

Real Estate Markets

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Learning Objectives

Upon completion of this chapter, you will be able to

- discuss the major function of real estate markets,
- employ the concepts of a real estate market pricing mechanism and highest and best use to explain the allocation of uses to space and the evolution of our urban landscape,
- use models of market equilibrium to demonstrate dynamic movements in real estate market prices,
- explain the contribution of real estate construction lags to market fluctuations,
- combine elements of space markets with those of capital markets to develop a model of real estate value,
- trace the contribution of events during the Great Depression and the S&L Crisis to the onset of the Liquidity Crisis of 2008,
- compare and contrast the economic benefits of the secondary mortgage market to its risks,
- clarify the causal links that led from the bursting of the real estate bubble (space markets) to the worldwide crisis in the capital markets,
- illustrate the concept of a secondary mortgage market with examples of available mortgage-backed securities, and
- articulate broad principles to inform policy decisions aimed at dampening significant economic downturns.

6.1 THE PRICING FUNCTION OF REAL ESTATE MARKETS

Efficiency: A term to describe how quickly transaction prices within a market reflect relevant market information.

Do you remember from chapter 1 that a real estate market is a network of arrangements and relationships that transmits information so that buyers and sellers can make rational decisions and conduct informed real estate trades? **Efficiency** is a measure of how much information a market has to transmit and how quickly and cheaply it transmits the available information.

Do you remember the idea of trading on information and the possibility of **extraordinary returns**, returns that are in excess of the risks being taken? You know something that the rest of the market doesn't yet know, something that makes the asset worth more today than the current market price. Maybe you get early word that a new interchange is about to be announced for an interstate expressway, so you buy the underpriced asset and wait for the market to learn what you know and adjust its prices upward.

It is hard to trade on information when a market is efficient, but trading on information with the hope of extraordinary returns is an important motivation in relatively inefficient markets. Remember some characteristics of

real estate markets that make them relatively inefficient: stratified product types, localized markets, heterogeneous products, relatively few market participants, transaction and data poverty, proprietary transactions, and sequential bidding.

No matter how efficient or inefficient a market is at doing it, a market's major task is to establish prices. Real estate prices not only inform investment decision making but also stimulate real estate entrepreneurs (see figure 1.3) to produce or not to produce space, thereby adjusting the amount and type of space available in the market. As prices are established and the potential profit of various competing uses is suggested, investors and entrepreneurs respond by producing different kinds and amounts of space. The aggregated space allocation decisions of investors and entrepreneurs are manifest in the land use patterns that we observe all around us. So real estate markets establish prices to (1) inform real estate investment decisions, (2) stimulate (or discourage) real estate development, (3) allocate space among competing land uses, and (4) establish land use patterns.

To help us understand how markets operate and how well they do their jobs, economists have developed the supply and demand model. Let's look at this model and apply it to real estate.



Real Estate is a network of arrangements and relationships that transmit information so buyers and sellers can make informed decisions.

Extraordinary returns:

Those investment returns that are in excess of what the market expects given the non-diversifiable investment risks being taken.

6.2 REAL ESTATE AND THE SUPPLY AND DEMAND MODEL OF MARKET EQUILIBRIUM

Think of demand as the amount of a particular good that the market will purchase at a particular price. If the price goes down, will the market tend to buy less, more, or the same amount of that good? The total quantity of a good purchased in the market probably will go up as the price goes down. People tend to buy more of something when the price is lower. And for an even more important reason, a lower price will stimulate greater sales. What if this good is something that goes into a business; what if it is a factor of production? As the price of the input goes down, the cost of doing business goes down, the potential for profit goes up, and new entrepreneurs are encouraged to go into business. As input prices (costs) continue to decline, more and more marginal, less efficient producers will enter the market and buy inputs.

The reverse is also true. If input prices go up, profit margins shrink, less efficient producers exit the market, and quantity purchased goes down. Fewer people and fewer producers, can afford the good as the price increases. Therefore, an inverse relationship generally exists between the price of a good and the quantity purchased, so demand can be conceptualized as a downward-sloping line in two-dimensional space, with price on the vertical axis and quantity demanded on the horizontal one.

Think of supply as the amount of this same good that the market will produce and offer for sale at a particular price. As the price the market is willing to pay for this good goes down, what happens to supply? The producer's profit margins go down as output prices go down, forcing marginal producers out of the market and reducing the overall supply. Again, the reverse is true. As output prices go up, profit margins go up, and marginal producers enter the market and increase the supply. Unlike demand, a direct or positive relationship exists between the price of a good and the quantity offered for sale, and supply can be conceptualized as an upward-sloping line in two-dimensional space, with price on the vertical axis and quantity on the horizontal one.

Both the inverse demand relationship and the positive supply relationship are shown in figure 6.1. The graph illustrates two simple ideas: (1) demand (DD): as price goes up (down), people will want to buy less (more), and (2) supply (SS): as price goes up (down) people will want to sell more (less). Notice that these two lines cross. This is an important point. Here, the quantity supplied equals the quantity demanded (q_c). In other

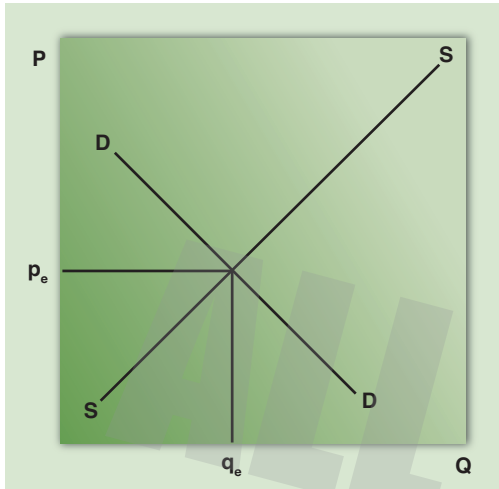


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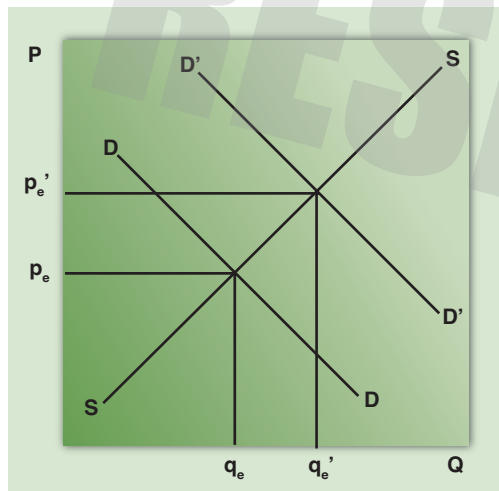
When do you think is the best time to consider a home purchase?

Equilibrium market

price: That price where supply and demand are in balance and all available product will be cleared from the market.

**FIGURE 6.1**

The Classic Supply-Demand Relationship

**FIGURE 6.2**

Demand Shift Creates New Equilibrium

words, this intersection indicates the price (p_e) where the market is cleared. It has no unsatisfied demand and no unsold supply. This is the **equilibrium market price**. By the way, the speed and ease with which a market finds its equilibrium price is an indication of its efficiency.

But markets are dynamic, so what happens if something changes? What happens, say, if population and employment go up and the demand for space increases? We show this demand change in figure 6.2 with a parallel shift in the demand function from DD to $D'D'$. The new demand function ($D'D'$) intersects the supply curve at a different point, indicating a new equilibrium quantity (q_e') and a new equilibrium price (p_e'). You should not be surprised that the new equilibrium price is higher when demand goes up. Can you explain why? And what happens to the equilibrium price if demand goes down again? Can you show this on a supply and demand graph?

Other factors can impact the demand for space. What would happen to the demand curve if income in the market area went down? It would shift downward, and the new equilibrium price would fall. What if mortgage funds became more available; would demand go up or down? And what if mortgage funds became less available? What would happen to demand and the equilibrium price for space?

Supply can change as well. Anything that increases the cost of production may shift the supply curve up and to the left (see $S'S'$ in fig. 6.3), meaning that with increased costs the amount of market output will go down at a given price. According to figure 6.3, what happens to the equilibrium price? It goes up. Can you explain that? Similarly anything that decreases the cost of production may shift the supply curve downward and to the right, indicating that at a given price the market is willing to supply more than before. Can you use supply and demand curves to show that the equilibrium price will go down?

Can you think of any factors that might impact supply? What if land prices went up? The cost of production would go up, shifting the supply curve up and to the left and increasing the equilibrium price. Can you trace the impact of a property tax increase? What about a change in technology that makes construction more efficient? What about a tightening of land use controls? What happens when interest rates go up or go down?

All of these events have the potential to shift our supply and demand curves, forcing the market to find new equilibrium prices. With logic and our graphs, we can show these impacts clearly and quickly, but do real estate markets react so precisely and predictably? Sadly, they do not. While the supply and demand equilibrium model provides a useful tool to help us think through the impact of market dynamics, real estate is too

complicated to behave as well as our model predicts. Equilibrium price is only a vague aspiration, a moving target that real estate markets seldom hit. Why?

6.3 REAL ESTATE AND PERFECTLY COMPETITIVE MARKETS

Only efficient, perfectly competitive markets behave approximately the way our supply and demand equilibrium model predicts. We already know that real estate markets are not efficient, but are they perfectly competitive? To be perfectly competitive, a market should have at the least the following characteristics:

- Perfect Knowledge. All market participants, buyers, sellers, and resource providers have ready access to full knowledge about all available goods and inputs, including their prices and offers.
- Critical Mass of Market Participants. So many buyers and sellers are in the market, each so small and acting independently of others, that no one can control or influence prices.
- Free Market. The market operates free from governmental or any other outside control. Barriers to market participation are nonexistent.
- Homogeneous Product. The product of every seller is identical to the product of every other seller.
- Product and Input Mobility. Both the product and the factors of production, including labor, can be easily moved from areas of relatively low demand to areas of excess demand.

Note that these characteristics also imply a perfect responsiveness in the market, meaning that suppliers can adjust quickly to increasing or decreasing demand.

Based on what we already know about real estate markets, it is clear that they do not meet these conditions. They are not perfectly competitive; instead, they are imperfectly competitive. Knowledge is not perfect and evenly distributed; rather, it is so imperfect that real estate markets often trade on knowledge superiority. Real estate markets are so diffused by use and location that some markets have few traders who may indeed be capable of influencing prices. The government plays a significant role in real estate markets, and a market often has significant barriers to entry. No real estate product homogeneity exists, and the observation is commonly made that because every location is unique, every property enjoys its own monopoly; in addition, because of locational fixity, there is no product mobility.

