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ALWAYS LEARNING

FUNDAMENTALS OF INVESTING

THIRD EDITION



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Chapter 2

Securities Markets and Transactions

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A. Trading Hours of Securities Markets

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■ Key Concepts

1. The types of securities markets in which transactions are made
2. The operations, function, and nature of organised securities exchanges and the over-the-counter market
3. The importance of international securities markets and a discussion on the performance and risk involved in these investments
4. General market conditions and the globalisation of securities markets
5. Trading hours and regulation of securities markets
6. The basic long transaction
7. The motives for margin transactions and the procedures for making them
8. Margin requirements, formulas for initial and maintenance margin, and the uses of margin trading
9. The short sale transaction, why one shorts securities, and the uses of short selling

■ Overview

1. The text divides securities markets into *money markets* and *capital markets*. The instructor should explain the difference.
2. Both *primary* and *secondary transactions* are carried out in capital markets. The instructor should define these transactions for students and explain the role of the investment banker in the selling of new securities (primary transactions).

3. The secondary markets include the *organised securities exchanges* and the *over-the-counter (OTC) markets*. The instructor should emphasise the importance of the ASX among all these markets. The instructor might also discuss these aspects of organised security exchanges: the membership of an exchange; its listing policies; the role of the brokers, traders, and specialists; trading activity; and the auctioning process.
4. The dealer markets are described next. The instructor should point out that the Nasdaq and OTC markets are not physical institutions like the organised securities exchanges. The instructor should also point out that shares normally traded in the broker markets may trade in the dealer market, in what is known as the *third market*, while *fourth market* trades between institutions are completed using *electronic communications networks*.
5. The chapter then discusses the globalisation of international securities markets, including a description of investing in the foreign securities marketplace, how to buy foreign securities, and the risks of international investment. Related issues are the existence of after-hours trading and the mergers of stock markets foreshadowing the creation of a worldwide stock exchange, the NYSE Euronext.
6. In the next section, various regulations applicable to brokers, investment advisers, and stock exchanges are described. The instructor need not dwell on this section at length; however, the instructor might want to bring in any recent litigation or securities market trial that is being widely covered by the press. Ethical issues and insider trading are interesting and serve to make a point about the challenges facing those attempting to regulate the exchanges.

7. The text now moves to the different types of transactions, beginning with long purchases. The next section deals extensively with *margin trading*, including the magnification of profits and losses, initial and maintenance margin, and the formulas for their calculation. There are a number of review problems and a case at the end of the chapter to aid the student in understanding the concept of margin.
8. The final section of the chapter deals with *short selling*, including the mechanics and uses of short sales.

■ Answers to Concepts in Review

1. (a) In the *money market*, short-term securities such as bank-accepted bills and certificates of deposit are traded. Long-term securities such as shares and bonds are traded in the *capital markets*.
(b) A new security is issued in the *primary market*. Once a security has been issued, it can be bought and sold in the *secondary market*.
(c) *Organised securities exchanges* are centralised institutions where securities listed on a particular exchange are traded. The *over-the-counter (OTC) market* is a complex system of buyers and sellers linked by a sophisticated telecommunication network.
2. A financial adviser is a financial intermediary that provides advice when making new security issues. Underwriting involves guaranteeing to purchase unsold securities from the issuing firm at an agreed-on price and bearing the risk of reselling it to the public at a profit. For very large issues, an underwriter may bring in other underwriters as partners to form an underwriting syndicate, and thus spread the financial risk. The financial adviser also provides the issuer with advice about pricing and other important aspects of the issue.

In a *public offering*, a firm offers its shares for sale to the general public after registering a prospectus with ASIC. Rather than issue shares publicly, a firm can make a *rights offering*, in which it offers new shares to existing shareholders on a pro rata basis. In a *private placement* of its shares, a firm sells directly to groups of investors, such as insurance companies and superannuation funds, and does not need to register a prospectus.

