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Real Estate Research @ Penn State: Issue #2

Welcome to the second issue of Real Estate Research @ Penn State, a publication of the Institute for Real Estate Studies in the Smeal College of Business. As the focal point for Penn State's "Research with Impact" in the real estate industry, the Institute publishes this periodic Report to highlight recent scholarship sponsored by the Institute.

This issue features research on the home building industry, an industry integral to the U.S. economic health and at the center of the recent financial crisis. At the peak of the recent housing cycle, the home building industry accounted for over 3% of GDP and the health of the home building industry is often a leading indicator of future economic activity. Recognizing the importance of the home building industry to the economy, IRES Director Brent Ambrose and National Association of Home Builders Chief Economist David Crowe engaged in a debate on the implications of the housing and financial crisis on the homebuilding industry at the February 2009 symposium "Housing After the Fall: Reassessing the Future of the American Dream" sponsored by the University of California-Irvine, the MacArthur Foundation, and the Rockefeller Foundation. In this issue of Real Estate Research @ Penn State, we present an updated version of our conference debate on the "Future of the Homebuilding Industry."

I hope that you find these articles interesting and intellectually stimulating.

Brent W. Ambrose, Ph.D.
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The Homebuilding Industry: How Did We Get Here?

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Traditionally, the U.S. homebuilding industry consisted of many small, localized firms that were dependent upon local and regional banks for financing. Prior to World War II, single-family homebuilding was the province of small firms that produced homes on contract for lot owners. At that time, demand for single-family homes was limited by the lack of affordable financing. However, changes to the U.S. residential financing system during the Great Depression, as well as the pent-up demand for housing created during World War II, altered the landscape for the homebuilding industry.

After World War II, home builders expanded operations to meet the pent-up demand for housing. The most successful of the pre-war small builders rapidly increased their size and output. As these firms grew, they assumed the functions of traditional land developers and home builders. In the process, they become known as ``Merchant Builders."

The merchant builders brought economies of scale to the homebuilding process, enabling them to dominate production in the lower- and mid-priced market segment. For example, Eichler (1982) reports that between 1950 and 1960 large builders maintained a constant cost per square foot while wages rates doubled. In the face of these economies of scale, smaller home builders retreated to the higher-priced custom market.

The late 1960s and 1970s saw the movement of the largest merchant builders to public company status. For these firms, tapping the public capital markets opened new sources of equity and debt financing. As a result of these movements, the homebuilding industry essentially broke into three segments: large public home builders, smaller but still large private home builders, and very small home builders. For the most part, the large-scale private and public home builders operate as merchant builders -- buying land, developing lots (or subdivisions), and building homes. To illustrate how the largest home builders altered their production model, Figure 1 shows the number of homes delivered each year (level) and the ratio of the homes delivered to the number of building lots owned or controlled (percentage) for the large, public home builders tracked by SNL RealEstate. Figure 1 reveals that between 2000 and 2005, the largest builders steadily increased their housing production from approximately 163,000 units to almost 347,000 units.

However, at the same time, these same builders began acquiring massive land positions such that the ratio of homes delivered to lots in inventory steadily declined. For example, in 2000 the 163,000 units delivered represented 29% of their buildable lots. By 2005, these builders had more than doubled production to 347,000 units, yet this production level represented only 14.5% of

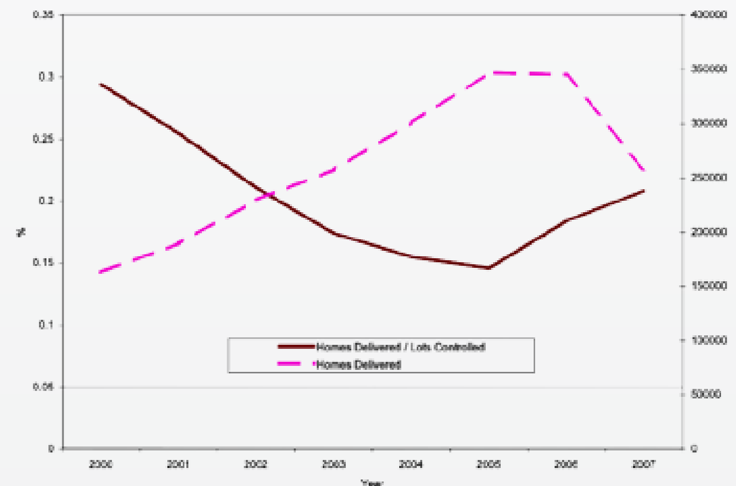

Figure 1: Large Public Home Builder Production

their building lots. Thus, it is clear that the largest, public builders engaged in a systematic land banking program between 2000 and 2005 to feed their production machine. At the other end of the spectrum, the small home builders operate in the traditional way -- acquiring developed lots and constructing houses.

Since the 1950s, the U.S. economy has encountered numerous periods of financial expansions and contractions. As a leading consumer good, housing is not immune to the effects of these economic cycles. Furthermore, the effect of cyclical contractions in the economy does not fall uniformly across all home builders. For example, Ambrose and Peek (2008) document that larger, public home builders are able to utilize their access to financing via the public capital market to take market share from the smaller, private home builders that rely on bank credit. As a result, during periods of financial dislocations, such as the current financial crisis, it is expected that the home builders will suffer, with the largest builders contracting operations while the smallest builders, who are shut off from capital completely, will disappear.

What is interesting about the current financial crisis is that it was caused by a housing bubble that spread to the broader capital markets. As a result, it is not clear that the relationship between the change in builder market shares and bank health identified by Ambrose and Peek (2008) for previous recessions will carry over to the current financial crisis. Thus, the purpose of this article is to examine the homebuilding industry in light of the current financial crisis and to offer some insights into the future of the housing industry.

