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The Big Short

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In 2007, I was getting my MBA at Vanderbilt. During the spring semester, one of my classsmates who worked for Lousiana Pacific was growing concerned. Plywood sales were plummetimg and LP was shutting down their mills. New homebuilders that a month ago could not build homes fast enough were coming to a screeching halt. Housing starts plummetted 36%.

In the spring of 2008, I received my degree and our commencement speaker was a Howard Lutnick, a Wall Street investment banker who was CEO for Cantor Fitzgerald. Cantor's business was US Treasuries and corporate bonds. Howard had missed the planes crashing into the Towers on 9/11 because he went to his child's first day at school. He gave a touching commencement speech about working with the people you like and rebuilding Cantor after the disaster. Lutnick's analysis of the financial mess now in full swing was given as a simple question. "Who goes to a steakhouse and orders subprime steak?"

The story of why the real estate market tanked is a story of Wall Street greed, Bond Rating Agency dereliction, and AIG's complete failure to recognize risk. A few analysts on and off the street knew what was going on behind the curtain. One was Steve Eisman, who had already seen the underside of consumer finance in the nineties. Another was Dr. Michael Burry who understood how incentives could corrupt entire systems.

My paper tonight is based on the book "The Big Short: Inside the Doomsday Machine" by Michael Lewis.

A mortgage bond was different in an important way from the old-fashioned treasuries that Vandy's commencement speaker Howard Lutnick sold. A mortgage bond was not a single giant loan for an explicit term but a claim on the cash flows from a pool of thousands of individual home mortgages.

The problem for buyers of mortgage bonds was that borrowers refinanced when interest rates dropped. The early repayments left the owners of a mortgage bond holding a pile of cash for investment at lower rates.

To limit cashflow uncertainties due to early repayments, the creators of the mortgage bond market, came up with a clever solution. They took the mortgage bond and carved up the payments made by homeowners into pieces called tranches. The buyer of the first tranch was like the owner of the ground floor building in a flood. That floor would be first to be hit by mortgage repayments but would receive a higher interest rate. The buyer of the second tranch took the next wave of pre payments and in exchange received the second highest interest rate and so on. The top floor of the building received the lowest interest rate but had the greatest assurance that the investment would not end early.

In the beginning, the mortgage bond market contained individual home loans that carried government gaurantees by Fannie and Freddie that essentialy gauranteed the payment. The financial industry was now going to extend to credit to the less creditworthy without the gaurantees of the Federal Government. The logic for the tranches of early repayment was extended to include the possibility of no repayment at all. When mortgage defaults occurred the loss would hit the first floor or tranch until the investment was wiped out, then hit the the second tranch and so on.

This newly designed interface between high finance and lower middle class America was assumed good for lower middle class America. This new efficiency in the capital markets would allow lower middle class Americans to pay lower and lower interest rates on their debts.

In the 90's, financial companies such as The Money store and Greentree sold went public so that they could grow faster. Wall Street Analyst Steve Eisman studied how finance companies operated and devoted his career to understanding the effects of extending credit where the sun does not shine. One study was of a particularly sleazy finance company that specialized in sub prime mobile home loans. The company was disguising the defaults on loans as pre-payments by entering the cash received from the sale of the repossessed mobile home. As defaults continued, finance companies began doubling down, making more loans on even worse risks in order to appear profitable and justify their stock price.

At one point prior to the industry collapse, Steve Eisman noticing the large number of loan defaults occuring, went to the equity buyers within Morgan Stanly, and announced the eight finance companies that will go bankrupt. An abrupt sell reccomendation if there ever was one. Shortly therafter, the entire sub prime mortgage industry collapses confiming Eisman's prediction. The lenders had kept the mortgage loans they made and exposed themselves to the loan's default risk.

By 2002, Household Finance was the only public sub prime lending company left in America. Eisman wondered how Household finance could continue making loans after the internet bust at a pace faster than ever. A big source of HFC's growth was from a second mortgage they offered. Eisman closely studied their loan marketing material.