3. Shares traded on the ASX must be bought or sold through a stockbroker. The buy or sell order is entered and the trade is matched and executed. A contract note is issued and funds must transfer within three business days through the CHESS system which registers the change in holdings. Besides trading in shares, the ASX provides a futures market and an options market.
4. The over-the-counter market is an “informal market” of traders linked together by a sophisticated telecommunication system. Traders are known as dealers and offer to buy or sell securities at specific prices. The “bid” price is the highest price offered by a dealer to purchase a security; the “ask” price is the lowest price at which a dealer is willing to sell the security. U.S. dealers are linked together through Nasdaq.

In order to create a continuous market for unlisted securities, *initial public offerings* (IPOs), both listed and unlisted, are sold in the OTC market. About 2,700 securities are included in the U.S. Nasdaq/National Market System, which lists, carefully tracks, and provides detailed quotations on these actively traded securities. Trading in large blocks of outstanding securities, known as *secondary distributions*, also takes place in the OTC market in order to reduce potential negative effects of such transactions on the price of listed securities.

5. A *bull market* is a favourable market normally associated with rising prices, investor optimism, economic recovery, and governmental stimulus. In contrast, *bear markets* are associated with falling prices, investor pessimism, economic downturn, and government restraint.
6. The *globalisation* of securities markets is important because today investors seek out securities with high returns in markets other than their home country. They may invest in companies based in countries with rapidly growing economies or choose international investments to diversify their portfolios. The Australian capital market makes up less than 2% of the world's investment opportunities.
7. To achieve some degree of international diversification, an investor can make foreign security investments either indirectly or directly. An investor can diversify indirectly by investing in shares of Australian-based multinational companies with large overseas operations which receive a substantial percentage of their revenues from overseas. Investors can make these transactions conventionally through their stockbrokers; the procedure is similar to buying a domestic security. An investor can also purchase foreign securities indirectly by purchasing units in a managed fund that primarily invests in these securities. The investor can also purchase foreign shares and bonds directly on foreign exchanges, or buy shares of foreign companies that are traded on the ASX.

The investor must be aware of the additional risks involved in buying foreign securities: country risk, government policies, market regulation (or lack thereof), and foreign currency fluctuations. Investors must consider risks beyond those in making any security transaction. In particular, investors in foreign markets must bear risks associated with doing business in the foreign country, such as trade policies, labour laws, taxes, and political instability.

Because investing internationally involves purchasing securities in foreign currencies, trading profits and losses are affected not only by security price changes, but by *foreign exchange risk*. This risk is caused by the varying exchange rates between two countries. Profits in a foreign security may translate into losses once the foreign currency has been exchanged for dollars. Similarly, transaction losses can result in gains. The bottom line is that investors must be aware that the value of the foreign currency relative to the dollar can have profound effects on returns from foreign security transactions.

8. Insider trading involves using private information to make profitable securities transactions at the expense of the broader public. It is illegal and unethical. Insider trading is regulated by ASIC pursuant to Section 1043A of the Corporations Act 2001. The ASX has a Surveillance Department which attempts to identify cases of insider trading and advises ASIC of suspected cases.
9. Ethics is important in any profession, especially in the investment community. It is only through ethical conduct that all participants can have confidence in the operation of the markets. Increasing ethical expectations should help motivate adherence to laws and regulations and produce a more level playing field for all investors.
10. When an investor purchases a security in the hope that it will increase in value and can be sold later for a profit, the investor is making a *long purchase*. The long purchase, the most common type of transaction, derives its returns from dividends or interest received during ownership, plus capital gains or losses—the difference between the purchase price and the sale price.

Margin trading involves buying securities in part with borrowed funds. Therefore, investors can use margin to reduce the use of their own money and use borrowed money to make a long purchase. Once the investment increases in value, the investor will pay off the loan (with fixed interest charges) and keep the rest as profits. Of course, buying on margin is quite risky, as the investors can lose their whole capital if the investment decreases in value.

11. When buying on margin, the investor puts up part of the required capital (perhaps 50 to 70% of the total); this is the *equity* portion of the investment and represents the investor's margin. The investor's broker (or banker) then lends the rest of the money required to make the transaction. Magnification of profits (and losses) is the main advantage of margin trading. This is called *financial leverage* and is created when the investor purchases shares or other securities on margin. Only the equity portion is financed by the investor; but if the shares go up, the investor gets all the capital gains, so leverage magnifies the return.