Financing for Small Home Builders: Local Bank Credit

The traditional small, localized home builder depends upon local or regional banks for financing. Bank financing provides the working capital necessary to purchase building lots and pay suppliers and subcontractors. As Ambrose and Peek (2008) point out, the reliance on bank credit has both advantages and disadvantages.

Banks specialize in the collection and processing of information; they help reduce the asymmetric information problem inherent between lenders (investors) and borrowers. This specialization in information processing leads to the development of lending

relationships with small and mid-size firms. As a result, smaller firms tend to rely more on bank lending for financing than larger firms that have direct access to investors through the capital markets.

However, bank financing comes at a cost. One of the disadvantages of relationship lending for small home builders is that they may become ``bank dependent." That is, they can become locked-in to their current bank and find it difficult to replace existing credit due to the difficulty in establishing new banking relationships. Furthermore, the dependence of small firms on local banks creates credit risk when adverse shocks occur to the banking system.

Unfortunately, the reliance on local banks for financing makes many builders susceptible to periodic credit contractions. More often than not, these periods of bank credit crunches coincide with general economic slowdowns that erode demand for new housing units, exacerbating the problems faced by the smaller builders.

A growing body of evidence now shows that a reduction in bank lending during a credit crisis can have serious effects on the real estate sector. The evidence from these studies suggests that bank lending to small builders will decline significantly during the current recession.

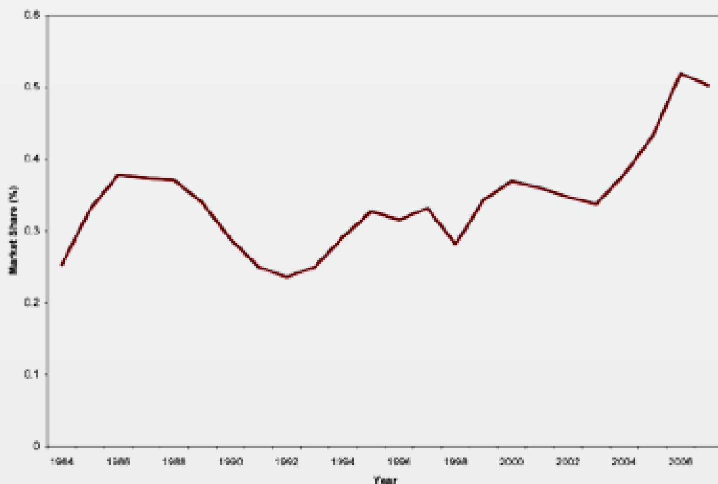

Figure 2: Large Home Builder Market Share

Financing for Large Home Builders: Capital Markets

As evident in Figure 2, large (public and private) home builders dramatically increased their overall share of the homebuilding market during the 2004-2006 bubble. Figure 2 shows the market shares of the 100 largest (public and private) home builders, where market share is defined as the total number of single-family completions per year divided by the yearly building permits. By 2005, the largest home builders accounted for over 50% of U.S. home production. It is a remarkable feat that a traditionally highly localized industry with low barriers to entry came to be dominated by a relatively small number of firms. For example, the homebuilding industry currently comprises approximately 180,000 firms, yet the 100 largest firms account for 50% of production.

Ambrose and Peek (2008) argue that one of the reasons spurring large, public home builder growth is their access to capital via the public capital markets. During the housing bubble years (2002 to 2005), the public home builders financed their production and growth in market share primarily through the issuance of debt. Then, in 2006 as the housing market began to implode and the credit markets began to freeze, home builders turned to equity offerings to finance their activities. However, even in 2008 during the worst market for credit since the Great Depression, the largest public home builders continued to issue new debt and equity. Thus, at a time when bank lending to small builders has all but disappeared, the large, public builders continue to have access to capital.

The reliance on public capital markets during the current credit crunch is consistent with public builder actions during previous downturns. For example, Ambrose and Peek (2008) report that following the 1990/1991 recession and bank capital crunch, ``public home builders were able to raise equity capital totaling over 1% of their current market capitalization and public debt totaling over 2% of market capitalization. Since these totals exclude funds raised to purchase other home builders (merger and acquisition activity), the funds represent working capital that could be used for land acquisition and development activities."

To demonstrate the effect of access to capital for public home builders on the industry, Figure 3 segments the market shares reported in Figure 2 into large, public builders and large, private builders. The two series reveal that from the late 1980s through the recent housing bubble, the public home builders gained market share at the expense of private home builders. As Ambrose and Peek (2008) pointed out, ``the most striking feature of the private market share series is the sustained decline from 1988 to 1993 that coincides with the period of widespread bank failures experienced in the United States, often referred to as the bank capital crunch period, when many banks were forced to reduce their lending in order to raise their capital ratios." Over this same period, the public home builders dramatically increased their market share, presumably at the expense of the credit constrained private builders. In the next section, I turn to the 2006-2007 period and explore the impact of the current financial crisis.

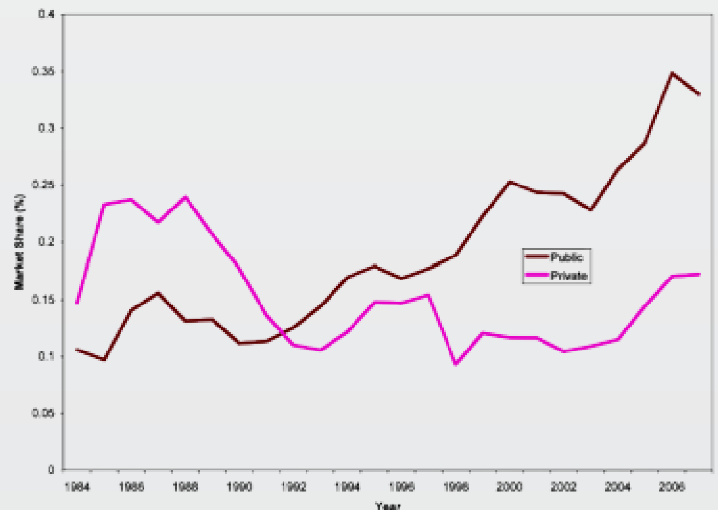

Figure 3: Large and Private Home Builder Market Shares

The Current Financial Crisis

With the benefit of 20/20 hindsight, it is clear that the current financial crisis began with an exceptional bubble in the U.S.

housing market. From 2000 to 2005, the average U.S. housing market experienced over 5% annual appreciation rates. Even more dramatically, many areas in California, Florida, Nevada, Arizona, and cities in the Northeastern parts of the U.S. experienced growth rates over 20% per year.

