ANSWERS TO STUDY QUESTIONS

Chapter 1

1.1. The term *space market* is used to describe the market for property use. On the demand side of this market are tenants that are looking to occupy a certain space, such as a firm looking for office space for its workers. On the supply side are landlords or owners of property that are looking to rent out their space. The price of occupying space is measured in annual rents that tenants have to pay the landlord. The term *asset market* is used to describe the market where the production and pricing of real estate is determined. The demand in this market comes from individuals or firms looking to own real estate and the supply comes from developers or owner users looking to sell property they currently own. Prices in this market are determined by the perceptions of potential investors regarding the level and riskiness of cash flows that a property can generate in the future. In order to facilitate comparison across properties of different sizes or values, prices are commonly measured in terms of cap rates (i.e., property earnings divided by the property value).

1.3. A rising supply function could result if the development cost of a new building increases as more stock is added to the total. One reason this could occur is if remaining buildable sites are scarce. Construction will be more expensive on sites that are hilly or swampy or less desirable for a reason. If there is no remaining buildable site, then new construction can only be undertaken by redeveloping an existing structure. The costs would then need to also include the cost of demolishing the existing structure as well as the present value of the future income that the existing structure could otherwise generate.

1.5. Real rents will rise in the short run because supply cannot adjust quickly, but real rents will not necessarily rise in the long run (i.e., moving from the initial equilibrium to the new one following the change in demand) just because demand for usage of space is rising. The reason is that over the longer term, supply will also tend to increase to keep pace with demand. Real rents will only increase with increasing demand if it costs more (in real terms, i.e., after general inflation is subtracted) to build new buildings than it did to build the already existing buildings (including the cost of the land). This will generally be the case only when constraints on the supply of available land cause a scarcity of easily buildable sites.

1.7. *Private markets* are those in which assets are privately traded between individual buyers and sellers who have been matched with each other through a search process, such as via a broker or a Web site. A characteristic of private markets is that the price of the asset is negotiated via a bargaining process during the private transaction. In contrast, *public markets* are those in which homogenous units or shares in the ownership in assets are traded in a public exchange with several buyers and sellers and with price quotes available for all to see. Public markets are highly liquid, i.e. it is possible to quickly buy or sell assets at or near the last quoted price. This liquidity enables asset prices in public markets to respond quickly to news about their value. Due to this reason, public markets are characterized by *informational efficiency* as opposed to private markets where it takes time for buyers to find sellers and then to ascertain a fair price for a whole asset.

1.9. (1) Opportunity cost of capital (OCC), that is, what investors can expect to earn from other investments elsewhere in the capital market. Higher OCC → Higher cap rates.

(2) Growth expectations for the property net income. The more favorable the conditions in the space market where the property is located, the greater will be the expected future growth of rents the building can charge, making investors willing to pay a higher price for the property per dollar of its current income. So, Higher growth → Lower cap rates.

(3) Risk in the property investment, that is, how much uncertainty there is in the property's ability to generate income in the future (a function of the space market), and how much uncertainty there is in the future OCC relevant for this property (a function of the capital market). Greater risk → Higher cap rate.

1.11. Approximately 41% of the total market value of investable assets in the United States is made up of real estate assets or real-estate-based assets. [Sum up the percentages for Private Commercial Mortgages (2%), CMBS (1%), RMBS (6%), Private Residential Mortgages (6%), House Equity (17%), Commercial Real Estate Equity (7%), Agricultural/Timberland (2%) and REIT Equity (0%)].

1.13. a. \$10 million/9.60% = \$104,166,667
b. \$3.5 million/8.88% = \$39,414,414

1.15. The increase in supply combined with the reduction in real rents suggests a downward-sloping long-run supply function. The 2010 rent in late 1980s dollars would be: \$19.50/(218/110) = \$9.84, quite a bit less than the \$16 prevailing back then.