Through leverage, an investor can (1) increase the size of his or her total investment, or (2) purchase the same investment with less of his or her own funds. Either way, the investor increases the potential rate of return (or potential loss). If the margin requirement is, say, 50%, the investor puts up only half the funds and borrows the other half. Suppose the security goes up 10%. If the investor bought the share without using margin, he or she would earn 10%. However, if the investor used 50% margin, ignoring margin interest, he or she *would earn the same dollar return with only half the funds, so the rate of return would double to 20%*. On the other hand, suppose the share fell by 10%. Without margin trading, he or she has a 10% loss. With margin trading, *the loss is also doubled*. Both profits and losses are magnified using leverage.

Note: Table 2.1 provides an excellent illustration of this point.

Margin trading has both advantages and disadvantages. *Advantages:* Margin trading provides the investor leverage and the ability to magnify potential profits. It can also be used to improve current dividend income. Through margin trading, an investor can gain greater diversification or be able to take larger positions in the securities he or she finds attractive. *Disadvantages:* With greater leverage comes greater risk, and this is a disadvantage of margin trading. Interest rates on the debit balance can be high, a further disadvantage since these costs can significantly reduce returns.

12. In order to execute a margin transaction, an investor first must establish a margin account. The investor must provide the minimum amount of required equity at the time of purchase. This is called the initial margin and it is required to prevent excessive trading and speculation. Lenders set maximum loan to value ratios (LVRs) that must not be exceeded. If the value of the securities drops and the LVR is exceeded, the investor receives a margin call, in which case the investor has limited time (often only 24 hours) to reduce the loan balance or provide additional acceptable collateral. If the investor cannot meet the margin call, the lender is authorised to sell the investor's holdings to bring the loan account back to below the maximum LVR.

Typically, a margin loan is used to magnify the returns to a long purchase. However, when a margin loan account is below the maximum LVR (i.e. surplus equity exists) an investor can use this "paper" equity to purchase more securities. This tactic is called pyramiding and takes the concept of magnifying returns to the limit.

13. An investor attempting to profit by selling short intends to "sell high and buy low," the reverse of the usual (long purchase) order of the transaction. The investor borrows shares and sells them, hoping to buy them back later (at a lower price) and return them to the lender. Short sales are regulated by the ASX.

Equity capital must be put up by a short seller; the amount is defined by an initial margin requirement that designates the amount of cash (or equity) the investor must deposit with a broker. For example, if an investor wishes to short-sell \$4,000 worth of shares when the prevailing short sale margin requirement is 20 percent, he or she must deposit \$800 with the broker. This margin and the proceeds of the short sale provide the broker with assurance that the securities can be repurchased at a later date, even if their price increases.

14. The major *advantage* of short selling is the chance to convert a price decline into a profit-making situation. The technique can also be used to protect profits already earned and to defer taxes on those profits. The major *disadvantage* of short selling is the high risk exposure in the face of limited return opportunities. Also, short sellers never earn dividends, but must pay them as long as the transaction is outstanding.

Short sales can earn speculative profits because the investor is betting against the market, which involves considerable risk exposure. If the market moves up instead of down, the investor could lose all (or more) of the short sale proceeds and margin.

■ Suggested Answers to Discussion Questions

- 2.1. The major pro is the potential for access to greater (and potentially cheaper) sources of equity and debt finance. The major cons are the listing requirements of the ASX, including continuous disclosure of “price sensitive” information and the costs of listing.

