Chapter 4
Mutual Funds

Concept Questions

1. Mutual funds are owned by fund shareholders. A fund is run by the fund manager, who is hired by the fund’s directors. The fund’s directors are elected by the shareholders.

2. A rational investor might pay a load because he or she desires a particular type of fund or fund manager for which a no-load alternative does not exist. More generally, some investors feel you get what you pay for and are willing to pay more. Whether they are correct or not is a matter of some debate. Other investors simply are not aware of the full range of alternatives.

3. The NAV of a money market mutual fund is never supposed to change; it is supposed to stay at a constant $1. It never rises; only in very rare instances does it fall. Maintaining a constant NAV is possible by simply increasing the number of shares as needed such that the number of shares is always equal to the total dollar value of the fund.

4. A money market deposit account is essentially a bank savings account. A money market mutual fund is a true mutual fund. A bank deposit is insured by the FDIC, so it is safer, at least up to the maximum insured amount.

5. A capital appreciation fund seeks maximum possible growth without regard to income; an equity income fund is concerned with generating dividend income first, with growth being a secondary goal. Generally speaking, a capital appreciation fund would be substantially riskier because maximum possible growth usually involves investments in newer, less well-established companies in less well-established industries.

6. If your investment horizon is only one year, you probably should not invest in the fund. In this case, the fund return has to be greater than five percent just to make back your original investment. Over a twenty-year horizon, you have more time to make up the initial load. The longer the investment horizon, the better chance you have of regaining the amount paid in a front-end load.

7. In an up market, the cash balance will reduce the overall return since the fund is partly invested in assets with a lower return. In a down market, a cash balance should help reduce the negative returns from stocks or other instruments. An open-end fund typically keeps a cash balance to meet shareholder redemptions. A closed-end fund does not have shareholder redemptions so very little cash, if any, is kept in the portfolio.

8. 12b-1 fees are designed to pay for marketing and distribution costs. It does not really make sense that a closed-end fund charges 12b-1 fees because there is no need to market the fund once it has been sold at the IPO and there are no distribution necessary for the fund since the shares are sold on the secondary market.

9. You should probably buy an open-end fund because the fund stands ready to buy back shares at NAV. With a closed-end fund another buyer must make the purchase, so it may be more difficult to sell at NAV. We should note that an open-end fund may have the right to delay redemption if it so chooses.
10. Funds that accumulate a long record of poor performance tend to not attract investors. They are often simply merged into other funds. This is a type of survivor bias, meaning that a mutual fund family’s typical long-term track record may look pretty good, but only because the poor performing funds did not survive. In fact, several hundred funds disappear each year.

Core Questions

1. $\frac{\text{NAV} = 3.5B}{110M} = 31.82$
2. $\frac{(\text{Load} = 33.67 - 31.82)}{33.67} = 5.5\%$
3. $\frac{\text{NAV} = 40.30(1 - .020)}{\text{Market value of assets} = 39.49(12.5M)} = 493,625,000$
4. Initial shares = 25,000. Final shares = 25,000(1.043) = 26,075, and final NAV = $1$ because this is a money market fund.
5. Total assets = $(3,000 \times 42) + (8,000 \times 27) + (5,500 \times 38) + (9,200 \times 35) = 873,000$
   $\frac{\text{NAV} = 873,000}{50,000} = 17.46$
6. $\frac{(\text{NAV} = 873,000 - 75,000)}{50,000} = 15.96$
7. Offering price = $15.96 / (1 - .05) = 16.80$
8. $\frac{80,000,000}{130,000,000} = 61.54\%$
9. $\frac{\text{NAV} = (300M - 1.5M)}{20M} = 14.93$
   $\frac{(12.85 - 14.93)}{12.85} = 16.19\%$
10. $(37.97 - 34.85 + 0.64 + 1.15) / 34.85 = 14.09\%$