Following the peak in home prices, housing starts and sales declined significantly as buyers fled the market. It is interesting to compare the differences in housing production between the 1990/1991 recession and the current crisis. During the previous recession, housing starts and sales declined but at a relatively slow rate. However, during the current crisis, the decline in home production is on an order of magnitude larger. Figure 4 shows the annual percentage growth in housing units sold and clearly reveals the effects of bursting housing bubble as buyers left the market in 2006 and 2007.

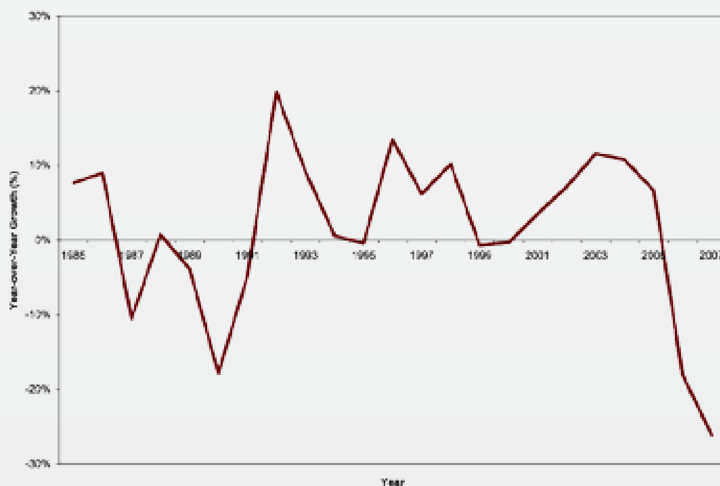

Figure 4: Annual Growth Rate in Houses Sold

The current financial crisis has had a significant impact on the banking sector. Unlike the previous recession in 2001, both large and small banks are seeing an increase in the percentage of nonperforming loans. Furthermore, as the financial crisis spread throughout the banking sector, lending at all levels virtually stopped by 2007. The Federal government is attempting to encourage new bank lending through the use of Troubled Assets Relief Program (TARP) funds; however, it may be too late for many small builders. For example, Corkery (2009) reports that many small builders have entered bankruptcy as a result of lost bank financing. A recent example is the February 2, 2009 Chapter 11 filing of Raleigh, NC builder St. Lawrence Homes Inc., who cited ``tightening of borrowing requirements placed upon it sources of operating credit" as one of the factors that led it to seek bankruptcy protection. To the extent that bank lending continues to remain curtailed, additional bankruptcy filings among the smaller builders are expected.

Large Builders and the Financial Crisis

The end of the housing bubble starting in 2006 led to a fundamental crisis in the financial market as rising defaults on dubious loans to sub-prime borrowers began to call into question the values of securitization deals. While exploring the linkages between sub-prime mortgages and the financial crisis is beyond the scope of this paper, it is important to note that the decline in the U.S. housing market that began in 2006 has impacted all areas of the global financial system. Thus, unlike previous crises, virtually all areas of the capital markets have been impacted during the current financial crisis. As a result, almost all home builders have been affected. It is not surprising then that the largest home builders have dramatically cut production in the face of rising cancelation rates and price reductions. For example, Standard and Poor's reports that D.R. Horton had cancelation rates above 30% in 2007 and 2008 while KB Home reported cancelation rates above 50%. Even the high end of the housing market is not immune to the financial crisis. For example, Toll Brothers Inc., specializing in the higher price range of the market, reported cancelation rates of 26% and 25% in 2007 and 2008, respectively.

Close inspection of Figure 2 suggests that the current financial crisis may be unlike previous credit crunches as the share of housing production provided by the large (public and private) builders declined in 2007. Large builder market share declined from 51.9% in 2006 to 50.2% in 2007. However, turning to Figure 3, we see that the decline in large builder market shares results from the rapid reduction in public home builder production. Between 2006 and 2007, the public home builder production declined 30% while the large private builder production declined 25%. Since production in the overall market declined approximately 26% during this year, the relative production share of large private builders increased. Thus, on a proportional basis, it appears that the large public builders reacted faster to the housing crisis by curtailing production at a faster rate than the large private builders.

The downturn in the housing market also impacted undeveloped land (the major input factor for home builders.) As discussed above, since 2000 the large public home builders began acquiring significant land holdings, effectively taking on the land developer role as well as the home builder role. For example, between 2000 and 2005, the 23 large public home builders tracked by SNL RealEstate increased their land holdings by 328%. However, those large land holdings became a liability as the housing bubble burst. Since 2006, Leon (2008) reports that the 13 largest publicly traded home builders wrote off a cumulative 23.5 billion in land investments. Thus, the crash of the housing bubble has clearly impacted the largest of the home builders and is reflected in the capital markets. To understand why the public home builders reacted more quickly, we need to examine the impact of the capital markets on these firms.

During the recent housing boom, the stocks of public home builders enjoyed a massive increase in value relative to the overall stock market increasing over 600% between 2000 and 2005. In comparison, the overall stock market as reflected in the S&P 500 index actually declined in value during this period.