- 2.2. Not all securities markets are open simultaneously, although there exists the possibility of trading in after-hour markets overseas. This assumes the markets are equivalent when it comes to liquidity and information ability. There is talk of a market that could trade any share in the world, with the many mergers and cooperative arrangements among securities exchanges enhancing the likelihood of a worldwide stock exchange. However, major impediments to such trading still exist especially in listing and trading requirements. Many developing economies place foreign ownership restrictions on their listed shares and do not insist on the level of disclosure required by the ASX or other major exchanges. Another stumbling block still prevails related to currency conversion. At present, there are still many foreign currencies which are not acceptable internationally. These restrictions prevent many foreign shares from trading in one market place.
- 2.3. (a) Long purchases are typically used by conservative investors so that they receive their expected returns over time.
- (b) Margin trading is typically used by aggressive investors seeking short-term capital appreciation.
- (c) Short selling is typically used by aggressive investors seeking short-term profits from falling security prices.

■ Solutions to Problems

P2.1

	Share Price in Foreign Currency	÷	Exchange Rate per US\$	=	Share Price in US\$
(a)	8.55 NZ\$		1.3172 NZ\$ /A\$		\$ 6.49
(b)	24.70 €		0.7064 € /A\$		\$ 34.97
(c)	1,350.0 ¥		80.27 ¥/A\$		\$ 16.82

- P2.2. (a) The € depreciated relative to the A\$ as it takes more € to buy one \$; the exchange rate per A\$ was 1.574 one year ago (\$1.00/€0.6354 = 1.574 A\$ per €). Today it is worth less per A\$, 1.416 (\$1.00/DM 0.7064 = 1.416 A\$ per €).

	Date	Transaction	Number of Shares	Price/ Share (€)	Transaction Value (€)	Exchange Rate/A\$	Value in A\$
(b)	1 yr. ago	Buy	50	35	1,750	0.6354	2,754.17
(c)	Today	Sell	50	38	1,900	0.7064	2,689.69
Profits/(Losses):					150		□ 64.48
(d)	Sale price		\$2,689.69				
	Purchase price		\$2,754.17				
	Loss		\$ 64.48				

The gain in share price (€35 to 38) was more than offset by depreciation of the €.

- P2.3. (a) \$1,000 loss. This is because her short sale would have realised \$6,000, while the replacement of the shares would cost Maureen Katz \$7,000.

- (b) A profit of \$1,500. The long position would initially cost Maureen Katz \$6,000. When she sells the shares at \$7.50 each, she is realising \$1.50 per share ($\$7.50 - \6) in profit for a total of \$1,500 (1,000 shares at \$1.50 each).
- (c) \$1,500 profit. The short sale brings in \$6,000, while the return of the shares to the owner costs only \$4,500.
- (d) A breakeven situation. The long position costs Maureen Katz \$6,000, and the sale of the shares brings in \$6,000, thereby providing neither a profit nor a loss.

P2.4. If an individual purchases 1,000 shares at \$5 per share with a 30 percent margin loan (of \$1,500), the investor will have to provide equity of \$3,500 ($\$5,000 \times 70\%$). If the share price rises to \$8, the margin loan to value ratio will fall to 18.75% ($\$1,500/\$8,000$) and equity will rise to 81.25% ($\$6,500 = \$8,000 - \$1,500$).

P2.5. Market value of securities at purchase = $1,000 \times \$8 = \$8,000$

Margin loan for the transaction = $.40 \times \$8,000 = \$3,200$

Equity = $.60 \times \$8,000 = \$4,800$

Given a minimum equity requirement of 75%, the share has to fall to $\$4.27$ *per share* in order to justify a margin call; that is:

$$.25 = \frac{\text{Value of securities (V)} - \$3,200}{\text{Value of securities (V)}}$$

$$.25V = V - \$3,200$$

$$.75V = \$3,200$$

$$\text{Value} = \frac{\$3,200}{.75} = \$4,267 \text{ (for 1,000 shares)}$$

On a per share basis, this translates to: $\$4,267/1,000 = \4.27

P2.6. Market value of securities at purchase = $2,000 \times \$8 = \$16,000$

Market value of securities at sale = $2,000 \times \$10.40 = \$20,800$

Total current dividend income received = $2,000 \times \$0.10 \times (6/12) = \100
(6/12 is used since the share will be held for only six months.)

Equity in investment = $0.60 \times \$16,000 = \$9,600$

Margin loan = $\$16,000 - \$9,600 = \$6,400$

Interest paid on loan = $0.08 \times \$6,400 \times (6/12) = \256
(6/12 is used since the margin loan will be outstanding for only half a year.)