Finally, responsiveness is a serious problem for real estate suppliers. Planning and construction lags may mean that as many as 5 years can pass between the first conceptualization of a real estate vision and the eventual delivery of space onto the market. These supply delays are a major cause of

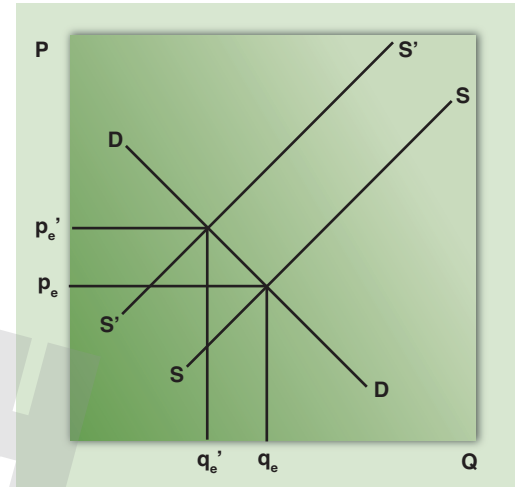


FIGURE 6.3
Supply Shift Creates
New Equilibrium

the grim fluctuations that periodically grip and sometimes devastate real estate markets. To understand them a little better, let's return to our supply and demand equilibrium model.

6.4 REAL ESTATE CYCLES, FLUCTUATIONS, AND PRODUCTION LAGS

Consider the classic supply–demand equilibrium model of figure 6.1, with its typically downward-sloping demand curve and its upward-sloping supply curve. The trouble is that this model does not represent real estate in the short run. What does the model imply will happen in real estate when a population increase shifts the demand curve upward? It implies that real estate entrepreneurs will quickly respond to this increase in demand by sliding up the supply curve and increasing the amount of space available in the market until a new equilibrium price is obtained and the market is cleared. But we just learned that responsiveness is a serious problem in real estate because of significant planning, permitting, and construction lags. Our real estate suppliers will want to increase space as demand for space goes up, but the space will not be immediately available.

What does the short-run real estate equilibrium model look like? Consider figure 6.4 and compare it to figure 6.1. The difference is the vertical supply curve of figure 6.4. This curve is vertical because no matter what demand may shift to, real estate suppliers may want to respond immediately by providing space, as reflected in their supply curve in figure 6.1, but, they cannot. The production lags prohibit this. They respond by starting to produce space, but significant time will pass before the space is actually out in the market. Similar trouble occurs when demand decreases and the demand curve shifts down. Suppliers will want to reduce space, but they have only a limited ability to do so. Real estate is durable. It is not used up in the same way as toothpaste or automotive parts. It has a protracted economic life, typically extending to 30 years or more. It can't simply go away. So what happens in real estate when a demand shift occurs? Let's look at figure 6.5.

Figure 6.5 overlays figure 6.4 onto figure 6.1. Here, we have the classically downward-sloping demand curve (DD), as well as the classically upward-sloping supply curve (SS), which reflects the willingness of real estate suppliers to supply space at various prices. Note that this curve reflects the quantity of space that suppliers will begin to produce given a price in the market, but they will not be able to actually supply this space until some significant time in the future. We also show curve $SRSR$, the vertical short-run real estate supply curve, which reflects what real estate supply is actually on the market in the short run, regardless of the amount of

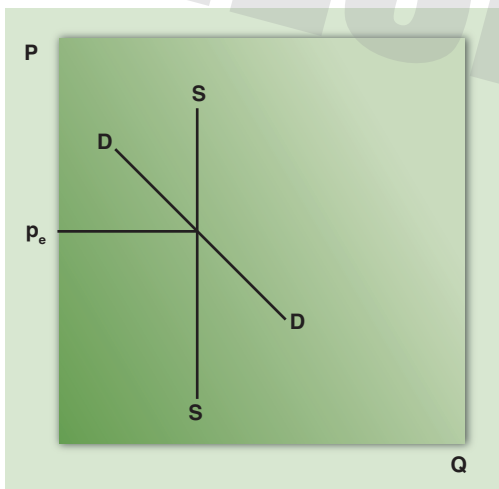


FIGURE 6.4

Short-run Real Estate Equilibrium Model

space currently in production that will one day be available. Note that in equilibrium both supply curves, the classic willingness to supply curve (SS) and the actual space availability curve (SRSR), indicate the same equilibrium price, p .

Let's introduce a demand shift curve ($D'D'$) in figure 6.6. Two equilibrium prices are suggested. $P1'$, the intersection of $D'D'$ with SS, is the equilibrium price suggested if suppliers could respond immediately to the demand increase. But as we have learned, this equilibrium price is not obtainable due to real estate production lags. $P1$, the intersection of $D'D'$ with SRSR, is the actual equilibrium price given the actual supply available on the market. Notice that $P1$ is greater than $P1'$. In other words, the inability of supply to respond to an increase in demand in the real estate market results in a market price ($P1$) that is above the market price suggested by conditions of perfect market competitiveness ($P1'$).

Real estate suppliers respond to this new market price by commencing the production process (remember, however, that there is a production lag; the space isn't on the market yet). How much space will they begin producing? The equilibrium price of $P1'$ suggests that real estate entrepreneurs should begin to produce at the new equilibrium quantity ($Q1'$), but the market price isn't $P1'$. It's actually $P1$. So suppliers are not responding to $P1'$; they're responding to $P1$. The amount space providers will begin to produce is therefore suggested by extending price $P1$ across to its intersection with SS, the production willingness curve, and then down from this point of intersection to the quantity axis at $Q1$. Notice that $Q1$ is greater than $Q1'$; space producers are producing at a rate to oversupply the market. When the $Q1$ quantity of space is delivered to the market, a new equilibrium price must be found. This new price is determined by extending the point $Q1$ up to the $D'D'$ demand curve and then across to the intersection with the price axis at $P2$.

Let's recap what has happened: Our real estate market has been represented as though it were a perfectly competitive market in figure 6.6, with the downward-sloping demand curve (DD) and the upward-sloping supply curve (SS). The intersection of these curves represents the equilibrium market price (P) and the equilibrium quantity supplied and sold (Q). A demand surge has occurred due to a population increase, resulting in a shift of the market demand curve ($D'D'$). If our real estate market were perfectly competitive, the new equilibrium price ($P1'$) and quantity ($Q1'$) would be determined at the intersection of the new demand curve ($D'D'$) with the long-run supply curve, SS.

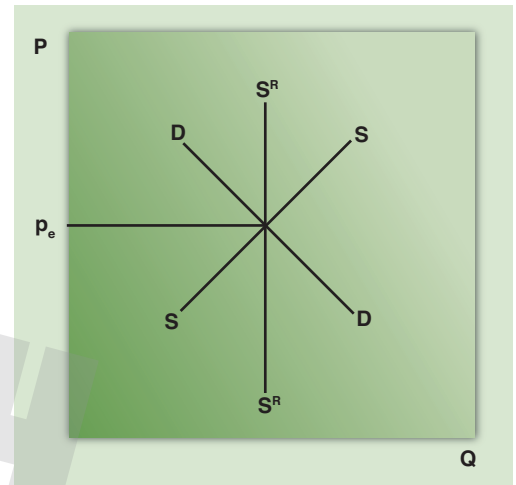


FIGURE 6.5

Equilibrium Model with Long-run and Short-run Real Estate Supply Curves

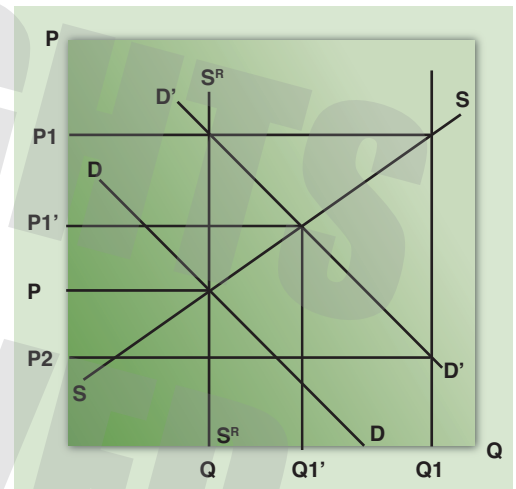


FIGURE 6.6

Market Fluctuations due to Real Estate Production Lags

But our real estate market is not perfectly competitive and suffers from an important flaw. Supply is not immediately responsive to demand shifts. Because of this, SS does not represent the true supply curve. Instead, it represents the producers' willingness to supply curve. Supply cannot be quickly placed onto the market as demand increases, which results in supply shortages. The excess demand bids prices up to the perfectly competitive price of $P1'$ and beyond to $P1$. Suppliers respond to the surging prices by commencing production beyond the equilibrium quantity of $Q1'$ to $Q1$. When this oversupply finally reaches the market, producers are forced to cut prices to move space, and market prices fall, eventually to $P2$, which in this case is even below the original market equilibrium price of P .

Real estate markets are not perfectly competitive. If they were, they would be characterized by relatively smooth price movements when demand increased and entrepreneurs moved to quickly meet the demand. Instead, the inability of real estate entrepreneurs to immediately meet increasing demand leads to severe price fluctuations as a period of excess demand is quickly followed by a period of oversupply. By the way, the inability of real estate suppliers to contract supply in the face of falling demand also leads to exaggerated price declines. Can you follow this using the model in figure 6.5?

The severe price fluctuations of real estate markets have led some to conclude that real estate markets operate in cycles. But do they? This is really a question of definition. What do we mean by the term *cycles*? If what we mean is simply the phenomenon of fluctuations, there is no argument. Our analysis and history clearly show that real estate is subject to serious fluctuations. But do we mean something more? Some market observers believe that cycles are repeating patterns that can be anticipated by studying their history. In this sense, no convincing evidence shows that real estate fluctuations are cycles. We are left with the conclusion that real estate markets most certainly fluctuate, but, as yet, no one has demonstrated an ability to consistently foretell real estate market turning points.

We have seen that imperfections in the market for space can lead to serious real estate price fluctuations. Price fluctuations in real estate are exacerbated by the capital markets. The role that capital flows play in real estate markets is a fascinating one that we will explore, but before we do, let's take a closer look at the market for space and what drives value there.

6.5 THE MARKET FOR SPACE

In chapter 1 we presented a model of real estate as a system of activities linked by markets (see figure 1.3). The link between node 1, entrepreneurial activity, and node 6, consuming activity is the market for space. It is a market where real estate suppliers (entrepreneurs) exchange the space that they have created to users of space (consumers) for capital in the form of rent or sales proceeds. There are actually many space markets diffused by geography and

by use (office, retail, industrial, residential, mixed use, lodging, and raw land). We can therefore talk about the market for office buildings in Atlanta as distinct from the market for apartments in Atlanta or that for office buildings in Dallas. These markets not only allocate space to competing individual users through their pricing mechanisms but also collectively allocate space among competing uses. To understand the allocation of uses to space, we need to understand the concept of **highest and best use**.

The highest and best use of a site is that physically possible and legally permissible use among all other physically possible and legally permissible alternative uses that results in the highest residual value of the space. Each parcel of real estate has its own package of characteristics that make it unique in the market. Some of these characteristics are physical, like size, topography, and shape. Some are locational, including the relationship to other properties and their activities (called **situs**). Some are capital improvements, such as existing buildings and parking. It is the use that is best positioned to take advantage of a property's particular set of characteristics that will create the highest value. And those bidders planning the highest-valued occupancy will outbid other users with their competing occupancies, sending them to eventually settle for their satisfactory second- or third-choice sites. So the bidding process and the highest and best use pricing mechanism in real estate markets not only allocate sites to users but also allocate uses to sites.

