Real Estate Bubble

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Objectives

In the previous unit, we introduced the concept of greed and fear and how it leads to overpricing or underpricing of assets. Now we will let us have an in-depth understanding on how greed leads to a bubble and the overpricing of assets.

The Real Estate Bubble and Market Crash – Greed and Fear!!

Real Estate investments are considered as one of the best forms of alternative investments. An alternative investment has a low correlation with traditional investments like cash, bonds, and equities and hence helps to diversify risk. To put it in simple words, if one fine day, the stock market goes bust, the impact of it on real estate prices would be less. This was something that was actually observed in the US housing price index and practically the prices of the houses were rising steadily since the 1950s till the 2000s. The period after that (2000 to 2006) was characterized by a J-shaped increase in real estate prices. Investing in real estate was always considered a safe bet. Then why did the real estate prices plummet after 2007?

Back in 2000 to 2002, since the "dot com" bubble bust, the market nosedived 78% and the Nasdaq composite value fell from 5046.86 (its peak) to 1114.11(the bottom) during this period. The then Federal Reserve chairman Alan Greenspan had to lower the interest rates of lending to around 1% to keep the economy rolling and strong. This meant that the loans were given to the banks on the Wall Street at lower interest rates and adding to general surplus from Japan, Middle East, and China, there was an abundance of "cheap credit". This makes borrowing money for these Wall Street banks very easy, making them go crazy and cuckoo with – "Leverage."

If you are making a 10% profit on your own, with an investment of $100, you would earn $10 on your investment. *Leverage in simple terms is, borrowing money to do your business.* With leverage, having 100$ of your own, you borrow $10000 with that 1% interest rate. Then you make $1010 (10% profit) on your investment with leverage. After that, you return $100 (your interest payment) from $1010 profit and the $10000 (the borrowed amount) and earning $910 with leverage, on what you would have earned only $10 without leverage. So leverage turns your normal good deal into a better deal or a great deal if you have the right credibility. *But how does greed come into the picture in all this? And how does greed lead to a bubble?* This is where we begin our understanding of a recent bubble that the markets experienced a few years back- the Real Estate Bubble of 2008. Let us first identify the key market participants related to this bubble:

- Home Owners: Individual Investors who invest their savings in buying a house.
- The Brokers: Real Estate Brokers and Mortgage Brokers who earn commissions on every house they sell.
- The Lenders: Banks who provide mortgage loans to homeowners.
- The Bankers: Investment Bankers on Wall Street.
- The Investor: Institutional Investors who invest in complex financial products for returns.
- Credit Rating Agencies: Institutions that rate the quality of debt.

It may not seem apparent but all these market participants are closely connected. Here's how.

'The Investor' represents large institutions like the pension funds, mutual funds, endowment funds, insurance companies, sovereign funds, hedge funds etc. So basically they are people with sophisticated investment knowledge sitting on piles of money, waiting for an opportunity to invest and make – "more money". Traditionally they used to go to US Treasury to buy Treasury bonds and T-bills rated to be AAA by 'credit rating agencies' i.e. safest investment with timely monthly interest payments and high ability to repay. But in the wake of the dot-com bust in 2000, the interest rates being lowered from around 4-5% to just about more than 1% on these Treasury bills, the 'Investors' were not happy as a major portion of their portfolio were invested in these AAA rated T-bills and T-bonds. But on the flipside, this meant cheap credit for the banks. Since the investors were not that happy, the investment bankers on the Wall Street did not want to miss out on this opportunity and came up with an idea. That idea was called a CDO - Collateralized Debt Obligation. So, what is this CDO? We will need to understand a few more terms and the markets before we begin with CDOs.

Say a family wants a house, so the individual investors start to save for a down payment on that house. They contact a broker for the house. The brokers show them their future investments (various houses) and then contact a 'lender' (bank) who gives them a mortgage. The family then buys the house; the brokers earn a commission for selling the house and connecting them to mortgage lenders. The lenders are happy since they are selling loans to the family (house owners) which are backed by the ability of the individual investors to pay the loan and interest on it and if they default; they are in turn backed by mortgage value of house and this value has been rising practically forever in the housing market. Everything is working the way it should work until one day, the lender gets a call from an investment banker saying that, "I want to buy out all your mortgages".

