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Housing, Exports, and North Carolina's Economy

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Introduction

From 2000 to 2006, the average value of a home in the United States rose by 89 percent.[1] During this period, the overall economy grew by 16.4 percent.[2] Yet the prosperity of the time was not shared evenly across the country. In particular, manufacturing-heavy states continued to see erosion in jobs. Textiles, one of the mainstays of the North Carolina economy, shed 63 percent of jobs nationwide and 70 percent of jobs in the state during that period.[3]

In 2007 and 2008, the housing boom began to lose steam. By June 2008, the median home price had fallen more than 18 percent from its peak and homeowner equity had fallen to the lowest point since 1945. Yet at the same time, U.S. export growth accelerated.

The opposing fates of the housing markets and exporting industries are not a coincidence. Finance and international trade are linked through the exchange rate markets. This article will explain how the housing bubble began, how the bubble affected U.S. exporting industries, and how the collapse of the bubble will affect North Carolina.

Origins of the Housing Bubble

The roots of the housing bubble lie in the aftermath of the dot-com bubble. During the late 1990s, investment in information technology accelerated at an unprecedented pace. Stock market valuations of companies tied to information technology were far larger than those for traditional companies with equal profits and growth rates. By the year 2000, however, both stock market valuations and investment in information technology began to revert to levels common to most industries.

Economists at the U.S. Federal Reserve (the Fed) feared that the collapse of the dot-com economy might lead to a recession in the United States. The Federal Reserve is the agency charged with regulating the banking sector and, indirectly, the U.S. economy. Among the Fed's powers is the ability to determine the interest rate that banks charge each other for overnight loans, known as the *fed funds rate*.

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1. Case-Shiller Index, *available at* www2.standardandpoors.com/portal/site/sp/en/us/page.topic/indices_csmahp/0,0,0,0,0,0,0,0,0,0,1,3,0,0,0,0,0.html (last visited July 9, 2008).

2. Federal Reserve GDP data, *available at* research.stlouisfed.org/fred2/data/GDPCA.txt (last visited July 9, 2008).

3. BLS Employment Data, *available at* www.bls.gov/oes/oes_dl.htm (last visited July 9, 2008).

Changes in the fed funds rate are immediately reflected in the prime rate, which serves as the basis for the rates charged on many business and consumer loans. Thus the Fed indirectly influences the interest rates charged on everything from student loans to mortgages to department store credit cards.

Beginning in January of 2001, the Federal Reserve lowered the fed funds rate from 6.5 percent to a low of 1 percent in June of 2003. The decrease in the fed funds rate led in turn to a decrease in mortgage rates. Average U.S. mortgage rates fell from roughly 8.5 percent in 2001 to 5.5 percent in 2003. This decline in interest rates increased the affordability of housing and sparked the U.S. housing boom.

If the story had ended there, the Federal Reserve's actions would have worked largely as intended. The Federal Reserve responded to a weakening economy by stimulating the market for housing and promoting job growth. However, two—at the time largely unnoticed—trends began to interact with low mortgage rates to produce an effect many times greater than what the Fed had anticipated. The first trend was a change in the way mortgages were financed, which reduced the role of banks and increased the role of brokerages, hedge funds, and the financial markets in general. The second trend was a rapid accumulation of U.S. dollars by foreign governments, individuals, and financial institutions that largely frustrated the Federal Reserve's attempts to raise interest rates after 2004.

The Traditional System of Mortgages

Before the 1960s, most home loans were originated and held by banks and thrifts, also known as savings and loans. A person wishing to purchase a home would walk into the local bank or savings and loan and fill out an application. If the application was approved, the bank would use money that had been deposited into savings accounts at the bank to fund the loan.

This process was simple but somewhat risky for banks, because mortgages are long-term but savings accounts are short-term. If interest rates rose too quickly, banks would be forced to pay out more interest on savings accounts than they took in from their portfolios of mortgages, which could cause a bank failure.

To help with this problem, the federal government created the Federal National Mortgage Association (FNMA), also known as Fannie Mae, in the 1930s. However, as a government agency, Fannie Mae handled a relatively small fraction of the total market. In 1968 Fannie Mae was spun off into a private corporation, and a private competitor, the Federal Home Loan Mortgage Corporation, or Freddie Mac, was created. In an effort to generate revenue to fund their own operations and produce a profit for their shareholders, these two organizations began to securitize mortgages.