The aggregation over decades of all these use-to-site assignments provides us with our urban, suburban, and even rural landscapes. And it provides each parcel of real estate a unique locational profile called situs. The idea of situs incorporates the relationship of a site to all other sites, its accessibility to site uses and infrastructure, and the quality of its exposure. Each use decision makes its mark on the real estate environment, which in turn determines the situs of the site, a dynamic double-feedback symbiosis evolving through time.

Market inefficiencies and imperfections cause frictions that require professional intervention. For example, the few traders in any given real estate market may have trouble finding one another, so real estate brokers and salespersons serve as intermediaries who specialize in bringing suppliers and consumers of space together. And with a poverty of transaction information, real estate appraisers must be hired to estimate market value and most probable sales price. Appraisers exist only because real estate markets are inefficient. Efficient markets with rich transaction data have no need for experts to estimate market value. Nevertheless, real estate markets do serve to provide a pricing function that allocates space to users, uses to space, and thereby space to our physical environments.

Highest and best use:

That most productive use to which a property can be physically and legally dedicated leading therefore to its maximum value. It is that use by which the market prices the property.

Situs: The unique locational profile of a real estate site including the quality of its exposure and accessibility to neighboring activities and infrastructure.



Each parcel of real estate has its own package of characteristics.

Economic fundamentals:

The supply/demand conditions and property characteristics, including physical qualities, capital improvements and situs that create real estate value in the market for space.

In the market for space, price is a function of what informed consumers will pay for real estate, in terms of either rent or sales prices, given supply and demand conditions and property characteristics, including capital improvements and situs that make one site more or less attractive than other sites. These qualities that give real estate value in the space market are called **economic fundamentals**, but another set of variables drives real estate prices. These are capital market conditions, and to understand them better, we need to visit another aspect of the market for real estate: the market for real estate as a capital asset.

6.6 THE MARKET FOR REAL ESTATE AS A CAPITAL ASSET

Take another look at figure 1.3. Recall that the link between entrepreneurial activity and consuming activity represents the real estate market for space. Now look at the link between entrepreneurial activity and successor entrepreneurial activity. This is the market for real estate as a capital asset, or as an investment.¹ It is where capitalist as opposed to space users enter into the real estate market, seeking returns on capital rather than returns on space. They trade their capital for ownership and control of the real estate, and no matter how passive they are about it, perhaps hiring out management responsibilities to third-party providers, they are successor entrepreneurs offering the real estate that they own and control to household and business consumers of space.

It is wrong to think of these two as separate markets, for they are different aspects of the same market. The space is the same whether you are interested in its potential for investment or its potential for shelter. The buyer of real estate as a capital asset must compete with the buyer of space for shelter. Being aspects of the same market, events in one impact conditions in the other. If demand for space goes down or too much product is simultaneously delivered onto the market, an oversupply occurs and buyers of shelter will pay less for their space. But rents (the price to borrow space) and therefore real estate investment income also go down. As income goes down, everything else being equal, capital asset buyers will pay less for investment real estate. And if demand goes up, everything else being equal, buyers of space must pay more; borrowers of space, renters, also must pay more. Income goes up, and capital asset buyers not only are willing to pay more for real estate but must pay more so that they are not pushed out of the market by the higher prices now paid by space buyers.

It operates in the opposite direction as well. Events in the investment capital market impact not only the prices paid by space investors but the prices paid by space consumers as well. When interest rates go down in the capital market (e.g., because of decreasing inflationary expectations or increasing supply of investment capital), real estate discount rates and capitalization rates also go down and real estate capital asset values go up. Investors will pay more to invest in space, forcing consumers to pay more for space as well. When interest rates go up in the capital market, real estate

discount rates and cap rates go up, and the prices real estate investors are willing to pay to invest in space go down. So does the price that real estate consumers must pay to satisfy their space needs.

The space and capital aspects of the real estate market are inextricably linked in another way. According to our activities model of real estate as represented in figure 1.3, real estate entrepreneurs are excited into development when they perceive a market need for space and then move to fill it. There is an even stronger motivation to supply space than market demand for space; it is the availability of capital. Real estate development is closely related to capital availability. Entrepreneurs will develop space as long as they have capital to do so. It is their job to create space, and as long as they have capital, regardless of demand, they usually will. They are out of business when they stop.

The prices paid for and the values enjoyed by real estate are therefore a function of variables from two aspects of real estate markets. From the space market come economic fundamentals, space market supply and demand dynamics, situs, and capital improvements, whose impacts are reflected in generated rents and operating income. From the capital markets come interest rate movements reflected in the discount rates and capitalization rates used to value the cash flows from rent and operating income.

The liquidity crisis of 2008 is a fascinating if sobering case study of the link between space markets and capital asset markets. It is a cautionary tale of unbridled indulgence and the terrible indigestion that always will come from unbridled indulgence, in this case an indulgence in a swirling stew one part real estate, two parts debt, and thickened with fraud, greed, and incompetence, a particularly American recipe starting nobly enough with the American Dream of affordable housing.



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As long as they have capital, entrepreneurs will develop space.

6.7 AN AMERICAN DREAM IN CRISIS

There is something extraordinary about our American brand of capitalism and the cultural birthrights that are attached to it: land of opportunity, rags to riches, self-made millionaire. These are the deeply rooted and cherished exaggerations that channel our optimism and fuel the exuberance that powers the wild and dangerous fluctuations that have come to characterize the American economic experience. And of all these cherished American birthrights, perhaps none is more cherished than the promise of home ownership.

Before the stock market crash of 1929 and the Great Depression that followed it, the typical residential mortgage had a 50% loan-to-value ratio, a 5-year term, and was interest only until maturity. When due, these loans were usually refinanced rather than paid off. As the Depression settled in, no money was available to refinance mortgages, and homeowners faced with shrinking resources had no alternative to default. Record rates of foreclosure ensued. The Federal Housing Administration (FHA), created in 1934 with the passage of the Federal Housing Act (also now known as the National Housing Act of 1934, as amended), moved to establish more stable mortgage terms and introduced the constant payment, self-amortizing mortgage with its normal 80% loan-to-value ratio that is the standard today.

The FHA also launched a mortgage insurance program. Under this program, the FHA does not make loans. It is simply an insurer collecting premiums from borrowers and setting up reserves against the default claims of lenders. With high loan-to-value ratios and hence low down payments, FHA programs are particularly attractive to lower- and middle-income households. FHA programs are therefore an important way in which the government has exercised over the years its commitment to affordable housing.

As World War II came to a close, a grateful America was determined to help its returning service personnel come home. The Servicemen's Readjustment Act of 1944 was passed which created the Veterans Administration (VA). The VA developed a successful loan guarantee program, which facilitated generous mortgage terms for veterans. Like the FHA, the VA did not make loans. Instead, the VA told mortgage lenders, primarily life insurance companies and thrift institutions such as mutual savings banks and savings and loan associations, that the U.S. government would guarantee against default qualifying mortgage loans made to qualified veterans. Operating alongside the FHA program but unlike the FHA program, the VA program was not insurance. It was a federal guarantee that required no insurance premiums from the borrowers but said to the lenders that the government would cover losses due to borrower default.

With the war over, financial institutions sold their war bonds and were suddenly flush with capital. What better way to use this capital than to loan it to returning service personnel by creating mortgages either insured (through the FHA) or guaranteed (through the VA) against default? The mortgage programs were wildly popular, and they facilitated the longest and greatest housing boom in our history. But there was a problem. Eventually, there was no more cash left to lend.

Once a lender had loaned out its capital, it was basically done making loans. It had assets: the loans that it created. It had revenue: the loan payments that it received. But without capital to lend, no matter how many highly qualified borrowers came through the doors, loans weren't being made and houses weren't being bought. A tremendous pent-up demand for housing was inevitable. The problem was made worse by periodic episodes of disintermediation. **Disintermediation** occurs when depositors in large

Disintermediation: The negative growth in the stock of funds deposited in short-term accounts within financial intermediaries like banks and thrifts that results when depositors withdraw their funds to invest directly in superior opportunities in the capital markets.

numbers take their money out of financial intermediaries like banks and thrifts so that they can invest in higher-yielding assets like money market funds and U.S. Treasury bills. This reduces even more money that lenders can loan for mortgages.

By the 1960s, the life insurance companies were pretty much out of the residential loan business. They had shifted into lending money for commercial real estate, leaving home lending to the thrifts. Thrifts had roughly two-thirds of the market, using deposits as their source of capital and keeping the mortgages that they originated in their own portfolios. Most of their originated loans were neither FHA insured nor VA guaranteed and were called conventional mortgages because of it. They had lots of potential customers but not enough money to lend to all of them. The situation was becoming critical. People wanted to buy houses and had the income to qualify for loans, but they couldn't get the money. The government's dilemmas were old ones: how to capitalize the residential real estate market and how to help lenders replenish their money so that they could make their loans and people could buy their homes. To address the difficulty, the government dusted off an old idea that it had tried but mostly abandoned during the Great Depression: creating a secondary mortgage market.

The problem in the Great Depression was that the markets did not have enough capital. If markets can be thought of as machines that produce and distribute goods, capital is the fuel that keeps those machines going. During the Great Depression, real estate was out of gas. And by the late 1960s, to stretch a metaphor, residential real estate was laboring under severe gas shortages.

6.8 THE DEVELOPMENT OF A RESIDENTIAL SECONDARY MORTGAGE MARKET

Suspecting that capital replenishment was a critical mechanism needed to propel real estate out of the Depression, the government formed the Reconstruction Finance Corporation (RFC) in 1935 and charged it with the creation of a **secondary mortgage market** for all real estate. The idea was that if a lender could sell a mortgage that it had just created, the lender could then lend the proceeds from the sale of that mortgage to another borrower, creating another mortgage. That mortgage could in turn be sold to investors, providing more funds for more lending, and so on and so on. Instead of serving just one borrower, by replenishing its capital in a market where mortgages are bought and sold, a lender could serve many. Many lenders participating in this market could serve many more borrowers.

The task was too enormous and the venture too undercapitalized for success, and the RFC would have been little more than an historic dead-end except that in 1938 the Federal National Mortgage Association, soon

Secondary mortgage market: The investment market for whole mortgages and for mortgage-backed securities as opposed to the primary mortgage market where mortgages are created between lenders and borrowers.

to be famous as Fannie Mae or just plain old Fannie, was formed as a subsidiary of the RFC. Fannie Mae was given a more manageable charge: use government money to purchase mortgages issued under the recently developed FHA insurance program described earlier, thereby fashioning the most practical foothold from which to eventually launch an effective assault on the more robust goal of a fully functioning real estate secondary mortgage market. Fannie Mae puttered along somewhat ineffectually but undeniably hanging on, using taxpayer money to buy mortgages here and there, primarily from mortgage bankers so that they could make more home loans, adding the VA-guaranteed mortgages to its purchasing target until the capital crisis of the late 1960s called it to arms.