Return on invested capital =

$$\frac{\begin{array}{cccc} & & \text{Market value} & \text{Market value} \\ \text{Total current} & \text{Total interest paid} & \text{of securities} & \text{of securities} \\ \text{income received} & - & \text{on margin loan} & + & \text{at sale} & - & \text{at purchase} \end{array}}{\text{Amount of equity invested}}$$

$$\text{Return on invested capital} = \frac{\$100 - \$256 + \$20,800 - \$16,000}{\$9,600}$$

$$= \frac{\$4,644}{\$9,600} = 48.38\% \text{ (for the six-month period)}$$

The annualised rate of return is found in the following manner:

Computed return x (12/number of months in holding period)

$$\text{Annualised rate of return} = 48.38\% \times (12/6) = 48.38\% \times 2 = 96.76\%$$

P2.7 (a)	Initial value:	3,000 shares x \$5.50 per share = \$16,500
	Loan balance:	\$16,500 x .50 margin = \$ 8,250
	Equity position:	\$16,500 x .50 = \$ 8,250

$$(b) \quad \text{Margin Loan \%} = \frac{\text{Loan balance}}{\text{Equity position}}$$

V

$$(1) \quad \text{Margin Loan \%} = \frac{\$8,250}{\$4.50 \times \$3,000} = \frac{\$8,250}{\$13,500} = 61.11\%$$

Account has excess equity; margin loan is below 75%.

$$(2) \quad \text{Margin loan \%} = \frac{\$8,250}{\$70 \times \$300} = \frac{\$8,250}{\$21,000} = 39.29\%$$

Account has *excess equity*; margin loan is below 75%.

$$(3) \quad \text{Margin loan \%} = \frac{\$8,250}{\$3.30 \times \$3,000} = \frac{\$8,250}{\$9,900} = 83.33\%$$

Account is *above maximum margin loan* (75%) and subject to a call.

$$(c) \quad \begin{aligned} (1) \text{ Dividends received: } & 3,000 \text{ shares} \times \$0.15 = \$450 \\ (2) \text{ Interest paid: } & \$8,250 \times .09 \times 4/12 = \$247.50 \end{aligned}$$

(d) Return on invested capital =

$$\frac{\begin{array}{l} \text{Total current} \\ \text{income received} \end{array} - \frac{\begin{array}{l} \text{Total interest paid} \\ \text{on margin loan} \end{array}}{\begin{array}{l} \text{Market value} \\ \text{of securities} \\ \text{at sale} \end{array}} + \frac{\begin{array}{l} \text{Market value} \\ \text{of securities} \\ \text{at purchase} \end{array}}{\text{Amount of equity invested}}$$

$$\begin{aligned}
 (1) \text{ Return on invested capital} &= \frac{\$450 - \$247.50 + 3,000(\$5) - \$16,500}{\$8,250} \\
 &= \frac{-\$1,297.50}{\$8,250.00} \\
 &= -15.73\% \text{ (for the 4-month period)} \\
 &= -47.18\% \text{ annual rate of return}
 \end{aligned}$$

$$\begin{aligned}
 (2) \text{ Return on invested capital} &= \frac{\$450 - \$247.50 + 3,000(\$6) - \$16,500}{\$8,250} \\
 &= \frac{\$1,702.50}{\$8,250.00} \\
 &= 20.64\% \text{ (for the 4-month period)} \\
 &= 61.91\% \text{ annual rate of return}
 \end{aligned}$$

$$\begin{aligned}
 (3) \text{ Return on invested capital} &= \frac{\$450 - \$247.50 + 3,000(\$7) - \$16,500}{\$8,250} \\
 &= \frac{\$4,702.50}{\$8,250.00} \\
 &= 57.0\% \text{ (for the 4-month period)} \\
 &= 171.0\% \text{ annual rate of return}
 \end{aligned}$$

P2.8. 1st Transaction: Buy 2,000 shares at \$4.50 per share, using 40% margin loan.

