Brealey 7CE
Solutions to Chapter 2

1. One example is Blackberry (formerly Research In Motion or RIM). The early story of RIM provides three examples of financing sources: equity investments by the founders of the company, loans from friends and family, and loans by governments. Other sources include reinvested earnings of the company and loans from banks and other financial institutions.

2. Yes. When the corporation retains cash and reinvests in the firm's operations, that cash is saved and invested on behalf of the firm's shareholders. The reinvested cash could have been paid out to the shareholders. By not taking the cash, these investors have reinvested their savings in the corporation. Individuals can also save and invest in a corporation by lending to, or buying shares in, a financial intermediary such as a bank or mutual fund that subsequently invests in the corporation.

3. *Money markets*, where short-term debt instruments are bought and sold.

   Foreign-exchange markets. Most trading takes place in over-the-counter transactions between the major international banks.

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

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

4. Buy shares in an exchange-traded fund (ETF) or a mutual fund. Both ETFs and 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 ETF or mutual fund's portfolio.

5. Defined contribution pension plans provide three key advantages as vehicles for retirement savings:

   - Professional management.
   - Diversification at low cost.
   - Pension plan contributions are tax-deductible, and taxes on the earnings in the fund are deferred until the fund's assets are distributed to retired employees.

6. Yes. 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.

7. The largest institutional investors in bonds are insurance companies. Other major institutional investors in bonds are pension funds, mutual funds, banks and other savings institutions. The largest institutional investors in shares are pension funds, mutual funds, and insurance companies.

8. 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.

9. 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 Canadian 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 are determined by trading on the TSX, New York Stock Exchange, NASDAQ or stock markets in London, Frankfurt, Tokyo, etc.

10. We also discussed this in Chapter 1, Question 14. The opportunity cost of capital is the expected rate of return offered by the best alternative investment opportunity. When the firm makes capital investments on behalf of the owners of the firm (i.e., the shareholders), it must consider the shareholders' other investment opportunities. The firm should not invest unless the expected return on investment at least equals the expected return the shareholders could obtain on their own by investing in the financial markets.

    The opportunity cost of capital for a safe investment is the rate of return that shareholders could earn if they invested in risk-free securities, for example in Government of Canada Treasury Bills.

11. When stockholders have access to modern financial markets and institutions, stockholders can readily avail themselves of the functions served by these markets and institutions: for example, transporting cash across time, risk transfer and diversification, liquidity, and access to payment mechanisms. Therefore, the objective of value maximization makes sense for stockholders because this is the only task stockholders require of corporate management. In addition, the financial markets provide the pricing mechanism and the information stockholders require in order to assess the performance of the firm's management in achieving this objective.

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

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

c. True. Sale of insurance policies are the largest source of financing for insurance companies, which then invest a significant portion of the proceeds in corporate debt and equities.

d. False. There is no centralized FOREX exchange. Foreign exchange is traded over-the-counter.

e. False. The opportunity cost of capital is the expected rate of return that shareholders can obtain 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 financial markets. The opportunity cost of capital for risky investments is normally higher than the firm's borrowing rate.

13. 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.

14. 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.

15. 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 Saskatchewan, which lends money to a regional department store chain.

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.

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

17. In this situation, a "superior" rate of return is a rate of return that is greater than the rate of return investors could earn elsewhere in the financial markets from alternative investments with risk level equal to that of the "low-risk capital investment" described in the problem. Fritz (who is risk-averse) will applaud the investment because he can maintain the risk level he prefers while earning a higher return. Frieda (who is risk-tolerant) will applaud the investment because investors will be willing to pay more for the shares Frieda owns than they would have paid if the firm had not made this "low-risk capital investment." Frieda would be likely to sell her shares to a more risk-averse investor, and use the proceeds of her sale to invest in shares of a company with a very high rate of return, and commensurate high level of risk.