In 1968, Congress, through the Housing and Urban Development Act, privatized Fannie Mae. This meant that Fannie was expected to expand its operations to become the ultimate investor for FHA-insured and VA-guaranteed mortgages originated by lenders all over the country and that it had to do so with private funds at no cost to the taxpayers. The idea was that Fannie would now be free to raise funds just like large corporations do in the capital markets by issuing debt obligations and could be just as creative as any corporation in doing it. Being privatized, Fannie Mae was no longer government but was called a **government sponsored enterprise (GSE)** because it had been created by federal legislation. The federal government does not guarantee the debt obligations of Fannie Mae, but Fannie's connection to the federal government was sufficient to cause many investors to treat it as close enough to enjoy special consideration, and pension funds, mutual funds, and corporate and foreign investors have all lined up to buy Fannie's debt.

Government sponsored enterprise (GSE): A private corporation created by an act of Congress to stimulate and maintain the residential secondary mortgage market. The term refers primarily to Fannie Mae and Freddie Mac.

The Housing and Urban Development Act did something else that was critical to forming a residential secondary mortgage market. It created the Government National Mortgage Association (GNMA), perhaps inevitably called Ginnie Mae. Unlike Fannie Mae, Ginnie Mae is government. And its most important task was to create a timely payment guarantee program. Ginnie Mae does not buy mortgages the way Fannie Mae does. Instead, it provides a federal government guarantee for investors in securities backed by FHA-insured or VA-guaranteed mortgages that all money scheduled to be collected will actually be delivered on a timely basis to the investor. Ginnie Mae stimulated mortgage bankers to package their originations into pools of like mortgages (same interest rates and similar dates of maturity) totaling not less than \$1 million. These pools are converted to GNMA-guaranteed mortgage-backed securities and either directly sold to investors or sold to investors through investment bank dealers.

The final player arrived in 1970 when Congress created the Federal Home Loan Mortgage Corporation, another GSE warmly known as Freddie Mac or Freddie. Remember that Fannie had been privatized to buy FHA-insured and VA-guaranteed mortgages from their originators, who were primarily mortgage bankers. But the thrifts had the majority of the primary mortgage market; they specialized in originating the conventional non-FHA, non-VA loans and typically kept them in their portfolios because

they had no one to sell them to. So Freddie was obliged to do for the thrifts with their conventional mortgages what Fannie was doing for the mortgage bankers with their government mortgages: buy them. Freddie decided that the best way it could do this would be to buy the conventional mortgages, package them up, and sell derivative mortgage-backed securities similar to the Ginnie Mae product. Fannie started to use this approach to financing mortgage purchases as well, and the first private company agent to enter the market with no federal guarantee was the Bank of America in 1977.

With the GSEs securely focused on bestowing housing liquidity, stability, and affordability, the secondary mortgage market took off. Investor unease was soothed with product uniformity through the standard underwriting and reporting practices pioneered by the FHA and the VA. Fannie and Freddie found innovative and effective ways to capitalize their missions to purchase mortgages from originators, both mortgage bankers and thrifts. Ginnie Mae laid a powerful government timely payment guarantee on top of derivative instruments backed by FHA-insured and VA-guaranteed mortgages. And investment banks fashioned investment channels for the sale and resale of mortgage derivative securities. A new and exciting residential lending industry was emerging, but not everyone would participate in this new world equally.

6.9 THE NEW RESIDENTIAL MORTGAGE BUSINESS MODEL

A new business model was suggested by the development of a robust secondary mortgage market, and mortgage bankers rushed to embrace it. In broad and oversimplifying terms, the new business model has these five basic steps:

1. Find someone willing to loan you lots of money (usually a bank).
2. Use this money to make loans to people wanting to buy homes.
3. Sell these new mortgage loans on the secondary mortgage market.
4. Use the proceeds from selling mortgages to pay off your big loan.
5. Go back to step 1 and repeat.

This new business model introduced some interesting profit centers. No longer did originating lenders need to keep their mortgages to make money. They could make money by charging their borrowers origination fees for creating the loan, and they could also make money by charging the mortgage buyers fees for relieving them of the responsibility of servicing the mortgages. Servicing means collecting payments, making sure the payments are distributed appropriately, maintaining all necessary bookkeeping, and handling all payment delinquencies. These new ways of making money in mortgage lending became more important than the old way of collecting interest.

The new business model also impacted the risk of making residential mortgage loans. Since the mortgage bankers no longer held the mortgage, they no longer bore the default risk. Mortgage bankers were also able to

largely eliminate interest rate risk due to maturity mismatch. Maturity mismatch interest rate risk occurs when a business borrows short and lends long. As interest rates move in response to inflation and other market phenomena, short-term positions, either assets or liabilities, will quickly adjust to reflect the new interest rates. But long-term positions can't be quickly adjusted. So when interest rates are going up because inflation expectations are going up, a lender who borrows money from demand depositors has to increase the rate of interest it pays to its depositors to keep them from taking their money out. If the lender has loaned out its money on a fixed-rate, long-term basis, say in 30-year mortgages, it can only adjust to the increasing interest rates gradually when the mortgages are paid off and new mortgages at higher rates can be created. The problem is made even worse because long-term borrowers are less likely to voluntarily pay off loans when rates are rising so that they can avoid the higher interest rates. Thus, when interest rates are rising, borrowing money short term via deposits, and lending money long term via mortgages will lead to a narrowing profitability spread.

While mortgage bankers borrowed their money short term, they avoided the maturity mismatch risk by treating their long-term mortgages like short-term assets and selling them quickly after originating them. Thrifts, represented primarily by the savings and loan associations, did not avoid the maturity mismatch risk by aggressively participating in the secondary mortgage market. They kept the majority of their originated mortgages in their own portfolios, and this eventually doomed them.

6.10 DISINTERMEDIATION, DEREGULATION, AND THE SAVINGS AND LOAN CRISIS

Thrifts such as savings and loan associations and mutual savings banks were created in the 19th century to meet the banking needs of individuals and households. Both individuals and households need a safe place to put their savings, and they need loans to help them manage the major purchase of a home. An important point to remember is that at the time thrifts were conceived to meet these needs, home mortgage loans matured typically in 5 years. The maturity mismatch risk was not nearly the issue it would become after the Great Depression, when 30-year mortgages were introduced to help stabilize residential borrowing and when a time bomb was inadvertently set ticking.

As we know, by the 1960s, thrifts were the principal residential lender. Life insurance companies had moved on to commercial mortgages, and the secondary mortgage market wasn't yet in place that would stimulate the mortgage bankers to develop their new business model and help them gobble up market share from the thrifts. So two problems faced the thrifts now that they were in power: (1) where to get more money to lend to borrowers with all their pent-up demand for homes (the government was

working to create the secondary mortgage market to solve this) and (2) how to keep the money they already had. Remember disintermediation? It occurs when depositors take their money out of their bank or savings and loan so that they can get better returns by investing it themselves in things like money market mutual funds.

Up to this point, savings and loans had not worried much about the maturity mismatch risk. The government had pretty much taken care of it for them by mandating deposit rate ceilings. These ceilings set maximum rates that thrifts could pay to depositors, so during inflationary times, when short-term market rates were taking off and long-term rates were lagging, thrifts were protected from maturity mismatch risk because by government regulation, thrifts simply could not pay the higher short-term rates that would cause the shrinking spread between fund earnings and fund costs that would threaten their operations. Depositors would look at the rates that their savings and loan was giving them on their deposits and at the rates that they could get by investing in the money market funds, and they would take their money out of the savings and loan.

By the 1970s, disintermediation had become the critical concern of depository lenders like the savings and loan associations. The government responded in the late 1970s by allowing thrifts to offer depository instruments with interest rates more in line with the market and in the early 1980s with a wave of deregulation that effectively removed all interest rate ceilings on deposits. But while deregulation addressed the problem of disintermediation, it exposed the savings and loan industry to maturity mismatch risk. When the inflation of the 1980s started to accelerate, short-term rates jumped, long-term rates lagged, the operating spreads shrank, and many savings and loans became insolvent.

Having stirred the **maturity mismatch** problem by poking at the short-term cost of funds, the government now hoped to quiet it by poking at the long-term earnings of funds. The government reasoned that a constant spread could be maintained if savings and loans were allowed to build portfolios with investments other than long-term, fixed rate residential mortgages with their lack of interest rate responsiveness, things that had greater rates of return than residential mortgages, things like commercial loans and consumer loans and real estate developments. These investments not only have the potential for greater returns, which would help the thrifts deal with their shrinking profit spread, but they also come with greater risk and therefore the potential for deepening the dilemma by significantly increasing the incidence of default. Nevertheless, The Garn-St. Germain Act of 1982 allowed thrift institutions to invest in these risky assets.

As savings and loans expanded their investment portfolios to include these risky assets, their investments failed, and the number of insolvent thrifts grew alarmingly. The Federal Savings and Loan Insurance Corporation (FSLIC), which regulated the savings and loan associations, did not choose to force these troubled thrifts to recapitalize or liquidate but instead allowed them to continue their desperate investment behavior in the forlorn hope of survival. Instead, as they aggressively competed for

Maturity mismatch: The investment challenge typically faced by banks, thrifts and other depository financial institutions that arises when long-term investments are funded with short-term liabilities. The problem primarily occurs in periods of unanticipated inflation when income adjustments fail to keep up with the rising cost of borrowing.

both deposits and investments, costs of funds for the industry climbed, returns for the industry fell, and marginally solvent thrifts pulled over the lip of insolvency behaved more and more irresponsibly, dragging others down into the black whirl of ruin.²

The whole mess was finally revealed in Texas, when falling oil prices dumped the regional economy into a recession. So many loans went bad that almost no one was left standing. As disorder spread into the rest of the country, the government had no choice but to act with a decisive and heavy hand. The FSLIC did not survive the cleanup, which eventually cost \$153 billion, and while the thrift industry continued to limp along, it was gravely wounded, shedding 1,043 of its 3,234 federally insured institutions.³ Residential lending was now open to the mortgage bankers and their new, dynamic business arrangement with the secondary mortgage market, a symbiotic relationship whose insatiable hunger for mortgages could only be met by the aggressive securitization that would eventually stimulate a great speculative run in housing.

6.11 MORTGAGE RAPTURE, HOUSING RUPTURE

Since the savings and loan crisis of the 1980s, when thrifts were surrendering market share to the mortgage bankers, homeownership rates had remained fairly constant: around 64% of total households. As the efficiencies of the mortgage bankers' originate-and-sell business became manifest, rates of homeownership rose. In 1994, the rate was 64%; in 1995, it was 64.7%. Growing steadily every year, by 1999, the rate of homeownership had climbed to 66.8% of total households (U.S. Department of Housing and Urban Development 2008).