To securitize a mortgage, Fannie Mae or Freddie Mac purchased a block of mortgages from a bank. This means that the organization paid the bank a sum of money and in return the bank agreed to send it future mortgage payments. Fannie Mae or Freddie Mac then created and sold a bond that was backed by the revenue from these mortgages, in the same way that a municipal government might create and sell a bond that was backed by the revenue from its water and sewer fees. In essence, the mortgage that the original bank loaned out had been turned into a bond. Because a bond is a type of financial security, this process is called securitization. Fannie Mae or Freddie Mac is the securitizer, and the original bank is the originator. This process reduced the risk that individual banks faced: banks did not have to be as concerned about the credit risk of borrowers, because mortgages were passed on to Fannie Mae or Freddie Mac and then on to a bond investor.

Fannie Mae and Freddie Mac tried to protect themselves and the eventual bond holders by creating standards that a mortgage had to meet in order to be securitized. The mortgage had to be less than a certain amount, there had to be at least a 20 percent down payment, the borrower had to provide proof that he or she could afford the loan payment, and the borrower had to meet certain credit criteria. If all of these conditions were met, the loan was said to be conforming and the borrower received a relatively low interest rate.

Loans that were too big to be conforming were called jumbo loans. Loans that did not meet the 20 percent down payment or affordability criteria were deemed Alternative A, or Alt-A, loans. Loans where the borrower's credit did not meet Fannie Mae and Freddie Macs standards were called subprime. Because these loans could not be securitized with Fannie Mae or Freddie Mac, they faced a higher interest rate and were more difficult to come by than conforming loans.

Wall Street Gets into the Mortgage Securitization Business

Securitizing mortgages was profitable, but it entailed some risk. For decades, most Wall Street financial firms were unwilling to compete against Fannie Mae and Freddie Mac in the securitization market. In the mid-1990s, however, investment banks developed strategies to mitigate risk. They used two principle strategies to reduce risk: mixing borrower characteristics and tranching.

Historically, most mortgage borrowers went into default because of events largely beyond their control. Illness, death, natural disaster, or job loss were the principle causes of default. In addition, borrowers rarely went into default if the values of their homes were rising; if the value of a home increases, the borrower can sell it to pay off the mortgage and still have something left over.

Thus it was flat or falling home prices combined with unfortunate life events that led to foreclosures. Investment banks looked to history and realized that if they grouped borrowers who had vastly different jobs, it was unlikely that many of them would be facing layoffs at the same time. They also noticed that if they grouped borrowers who lived in different areas of the country, it was much less likely that housing prices would be falling in all of those areas at the same time.

The investment banks created complex computer models to analyze dozens of factors such as job type and location to determine a mix of borrowers who were very unlikely to default all at the same time. The banks then created bonds, known as Collateralized Debt Obligations (CDOs), that contained exactly the right mix of borrowers. The bonds were broken into parts, or tranches, ranked from highest to lowest. Each tranche was sold to a different set of investors. As the borrowers paid their mortgages each month, money would be paid to the highest ranked tranche first. Only after all of those investors were paid would the second tranche begin to receive money. The process continued all the way down to the last tranche, which would receive money only if all of the mortgages were paid.

Because the higher tranches were safer, they carried lower interest rates. Likewise, the lower tranches carried higher interest rates. Whether or not the lower tranches actually received their scheduled interest rate payments depended on whether or not the mortgages were paid. In this way, investment banks could shift risk toward investors who had a higher risk tolerance.

In theory, high-rated tranches were completely safe. The computer models had determined that the probability of all the borrowers defaulting was almost zero. As long as some of the borrowers could make their payments, the highest-rated tranches would be paid. The creation of these tranched bonds meant that even very risky mortgages could be turned into very safe CDOs.

At first, interest in CDOs was limited. During the late 1990s, the interest rate even on safe bonds was too high to give much profit to investment banks. In 2001, however, when the Fed began to lower interest rates, the creation of CDOs increased dramatically. Lower interest rates

meant that the higher tranches of a CDO could pay a very small amount of money. This left more money for the lower tranches. At the height of the housing boom, CDOs were being created where the upper tranches paid roughly 4 percent, but the lower tranches paid as high as 25 to 30 percent interest per year.

High-risk investors snapped up those tranches, and the mortgage market reached a frenzy. Mortgages could be securitized and sold off to investors so quickly that banks were running out of borrowers. Standards for loans began to decline. In particular, subprime loans were approved at unprecedented rates.

High rates of approval meant there were more potential homebuyers than ever before. In areas like much of North Carolina, where housing developments could be created relatively quickly and cheaply, the number of new homes expanded rapidly. In other parts of the country, including California and South Florida, where legal, environmental, and geographic constraints limited home construction, the quantity of homes could not increase as rapidly. In response to surging demand and constrained supply, home prices in those areas skyrocketed. Thus the housing bubble was created.