They described their second mortgage as a 7% loan but in reality, the effective interest rate was 12%. Household was peddling deceptive second mortgages all over the country. Numerous consumer complaints were made and eventually Household settles a class action suit for $484 million with various states attorney. It then sells itself for $15.5 billion to HSBC Group. Eisman realizes that there was an entire industry called consumer finance that exists to rip people off.

Sub prime lending in the 90's was $30 billion a year, in 2000 it was $130 billion with $55 billion repackaged as mortgage bonds and by 2005, there there was half a trillion dollars in sub prime mortgages backed by mortgage bond. Subprime lending was booming even as interest rates were rising, which made no sense at all. Even more disturbing was the loan terms were changing in ways the increased the likelihood of default. In 1996, 65% of subprime loans were fixed rate but by 2005, 75% of sub prime loans were offered with an initial low teaser rate fixed for two years that were set to adjust and explode.

The lesson that should have been learned by the sub prime industry in the 90's was "don't make loans to people that can't pay them", instead it became "You can keep on making bad loans, just don't keep them on your books". Finance companies were going to make loans, sell them off to big Wall Street investment banks to package the loans into bonds for sale to investors. By 2005, all, the Wall Steet investment banks Bear Stearns, Merrill Lynch, and Morgan Stanly were deep in the game.

Steve Eisman had gained a ground up understanding of the US housing market and Wall Street. He knew of the deceptive practices of the sub prime lenders from the 90s and was predisposed to suspect the worse of whatever Goldman Sachs might be doing with the debts of the lower middle class American. Eisman knew that when the loans went bad this time time around bondholders were going to be exposed to losses. On Wall Street, the fixed income world dwarfed the equity world. Major Wall Street investment banks were run by the bond departments not equity. Eisman had plans for making money shorting exposed companies through his hedgefund Frontpoint, but what he did not realize at the time was that the bond market had plans for him.

Dr. Mike Burry had a glass eye, Aspergers, and was a Cardiologist at St. Thomas Hospital in Nashville. In his spare time, he authored a value investing financial blog in the middle of the dot com bubble. He liked focusing on companies that had an "ick" factor. Wall Street recognized Mike as an authority because of his ability to see past the bad news of the day and find a silver lining. Mike eventually quit cardiology and to study neurology at Stanford. He dropped out of neurology to start a hedge fund out of San Jose, California called Scion.

In E-mails, Burry lays out his strategy for Scion investors. The US mortgage bond market was huge, bigger than the market for US treasury notes and bonds. The entire US economy was premised on the mortgage bonds stability and their stability depended on rising house prices. While Alan Greenspan assures us that home prices are not prone to bubbles or major defaults on any national scale. In the thirties, housing starts were 10% of the level of 1925, housing prices had collapsed roughly 80%, and half of the mortgage debt was in default.

Mike was going to make money for the investors of Scion by buying Credit Default swaps ahead of the next mortgage crisis. (Handout) A **credit default swap** (CDS) is a swap contract in which the protection buyer of the CDS makes a series of payments (often referred to as the CDS "fee" or "spread") to the protection seller and, in exchange, receives a payoff if a mortgage bond experiences a credit event.

Mike Burry became the opposite of an old-fashioned banker. Instead of looking for the best loans, he was looking for the worst ones. He was fishing for turds in an outhouse of subprime mortgage tranches. He searched through the triple b rated bonds that would be worth zero if the mortgage pool experienced a loss of 7%. He sorted by comparing the percentages of interest only loans contained in the underlying pool. He found one bond that was composed entirely of negative amortizing mortgages. Goldman Sachs not only sold him the Credit Default Swap but also sent him a note congratulating him as being the first person ever to buy insurance on that particular item.

By the end of July, 2005 Mike Burris' fund Scion owned $750 million dollars worth of Credit Default Swaps. He wondered what mad man would sell him so much insurance on bonds he had handpicked to explode. Goldman Sachs made it clear that it was just an intermediary.