However, starting in 2005, prior to the peak of the housing market in 2006, stocks in the public home builders began to decline. In fact, the S&P Homebuilding Index dropped 55.5% in 2007, and by 2008, the index had given up most of the gains from

the boom period (2001-2006). The public home builders also faced significant declines in the debt markets during this period. Public home builder access to debt financing significantly declined in 2006 and 2007. For example, from 2005 to 2006 debt issued by the largest home builders declined 47%. Then, as the magnitude of the financial crisis became apparent debt issuance by large home builders declined a further 94%. It is interesting to note that the selloff in home builder stocks and curtailment in debt placement preceded the peak in the housing market. Clearly the capital market was sending a negative signal to the public builders about the future prospects for the housing industry well before the peak in the housing market was widely recognized.

One of the criticisms often leveled at the large, public builders is that they dramatically overshot the market and created an excess supply of housing units during the housing bubble. However, the criticism that large, public builders are to blame is only partly true. During the first part of the housing bubble years, the large, public builders did increase production at a substantial pace. For example, between 2000 and 2004, the public builders' production increased 9.4% per year. In contrast, the total market demand (represented by the total U.S. sales) increased 8.2% per year and the private builder production increased only 7.9% per year. However, between 2004 and 2006, the public builder production increase slowed to 7.4% per year while the private builder production increased to 13.9% per year. Thus, while the public builders did substantially increase their production levels during the housing bubble, it does appear that they were sensitive to the slowing market and scaled back their production pace at the peak of the market.

Implications for the Future

The current financial crisis has created significant hurdles for the homebuilding industry, and the short-term outlook is not very promising. For example, since the peak of the housing bubble in 2005, the single-family housing vacancy rate has increased significantly. Much of the inventory of unsold homes represents properties acquired by banks through mortgage foreclosures. Clearly this level of unsold homes represents excess inventory that will need to clear the market before large-scale housing production becomes profitable again.

As expected in a weak housing market, home builders have reacted by curtailing construction. For example, housing starts fell 28% in 2007 and another 41% in 2008. Obviously, curtailments in housing production of this magnitude will eventually impact housing supply. For example, Oppenheim, Dahl, and Lane (2008) suggest that a ``normal" demand for housing in 2009 and 2010 will be approximately 1.6 million units per year. Thus, if housing production does fall to approximately 441,000 in 2009, then the housing industry will under build the market by about 1.1 million units in 2009. Assuming market conditions stabilize at current levels and demand remains ``normal", then it will take approximately 2 years (until 2011) to reduce the current housing inventory overhang to an equilibrium level of 6 months supply. Thus, the short-term prospects for home builders do not look promising.

However, the crisis also provides opportunities for the large,

Figure 5: Annual Vacancy Rate in Single-Family Housing

public home builders to continue to dominate the smaller builders as the trends and forces outlined in Ambrose and Peek (2008) continue to operate. The large, public home builders have a number of advantages over smaller builders that will remain when the crisis is over.

First, large builders enjoy a significant production cost advantage. For example, Rybczynski (2007) reports that large production builders such as NVR have a 50% cost advantage over smaller builders. One way NVR is able to achieve this cost advantage is through the prefabrication of most housing components, thus allowing it to enjoy significant economies of scale. To gain a greater appreciation for the production scale of large builders, consider that at the peak of the housing boom in 2006, NVR sold over 15,000 homes. In comparison, the median ``large" builder tracked by the Professional Builder 400 Giants produced only 470 homes. In other words, the 7th largest builder in 2006 produced over 31 times the number of homes built by the median ``large" builder.

This difference in production capacity generates tremendous scale economy advantages over smaller builders, allowing larger builders to continue to cut prices and take market shares. For example, Toll Brothers, Inc. announced in 2009 that it would finance purchases of its homes with 30-year, fixed-rate mortgages with contract rates of 3.99% (representing an approximately $46,000 price cut on a $417,000 mortgage with market rates at 5% -- or a 9% price discount on a home financed with an 80% loan-to-value mortgage). In addition, Corkery (2009) reports that D.R. Horton is maintaining margins by reducing construction costs and by capitalizing on the financial troubles of smaller builders to obtain low-cost land and subdivision lots. Given that few small builders have the profit margins that would allow them to compete with such large price discounts, I expect large builders to continue to take market share from the smaller builders.

Second, public firms are exposed to the discipline of the capital markets. At the peak of the housing bubble, the capital market anticipated the housing market decline and imposed lower stock market valuations and higher spreads in the debt market on the public builders; these actions forced the public builders to retrench their production activities at a faster pace than their

private counterparts. Furthermore, to the extent that bank lending lags the general economic recovery, then whenever housing market conditions improve, public builder access to capital via the equity and debt capital markets will allow them to ramp up production faster than their bank dependent counterparts. Thus, well capitalized public builders with sufficient cash positions will emerge during the coming recovery with the ability to take market share from their weaker competitors. Of course, identifying the ``well capitalized" builders that are expected to survive is not easy.

Third, land availability continues to be a major constraint on large builder growth prospects. As discussed above, many large builders chased higher returns by taking on the land developer role during the housing boom. We can anticipate that during the next recovery and expansion, large builders may return to the land development business in order to obtain the lots necessary to fuel their operations. In addition, general societal migration trends continue to suggest that large builders will return to the land developer role in the future. For example, U.S. population migration patterns continue to favor the Sun Belt and Western states where large land tracts are readily available. The availability of large land tracts is necessary for builders to realize their economies of scale production model. Since the relative climate and economic attractiveness of Sun Belt and Western states continues to dominate Northern states, housing demand in these areas should recover quickly during the next recovery. As a result, we should observe large builders concentrating their development activities in these regions.

