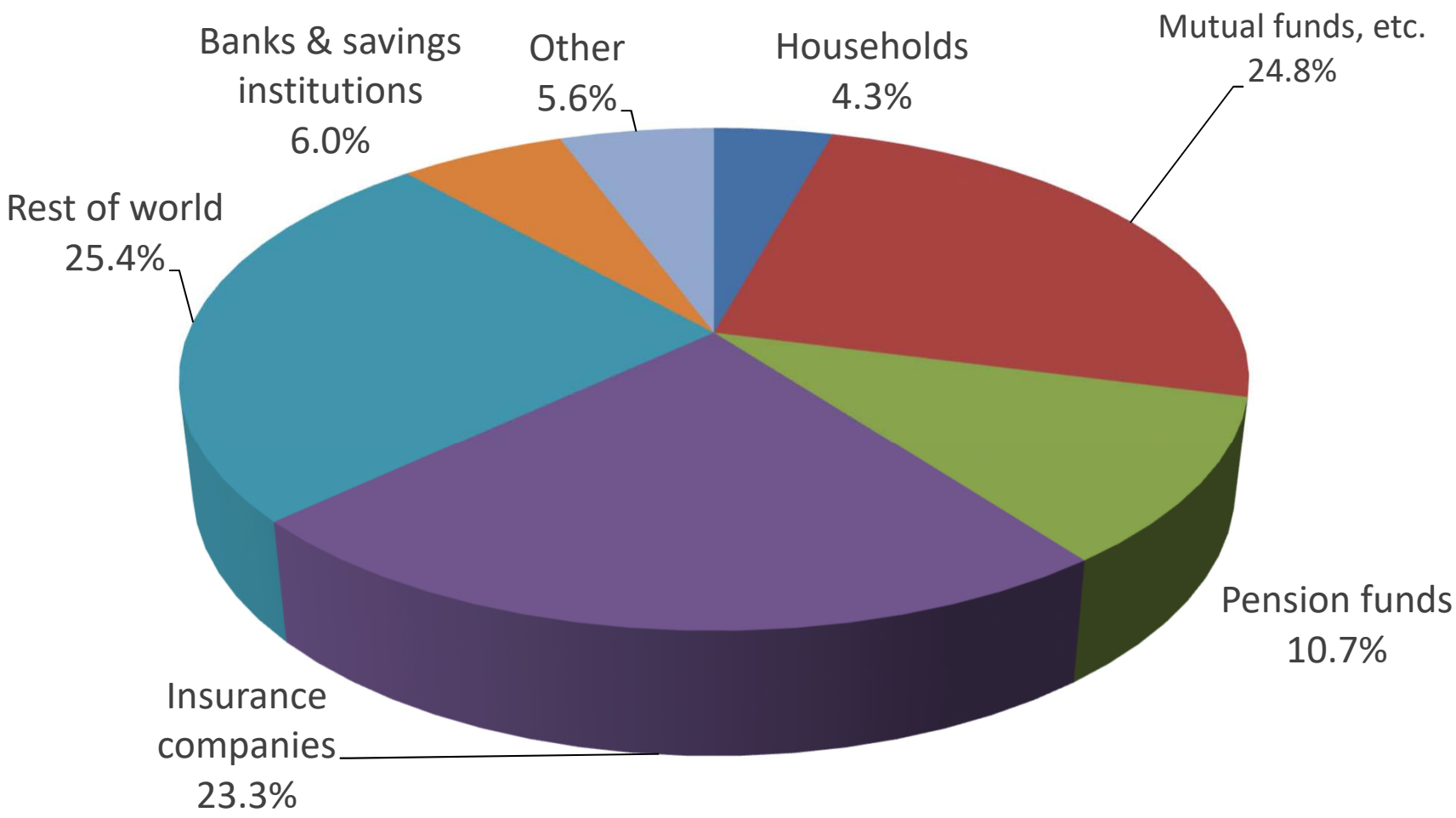
Total U.S. Financing (1 of 2)

Holdings of Corporate and Foreign Bonds (Qtr. 3, 2015)