In November 2005, the mortage bonds on which the Credit default swaps were linked had started to go bad. The Wall Street Journal had an article on the new wave of adjustable rate mortgages defaulting at never before seen levels. Mike thought the Wall Street Investment banks would have to stop selling insurance for houses on fire. Someone was set to lose a lot of money.

While Mike Burry believed the mortgage bond market was about to crash, not many others did. The supply of Credit Default Swaps had remained virtually unlimited thanks to AIG. What Wall Street intermediary Greg Lippman of Deutsch Bank needed was a way to convince other investors that they should of bet against subprime mortgage bonds by buying his pile of credit default swaps sourced from AIG.

A mathematical model could show how susceptible these tranches were to price changes in the housing market. Greg found the great Chinese Quant, Eugene Xu, who went off and did whatevever the second smartest man in China does, and returned with a chart illustrating default rates with home price up, flat and down. If home prices only rose 7%, the lowest investment grade bond, rated triple b minus went to zero.

Lippmann showed Steve Eisman the model of default rates. Steve saw that this as a way he could best short the finance industry he came to know and despise. A Credit Default swap for Eisman was like standing in a front of a Naked Supermodel. Greg Lippmann also realizes that he did not mind owning a pile of credit default swap for Deutsch Bank. They were a big gamble with a high probability of winning. Still despite the huge money to be made with Credit Default Swaps, it was a hard sell even within his own company. You had to pay in money over years to collect, and most folks on Wall Street wanted to just show up to get paid.

Burry had dived into CDS based on his insight into how the market might play out; Now Greg Lippman and Steve Eisman have quantitative proof and begin accumulating Credit Default Swaps from the rest of the street including Morgan Stanly.

AIG was the supplier of the Credit Default Swaps that Wall Street was selling. Joe Cassano was head of the division AIG FP that was providing the Credit Default

Swaps. Joe said yes every time some Wall Street Trader asked AIG to provide Credit Default Swaps on Credit Default Obligations.

Joe Cossano was being confronted by his own people with the fact that his company was long $50 billion in triple-B subprime mortgage bonds masquerading as triple A diversified pool of consumer loans. Cossano rationalized that home prices would not all fall at once, and hadn't S&P and Moodys rated this stuff triple-A? It was at his head trader's urging that Cassano meets with Wall Street Firms and discovers how a bunch of shakey loans could be translated into triple a rated bonds. AIG was shocked to learn how little thought or analysis seemed to underpin the subprime mortgage machine. It was simply a bet that home prices would never fall. Cassano decides to stop insuring any more deals but does nothing to hedge the ones he had already made.

Former St. Thomas cardiologist Burry had been the first investor to diagnose disorder in the American Financial System in early 2003. Complicated financial stuff had been dreamed up for the sole purpose of lending money to people who would never repay it. Now in February 2007 sub prime loans were defaulting in record numbers, which should have meant increasing Credit default swap values. Burry's $750 million in CDS should now be golden.

The problem was that the market makers Goldman Sachs, Bank of America, and Morgan Stanly were not connecting him with any buyers of Credit Default. The market makers themselves had been warehousing tranches and had not hedged their exposure. When Burry asked about buying more Credit Default Swaps, as another way to establish value, he was told there was none to be sold. The first half of 2007 was a very strange period in financial history. The facts on the ground in the housing market diverged further and further from the stated bond prices.

On June 14, 2007 something changed, a pair of subprime hedgefunds owned by Bear Stearns went bankrupt. In the ensuing two weeks, the publicly traded index of triple b rated subprime bonds fell by nearly 20%. On June 20, Goldman called to tell Burry they had system failure, Morgan Stanly said more or less the same thing. The salesperson of Bank of America claimed they "had a power outage". All of the Wall Street Traders had to mark their position against him and it was going to hurt. By June 29, 2007 they did, Burry receives a note from his Goldman salesperson asking if the marks were fair. Burry notes that was the first time they moved the marks accurately because Goldman was getting in on the trade themselves.