Business was good, but to continue to grow, the mortgage bankers needed a steady stream of borrowers. Concerned for their customer flow, lenders began to press Fannie and Freddie to lower underwriting standards on the mortgages that they would buy. This would create a new potential source of demand soon to be popularized as the **subprime market** because the credit worthiness of these borrowers was just below qualifying, just below the prime borrowers, and they had no recourse other than to turn to finance companies who charged notably higher interest rates as compensation for assuming greater default risk. Others were applying pressure to Fannie and Freddie as well. During the decade, stockholders of the GSEs had enjoyed impressive profits, and eager for more earnings growth, they joined the call for relaxed underwriting requirements. Pursuing the social goals of affordable housing for minorities, as well as for low and moderate income groups, the government also encouraged the GSEs to ease standards. Faced with the growing pressure and tempted by the arguments, Fannie and Freddie gave their constituent groups what they wanted.

During the early 2000s, these reduced underwriting standards and a Federal Reserve policy of low interest rates combined to bring many new marginally qualified buyers into the housing markets. The resulting increase

Subprime market: The popular name for that market serving residential mortgage borrowers who do not qualify for standard hence prime mortgages.

in demand drove the prices of homes up. We can see the dynamics of what a sudden infusion of demand does to prices in the housing markets by returning to our supply and demand graph of figure 6.6. Demand jumps from DD to D'D'. Because supply is placed into the market with a lag, prices jump all the way up to P1. Attracted to the price run-up and buoyed by their false assumption that house values would never go down, speculators rushed in, shifting the demand curve ever higher and increasing prices even more. Meanwhile, the mortgage bankers continued to develop creative but dangerous mortgage products and to lower underwriting requirements, funneling fresh borrower-buyers into the system.

Freed from the default risk of their mortgages by selling them on the secondary mortgage market, originators were sometimes unscrupulous.⁴ Appraisals were inflated, consumer and credit card debt were rolled into mortgage loans, and loan amounts approached or exceeded the true underlying property value. Homeownership rates climbed year by year to a high of 69% in 2004, and along with homeownership, home prices continued their upward march. It did not matter how much you borrowed. Home appreciation would take care of everything. Lenders continued to lend aggressively, buyers continued to buy aggressively, prices continued to surge, and builders responded to the aggressive demand by building ever more product to feed the frenzy.

Crazed by debt, the housing rapture was largely psychological, as speculative raptures always are. And when it ended, it ended in spectacular collapse, as they always do. The year was 2006. Mortgage interest rates had dropped every year from 2000 until 2003. They ticked slightly upward in 2004 and again in 2005, but in 2006 they rose significantly. The 90-day delinquency rates and foreclosure rates, especially in the subprime and adjustable rate subprime categories, hit highs. Home sales that had grown steadily since 2000 dropped. Housing starts that had also grown steadily since 2000 dropped. At first home prices didn't drop, but their rate of growth did, and by 2008, actual prices were dropping. Many homeowners found themselves "underwater," owing more on their homes than what their homes were now worth. The housing bubble had ruptured.

In many ways, the housing bubble of the 2000s displayed the classic characteristics of a speculative run. The end came suddenly when investors and lenders lost faith in what they religiously held to before. Everyone wanted out. No one wanted in. Abruptly, no capital could be found in the market. When the run ended, there was great finger-pointing. Despite our



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By the end of 2008, many homeowners found themselves 'underwater' with their mortgages, owing more on their homes than what their homes were worth.

reverence for capitalism, we looked to the government to fix it and to make sure that it would never happen again. And finally, the run involved a level of financial innovation that created more and more debt secured by less and less underlying asset value and a decreasing ability to pay off the debt.

We need to take a closer look at the financial innovations in the secondary mortgage market that powered the housing bubble. That's the real story behind the crisis of 2008. That's how a real estate problem grew to infect the financial system of the entire country and came to threaten the economic health of the entire world.

6.12 REAL ESTATE TAKES A STROLL DOWN WALL STREET

Mortgage securitization:

The process of creating mortgage-backed securities. See Mortgaged-backed security below.

Mortgage-backed security (MBS):

A derivative asset whose value is supported by a pool of mortgages and whose cash flow is derived from the debt service received from the mortgage pool. MBSs can take several forms and may be backed by either residential or commercial mortgage pools.

So what happens to a mortgage when it is sold on the secondary mortgage market? What does it mean to say that it is *securitized*? The basic idea behind **mortgage securitization** is to bring together a large group of similar mortgages, let's call this grouping a pool, and to use this pool of mortgages as collateral against various types of securities that are then sold to investors. Fannie and Freddie were the largest securitizers, but high-volume originators also pooled their mortgages and sold securities backed by them, usually with the help of Wall Street investment bankers, to investors. These sales replenished capital and could pass on risk to investors. At first, these **mortgage-backed securities** were basic, but as time went on, they became increasingly exotic. Let's look at a few.

The first mortgage-backed security, and probably the most basic, is the mortgage pass-through (MPT). The security issuer, usually Fannie Mae, Freddie Mac, or some high-volume originator, pools together a group of mortgages all with the same interest rate and maturity and issues securities against them. These securities represent an undivided ownership interest in the pool. The typical MPT will be enhanced by a timely payment guarantee such as offered by Ginnie Mae. Both Fannie Mae and Freddie Mac operate their own timely payment guarantee programs. Most likely, the issuer will continue to service the mortgages in the pool. After servicing and timely payment guarantee fees are paid, all generated cash flow, whether it be from principal, interest, or prepayments, is passed through directly to the individual holders of the pass-through securities. An investor owning \$1 million of a \$100-million pool will receive 1/100th of the cash flow generated by the pool of mortgages.

The mortgage-backed bond (MBB) is a little more complicated. Like the corporate bond, the MBB is typically issued with a fixed-coupon rate and a specified maturity. Unlike the corporate bond, the MBB is collateralized with a pool of mortgages. Ownership of the mortgages in the pool is retained by the issuer of the bond, but the mortgages themselves will probably be placed with an independent trustee like a major U.S. commercial bank or investment bank. Usually, the total balance of the mortgages in the pool will be greater than the value of the securities issued.

This is called overcollateralizing the bond issue. Thus assured, the investor buys a bond to receive a stream of interest payments until the bond matures plus the lump sum payment of principal at maturity. The MBB is priced by the investor by discounting the promised stream of income with an appropriate discount rate. Over time, mortgages in the pool may be paid off early. Some of them may default. When this happens, the bond issuer may be required to put more mortgages into the pool. The need to overcollateralize the issue and even occasionally replenish the pool can tie up a seriously disproportionate amount of mortgage value.

With collateralized mortgage obligations (CMOs), pioneered by Freddie Mac in the early 1980s, mortgage securitization started to get complicated. A CMO begins with much the same idea as other mortgage securities: gather together a pool of like mortgages and issue securities against that pool. What makes CMOs different is that the securities from a single pool of mortgages are divided into multiple classes of bonds called *tranches* (French for “slices”). Several categories of these tranches exist in a CMO, all backed by the same pool of mortgages. The most senior category of tranches is called the A piece and usually carries an investment-grade rating.⁵ Next comes the M, or mezzanine, category, also usually investment grade, and then the non-investment-grade tranches, often labeled the B piece.⁶ A final, bottommost tranche, which may be called the Z or X piece, may be retained by the securitizing institution, such as an investment bank, as compensation for putting the deal together.

Each CMO tranche represents a different type of bond with its own claim to cash flow and its own risk, all specified by a set of rules called the structure. While each tranche is allocated its share of interest from the cash flow generated by the mortgage collateral, the senior tranches get all principal payments until they are paid off. Only then do junior tranches get principal payments. In some structures, the junior-most Z (or X) tranche may not receive any interest payments until the senior tranches are paid off. Losses in the collateral are absorbed junior class to senior, so if losses exceed the principal value of the junior-most class, the next class begins to absorb them and so on, moving up into the senior classes. Because of the risk and cash flow allocation schemes, senior tranches carry lower coupon rates than junior tranches. To enhance them, CMOs are often overcollateralized.

Rating agencies such as Moody's, Fitch, and Standard & Poor's, whose rating models used pre-2006 default rate assumptions, treated the CMOs well, especially the senior tranches, and they became popular investment-grade assets for insurance companies, money market funds, corporations, pension funds, mutual funds, commercial banks, hedge funds, government agencies, international investors, and even central banks. Anyone who wanted investment-grade bonds with a bit higher return stood in line to buy them. But as CMO volume increased, the B pieces were a bit harder to move. To help with this issue, originators turned to a structured, asset-backed security that had been developed in the late 1980s, the collateralized debt obligation (CDO).

CDOs work much like CMOs, with tranches of senior and junior bonds receiving interest and principal payments based on their seniority derived from cash flow generated from the underlying collateral assets. Like CMOs, risk is apportioned among the tranches in reverse order of seniority. Unlike CMOs, the underlying collateral is not limited to mortgage pools. Derivative assets, including mortgage-backed securities, can be used as the collateralizing asset for a CDO.⁷ All kinds of assets found themselves in CDOs, including junior-class tranches of CMOs that security dealers were having trouble selling.

Rating agencies, perhaps too cozy with securitizers, didn't seem to understand the intrinsic risk in these complex, layered, structured asset-backed securities. While it was possible to take a pool of mortgages and apportion cash flow and risk in such a way to create investment-grade assets, as CMOs did, it turned out to be too much of a stretch to take the lower-grade tranches from a CMO and create a critical mass of investment-grade assets, as CDOs attempted to do. Nevertheless, the senior tranches of CDOs backed with essentially nothing more than B class CMO tranches were given investment-grade status by the rating agencies and were purchased in this country and around the world by insurance companies, pension funds, mutual funds, investment banks, and commercial banks. The rating agencies overlooked the devastating risk of a national collapse of the housing market. Disaster was just around the corner.

Commercial real estate would not be able to avoid the looming calamity. Residential lending has always dwarfed the commercial real estate mortgage market,⁸ but since the early 1990s, commercial real estate securitization had enjoyed a boom of its own. Inspired perhaps by developments on the residential side, the roots of commercial securitization were firmly planted in the soil of the savings and loan crisis when the government used securitization to help sell the commercial real estate assets of failed thrifts. The primary instrument of commercial securitization had become the commercial mortgage-backed security (CMBS), which is similar to the residential CMO with its prioritized tranches.

Primarily from the cleanup operations of the government, CMBS issuance totaled about \$4 billion in 1990. By 1993, the private sector had taken over, and issuances had grown to \$15 billion. By 2004, they were at \$93 billion, and then things exploded: \$169 billion in 2005 and \$203 billion in 2006. On the residential side, the housing bubble had burst, but no matter: \$230 billion in CMBS issuance in 2007. Then the



Commercial real estate would not escape the calamity that hit the residential lending market.

collapse came as the panic from the residential side spread to commercial: \$12 billion in 2008 (Commercial Mortgage Alert, 2009). The commercial real estate mortgage market had evaporated.