So the lender, not missing out on this opportunity, packs all the mortgages and sells them to the investment banker for a 'fee'. The investment banker buys these mortgages and terms them as "mortgage-backed securities" and the process as "securitization". This means when there are monthly payments by these homeowners; the stream of income will now go to the investment banker instead of the lender. The lender has basically transferred all his risks of mortgages to the investment banker. The investment banker repackages all these mortgages in a new box and casts its financial magic spell on it. He names this box as CDO - Collateralized Debt Obligation. A CDO is now a new box of these same mortgages but in a different way such that the box is sliced into three different tranches – the safe tranche, the okay tranche and the risky tranche (A 'tranche' is a French name for a slice). The apparent beauty of this CDO is that when this stream of income (monthly instalments by homeowners in their mortgages consisting of interest and principal repayment) would fall in these cascading trays or tranches where the upper tranche would get filled first, and then the stream would spill into the middle tranche and then whatever remains would go to the bottom tranche. How would this help? Say some of the homeowners defaulted (3% defaults) on their monthly instalments, it means money would still get paid completely to the top and the middle tranche but the bottom tranche will not get filled completely. This doesn't mean that the bottom tranche would not get paid at all; all that is stopped is the cash flow of the money. Since the house is mortgaged as collateral, the investment bankers can sell them in the market to recover their money and continue doing business. But nobody wants to get into such liquidity issues and the investors are more interested in the cash flows or the stream of money. As a result, the top tranche is safe, the middle tranche is okay and the bottom tranche is considered as risky. To compensate for this there is a different rate of returns for these tranches like top tranche earns an investor only 3-4%, the middle 7% and the bottom around 10%. To make the top tranche even safer, the bankers insure it for a small fee called as a CDS – Credit Default Swaps and gets AAA rating for the top tranche from the credit rating agency. CDS is basically an instrument such that if the credit rating of the top tranche falls below AAA then the investment banks would make a payment for this credit drop. Such ratings are taken for all the tranches with middle tranche rated B and the lower tranche not being rated. These rated tranches are then sold to various institutional investors with various risk appetites, the top tranche being sold to investors who only want a safe investment. But here, these 'safe investments' (AAA rated) in top tranche of CDO, gives a return of 4% as opposed to traditional safe investments in the US Treasury bills (which are also AAA rated), which gave a return of 1%. The risk-averse investors prefer this CDOs top slice and redirect their money into such investments. This top tranche consisted of 70-80% of the CDO. Then there were takers for the other tranches like the investment bankers, who went on for the middle tranche themselves (around 20% of CDO) and the lower tranche (around 5% of CDO) was sold to hedge funds and other risk taking institutions.

The lenders were happy as they were selling off their mortgages to investment bankers for a fee. The investment bankers were happy as they were buying these mortgages using leverage from the Wall Street and selling these CDO slices to the investors for a fat fee which was being amplified by leverage. The investors were happy as they were earning a rate of return greater than traditional returns from similarly rated securities and all of them had found a way to make 'more safe money'.

So the investment banker calls up the lender for buying more mortgages, but the lender has no more mortgages to sell so he calls up the mortgage broker. The mortgage brokers say there are no more responsible homeowners who now qualify the credit standards for a loan on a property which are known as 'Prime mortgages'. But the lender wants to sell more mortgages to the investment bankers. So they all have another idea. They decide to relax the lending standards for the homeowners as they thought that these real estate prices considered to always increasing in value; were a safe bet and if the house owner defaulted, they would just sell their homes and recover the loaned amount. So they started adding risk to their mortgages and this ladies and gentleman is the turning point of our story.