Mortgages and the Dollar

By the summer of 2005, the Fed had become concerned about the effects of low interest rates. The Federal Reserve began to raise the fed funds rate steadily throughout 2004, 2005, and the beginning of 2006. However, these increases in the fed funds rate had little impact on the mortgage market or mortgage securitization. Alan Greenspan, then chairman of the Federal Reserve, famously referred to this lack of impact as a "conundrum." It is now known that another force had begun to take over.

In the late 1990s, the economies of South Central Asia went through an extreme currency crisis. Many of those countries had established foreign exchange rate pegs with the dollar. A *peg* is a promise by the central bank of a nation to exchange the local currency for some other currency—in this case dollars—at a fixed rate.

A peg allows financiers to invest in a developing country without fear that they will not be able to change their money back into a well accepted currency. In the late 1990s, certain currency speculators realized that developing countries in South Central Asia did not have enough dollars to back up their pegs. The speculators began to borrow billions in the local currency and then demand that the central bank exchange it for dollars.

At first the central banks tried to keep up, but one by one they were forced to admit that they had run out of dollars. This caused the local currencies to crash, and the speculators were able to repay their loans at a huge profit.[4]

In order to protect themselves from another currency crisis, central banks began to hold more and more dollars. This in turn increased the international demand for dollars, and the dollar rose in value. As the dollar became stronger, Americans could afford to buy more foreign-made goods. Imports into the United States from these developing countries—China in particular—began to grow.

The central banks of the developing countries learned that their policies were not only good for protecting against a currency crisis but also seemed to be effective in supporting an export boom

4. Because the local currency crashed it was worth less, and so it took fewer dollars to repay the original loan than the speculators had demanded from the central bank. This difference resulted in speculator profit.

and general economic growth. As a result, many of these countries allowed their dollar reserves to grow far larger than the amount needed to protect them from a currency crisis. In fact, by 2008 China had accumulated nearly $1 trillion worth of dollar reserves.

A trillion dollars cannot be put into a simple savings account, and it is neither safe nor prudent to keep a trillion dollars in cash. Therefore the Chinese government invested the money. They wanted a safe place to keep their dollars, and two of the safest places they could find were U.S. government bonds and U.S. mortgage–backed bonds.

As foreign governments, including China, began to purchase these bonds in record numbers, the market price of the U.S. government and U.S. mortgage bonds was driven higher. Interest rates move in the opposite direction of bond prices. Therefore, even though the Fed was driving the fed funds rate up, foreign governments were driving bond rates, and consequently mortgage rates, down. In short, low mortgage rates were being financed by dollar accumulations by foreign central banks, which in turn raised the value of the dollar and led to a third effect: a rapid increase in imports.

U.S. Imports/Exports and Manufacturing Employment

During both recessions and economic booms, the manufacturing and construction sectors tend to see the largest shifts in employment. The typical pattern for manufacturing job growth is that it falls rapidly during a recession and then rises rapidly afterwards. Economists refer to this as a V-shaped response. Following the recession of 2001, the manufacturing sector exhibited what could at best be described as an L-shaped response. That is, employment in manufacturing fell during the recession and stayed low even after the economy had technically begun to boom.

During the 2002–2007 period of growth, Americans increased their purchases of manufactured goods just as they do during most periods of growth. However, American manufacturers were not hiring more workers, due in part to increases in technology that allowed them to create more products with fewer workers. Technological advancement has been a steady feature in manufacturing since the industrial revolution. What was different this time, though, was a rapid increase in the U.S. trade deficit. The trade deficit is the difference between the value of goods and services that are imported and the value of goods and services that are exported. It can increase either because imports are rising or because exports are falling.

From 2002 to 2007, U.S. export growth accelerated but imports accelerated even further. This very rapid rise in imports led to a widening of the trade deficit, which allowed U.S. consumers to purchase more manufactured goods even while manufacturing employment fell.

It is natural to look to trade policy as the source of fluctuations in the trade deficits. The role and effects of trade policy in general are beyond the scope of this article. However, from 2000 to 2006, a dominant, if not *the* dominant, factor affecting the balance of trade was not policy inside the United States but the rapid accumulation of dollars outside the United States.

When foreign governments and central banks accumulate dollars, they increase the total international demand for dollars. If the U.S. government does not print more dollars, then the "price" of dollars will rise. In international terms, the price of a dollar is the exchange rate. Therefore, when the Chinese government accumulates dollars, it causes the exchange rate of dollars to yuan, the Chinese currency, to rise.