Clearly the fortunes of the home builders are tied to housing demand. Thus, any future prospects for builders rest upon the ability to stabilize the housing market and return demand to normal. The current problem facing housing demand is one of affordability and deflation. With respect to affordability, Figure 6 shows the ratio of the median new home price to the median household income, as well as the National Association of Home Builders Housing Opportunity Index. The price-to-income ratio reveals that new home prices increased from the long-run average of 3.2 times income to over 4.7 times income during the housing bubble, indicating that additional price reductions are

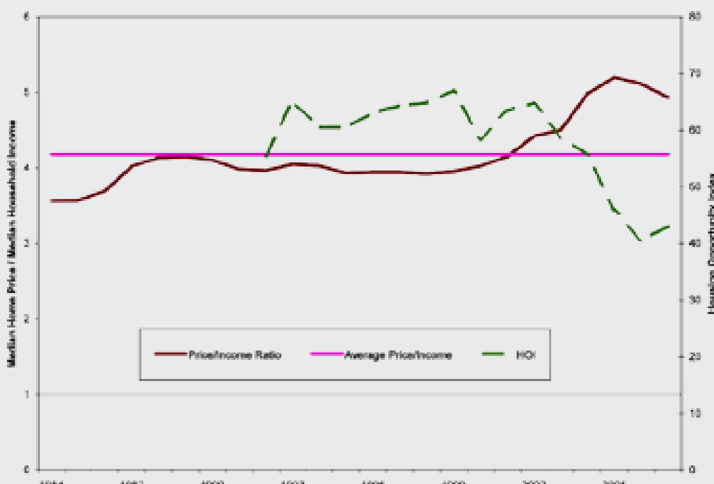

Figure 6: Measures of Housing Affordability

necessary to return to the long-run trend (represented by the flat line.) Furthermore, the housing opportunity index also reveals that during the bubble years, affordability declined to the point where only 40% of the population could afford the median priced home. In the financial climate today, mortgage interest rates are at historic lows. Thus, the affordability problem will have to be addressed through significant future housing price declines. As a result, until price levels return to long-run fundamental levels, expectations are that housing demand will remain low.

Large builders reacted to the housing crisis by slowing production and shoring up their balance sheets. As a result, these builders have positioned themselves to take market share from their weaker competitors during the next recovery. This is exactly the outcome desired in a market economy that rewards efficient competitors and penalizes the inefficient. With respect to the very small, custom builders, many may not survive the current crisis. However, the fundamental structure of the homebuilding industry has not changed. The industry continues to have low barriers to entry and when the economy improves, small builders will return to fill the emerging demand for custom homes. Thus, rather than target the housing industry for special treatment (through mortgage interest rate subsidies or homebuyer tax credits), we should seek broader economic reforms (such as broad based tax reductions) that allow consumers (through market forces) to determine the industries that are best able to survive in the future.

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SNL RealEstate: (https://www.snl.com/real_estate/).

Future Concentration in Home Building

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INTRODUCTION

New home producers span a large and diverse set of firms. Home building companies stretch across the size spectrum from single proprietors with no employees to large, national publicly-held companies with corporate headquarters and hundreds of employees and diverse services. The number of firms is dominated by very small producers, 85 percent of the National Association of Home Builders members build between 1 and 25 homes per year, but production is dominated by large firms; 57 percent of the production is generated by 3 percent of the firms. Regardless of size of the firm, most construction is still conducted by subcontractors specializing in particular elements of a home, e.g., framing, plumbing, electrical, cabinetry, etc. Product, location choice, selection and management of the subcontractors and assembly of the components of the final product comprise the critical elements of a residential building firm.

The variation in size of the primary contractor stems from many unique characteristics of producing homes. While production occurs in every state and virtually every county, the production requires elements that are unique to each location. It is the very beginning, site choice, and the very end, consumer preferences, of the process that varies the greatest across space and carries the largest unknowns in the process of going from raw land to an occupied home.

Many inputs to housing are not unique to residential construction. Products needed to build a home are demanded by other sectors besides new residential construction. Raw materials, finished goods and professional services serve new residential construction but also serve commercial and non-residential construction as well as remodeling and individual consumer demand. Residential construction labor is somewhat specialized and remains primarily local but is mobile and trainable as demand changes. The most recent cycle showed a much slower loss of residential construction labor than the housing starts or residential fixed investment data suggest as the labor moved to close substitutes without changing classification.

However, land, both relative location and the process of preparing it for production, is unique across markets. Local land knowledge becomes very important to the successful home building. At the other end of the production process, the consumer is usually local and comes with characteristics and demands that are not necessarily uniform across markets. Hence, the two most uncertain elements of home building are at the very beginning and the very end.

Do these unique characteristics of goods production lead to concentration or de-concentration of production? Why has home building been such a fractured production process thus far and does the most recent stress in the market provide a turning point from history? This paper addresses these questions by looking at the complexion of the residential construction industry now, the trends over the last decade and the likely changes in the future.

CURRENT AND PAST

As Ambrose contends, large publicly-held home builders gained share over smaller and private companies over the boom period of early and mid-2000s because of their greater access to debt and capital. Ambrose contends further that the publicly-held companies slowed production early in the cycle because 'access to debt financing significantly declined in 2006 and 2007'. He draws the conclusion that the public companies are likely to capture more share as financing for smaller builders becomes more inaccessible while publicly-held companies will not see the same restrictions. However, this paper presents more detailed data to suggest that market share gain was due to a combination of mergers and acquisitions up to the early 2000s, which allowed for expansion into smaller markets. This paper extends that observation to the future and concludes that financing difference may provide advantages to the publicly-held builders but the economies of scale business model may not allow for much more expansion.