$$\text{Cost of Transaction} = 2,000 \times \$4.50 = \$9,000$$

$$\text{Loan Balance} = \$9,000 \times .40 = \$3,600$$

2nd Transaction: Buy another 3,000 shares at \$6 per share

$$\text{Cost of Transaction} = 3,000 \times \$6 = \$18,000$$

Total value of securities held *after* 2nd transaction:

$$5,000 \text{ shares} \times \$6 = \$30,000$$

Maximum amount of money that can be borrowed under the new 50% margin requirement:

$$\$30,000 \times .50 = \$15,000$$

Amount of unused credit available:

$$\$15,000 - \$3,600 = \$11,400$$

Thus, since \$11,400 is the amount that can be borrowed in the second transaction, the balance of the investment must be provided by Mr. Edwards in the form of equity; that is:

$$\$18,000 - \$11,400 = \$6,600 \text{ new equity}$$

P2.9. Intuition: If the share price falls subsequent to a short-sale, the transaction results in a profit. If the share price rises subsequent to a short-sale, the transaction results in a Loss.

- A $7.50 - 8.30 = \$0.80$ Loss
- B $3.00 - 2.40 = \$0.60$ Profit
- C $1.80 - 1.50 = \$0.30$ Profit
- D $2.70 - 3.20 = \$0.50$ Loss
- E $5.30 - 4.50 = \$0.80$ Profit

P2.10. Number of Bio International shares short-sold by Charlene Hickman : 2000

Short-selling price/share = \$ 2.75 Intuition: If the share price falls below \$ 2.75 in 4 months, the transaction results in a profit. If the share price rises above \$ 2.75 in 4 months, the transaction results in a Loss.

- a $2.48 - 2.75 = \$0.27$ Profit x 2000 shares = \$540 Profit
- b $2.51 - 2.75 = \$0.24$ Profit x 2000 = \$480 Profit
- c $3.12 - 2.75 = \$0.37$ Loss x 2000 = \$740 Loss
- d $2.20 - 2.75 = \$0.55$ Profit x 2000 = \$1100 Profit

■ Solutions to Case Problems

Case 2.1 Dara's Dilemma: What to Buy?

In this case, the student has to evaluate several alternatives, given a limited amount of information. The instructor can expect a variety of answers for each question, which should provide for lively discussion and high student interest.

1. Alternative 1 of investing \$20,000 in NewestHighTech.com could make sense if Dara has substantial expertise in high tech IPOs, and ventured only a manageable portion of her portfolio (say less than 10%). As a sophisticated investor, Dara would be looking to capitalise on market sentiment and IPO momentum for a substantial short-term gain. If either general market sentiment or a poor IPO reception for NewestHighTech stock occurs, Dara will likely lose a substantial portion of her investment.

Alternative 2 of buying 400 shares of Casino International at \$54 relies on Dara's assessment of the intrinsic value of the stock based on her financial review, as well as a likely embedded option value given the possible release of positive pricing information in the not-too-distant future. Again, given the relatively speculative nature of the investment (either good or bad news will be released), Dara should limit her investment to less than 10% of her portfolio.

Alternative 3 of selling Casino International short at \$54 could only be considered a substantial gamble in the absence of a detailed financial analysis indicating that the stock was significantly overpriced at \$54, or a particularly insightful analysis of Casino's operating environment that would lead Dara to take a contrarian position on the stock.

Alternative 4 of waiting to see what happens with the casino permit would enable a lower risk position as significant pricing information would have already been incorporated in the price of the stock by the time Dara is able to execute her purchase.

Dara's immediate analysis should be geared towards Casino's intrinsic value under each of the two news release scenarios to ensure that she is able to buy the stock at a reasonable price.