18. If you believe that the rate of return is truly guaranteed to be 8 percent, then the investment is very low risk. The relevant opportunity cost of capital for this investment is the rate of return that investors can earn in the financial markets from the safest investments, such as Canadian government securities and top-quality (AAA) corporate debt issues of equivalent term to maturity, ie. 30 years. The highest quality investments in Table 2.2 are AAA and paid 3.35% per year. AA-rated corporate debt is riskier than AAA-rated.

19. a. Since the government guarantees the payoff for the investment, the opportunity cost of capital is the rate of return on Canadian Government Treasury bills with one year to maturity (i.e., one-year Treasury bills).

    b. The opportunity cost for the investment under consideration by Pollution Busters, Inc. is 20%, the expected rate of return available on an investment in carbon. The sequester is expected to pay $115,000 on a $100,000 investment, a gain of $15,000. If the $100,000 was invested in the London Carbon Exchange, the expected payback is 0.2×$100,000, or $20,000. The purchase of additional sequesters is not a worthwhile capital expenditure. The same risk investment in the London Carbon Exchange produces an additional $5,000 ($20,000 - $15,000). This can also be expressed in terms of rates of return. Purchase of the additional sequesters is not a worthwhile capital investment because the expected rate of return is only 15 percent (i.e., a $15,000 gain on a $100,000 investment, $15,000/$100,000 = 0.15 or 15%), less than the 20% opportunity cost of capital.

20. Mutual funds; pension funds; venture capital firms; credit unions and caisses populaires.

21. The link to the home page is http://ca.ishares.com/home.htm. Please note that this link will now take you to Blackrock's site. As of January 2019, Barclays offers 115 Canadian ETFs, available for trading on the Toronto Stock Exchange. The 3 ETFs selected for examination here are: iShares™ S&P /TSX 60 Index ETF, iShares™S&P/TSX Capped Energy Index ETF and iShares™ CDN Jantzi Social Index® Fund

1. iShares™ S&P /TSX 60 Index ETF
Index that this fund replicates: FTSE RAFI Canadian Index
MER: 0.18% of total assets
As of December 31 2019: One year rate of return = 21.72%

Top 5 holdings as of December 31 2019

% of funds	Stock
7.90%	ROYAL BANK OF CANADA
7.00%	TORONTO-DOMINION BANK
5.56%	Enbridge
4.65%	Canadian National Railway
4.59%	Bank of Nova Scotia

2. iShares™S&P/TSX Capped Energy Index ETF
Index that this fund replicates: S&P®/TSX® Capped Energy Index
MER = .61% of total fund assets
As of December 31, 2019: One year rate of return = 8.98%

Top 5 Holdings as of December 312019

% of funds	Stock
25.28%	SUNCOR ENERGY INC
24.77%	CANADIAN NATURLA RESOURCES LTD.
9.59%	CENOVUS ENERGY INC.
6.36%%	IMPERIAL OIL LTD
5.545%	ENCANA

3. iShares™ Jantzi Social Index® Fund
Index that this fund replicates: Jantzi Social Index
MER =.0.55% of total fund assets
As of December 31 31, 2019 One year rate of return = 16.64%

Top Holdings as of December 31 2019

% of Stock Funds	
10.08 %	CANADIAN NATIONAL RAILWAY
10.02%	Royal Bank of Canada
9.94%	Toronto-Dominion Bank
7.70%	Suncor Energy
7.44%	Bank of Montreal

22. For the purpose of this solution, we provide 3 mutual funds from RBC Global Asset Management

NOTE: Management Expense Ratio, MER, is the sum of management fees (the administrative costs and the wages and bonuses of fund managers) plus all other expenses charged to fund (marketing expense) divided by the fund's total assets.

1. RBC Asian Equity Fund A

Fund Objectives: The Fund seeks capital appreciation through equity securities issued by companies located in or having a principal business interest in any or all of the countries of Asia. These countries include Hong Kong, South Korea, China, Taiwan, Australia, New Zealand, Singapore, Malaysia, Thailand, the Philippines, Indonesia and Vietnam. This fund is affected by changing conditions of the markets in which they invest and the rate of exchange of foreign currencies against the Canadian dollar.