BASIS OF COMPARISON

The basis for comparison of market shares is governed by data availability and purpose. The numerator of a market share ratio is usually sales of the company or sector studied, but the denominator can be US Census Bureau data on single family permits, starts, homes built for sale, completions, homes for sale or homes sold. For national comparisons, all these options are available but not for metropolitan comparisons (at least not on a consistent basis from the Census Bureau). The closest universe in timing and consistent concept to sales by large, national home builders is single family homes sold. That Census Bureau series has one weakness that matters during the period. New home sales are recorded when the builder has a signed contract to purchase. The home can be at any stage of completion including not started. However, cancellations are not recorded and some sales are never completed. The share of sales by large builders that were later cancelled reached as high as 40 percent in 2007. Measuring the share of homes actually sold to sales contracts falsely increases the ratio because the denominator is artificially higher than actual. Unfortunately, there is no way to repair the inaccuracy. Other bases for comparing shares have more significant distortions that make them unlikely substitutes.

Single family permits and starts consist of homes intended for sale as well as homes built on the owner's lot or built with

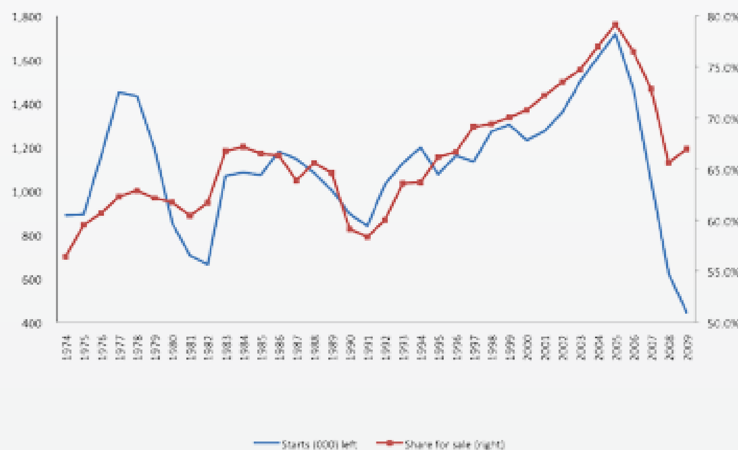

Figure 1 Single Family Starts vs Share Built for Sale

the owner acting as the general contractor. The last two types of starts are not offered 'for sale' so should not be used in a comparison. Figure 1 overlays single family starts with the percentage for sale. Figure 2 shows the absolute number of homes built by the owner. Two trends are apparent. First, homes built speculatively (for sale) constitute a smaller share of all starts when volume falls and a greater share when volume rises. Second, while homes built by the owner experience some variation across housing cycles, the fluctuations are muted and the 35 year average rotates around 350,000 units a year. Cyclic stability did disappear in the recent downturn. These for-owner starts are almost exclusively the domain of small home building companies. Homes started and intended for sale track production but not sales. And, during the period 2005 to 2007, the inventory of unsold new homes rose to all time highs reflecting the slowdown in sales.

Figure 2 Single Family Starts Built on Owner's Land

This research uses completed sales data for publicly-held and large private home building firms and compares that to homes sold realizing that some of the homes sold were returned to inventory and may have been sold later. The top 60 builder share trends for three bases are shown in Figure 3. The divergence in the paths of for-sales and sold is evident starting early in 2000s and striking after 2006 when unsold inventory began to rise. Permits show a lower percentage because some multifamily permits are later determined to be single family units and actual production is greater than permits drawn. For local area comparisons, permits are the only option.

Figure 3 Share Sold by Top 60 Builders

TOP TEN

The greatest gain in concentration resides within the top ten home building companies, which are all publicly-held and have been virtually the same companies across at least the 2000s. Over the last 19 years, the top ten building companies grew their sales share from 8.8 percent in 1989 (using a base of homes sold) to a high of 28.1 percent in 2006, a 19 percentage point increase (See Figure 4). The next largest gain in share over the same period were companies in 11th to 20thplace, which increased share 4.1 percentage points from 4 percent to 8.1 percent in 2008. The share of the market among the 21st to 60th largest company was virtually unchanged at about 8 percent over that same period. From 1998 to 2006, the share of the market sold by the 60th to 100th largest firms did not change significantly. Hence, observing moves in the top ten firms tells the bulk of the story about share shifts.

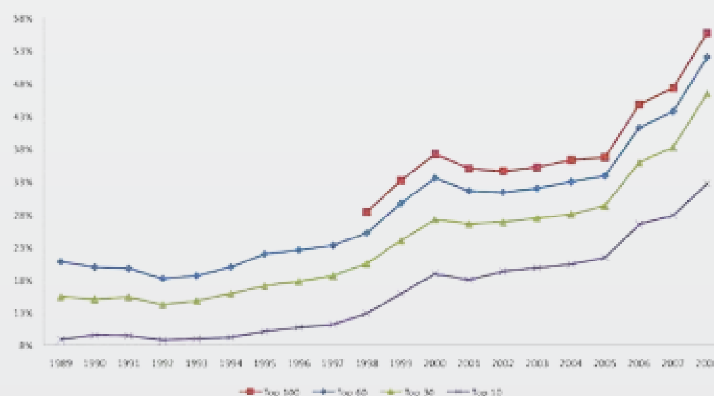

Figure 4 Sales Shares for Largest Companies

MERGERS AND ACQUITISIONS

Between 1993 and 2004, the top ten publicly-held home building companies increased their market share by 11.3 percentage points by selling 195,538 more homes (from 55,845 to 251,383). However, over than same period, these ten companies acquired or merged with companies that were selling, at an annual rate at time of acquisition, 90,178 homes. Nearly half of the share gain between 1993 and 2004 was due to acquisition or merger. Figure 5 shows the share trend if the sales

from the acquired companies are subtracted from the aggregate company totals.