2. If the share price rises to \$60, under Alternative 2 Dara could sell her shares and enjoy a gain of \$6 a share less taxes and transactions costs. Or, assuming that Dara continues to view these shares as an excellent longer term investment, she could continue to hold the shares in anticipation of further gains without realising a taxable gain on the sale and so deferring her tax liability until the future disposal of the shares. On the other hand, under Alternative 3 where Dara sold short Casinos at \$54, she would incur a loss of \$6 plus transaction costs less tax loss savings when she sells. Holding the shares longer in the hopes that they drop down under \$54 could actually result in a much larger loss if Casinos International continues to enjoy positive pricing news.
3. If the share price falls to \$45, under Alternative 2 Dara will have incurred a loss – at least on paper - of \$9 a share, plus transaction costs less tax loss savings. If Dara's initial (and subsequent) analysis convinces her that the shares continue to have a higher intrinsic value, she could actually use the drop in share price to acquire additional shares at a bargain price. (Dara, of course, would have to ensure that she constrained her holdings to a manageable portion of her portfolio in case she made a valuation mistake, or the stock was subject to continuing negative news that reduced its intrinsic value.) On the other hand, under Alternative 3 Dara would have enjoyed a gain of \$9 a share less transaction costs and taxes. If Dara then felt that Casinos International shares were fairly valued at \$45, she could then step back in and buy them at the new reduced price for her portfolio.

Case 2.2 Ravi Dumar's High-Flying Margin Account

This case requires the student to review the concept of pyramiding. It also requires the student to review the mechanics of margin trading and to evaluate the risk-return characteristics of a specific pyramiding example.

1. *Pyramiding* is a margin trading technique in which the investor uses the paper profits in his or her margin account to acquire additional securities. Here, Ravi has a margin account with a loan of 40 percent ($\$30,000/\$75,000 = 0.40$). Since the maximum margin requirement is 50 percent, he has excess margin and can use it to acquire additional shares of RS. The trick with pyramiding is to add as many shares as possible to the account without putting up any additional money and without violating the initial loan to the value limit set by the lender.
2. If Ravi purchases 10,000 shares of RS (a \$20,000 transaction):
 - a. Using \$10,000 cash and \$10,000 from a margin loan:

	<u>Initial</u>	+	<u>New Purchase</u>	=	<u>Total Account</u>
Value of securities	\$75,000		\$20,000		\$95,000
Loan balance	\$30,000		\$10,000		\$40,000
Equity	\$45,000		\$10,000		\$55,000

Thus, new margin loan ratio = $\$40,000/\$95,000 = 42.11\%$

- b. Using \$2,500 cash and \$17,500 in a margin loan:

	<u>Initial</u>	+	<u>New Purchase</u>	=	<u>Total Account</u>
Value of securities	\$75,000		\$20,000		\$95,000

Loan balance	\$30,000	\$17,500	\$47,500
Equity	\$45,000	\$ 2,500	\$47,500

Therefore, new margin loan ratio = $\$47,500/\$95,000 = 50\%$

c. Ravi can purchase the additional shares using 87.5 percent margin loan ($\$17,500/\$20,000$) because the margin requirements are on the loan account, not on the transaction. As long as he has excess margin in the account, new purchases can be made with transaction margin percentages below the maximum requirement; the key is that *after* the transaction, the margin in the account be equal to or less than the maximum loan to value ratio.

3. If Ravi purchases 10,000 shares using \$2,500 cash and \$17,500 in a margin loan and the shares then go to \$4 per share, he will earn:

- a. Return on invested capital

$$= \frac{\$0 - (\$17,500 \times 0.10) + (\$4 \times 10,000) - (\$2 \times 10,000)}{\$2,500}$$

$$= \frac{\$0 - \$1,750 + \$40,000 - \$20,000}{\$2,500} = 731\%$$

- b. If he had purchased the 10,000 shares using \$20,000 cash, then:

Return on invested capital

$$= \frac{\$0 - \$0 + (\$4 \times 10,000) - (\$2 \times 10,000)}{\$20,000} = 100\%$$

- d. Ravi's idea to pyramid appears to be a good one, since he can make use of his paper profits to gain additional leverage and magnify his potential profit. If he is right about RS, he will increase his return even more by pyramiding. The disadvantage is that he has to make interest payments on the margin loan, and the share appreciation must be sufficient to compensate him for these interest payments. Also, given the low equity Ravi will be using (12.5 percent), it will not take much of a price decline for Ravi to lose money in a big way.