As we know, the real estate financial system began to unravel in 2006 when interest rate increases triggered spiraling default rates in residential mortgages and housing values started to tumble. Payments to CMO and CDO tranche holders were not made. The confidence in the residential markets and all superleveraged assets derived from the residential markets plummeted. While not all of these assets went bad—that is, not all of them quit making payments to their tranche holders—all of them shed value. There was a “run” on these assets as everyone wanted to get their money out. Suddenly these assets had no market; they had no value. They were “toxic.” Soon the CMBS market was contaminated; their instruments were toxic too. Institutions that held mortgage-backed securities were forced to “mark them to market,” value them on their books based on what they could sell them for. But what could they sell them for? No one wanted to buy them. The significant drop in asset value injured institutional capitalization.⁹ Regulatory capital requirements now impaired lenders’ ability to make loans. Seemingly overnight, there was no liquidity in real estate. Banking institutions, both commercial and investment, started to fall. Bear Stearns, Wall Street’s fifth largest bank, was taken over by JP Morgan on May 30, 2008. On July 11, federal regulators seized IndyMac Bank. This was the second largest bank closing in U.S. history, a distinction that it would not hold for long. For the worst was coming.

September 2008 began with the announcement that the federal government would take over Fannie Mae and Freddie Mac. Given the GSEs’ troubled history and the collapse of mortgage markets, this was no surprise. But within 9 days of the government’s announcement and in dizzying succession, Merrill Lynch was acquired by the Bank of America, Lehman Brothers filed for bankruptcy, and American International Group (AIG), one of the world’s largest insurers, surrendered 80% of its company to the federal government in exchange for a rescuing infusion of \$85 billion of loans. The September slaughter closed when federal regulators took over Washington Mutual (WaMu) and sold it off to JP Morgan in what amounted to the largest failure of a banking institution in the nation’s history.¹⁰ Venerable old WaMu, a proud thrift that had survived the savings and loan crisis, could not survive the unraveling of the mortgage market in 2008.

What just happened? How did a real estate problem (granted, a serious real estate problem but still a real estate problem) rise up and pull down all these iconic American institutions? Bear Stearns. IndyMac. Fannie Mae. Freddie Mac. Merrill Lynch. Lehman Brothers. AIG. WaMu. How did the real estate problem spread to bring down all these financial giants and threaten the existence of our financial system? There had to be a carrier. And there was.

6.13 MAKING BAD BETS ON BAD DEBTS

The biggest and the safest companies in the United States finance their day-to-day operations by borrowing money in what is called the commercial paper market. These very short-term loans are arranged by Wall Street banks who find investors willing to loan money to big corporate borrowers. Money market funds are active lenders in the commercial paper market. You may remember we briefly mentioned money market funds when we discussed the problem of disintermediation faced by thrifts and other banking institutions. Depositors take their money out of their savings accounts in thrifts and banks to earn more money in the money market funds. Money market funds attract depositors because they are very safe places to put money. And they are safe places to put money because they only invest in the safest of opportunities, like commercial paper. Or at least that's the way it was until September 2008. Then one of the most trusted money market funds, the Reserve Fund, "broke the buck."¹¹

To break the buck means that the fund lost money for its depositors. For every dollar put into the money market fund, the depositor now had something less than a dollar. And how did the Reserve Fund lose money for its depositors? It loaned money to Lehman Brothers in the commercial paper market, and as we now know, Lehman Brothers had just gone bankrupt and thus wiped out the Reserve Fund's investment. As the money market funds watched one company after another fall, they decided that they could trust no one, and they shifted their investments into ultrasafe U.S. government securities. Trust evaporated and credit along with it. But this was more than bad mortgages and bad CMOs and CDOs built from bad mortgages. There was something bigger going on here.

The Commodity Futures Modernization Act of 2000 was designed to stimulate the financial services industry through deregulation. Under its provisions, certain banking industry products would be free from both federal and state regulation. With this protection, the credit default swap (CDS) flourished. CDSs are sometimes likened to insurance, but they are dangerously different from insurance in two important ways. First, to insure against a risk, you must bear a risk. Not so with CDSs. You can purchase a CDS for a risk that you do not bear. This becomes uncomfortably more like placing a bet than buying insurance. Second, by regulation, an insurer is required to keep reserves against insurance claims. This not only guarantees that insurance claims can be honored but also places a limit on the amount of insurance that any given insurer can issue. But under the provisions of the Commodity Futures Modernization Act, no such regulation of CDSs exists, so no reserves were set up against claims, and no effective limit was placed on the volume of CDS contracts that could be issued.

Early on, CDSs were used as hedging tools. If you bought some CMO or CDO bonds, you could buy a CDS as "insurance" in case the bonds defaulted. Either way, if a bond performed or if it defaulted, your investment

was okay. You were hedged. CDSs were also used as credit enhancement by CMO and CDO originators. When a bond was “insured” by a CDS, it was perceived as safer, was therefore blessed with a higher rating, and enjoyed a marketing boost. Banks, especially in Europe, used CDSs to reduce their risk scores and therefore their capital requirements. By buying a CDS against the default of its assets, a bank transfers risk from its assets to the CDS issuer. The less risky its assets, the less capital the bank is required to hold in reserve and the more capital it can use to invest in more assets (Nocera 2009). Of course these assets can be hedged with CDSs as well.

Eventually, CDSs became speculative investments; in other words, they were being bought not by those who were insuring (hedging) their bond investments but by those who were betting against bonds they did not own. Buying CDS contracts had become a feeding frenzy that eclipsed the imposing feeding frenzy over mortgage-backed securities. Worldwide, there is something like \$5 trillion of bonds but more than \$60 trillion in bets that they will default.¹² That’s \$12 of payoff for every \$1 of loss. And who was issuing all these CDS contracts; who would have to pay if the mortgages and the bonds they supported went bad? The big players were Bears Stearns, Lehman Brothers, and AIG. Sound familiar?

The fall was inevitable. When the housing bubble burst, mortgages began to default, bringing down with them the CMO and CDO bonds. CDS holders presented their claims, but the CDS issuers had insufficiently hedged their positions. In their pride and arrogance, they had convinced themselves that house values would never go down, that their financial wizardry had truly insulated them from investment risk of housing derivatives, and that they were golden. But they discovered that they did not understand real estate risk and that they were tragically undercapitalized and overleveraged to bear the risk that they had assumed.

Sadly, the mess is not contained. The network of CDS interdependencies among financial institutions stretches fragile fingers through much of the banking system of the Western world. A failure to meet a commitment at any point could trigger disastrous shockwaves of failures trembling throughout the network and an ultimate collapse of our financial system. The federal government believes it must support in some cases the very institutions that brought us to the point of ruin, no matter what the cost, because it believes that the cost of not doing so will be vastly greater.

That’s the story, so far, of how the space market and the capital market combined to bring about what will likely be finally reckoned as the most serious test of our economic system since the Great Depression, the story of how real estate market fluctuations were amplified by an overwhelming succession of waves of leverage—subprime mortgages, CMBs, CMOs, CDOs, CDSs—and threatened to sweep away all our good fortune. All that is left is to point some fingers and draw whatever lessons we can from the trials we have created.

6.14 THE BLAME GAME

Tragedy is escorted by a fundamental human need to identify culprits and hold them accountable for the pain that they have caused. It is also shadowed by great finger-pointing from those fearing indictment. So who is to blame for this tragedy? Who should we hold accountable and single out for disgrace, if not outright punishment? There are many suspects: appraisers, homebuyers and the poor, Alan Greenspan and the Fed, loan originators, Phil Gramm and the U.S. Congress, Bill Clinton, George W. Bush, rating agencies, federal regulators, Fannie and Freddie, and Wall Street. Surely there are others, but let's visit the cases against these.

6.14.1 Appraisers

Appraisers are hired to estimate the value of a home when it is being refinanced or purchased with borrowed capital. The stated function of the appraisal is to ensure that the value of the home provides sufficient collateral for the loan. While paid by the homeowner, appraisers are hired by loan originators, who keep lists of appraisers approved to provide valuation services. During the run-up of housing prices, appraisers were notorious for delivering values sufficient to support the amount of the loan application. Loan originators were known to apply an array of pressures to influence the value judgments of appraisers, including removing them from approved lists and refusing to pay for appraisals when value estimates were insufficient to support loan applications. Some appraisers who resisted pressures to influence their value judgments were forced to seek other careers.

Verdict: Appraisers are small players in the system with insufficient motivation and power to significantly influence the market. If anything, they serve as scapegoats for those strongly motivated to make sure that loans are closed.

6.14.2 Homebuyers and the Poor

As the housing market heated up, increasing numbers of homebuyers jumped in. Some were pure speculators betting that prices would not go down and superheating the market as they placed their bets. Others were participating in the American Dream of homeownership. Many of these homebuyers were marginal or subprime borrowers who were attracted to the array of financial instruments that offered the illusion but not the reality of affordability. Homeownership climbed from 64% of households to 69% of households. Often with minimal down payments and adjustable monthly mortgage payments already commanding historic proportions of household income, homeowners were exposed to significant risk. When interest rates

rose pulling mortgage payments up with them, the housing market began to turn, and these marginal borrowers led the way into the defaults that triggered the mortgage meltdown.

Verdict: Speculative home buying helped overheat the housing market but was insufficient on its own to cause the housing boom. While many participants in the subprime market were low-income borrowers, not all were. Many were middle-class, high-income earners who were simply stretching beyond their means. Low-income homebuyers did participate in the subprime market, and there were defaults in this group, but to single out the “unqualified poor” homebuyer is an unfair oversimplification. Tempted and perhaps even victimized by complicated loan instruments and underwriting practices that few borrowers anywhere had the sophistication to understand, they may nevertheless be responsible for their own mess. But to blame them for the mess that we are all in is cruel exaggeration at best.

6.14.3 Alan Greenspan and the Fed

Led by Alan Greenspan, the Federal Reserve pursued a policy of economic management whose centerpiece was low interest rates. The availability of cheap capital fueled both the housing and the mortgage booms. Greenspan championed derivatives as useful tools to help spread risk and resisted calls to regulate the proliferation of dangerous mortgages and the even more dangerous securities that derived their value from them.

Verdict: The Fed policy of low interest rates helped the country recover from the recession after the Internet bubble collapse and the terrorist attacks on the World Trade Center, and for this it rightly deserves credit. However, as the economy recovered, the Fed did not adjust its policy, and the profusion of cheap and easy money roused the next great bubble that the Fed failed utterly to dampen. In testimony before the U.S. Congress, Greenspan, ever the free-market economist, seemed almost a broken man when he said that he was in a state of shocked disbelief that lending institutions had failed so miserably to protect their shareholders. Greenspan and the Fed did not cause the mess, but secure in their religious faith in unfettered capitalism, they stood smugly and inactively by as disaster loomed.