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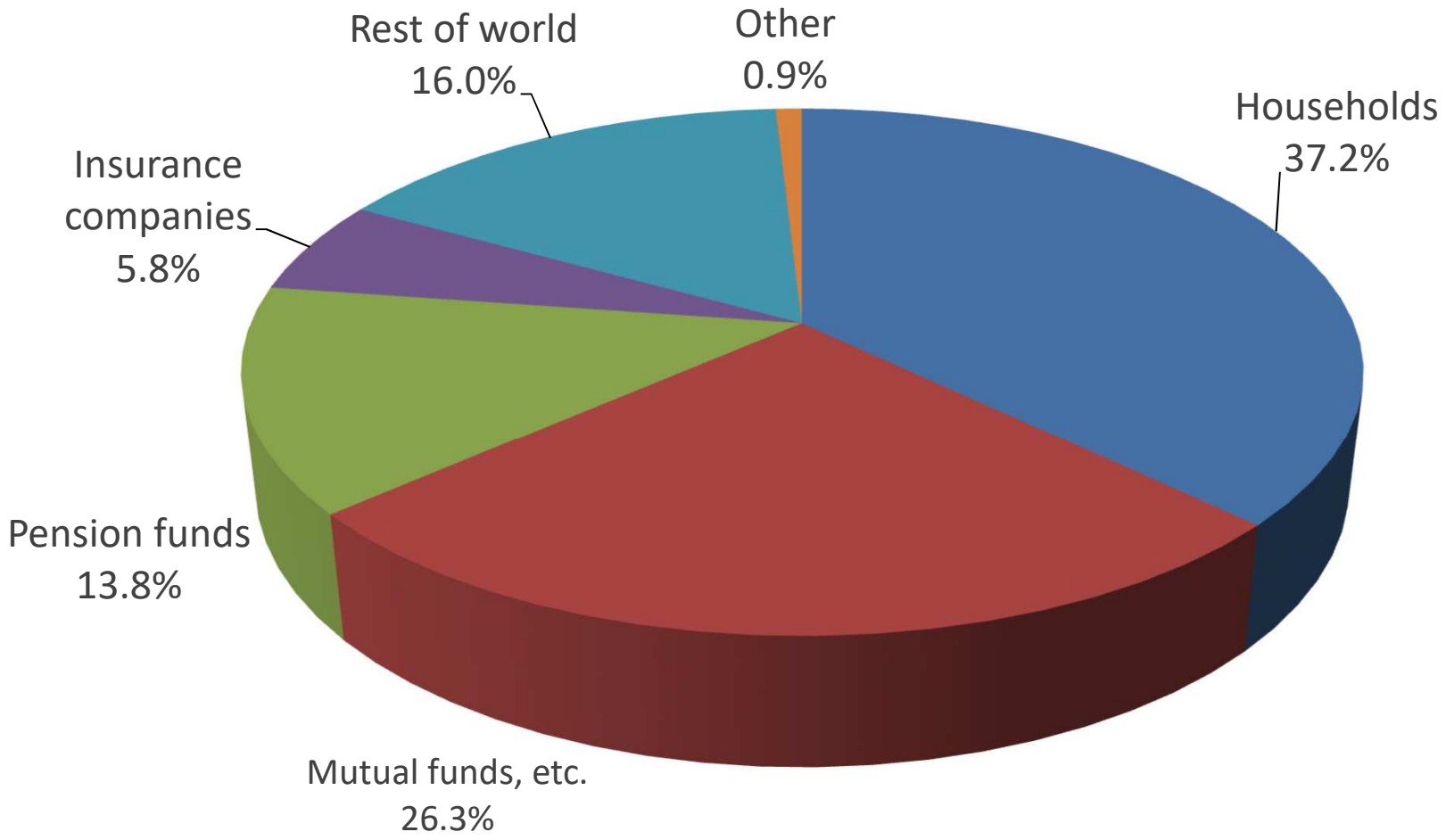
Total U.S. Financing (2 of 2)

Holdings of Corporate Equities (Qtr. 3, 2015)



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Function of Financial Markets (1 of 3)

- Transporting cash across time
- Risk transfer and diversification
- Liquidity
- Payment mechanism
- Provide information

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Function of Financial Markets (2 of 3)

Information Provided by Financial Markets

- Commodity prices
- Interest rates
- Company values

Interest rates on long-term corporate bonds, March 2016

Credit Rating	Interest Rate
AAA	2.59%
AA	2.62
A	3.03
BBB	4.32
BB	5.62
B	8.32

Source: Thomson Reuters.

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Function of Financial Markets (3 of 3)

Market Capitalization ($ millions)

	Number of Shares	x	Stock Price	=	Market Capitalization
Callaway Golf (ELY)	93.8	x	$8.76	=	$821.00
Alaska Air Group (ALK)	124.7	x	$80.77	=	$10,074
Entergy (ETR)	178.5	x	$75.92	=	$13,551
Yum! Brands (YUM)	408.7	x	$77.77	=	$31,875
General Electric (GE)	9,331.0	x	$30.34	=	$283,091

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The Crisis of 2007-2009

- Easy money
- Subprime mortgages
- Mortgage backed securities
- Bear Sterns
- AIG
- IMF
- Greece

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