MER = 2.00% of fund's total assets

One-Year Return as at March 23rd, 2019: 7.09%

Benchmark index: MSCI AC Pacific Free Total Return Index ($ Cdn)

Top Sectors

	Fund	3 Yr High	3 Yr Low	Cat Avg
Technology	26.32	26.32	23.23	22.43
Financial Services	21.94	22.43	20.72	19.98
Consumer Cyclical	11.69	15.40	11.69	15.97
Healthcare	9.56	9.91	7.13	4.22
Industrials	8.54	10.45	7.77	9.92

Portfolio Date: 02/28/2019

2. RBC Canadian Index Fund A

Fund Objectives: The Fund seeks to provide long-term capital growth by investing primarily in Canadian equity securities. The fund seeks to achieve returns similar to a generally recognized index of Canadian equity market performance, currently being The Toronto Stock Exchange 300 Total Return Index.

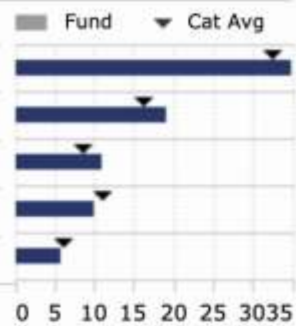
MER = 0.69% of total fund assets

One-Year Return as at March 23rd, 2019:12.28%

Benchmark Index: S&P/TSX Capped Composite Index

Top Sectors

	Fund	3 Yr High	3 Yr Low	Cat Avg
Financial Services	34.81	34.81	33.70	32.50
Energy	19.04	20.14	18.14	16.07
Basic Materials	11.08	11.87	11.08	8.45
Industrials	9.87	9.90	9.49	10.89
Communication Services	5.68	5.92	5.65	5.99



Portfolio Date: 02/28/2019

3. Jantzi Social Index Fund

Fund Objectives: To provide long-term capital growth. The fund invests primarily in equity securities of Canadian companies and follows a socially responsible approach to investing.

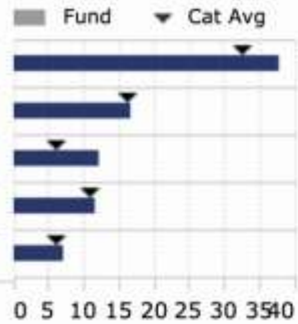
MER= 2.14%

One-Year Return as at March 23rd, 2019: 11.83%

Benchmark Index: S&P/TSX Total Return

Top Sectors

	Fund	3 Yr High	3 Yr Low	Cat Avg
Financial Services	37.92	38.13	28.93	32.50
Energy	16.89	16.89	15.43	16.07
Communication Services	12.15	12.72	11.93	5.99
Industrials	11.69	21.33	11.50	10.89
Consumer Cyclical	7.13	7.20	7.13	6.02



Portfolio Date: 02/28/2019

23. If you go into the website of any of Canada's large chartered banks (including The Royal Bank of Canada and Scotiabank) you will find that services are provided to three broad groups: individuals, small businesses, and corporations. The banks will typically provide a variety of banking, borrowing and investing, and insurance services to all three groups. Additional more sophisticated services, such as those pertaining to global banking services and industry solutions and international banking are provided to corporations and small businesses.

24 Typically, most of the information reported relates the performance of the fund. The "standard" reports could be metrics such as the price per unit, price change from previous data and rates of return. Also, short-term information may provide the rates of return within the last 30 days while "long-term" may give the rates of return over 1 to 15 years. The "annual" metrics provide the one-year rate of return for each of the past several years. The "quartile ranking" and the "5-star Ratings" both report how the funds performed relative to each other for various periods. For example, if the fund's return was among the top 25% of funds in this category, its quartile ranking is 1. The five star ranking is Globe Fund's ranking of the fund. Finally, "key facts" reports provide certain details about the funds, including the dollar amount of its assets, its MER, the load type (fees charged when the funds are bought or sold), the minimum dollar amount an investor can invest and whether the fund qualifies to be included in an investor's registered retirement savings plan, RSP.