6.14.4 Loan Originators

Loan originators, with their dynamic business model of borrow, originate, and sell, helped home buyers through the economic difficulties following 9/11, but the high-volume nature of their business soon ignited and fueled a great run on housing prices. The motivation to increase the volume of loan originations coupled with the ability to pass on default risk led to an erosion of underwriting standards, loans to unqualified borrowers, and in some cases even deceptive underwriting practices. Marginal loans were packaged up and sold to investors who did not

understand the risk or failed to conduct adequate due diligence to determine the risk of these derivative assets. Rising interest rates triggered rising default rates, which exposed the mortgage-backed assets for the risky investments that they truly were. The investment community, which had emotionally overestimated the attractiveness of mortgage derivatives, now overreacted to the danger of them. They suddenly had little value and threatened the integrity of our banking system.

Verdict: We have finally identified one of the true culprits of the drama. With its high-volume business model, the lending industry did indeed fuel the housing boom. And with its ability to pass on default risk, it abandoned its traditional responsibility to control mortgage quality and flooded the market with dangerous and even fraudulently underwritten mortgages. But the actions of the lending industry, no matter how egregious, are insufficient to explain the entirety of the 2008 liquidity crisis. We need to dig some more.

6.14.5 Phil Gramm and the U.S. Congress

Congress, led by Senator Phil Gramm and other Republicans, championed the cause for banking deregulation, often using questionable tactics to win the passage of key legislation like the Commodity Futures Modernization Act of 2000. This bill and others paved the way for the unregulated trading of derivative securities, including Credit Default Swaps, but did not excite into being the promised golden era of creative capitalism. Instead, a tawdry culture of vigorous duplicity, overindulgence, and self-delusion grew to propel us into the most dangerous global economic crisis since the Great Depression and to sweep the Republicans out of office.

Verdict: Congress and its members may not have directly caused the threat to global economic stability, but their misplaced enthusiasm for financial deregulation certainly laid footings for those who did.

6.14.6 Bill Clinton

As people began to struggle with the reality of sudden ruin, they sought perpetrators to pillory. Early candidates were the poor and Bill Clinton. The Clinton Administration certainly did push hard the cause of housing affordability for poor and minorities. It pressured Fannie Mae and Freddie Mac to expand their loan programs to embrace those groups who suffer the greatest incidence of home mortgage disqualification. The GSEs decided to extend their mortgage purchasing programs to the subprime market beginning in 1999. At the time, some experts warned of the potential for another savings and loan-type crisis. Indeed, the 2008 crisis was piped in by mortgage defaults, and mortgage defaults were nowhere higher than in this sector of the market.

Verdict: As noble a cause as social engineering may be, to stimulate it at the cost of sound business practice can be dangerous. In its zeal for reform, the Clinton Administration may have overlooked this danger, but business apologists eager to exonerate the financial community ignore how mortgage bankers, thrifts, and banks also pressured Fannie Mae and Freddie Mac to venture into the subprime market. And once this market was tapped, and with little need for prodding, the financial community eagerly invested its energy and genius to exploit it. Bill Clinton and his administration may have set up a necessary condition for the crisis of 2008, but it wasn't the only necessary condition and they didn't set it up alone.

6.14.7 George W. Bush

While the Republican-inclined pointed fingers at the Clinton Administration, the Democrat-inclined pointed fingers at the Bush Administration, claiming that it encouraged and supported the disastrous deregulation that spawned the financial excesses that culminated in the crisis. The Bush Administration was also criticized for doing nothing to abate the flood of defaults and foreclosures that triggered the crisis.

Verdict: Deregulation may have been supported by the Bush Administration, but it was a necessary and not a sufficient cause of the crisis of 2008. Once the flood of defaults started, aggressive borrower relief may have prevented a great deal of human misery, but it had no hope of averting the crisis. Money and confidence had long vaporized from the market. Under the circumstances, to blame the Bush Administration for the ultimate ruin is much like blaming the little Dutch boy for not sticking his thumb in the dike when the water started to cascade over the rim.

6.14.8 Rating Agencies

The rating agencies—Moody's, Fitch, and Standard & Poor's—are gatekeepers. They evaluate bonds and give them ratings that are signals to the investment world about a bond's ability to withstand economic stress. Bonds that receive the AAA score are judged able to survive economic downturns as powerful as the Great Depression. Bond issuers take their securities to a rating agency in hopes of getting the highest rating possible. If the rating agency does not believe the bond is sufficiently secure to issue the rating, the issuer can take the bond to market at the lower, less valuable rating, or it can agree to somehow enhance the credit worthiness of the bond, for example, by adding more or better collateral. That's the gatekeeper function. No investment gets past the rating agency gate with an investment-grade score unless it truly deserves that score. That's how investors arm themselves with the knowledge they need to protect themselves from assuming unanticipated risk. That's the way it works. Or at least, that's how it's supposed to work. In the case of mortgage-backed

securities, this rating system failed horribly as rating agencies consistently overrated mortgage derivatives. To be kind, the rating agencies did not understand the complicated, layered, real estate mortgage derivatives that they were evaluating, and their models had flawed assumptions about the default rates that would come to ravage the mortgage pools. To be less than kind, rating agencies enjoyed an overly cozy relationship with security issuers, and tempted by huge profits, the agencies succumbed to pressure and awarded inflated ratings.¹³

Verdict: The abdication of their gate-keeping responsibilities was an ethical failing of the rating agencies, with colossal ramifications for investors and economies across the globe. Nevertheless, while the rating agencies probably could have prevented the liquidity meltdown of 2008, they did not cause it.

6.14.9 Federal Regulators

Recognizing that sound financial markets are essential to the economic health of the nation, the government has long maintained a system of oversight and regulation of the banking and investment industries. Serious economic episodes such as the Great Depression and the savings and loan crisis usually are followed by a wave of regulations aimed at curbing whatever excesses were held to be the proximate cause. As the memory of such events and their costs begin to wane, the call for deregulation in the name of free enterprise inevitably begins to wax. The Bush Administration and the Republican-controlled Congress were instrumental in dismantling previously established regulatory safeguards, believing that government regulation retarded the creativity of free markets. Some regulations were eliminated through legislation; others were rendered ineffectual through weak enforcement and a misguided policy of voluntary supervision. As signs of the coming economic tragedy became clear, a weakened regulatory system, philosophically disinclined to action, did nothing.

Verdict: Excesses in both the mortgage market and on Wall Street that are associated with the liquidity crisis of 2008 could have been dampened and even perhaps prevented with effective regulation. This was another gatekeeper failure.

6.14.10 Fannie and Freddie

The key construction supporting home buying in our society today is the residential secondary mortgage market, and Fannie Mae and Freddie Mac are the contractors that we have most to thank. We owe the recapitalization of the primary mortgage market to their innovations and market operations. The worrying problem was that when these government sponsored enterprises were created a fundamental and lethal conflict of interest was planted deep within them. They were privately owned and therefore

ultimately beholden to their shareholders, yet they were entrusted with a sacred public policy mission: the support of homeownership, especially among low-, moderate-, and middle-income earners. The GSEs also benefited from an ambiguous association with the government. Because they had been created by Congress, the assumption in the market was that the government would stand behind their obligations. This gave the GSEs an advantage in raising capital. Eager to support the public mission of affordable housing and open to aggressive lobbying, the government favored the GSEs with thin capital requirements that allowed them to invest more of their capital than other financial institutions could. Armed with both a capital-raising advantage and a capital-investing advantage, the GSEs were able to dominate the market. By 2008, they had purchased more than 80% of all new mortgage originations in the country and had built a portfolio of \$5.4 trillion in mortgage-backed securities and outstanding debt.¹⁴ Since they were so heavily invested and so overleveraged, when defaults came, Fannie and Freddie were more exposed than other players and were quickly overrun. Realizing that Fannie and Freddie could no longer absorb their losses, that they could no longer support new business activity and fulfill their mission, the government took them over.

Verdict: We would not have the residential secondary mortgage market if not for Fannie and Freddie, and many of us would not have been able to buy our homes without them. But this is a case of a good thing grown out of control. The hunger for shareholder profits drove the GSEs to develop dangerous business practices that eventually created a mess with no one but the American taxpayers to tidy up. This isn't the whole story of the liquidity crisis of 2008, but it is a part of it: Fannie and Freddie's part.



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Former Fannie Mae CEO, Daniel Mudd (R), and former Freddie Mac CEO, Richard Syron, testify before the House Committee on Oversight and Government Reform's hearing titled 'The Role of Fannie Mae and Freddie Mac in the Financial Crisis' on Capitol Hill in Washington, DC.

6.14.11 Wall Street

In retrospect, if not upon earlier reflection, Wall Street unfettered seems a frightful force. We should have known better. Wall Street extravagance had a hand in the Great Depression, and much of the regulation that melted away in the years before the crisis of 2008 was put in place to keep economic havoc at that scale from ever happening again. Wall Street ingenuity was crucial to the development of mortgage-backed securities, and Wall Street ambition was crucial to popularizing these derivative investments. Deadliest of all was the irresponsible use of CDSs by large investment banks and insurance companies, especially AIG.¹⁵

Verdict: No question, Wall Street energy was the vital force behind overleveraging the world with bad debt. The error was compound when big Wall Street players failed to carry adequate reserves against foolish bets they had booked. The responsibility that they carry is hefty, but is it fair to park all responsibility for the crisis right on Wall Street? Perhaps there is still someone else to blame.

6.15 LESSONS LEARNED IF ILL-REMEMBERED

Now we roughly know what happened: Pent up demand for money to buy houses going all the way back to the 1940s motivated the government to create a market for mortgages to recapitalize lenders. Once created, the secondary mortgage market inspired a new lending business model of borrow, originate, sell, payoff, and repeat that swept away the old model of attract depositors, originate, keep, and attract new depositors. Mortgage-backed securities, initially with significant implied and actual government fortification, became popular investment options for large institutional investors and helped stimulate not only a great demand for mortgages but also a run-up in house prices. Freed from concern over default by selling their originations, mortgage lenders developed dangerous products, adopted dubious underwriting practices, and exploited questionable markets. Meanwhile demand for mortgage derivatives continued to swell, and more exotic products were introduced into the market. The institutional appetite for them seemed insatiable. Large investment entities began to hedge their mortgage derivative positions with insurance-like transactions that required no reserves. Speculation in this pseudoinsurance soon outpaced the considerable hedging volume. A spike in interest rates furlled the investment chain with alarming pace. Mortgage borrowers defaulted, home values fell, payments to bond holders were not made, MBB values plunged, claims were placed, capital vaporized, liquidity seized, and financial institutions, venerable, proud names, fell like dominoes.

We can identify the major players. So at whom should we be mad? Clearly many people had a hand in setting up the conditions that made us vulnerable. Some took advantage of these conditions to advance themselves regardless of the ruin to others. And some of those we trusted to police the gates closed their eyes and crossed their fingers as disaster, hardly disguised, passed over our borders. We began our journey into the liquidity crisis of 2008 with the assertion that there is something extraordinary about our American brand of capitalism, something that makes these wild and dangerous fluctuations not singular events but defining ones. It is time to try to identify this “something.”