In early July, Morgan Stanly received its wake up call. It was from Greg Lippman at Deutsche Bank. Six months earlier Morgan Stanly had sold Lippman $4 billion dollars in Credit Default Swaps that now had moved to DB's favor. Could, uh, Morgan Stanly please wire DB $1.2 billion by the end of the day? Or as Lippman actually put it," Dude you owe us 1.2 Billion!"

The Triple A bonds that were warehoused inside Wall Street Firms were assumed to be risk less, but On December 19, 2007, Morgan Stanly held a call for investors; they wanted to explain a trading loss of $9.2 billion dollars. By September 2008, the big picture was bleak, Lehman had filed for bankruptcy, and Merrill Lynch, having announced $55.2 billion in losses on subprime bond-backed by CDO, had sold itself to Bank of America and the US stock market had fallen by more than it had since after the attack on the World Trade Center.

To help stop the freefall the US Government lent $85 billion to the insurance company AIG to cover the sub prime Credit Default Swaps AIG had sold to Wall Street banks. The largest CDS was $14 billion AIG owed was to Goldman Sachs. Goldman had effectively transferred over billions in subprime mortgage risk that was now covered by the U.S. Taxpayer.

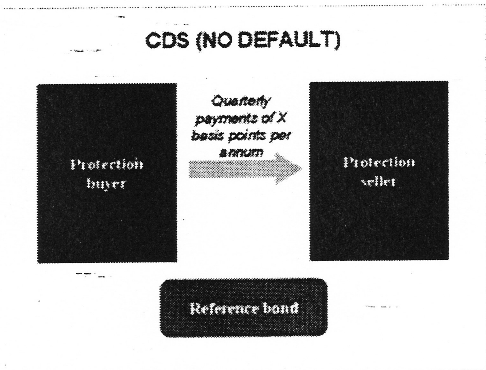
Mike Burry had made his hedgefund investors in Scion $750 million from the collapse of the sub-prime market using Credit Default Swaps. Now his problem, if you can call that, was where was it safe to put the money.

Eisman's hedgefund Frontpoint had done just as well too but ironically the hedgefund he operated was owned by Morgan Stanly who was about to go bankrupt. Eisman had been so vocal about the impending doom in the sub prime market that before the crash he had told all kinds of people. After the crash and during his colonoscopy he heard the doctor say," Hey heres the guy that predicted the crises! Come on in and listen to this, and in the middle of Eismans colonoscopy a roomful of doctors and nurse retold the story of Eisman's genius.

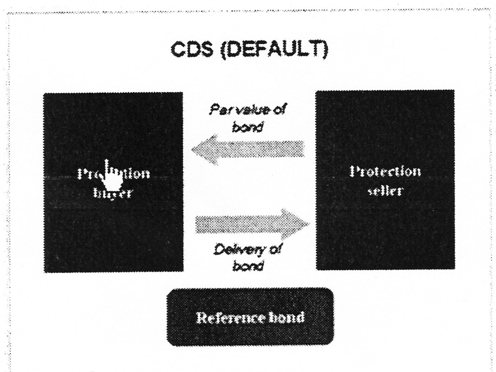
In early October 2008, the US government had stepped in with TARP money to say it would in effect absorb all the losses in the financial system and prevent big Wall Street banks from failing.

Today the real estate market is still in a funk despite ill-advised incentives and the plywood mills remain shutdown. Our 401Ks are now 201Ks. Had the Free Markets failed? Did people that could not afford mortgage that take down our financial system? I believe in the end it was sleazy financial institutions, Wall Street greed, Bond rating agencies ineptness and AIG's failure to assess risk.

The Big Short
Credit Default Swap Handout



If the reference bond performs without default, the protection buyer pays quarterly payments to the seller until maturity



If the reference bond defaults, the protection seller pays par value of the bond to the buyer, and the buyer physically delivers the bond to the seller