This was fuelled by the cheap credit given by the federal government to these lenders (banks), so they started to pressurize the lenders to lend to low and medium income households. The lenders, now in search of new mortgages and lack of adequate government regulations, gave rise to 'predatory lending'. *Liar loans* - no vetting of applicant's information like proof of income and other credit history or personal documents. They ended up lending to NINJA borrowers – No income, No Job, No Assets borrowers, as well. There was a surge in demand for houses in 2000-2006 and the prices skyrocketed. To make the loans more attractive, borrowers were not even required to make any down payments and it was typical for lenders to lend with 'ARM- adjustable rate mortgage' such that for initial years, the rate of interest was as low as 1%-2%, known as 'teaser rates', which would then increase after a period of 3-5 years. This saw a material rise in mortgage origination as the previously rejected mortgage applications were now being considered and given the low initial interest rates, the borrowers were more inclined to borrow. This lending to such borrowers is called 'Sub-Prime Mortgages'.

Now, if we look at the CDO, it contains sub-prime mortgages also but still it was being rated as AAA. The credit rating agencies were unable to identify these risks that were now present in the CDO slices. But in reality, nobody cared to assess the risk properly. This is because once the lender originates the mortgage he sells it off to the next guy (investment banker) and now it's his risk. The investment banker sells it off further to the investor and the investor is just happy and blinded by greed with what he is earning now as opposed to what he would have earned with other AAA-rated securities. Everyone is just passing the risk and earning or chasing high returns.

As the teaser rate ended, and as expected the sub-prime mortgage owners defaulted, which, at this moment, was owned by the investment banker. This means that foreclosure of the mortgage is now turned into a 'house'. No big deal, he puts up the house for sale. But there are more such defaults by sub-prime borrowers and more of the investment banker's monthly payments of instalments are turned into 'houses'. This increases the supply of the houses in the market and now the banker realizes that the prices of the houses aren't rising anymore, they are beginning to decline, in fact, they are plummeting given no takers in the market because everyone (the homeowners) have either defaulted or are paying a mortgage. The demand ends.

This creates an interesting problem for homeowners who are still paying their instalments on mortgages. As all the houses in their neighbourhood are up for sale, the value of their own house goes down. So now these prime mortgage homeowners who are able to pay their mortgage with their income are beginning to realize that a house value worth $300,000 is now only $90,000 but they are still paying the mortgage on the $300,000 value of the house. So now even they decide to walk off and default on their loans. These are called 'strategic defaults'. Not all did this, but this was certainly observed. Such defaults were possible because many mortgages in the US are a non-recourse mortgage, i.e. a lender can only take possession of (have recourse to) the borrower's house but not to any of his other personal assets. Another feature of these mortgages was that the borrowers were also allowed to purchase an American style put option on the home, which allowed them to sell off their homes to the lender for the principal outstanding on the mortgage if the value of the home declined than the principal defined in the option contract. When prices plummeted, many such put options were also executed. Thus, for such borrowers, foreclosing was a simple economic feasible solution.

Default rates swept the entire country and now the investment banker is holding a CDO box full of worthless homes. *This CDO box of mortgages was bought on the leverage of billions of dollars from the Wall Street.* To top it, the banker has even sold Credit Default Swaps on the tranches whose credit rating is now declining. The investment banker is panicking over how he will make all the leverage payments as the safest AAA rated tranche has also defaulted and there is not even a dribble of cash flow from the homeowners. He tries to sell this box of CDO (now a box of houses) to the investors, but the investor is not stupid, he does not buy the CDOs anymore. But now, it's a bit late since the investors have already bought 1000s of CDOs, which are now worthless. The lender tries to sell his mortgage to the investment banker, but the investment banker does not buy any new mortgage and the lender has acquired all the risks. Well, the brokers, they are now completely out of work.

The financial system freezes and there is a *systemic collapse* of the investment banks which are now filing for bankruptcy or are being bailed out. *The bubble has burst*. Greed of all the market participants led to this bubble formation. The financial system had come to a standstill, the markets crashed, there was a systemic collapse, employees in these banks lost their jobs, there was no free cash flow, the house owners lost their savings in these houses as the prices have plummeted and this mayhem leads to a market crash. The market is now gripped by fear. This is how greed leads to a bubble and a bubble burst is followed by fear among investors to invest.

Let us solve a few quizzes to keep a check on our understanding.