What an extraordinary invention is our capitalism. By unleashing the vigor of human greed, capitalism has fashioned a staggering amount of progress and wealth. But capitalism can only direct greed; it cannot bridle it, and once unleashed, greed builds perilously upon itself. Consistent with

the liquidity crisis of 2008, the pattern seems to be like this: A new investment opportunity seizes the imagination of speculating capitalists. Prices are bid upward as more speculators are drawn to the opportunity. Increasing amounts of leverage, likely helped by a wave of deregulation, are cleverly applied to facilitate greater investment, and prices continue to climb. Optimism is seemingly confirmed, and prices continue to climb. The cautious find it more difficult to stay on the sidelines as they witness fortunes being made and join in, using lots of cleverly applied leverage pushing prices onward. Self-congratulatory smugness sets in as the speculators delude themselves that fundamentals have changed, that this will never end. But then it does end, suddenly and with little warning, and the other side of greed, fear, kicks in. Everyone wants out, but no one can get out, and all the fresh fortunes abruptly are gone. People are stunned. People are angry. People want their whys and hows and whos answered. And the government, significantly not the capitalists, is left to rescue what it can, clean up what it cannot, and reintroduce regulation to make sure that “it” will not happen again. And if this time “it” was sufficiently large, the crash will be followed by a recession, and misery will spread to many innocents.

Clinically called the business cycle, this is really a manic, psychological cycle. Greed excited by unfounded optimism lobs us up, and panic fueled by exaggerated fear flings us crashing down. The business–psychological cycle is shadowed by a cycle of regulation: The crash provokes the construction of regulatory defenses that are gradually dismantled as memory of the crash and its attending misery fade until safeguards are sufficiently breached to encourage a fresh generation of creative capitalist to fashion the next great speculative push, with its inevitable crash, which spawns great regulation that is eroded as memory fails, and so on. This cycle of regulation–deregulation, dependent upon a collective, decaying recall, may explain the duration of the business cycle.

So why do we put up with this? Why do we let the moneyed elite carry us on their speculative waves like so much driftwood crashing onto the beach? Because we believe in the promise of capitalism. That is the faith of America: Believe in the land of opportunity, rags to riches, the self-made millionaire. Believe in our symbols because believing in them is what it means to be American. We were raised to believe in them, and it is unpatriotic not to. Enrichment is the reward for our faith. We are entitled to enrichment because, as Americans, it is our birthright. That is the promise of capitalism. We may never be wealthy ourselves, but we must believe in the promise.

But if capitalism is incapable of self-regulation and previous crises are strongly suggestive, how do we protect ourselves from its excesses? A fundamental principle to remember is that those who benefit from the venture should bear the risk of its failure. In the parlance of business this is called having “skin in the game.” When you have skin in the game, when you are at significant risk for loss if the investment stumbles not just in line

for significant reward if it soars, risk reduction through careful and responsible management is one of your top priorities. But with no skin in the game, you have little motivation to manage the risk that others are exposed to. The investment principle seems almost trite: be wary of the advice of those who have nothing to lose if the advice proves poor. In the frenzy of speculative events, we forget this. During the run up to the liquidity crisis of 2008, both mortgage bankers who originated loans and investment bankers whose alchemy turned them into bonds were allowed to operate with no skin in the game. They were blissfully free of the significant risks they were creating and exposing their clients and customers to. Regulation that requires skin in the game dampens unfettered, dangerous behavior.

Here is a second principle. There is a grave need for effective gate-keeping in our financial and investment systems. As we have seen, gatekeepers can fail under pressure and in the face of conflicts of interest. Successful gatekeepers must truly be independent and disinterested third parties advocating for the accuracy of their judgments. In the long run, the only effective gatekeepers are those who are answerable for their imprudence and are sufficiently compensated to bear this considerable risk. We learned by examining the liquidity crisis of 2008 that much, perhaps all, of the misery could have been averted if the existing government regulation had not been emasculated. Perhaps we do not, but if we do want to avoid the recurrent calamity so clearly associated with American capitalism, we should remember that those who stand only to benefit from our exposure to risk cannot be trusted to protect us from it, we should remember the protection offered by truly disinterested and empowered gatekeepers, we should remember the role of government in dampening excess, we should remember that ultimately our own healthy skepticism is our best defense, and we should never forget the cost of our forgetting.

SUMMARY

In this chapter we learned about real estate markets. We learned that the pricing function combines with highest and best use not only to distribute sites to users but to allocate uses to sites. Over years of operating, these market assignments give us our urban, suburban, and even rural landscapes that we all call home. We encountered a powerful tool, the market equilibrium model, and used it to explain price movements, conditions of over- and under-supply, and price fluctuations. We also exercised the idea that real estate price is a function of space market and capital market conditions and to understand value, we must understand the forces at play in both markets. The Liquidity Crisis of 2008 is an important example of the interplay of these two markets and how when one becomes dysfunctional the other will suffer often creating a tragic double feedback loop that intensifies the market fluctuations that define the American economic experience.

DISCUSSION QUESTIONS

1. Why is the short-run real estate supply curve vertical?
2. What is highest and best use and how does it contribute to our urban environments?
3. What is situs? How does this concept relate to highest and best use?
4. How do events in the capital market impact prices paid by consumers of space?
5. Why are appraisers needed in information poor real estate markets and what function do they fulfill?
6. What is the secondary mortgage market and how does it operate to replenish capital in real estate mortgage markets?
7. What was the S&L Crisis and what caused it? What was its final resolution and what were the long-term impacts on the mortgage industry?
8. What are GSEs and what is their role in the residential secondary mortgage market?
9. In the last years of the 1990s, who applied pressure on the GSEs to adjust underwriting standards and why did they apply this pressure?
10. How did the adjusted underwriting standards contribute to the build-up of prices known as the real estate bubble?
11. What is the mortgage banker, secondary mortgage market business model? What market frictions does it help solve? What problems does it create?
12. What does the term investment grade mean?
13. Who is to blame for the 2008 Liquidity Crisis?
14. How does a credit default swap differ from insurance? How were they used as hedging tools in the CMO/CDO markets? How were they abused and what was the consequence of this abuse?
15. Considering the Great Depression, the S&L Crisis and the Liquidity Crisis of 2008, what would you suggest be done to dampen serious economic downturns?

GLOSSARY

Commercial mortgage: Backed security (CMBS): A derivative investment vehicle backed by a pool of commercial mortgages and structured in a fashion similar to the residential collateralized mortgage obligation (CMO) with differing risk/return classes, called tranches.

Derivative: An asset whose value is derived from the value of underlying assets that back it. Examples in real estate are mortgage-backed securities and REIT shares.

Disintermediation: The negative growth in the stock of funds deposited in short-term accounts within financial intermediaries like banks and thrifts that results when depositors withdraw their funds to invest directly in superior opportunities in the capital markets.

Economic fundamentals: The supply/demand conditions and property characteristics, including physical qualities, capital improvements and situs that create real estate value in the market for space.

Efficiency: A term to describe how quickly transaction prices within a market reflect relevant market information.

Equilibrium market price: That price where supply and demand are in balance and all available product will be cleared from the market.

Extraordinary returns: Those investment returns that are in excess of what the market expects given the non-diversifiable investment risks being taken.

Government sponsored enterprise (GSE): A private corporation created by an act of Congress to stimulate and maintain the residential secondary mortgage market. The term refers primarily to Fannie Mae and Freddie Mac.

Highest and best use: That most productive use to which a property can be physically and legally dedicated leading therefore to its maximum value. It is that use by which the market prices the property.

Maturity mismatch: The investment challenge typically faced by banks, thrifts and other depository financial institutions that arises when long-term investments are funded with short-term liabilities. The problem primarily occurs in periods of unanticipated inflation when income adjustments fail to keep up with the rising cost of borrowing.

Mortgage-backed security (MBS): A derivative asset whose value is supported by a pool of mortgages and whose cash flow is derived from the debt service received from the mortgage pool. MBSs can take several forms and may be backed by either residential or commercial mortgage pools.

Mortgage securitization: The process of creating mortgage-backed securities. See Mortgaged-backed security above.

Secondary mortgage market: The investment market for whole mortgages and for mortgage-backed securities as opposed to the primary mortgage market where mortgages are created between lenders and borrowers.

Situs: The unique locational profile of a real estate site including the quality of its exposure and accessibility to neighboring activities and infrastructure.

Subprime market: The popular name for that market serving residential mortgage borrowers who do not qualify for standard hence prime mortgages.

ENDNOTES

¹The entrepreneurial activity to investor activity link of figure 1.3 also represents an aspect of the real estate as capital asset market, but this is the market for passive capital. This distinction is discussed in Chapter 1.

²In retrospect, these aggressively behaving, insolvent thrifts became labeled zombies because, while they were effectively “dead,” they were allowed to continue to compete. Their aggressive behavior made it impossible for other thrifts to survive, turning them into zombies, and so on. The term *zombie* was resurrected during the liquidity crisis of 2008 to describe the growing numbers of insolvent banks.

³According to Curry and Shibut (2000), the cost was \$124 billion to American taxpayers and \$29 billion to the thrift industry.

⁴Several colorful terms were developed during this period to capture the lax underwriting practices of the day. *Ninja loans* were loans approved for applicants who had “no income, no job or assets.” *Liar’s loans* described the practice of allowing applicants to verify their own income and employment history.

⁵Assets that are given an investment grade are deemed suitable for regulated institutional investors. These ratings are AAA, AA, A, or BBB.

⁶The B piece is rated BB or below and not suitable for regulated institutional investors. It is sometimes called BIG, for below investment grade.

⁷Even CDOs can be used as collateral for a CDO. In this case, the new CDO is called a CDO squared.

⁸According to the Federal Reserve (2008) tables B.100, B.102, and B.103, at the beginning of 2008, the value of all mortgages owed by nonfarm, nonfinancial corporate businesses and by nonfarm, noncorporate businesses was \$3.5 trillion compared to a total value for all residential mortgages of \$10.5 trillion.

⁹Accounting reporting practice requires that the total assets of a banking institution must equal the total liabilities plus the total equity capital. When asset values fall, institutional capital must be adjusted downward to make the equation balance. When asset values fall so much that equity capital drops below zero, the institution is insolvent.

¹⁰According to “WaMu Seized” (2008), WaMu, with \$307 billion in assets, represented by far the largest banking sector failure in U.S. history, followed by the 1984 failure of Illinois National Bank with \$40 billion in assets and the July 2008 failure of IndyMac with \$32 billion in assets.

¹¹The connection between the commercial paper market and the 2008 liquidity crisis is entertainingly discussed in Chicago Public Radio (2008).

¹²Andrew Ang quoted in Chicago Public Radio (2008).

¹³Testimony before the House Oversight and Government Reform Committee, Wednesday, October 22, 2008.

¹⁴Statement of James B. Lockhart, director of the Federal Housing Finance Agency, September 7, 2008.

¹⁵In March 2009, as heralded by the popular press at that time, AIG reported an all-time U.S. record quarterly loss of \$61.7 billion for the last quarter of 2008, due mostly to incautious CDS transactions.

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