When a dollar can be exchanged for more yuan, the dollar is becoming stronger. A strong dollar means that foreign goods are relatively less expensive. This, in turn, leads to Americans purchasing more foreign goods. The accumulation of dollars by foreign governments led to an increase in the strength of the dollar, which in turn led to an increase in imports and thus an

increase in the trade deficit. Therefore, the two major economic trends of the 2002–2007 period—low interest rates and a continual erosion of manufacturing employment—were linked. And both were exacerbated, if not caused, by foreign accumulation of dollars.

Different States, Different Outcomes

Lower interest rates and lower manufacturing employment had drastically different effects on state-level economies. In states such as Ohio that were heavily manufacturing dependent but slow in population growth, the effect was a sluggish statewide economy. In states such as Florida that had very little manufacturing employment but rapid population growth, the effect was a boom in the statewide economy. Lower interest rates due to the factors described above contributed to the ease of obtaining a home mortgage, which in turn meant that more new homes could be built and sold.

North Carolina is more manufacturing dependent than most states, but it is also growing more rapidly. In addition, North Carolina saw job growth in the financial and technological sectors during that 2002–2007 period. These factors combined to generate positive job growth in the state in general and very rapid growth in the Triangle and Charlotte-Mecklenburg areas. The ease of home mortgage lending also led to rapid increases in property values in some coastal and mountain communities that are popular retirement and vacation destinations.

Immediate Forecasts

Since the summer of 2007, there has been an unwinding of the basic forces that were driving the housing and import booms. The complex forms of mortgage securitization discussed above failed to live up to their promises. Investment banks and other Wall Street firms suffered massive losses as the mortgage securities they owned fell in value. In response, the Federal Reserve began to drastically lower the fed funds rate, but foreign interest in the dollar declined. Currently, many foreign governments are still attempting to accumulate dollars, but so many private investors are getting rid of dollars that the net effect is a decline in the demand for the dollar.

The decline in the international demand for dollars and the failure of mortgage securitization have prevented mortgage rates from falling in spite of reductions in the fed funds rate. The decreased demand for dollars is leading to fewer bond purchases, a decrease in the price of bonds, and a corresponding rise in interest rates. The decline in the demand for dollars has also caused the dollar to weaken in value, which has led to a slowdown in the growth rate of imports and a decline in the trade deficit.

At this point there are two strong effects pushing the U.S. economy in opposite directions, and it is difficult to determine which effect will win out. On the one hand, the collapse of mortgage financing is causing the construction industry to contract. Most U.S. recessions begin in construction in general and in home building in particular. Slow construction spending leads to layoffs, which leads to lower spending in the rest of the economy. To the extent that this pattern holds, the unprecedented collapse in housing could be expected to lead to a very long, deep recession in the near future.

On the other hand, U.S. recessions historically hit their peak when manufacturing firms are forced to lay off workers. The falling dollar will increase demand for U.S. manufacturing goods abroad and make it more difficult for foreigners to compete here. This effect would tend to create a slowdown that is short and shallow, rather than a full-blown recession.

The most current data predict that the U.S. economy will experience something in between the two scenarios described above: a long, shallow recession. That is, unemployment will not rise to the highs that it did during the 1980s, but the slowdown could go on for eighteen months or more. This would mean that the U.S. economy would not start to recover until sometime in 2009 at the earliest. As a consequence, North Carolina governments will likely continue to experience revenues that fall short of trends. If the slowdown does last eighteen months, revenue would not begin to recover until 2009–2010.

The effects of the slowdown will likely be concentrated in service-heavy local economies, such as recreation and hospitality on the coast, technology in the Triangle, and financial services in Charlotte. Traditional manufacturing towns, as well as the Piedmont Triad, should be less affected by the slowdown. Indeed, some manufacturing-heavy towns could even see an upward trend. In addition, agricultural prices will likely continue to increase as the dollar falls and foreign demand increases, and towns heavily dependent on agriculture should weather this slowdown relatively well.

Conclusion

The economic slowdown will leave North Carolina poised for extremely rapid growth when the economy recovers. The overall economy is unlikely to recover until mortgage rates ease substantially, and North Carolina real estate prices are still quite low by national standards. Thus North Carolina housing and office space will be very attractive to workers and employers.

The biggest wild card facing North Carolina's growth over the next five to ten years is the price oil. Oil will be discussed in a future *Economics Bulletin*.

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