25. We compare the iShares CDN Capped Composite Index ETF with the RBC Canadian mutual fund:

Fund Name	Fund Type	MER	One year rate of return	Benchmark Index
iShares™ S&P /TSX 60 Index ETF	ETF	0.18%	7.58%	S&P®/TSX® Capped Composite Index
RBC Canadian Index	Mutual	0.69%	12.28%	S&P®/TSX® Capped Composite Index

Note the higher MER for the mutual fund than the ETF: 2.06% versus 0.05%. The rates of return differ substantially, but were taken at different dates.

As an example, the information below is for 2014.

iShares CDN Composite Index ETF

Top Holdings as of September 30, 2014

% of funds	Stock
6.19%	ROYAL BANK OF CANADA
5.47%	TORONTO-DOMINION BANK
4.52%	BANK OF NOVA SCOTIA
3.49%	CANADIAN NATIONAL RAILWAY COMPANY
3.18%	SUNCOR ENERGY INC.

RBC Canadian mutual fund

Top Holdings as at April 30, 2014

% of funds	Stock
7.70%	RBC CDN Small & Mid-Cap Resources Fund
6.00%	Royal Bank of Canada
5.40%	Toronto-Dominion Bank
4.80%	Bank of Nova Scotia
4.20%	Suncor Energy Inc.

We compare iShares™ S&P/TSX Capped Energy Index ETF with the TD Energy Fund:

Fund Name	Fund Type	MER	One year rate of return	Benchmark Index
iShares™S&P/TSX Capped Energy Index ETF	ETF	0.62%	-5.83%	S&P®/TSX® Capped Energy Index
TD Energy Fund	Mutual	2.21%	10.46%	S&P/TSX Energy Sector Index

iShares™ S&P/TSX Capped Energy Index ETF

Top 5 Holdings as of September 30, 2014

% of funds	Stock
19.84%	SUNCOR ENERGY INC.
14.69%	CANADIAN NATURAL RESOURCES LTD.
7.51%	CENOVUS ENERGY INC.
5.47%	ENCANA
5.41%	CRESCENT POINT ENERGY CORP.

TD Energy Fund

Top Holdings as at June 30, 2014

% of funds	Stock
8.60%	Suncor Energy
7.50%	Canadian Natural Ressources Ltd.
4.80%	Cenovus Energy
4.10%	TransCanada Corp.
3.90%	Encana Corp.

Fund Name	Fund Type	MER	One year rate of return	Benchmark Index
2. iShares™ CDN Jantzi Social Index® Fund	ETF	.55%	6.28%	Jantzi Social Index
RBC Jantzi Canadian Equity	Mutual	1.87%	11.90%	S&P/TSX Total Return

iShares™ CDN Jantzi Social Index® Fund		RBC Jantzi Canadian Equity	
Top Holdings as at September 30, 2014		Top Holdings as at October 23, 2014	
% of funds	Stock	% of Total Assets	Stock
11.07%	ROYAL BANK OF CANADA	6.70%	Royal Bank of Canada
9.78%	TORONTO-DOMINION BANK	5.60%	TD Bank
8.09%	BANK OF NOVA-SCOTIA	4.40%	Bank of Nova Scotia
6.24%	CANADIAN NATIONAL RAILWAY COMPANY	4.30%	Canadian National Railway Co.
5.70%	SUNCOR ENERGY INC.	3.50%	Suncor Energy Inc.

26. Even if the firm does not need to issue stock in any particular year, the stock market is still important to the financial manager. The stock price provides important information about how the market values the firm's projects to the extent that the market price of stock is determined by expected present value of future cash flows. For example, if the stock price rises considerably, managers might conclude that the market believes the firm's future prospects are bright. This might be a useful signal to go ahead with an investment such as an expansion of the firm's business.

    In addition, the fact that shares can be traded in the secondary market makes them more attractive to investors since investors know that, when they wish to, they will be able to sell their shares. This in turn makes them more willing to buy shares in a primary offering, and thus improves the terms on which firms can raise money in the equity market.

    The financial manager is concerned with the price of the stock because the market value of stock is a measure of shareholder wealth. The financial manager's goal is to maximize shareholder wealth.