Prime merger years were 1998 and 2002, but activity has dropped significantly since then (and unavailable after 2004 from Builder magazine). Anecdotal information also suggests that the primary motivation behind acquisitions was land inventory of the acquired company. In 2005, the top ten companies owned or had options on 6.8 years supply of lots. If the buying and marketing power of the larger company enhances the acquired company, then the share gain of the larger companies would be even larger than the minimum estimate of most recent year sales by the acquired.

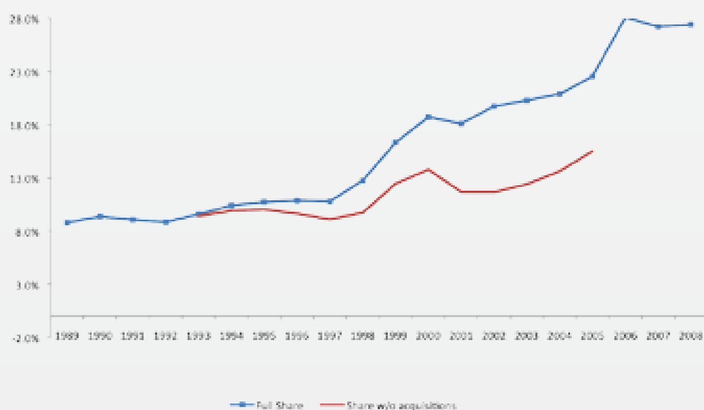

Figure 5 Market Shares of Top 10 with and without Acquisitions and Mergers

METRO CONCENTRATIONS

Publicly-traded companies compete against each other in the larger metropolitan areas. For example, in 2007 (latest year metro concentration data are available), the top ten firms sold 100 percent of the Tucson market, 72 percent of the San Antonio market, 59 percent of the Phoenix market, but only 18 percent of the Atlanta market. The concentration in larger metropolitan areas, however, is not the source of increased market share. Between 2003 and 2007, the top ten companies (all publicly-held) increased their share of the US new homes sales market from 20.3 percent to 27.2 percent. Places that fed that change include Phoenix, where the top ten public companies' share grew from 32.3 percent to 45.1 percent and Riverside/San Bernardino where the share grew from 26.5 percent to 45.5 percent. However, among the top 25 metropolitan areas (according to 2007 total housing permits), the share of the top ten public builders fell from 27.2 percent to 23.2 percent. The shift in share was more pronounced in the ten largest metro areas where the top ten public builders' share fell from 29 percent in 2003 to 24.8 percent in 2006 and then to 22.1 percent in 2007 even though the total market in the top 10 metropolitan areas fell less than the top 11 through 25.

Faster growing metropolitan areas were not the source of growth for the top ten companies even though they were the faster growing share of the market over the period 1989 to 2006. In fact, the share change of the top 10 companies within the

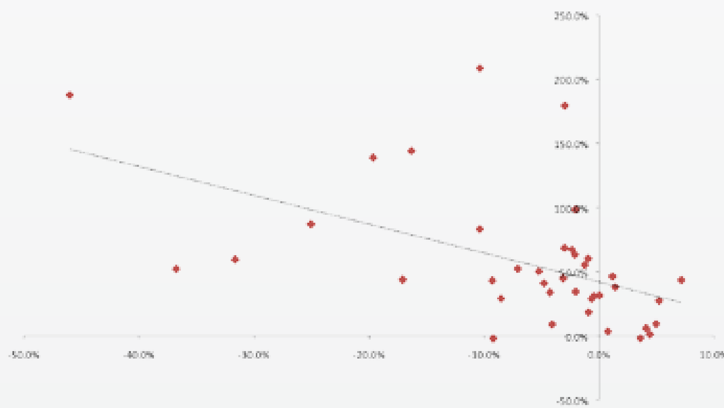

Figure 6 Percentage Change in Permits (Y) vs Share Shift of Top 10 (X) in Top 50 Markets

top 50 metropolitan areas is negatively correlated to the growth in total permits between 2003 and 2007 (and similarly in most other two year pairs over the period 2003 to 2007). An example is shown in Figure 6 where the percentage change in total permits over the 2003 to 2007 period on the Y-axis are shown against the percentage point change in the top 10 builders share in each market. The scatter graph shows that the faster the metro growth, the greater the loss in dominance by the top 10 companies.

Large, private but local firms remain a substantial component of production in most large metropolitan areas, particularly the fastest growing. In Houston, the second, third and fourth largest home builders are private, constitute 9.4 percent of the market and are in only one other market. In Atlanta, the second, third, fifth and sixth largest builders are private, constitute 7.1 percent of the market, and are in only that market or one other.

If the analysis is focused on the top ten builders, public and private, in the top 50 markets, the concentration trends show very little change in share between 2005 and 2007. In 2005, the top ten builders sold 34.4 percent of the homes permitted and public companies held 69 percent of that share. In 2007, the top ten builders' share rose four-tenths of a percent and the public companies' share fell to 67.8 percent. Private builders sold 11 percent of homes permitted and publicly-held companies held their share at 24 percent. Most of those private companies built in no more than two metropolitan areas. Even in these transition years, the large national public companies were not able to take share away from the closest competitors in the markets where the publics are most dominate.

LAND DEVELOPMENT

Land is changed from raw, vacant un-zoned property to individual, permitted, buildable lots in a process that requires local approvals, hearings and conditions that can take months to years. The producer can be the ultimate home building company, a closely held affiliate, another business partner or a completely independent company. Large and small companies depend upon a variety of these methods in order to produce lots for construction.

