

1 Financial Instruments

A financial institution's holdings may include a wide variety of instruments. These include *debt* and *equity* of various forms, and *derivatives*, again of many forms.

1.1 Debt

An extensive discussion of debt instruments may be found in Fabozzi.

1.1.1 Treasury Debt

The U.S. Treasury finances the government's operations with debt of various maturities.

T-Bills: Treasury bills are issued with maturities from two to 52 weeks (recently only to 26 weeks). They are *discount* or *zero-coupon* securities: they pay a *face amount* or *principal* at maturity, but no interest. The market price therefore reflects the current interest rate for deposits of that maturity (and *defines* the risk-free rate).

Notes and Bonds: Longer term debt is issued in interest- or *coupon*-bearing form. *Notes* have maturities to 10 years; debt with maturity greater than 10 years is called a *bond*, but in practice both are often referred to as bonds. The 30-year bond was used as a bell-weather for long-term interest rates, but none have been issued in recent years (issuance is scheduled to resume in 2006); its role has been largely taken over by the 10-year bond. The Treasury also issues *inflation-indexed* bonds, called TIPS.

1.1.2 Corporate Debt

Short term corporate debt is known as *commercial paper*; its maturity is most commonly 30 to 50 days or less, and typically at most 270 days; it is a discount instrument. Commercial paper may be bought by money-market funds, but not by private investors.

Longer term debt is called a *corporate bond*. It is typically coupon-bearing, with an interest rate chosen so that the market value is close to par on issuance. Some bonds are *zero-coupon*, and are issued at a discount.

Senior unsecured debt: Most corporate bonds are *senior unsecured debt*, meaning that in a liquidation, the bond holder ranks alongside other creditors such as unpaid suppliers. Corporate bonds may be held by long-term investors such as pension funds and insurance companies, and also by private investors.

Secured debt: Some bonds give their holders priority over other creditors by designating some asset that can be sold to make the required payments.

Subordinated debt: Other bonds may be documented in a way that makes their holders *junior* or *subordinated* to other creditors: in a liquidation, they receive payments only after all more senior creditors are paid in full.

Secured and subordinated debt is usually held by institutional investors, and sold privately.

Credit spreads: Because a corporate issuer might fail to make required payments on a bond, corporate bonds are riskier than Treasury bonds, and therefore must pay a higher coupon to be priced at par. The difference between the corporate coupon and the coupon of a Treasury bond with the same maturity (or some other reference interest rate) is called the *credit spread*. Spreads are expressed in *basis points*, where one basis point is one hundredth of one percent.

1.2 Equity

A share of stock represents fractional ownership of a company. A company may pay *dividends* on stock, but only after all debt obligations have been met. In a liquidation, stock-holders share the remaining value of the firm, again after all debt obligations have been met; if those obligations are not met in full, the stock is worthless. Stock carries voting rights, but is often organized into classes with different numbers of votes per share.

Preferred stock: *Preferred stock* is more like a debt instrument: it carries a specific dividend and face value, and usually a specified maturity, at which time the face value is returned. The dividend and return of principal take

precedence over payments on *common* stock. But it is still stock: the dividends are characterized as such, and all payments are subordinate to debt obligations. Preferred stock may or may not carry voting rights.

1.3 Asset-backed Securities

A financial institution will often find it desirable to pare down the assets on its balance sheet by *securitizing* them. The bank creates a special-purpose vehicle, which:

- buys the assets, say a pool of mortgages;
- sells securities to investors;
- makes required payments to investors out of revenues from the assets.

The SPV uses the funds received for the securities to fund the purchase of the assets from the institution, and passes all the revenues through to the investors, in one form or another, so it never has cash on hand.

The earliest asset-backs were based on mortgages, but large amounts of credit-card receivables and automobile loan receivables have been packaged in the same way. The payments may be passed through directly to the investors, but most often are modified in some way.

In a *collateralized debt obligation*, the SPV issues various *tranches* of securities. Typically, a senior tranche receives a specified rate of interest, and the principal is returned on a specified schedule. A junior tranche may have similar specified terms, but with a higher rate of interest. Lastly, a residual tranche will receive anything that is left over. The actual cash flows from the assets may fall short of what is required for the tranches with specified terms, in which case they are used to meet the obligations in order of seniority.

The senior tranche may be triple-‘A’-rated, and bought by conservative, long-term investors attracted by a better-than-Treasury yield. Junior tranches may similarly be rated, but at lower ratings suitable for more adventurous investors. The residual tranche is typically unratable; it may be bought by a yield-hungry vulture fund, but is often retained by the original institution.

Fixed-rate securities are subject to interest-rate risk, and some degree of credit risk, quantified by the rating. When the collateral is mortgages, they also face *pre-payment* risk: the SPV is designed to have adequate cash flows

when the mortgage holders prepay the loans on an expected schedule. If long term rates rise or fall substantially, the prepayment experience may deviate considerably from that schedule, and investors may receive their principal either earlier or later than the terms of the securities specify. The SPV structure will explicitly permit such deviations, so they do not amount to defaults. Accordingly, the rating issued by a rating agency may be based on an evaluation of the assurance of *ultimate* return of principal, but not its timeliness.