Intermediate

11. Turnover = X/$1.6B = .48 ; X = 768M. This is less than the $768M is sales, so this is the number used in the calculation of turnover in this case.
12. Management fee = .0085($1.6B) = 13.6M
   Miscellaneous and administrative expenses = (.0125 - .0085)$1.6B = 6.4M
13. Initial NAV = $30.50(1 - .06) = 28.67$
   Final NAV = $28.67[1 + (.12 - .0135)] = 31.72$
   Sale proceeds per share = $31.72(1 - .03) = 30.77$
   Total return = $(30.77 - 30.50) / 30.50 = 0.89\%$
   You earned 0.89% even thought the fund’s investments grew by 12%! The various fees and loads sharply reduced your return.
14. Initial NAV = $30.50; Final NAV = $30.50[1 + (.12 - .0085)] = 33.90 = Sale proceeds
   Total return = $(33.90 - 30.50)/30.50 = 11.15\%$

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15. The OTC Portfolio (“OTC”) is classified as XG, which is multi-cap growth. Its one-year return is –26.9%, which is good for a B rating. This places the fund in the top 20 to 40 percent.

16. The highest load is a substantial 8.24 percent.

17. Of the funds listed, the one with the lowest costs (in terms of expense ratios) is the “Four-in-One” Fund. That’s a little misleading, however, because this fund actually is a “fund of funds,” meaning that it invests in other mutual funds (in this case, four of them). The highest cost funds tend to be more internationally oriented.

18. This fund has a 3% load and a NAV of $7.16. The offer price, which is what you would pay, is $7.16/(1 - .03) = $7.38, so 1,000 shares would cost $7,380.

19. 1 year: \[$0.95(1 + .11)^1\] = 5.45%
   2 years: \[$0.95(1 + .11)^2\] = 8.19%
   5 years: \[$0.95(1 + .11)^{1/5}\] = 9.87%
   10 years: \[$0.95(1 + .11)^{1/10}\] = 10.43%
   20 years: \[$0.95(1 + .11)^{1/20}\] = 10.72%
   50 years: \[$0.95(1 + .11)^{1/50}\] = 10.89%

20. After 3 years: (For every dollar invested)
   Class A: $0.95(1 + .10 – .003 – .0066) = $1.2316
   Class B: \[$1.00(1 + .10 – .01 – .0066)\](1 – .02) = $1.2462
   After 20 years:
   Class A: $0.95(1 + .10 – .003 – .0066) = $5.36340
   Class B: $1.00(1 + .10 – .01 – .0066) = $4.96337

21. \((1 + .06 – .002)^2 = (1 - .04)(1 + R – .0125)^2\); \(1.1660 = (1 + R – .0125)^2\); \(R = 9.23\%\)
   \((1 + .06 – .002)^{10} = (1 - .04)(1 + R – .0125)^{10}\); \(1.8306 = (1 + R – .0125)^{10}\); \(R = 7.48\%\)

22. National municipal fund: after-tax yield = .030(1 – .08) = 2.76%
    Taxable fund: after-tax yield = .045(1 – .35 – .08) = 2.57%
    New Jersey municipal fund: after-tax yield = 2.80%; choose the New Jersey fund.

23. Municipal fund: after-tax yield = 3.00%
    Taxable fund: after-tax yield = .045(1 – .35) = 2.93%
    New Jersey municipal fund: after-tax yield = 2.80%; choose the national fund.

24. \($10.50 – NAV)/NAV = –.135; NAV = $12.14\)
    Shares outstanding = $312M/$12.14 = 25,700,165
    For closed-end funds, the total shares outstanding are fixed, just as with common stock (assuming no net repurchases by the fund or new share issues to the public).

25. NAV at IPO = $20(1 – .08) = $18.40
    \((P – $18.40)/$18.40 = –.12\) so \(P = $16.19\)
    The value of your investment is 5,000($16.19) = $80,950, a loss of $19,050 in one day.