Small home builders often build on the home owner's land. This arrangement addresses several barriers to small firms. The home building company does not have to hold lot inventory, does not have to determine the future market by searching for the next development area and gauging likely demand in the future. Individual owner-controlled building lots have usually been approved for building and often do not come with significant demands for providing infrastructure. They can be part of a larger development sold by a separate developer to owners, which still leaves the home building company free of financing demands and the uncertain approval process. Since 1974, the share of starts built on owner's lot has averaged 32 percent of single family starts.

Small and larger home building companies also develop their own land. If the development is larger than a single home building company can absorb, one larger home builder acts as developer for other, usually smaller home building companies. Larger tracts of land requiring significant infrastructure and process time may be too large for a single home building company to absorb and sell so selling developed lots to smaller, sometimes specialized home building companies in specific market segments can speed development before markets change. Large, publicly-held home builders who develop their own land usually do not sell lots to competitors.

Very large local and regional home builders have turned to another means of feeding their production process by purchasing land options from independent land developers. In 2003 and 2004, the ten largest companies began moving even more aggressively to options rather than owning the land. As the options have expired, the share of lots owned has increased although the absolute number has fallen significantly as the ten largest builders purge their inventory.

Obtaining options on a stream of future building lots carries several advantages. The developer can be a local company or can access local services knowledgeable about the permitting process and sometimes unique requirements or market sensitivities of the prevailing land owners and elected officials. The developer bears the increasing risks and uncertainty of time needed to obtain the necessary approvals and the potential that the market changes during that period. Financing becomes the domain of the developer and leaves the home building company free of encumbrances other than the option fee. The land developer absorbs the risk if the market turns down ahead of the availability of ready lots. All three types of builders can take advantage of this method of providing, but the large, public builders moved quickly into this method after the early 90s downturn.

Changes in concentration of production do not appear to be as significant if viewed with greater disaggregation. In particular, the largest publicly-held company's growth appears to be the result of acquisitions and mergers, which may also have led to more dispersion in their individual markets since concentration in the largest metropolitan areas does not appear significant. However, these findings do not provide a strong indicator of how access to financing may or may not have played a part in the changes. Broader access would position companies better to merge or acquire other companies and expand to smaller markets. But, it would appear that being large, either private or publicly-held, did not prevent the smaller companies from maintaining share in the two year period from 2005 to 2007.

FINANCING

Most home builders obtain production financing, that is, acquisition, development and construction or AD&C financing, from financial institutions. NAHB's fourth quarter 2009 survey shows that 83 percent of the builders responding used banks or thrifts for acquisition debt, 98 percent used banks and thrifts for development debt and 91 percent used banks and thrifts for single family construction loans. The firms that used another source for debt were larger with annual revenues of at least $1 million. The history on this question shows very little change over time with the possible exception of some drift upward in sources other than financial institutions.

What has changed over the decade has been the percentage of companies seeking AD&C credit? In fourth quarter 2009, about two-in-ten builders sought acquisition or development financing as new projects were put on hold and about half the builders sought construction financing. That compares to over 80 percent and sometimes over 90 percent of the builders sought a form of production finance up through the end of 2005. The most recent survey has shown a greater tendency for larger firms to seek credit over the smaller firms, but the share seeking is still relatively small compared to the mid-decade.

Debt availability had a lot to do with the change. In the fourth quarter 2009, between 58 and 62 percent of builders surveyed reported that availability of A&D loans was worse (than the previous quarter). The shift from relative availability began shifting in 2006 but got much worse since that time. Within the last year, there does appear to be some slight moderation in the worse category for larger firms, although over half still respond that condition are worse than they were in the third quarter for acquisition and development financing.

CONCLUSIONS

Large, publicly-held home building companies have captured greater share of the market by acquiring or merging with smaller companies and by branching out into smaller markets. There is a relatively stable share of homes built by smaller firms on owner's land that would appear safe from any attempt to take that share. Publicly-held companies' access to capital may have provided them with an advantage in accomplishing the shift but it is not clear that the success outpaced other builders in the markets where they compete with smaller firms. Future share gain will come from either taking it directly from competitors in the markets the large companies already serve or further expansion into smaller markets. The latter seems in conflict with the business model of economies of scale by spreading operations into relatively

small markets. The former has yet to occur and will hinge on the question of financing advantage.

However, the current and past conditions are not sufficiently telling to judge what financing access and terms may come next for large, publicly-held builders versus smaller, local and private builders. The samples in the NAHB surveys are large enough (350 to 400) to be reliable indicators of the industry but not of the publicly-held companies. While the current financial upheaval is making it very difficult for small and large private builders to access credit from financial institutions, large publicly-held companies are also experiencing very high costs.

The more important issue will revolve around land acquisition and development. That is the riskiest component of home building. Because approval processes take longer and longer, land purchases have to anticipate demand at even greater time into the future. Development requirements continue to increase and the development process even after approvals will take more time and potentially more risk as local communities require greater environmental protections and more elaborate infrastructure contributions. These trends will increase the uncertainty of development as well as the investor's demand for higher return.

The more likely trend will be large development companies with access to investor groups and private capital will develop lots for all sizes of builders and sell or offer options to companies. Smaller builders will continue to develop smaller developments because they know their market and they know the idiosyncrasies of the approval process in their area. Very small building companies will build on scattered lots or on an owner's lot. The larger companies, both private and public, will have to depend upon a specialized component of the industry to accumulate the capital and prepare building lots as needed for consumer demand.

The policy concern from such an evolution involves the loss of competition because of the concentration and control of the land development decisions and process. Financing of residential land development could become restricted to only large firms with deep pocket investors. Smaller developers and small builders with traditional financing access through financial institutions could be left without access to capital. In any particular housing market, the amount of land available for residential development and within a reasonable distance to labor markets is limited and the potential for monopolization rises if the access to capital for smaller firms is limited or non-existent.

"Tables accompanying this article are available on the IRES webpage: http://www.smeal.psu.edu/ires."

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