Single Family Origination Volume Through the Cycle

Mortgage Originations History and Forecast

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Refi</th>
<th>Purchase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>459</td>
<td>563</td>
<td>893</td>
</tr>
<tr>
<td>1991</td>
<td>1,020</td>
<td>769</td>
<td>640</td>
</tr>
<tr>
<td>1992</td>
<td>1,656</td>
<td>685</td>
<td>833</td>
</tr>
<tr>
<td>1993</td>
<td>2,243</td>
<td>1,139</td>
<td>1,379</td>
</tr>
<tr>
<td>1994</td>
<td>3,812</td>
<td>2,773</td>
<td>2,726</td>
</tr>
<tr>
<td>1995</td>
<td>2,854</td>
<td>2,306</td>
<td>2,068</td>
</tr>
<tr>
<td>1996</td>
<td>3,027</td>
<td>2,180</td>
<td>1,847</td>
</tr>
<tr>
<td>1997</td>
<td>3,512</td>
<td>2,364</td>
<td>1,148</td>
</tr>
<tr>
<td>1998</td>
<td>3,068</td>
<td>2,044</td>
<td>1,024</td>
</tr>
<tr>
<td>1999</td>
<td>2,679</td>
<td>1,996</td>
<td>1,683</td>
</tr>
<tr>
<td>2000</td>
<td>3,156</td>
<td>2,447</td>
<td>1,709</td>
</tr>
<tr>
<td>2001</td>
<td>2,773</td>
<td>1,509</td>
<td>1,264</td>
</tr>
<tr>
<td>2002</td>
<td>1,509</td>
<td>1,153</td>
<td>1,356</td>
</tr>
<tr>
<td>2003</td>
<td>1,679</td>
<td>1,261</td>
<td>1,418</td>
</tr>
<tr>
<td>2004</td>
<td>2,051</td>
<td>1,710</td>
<td>1,341</td>
</tr>
<tr>
<td>2005</td>
<td>1,606</td>
<td>1,592</td>
<td>1,631</td>
</tr>
</tbody>
</table>

Source: MBA Forecast
## MBA Forecast Summary

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GDP Growth</strong></td>
<td>2.6%</td>
<td>3.0%</td>
<td>2.3%</td>
<td>1.5%</td>
</tr>
<tr>
<td><strong>Inflation</strong></td>
<td>2.1%</td>
<td>2.6%</td>
<td>2.4%</td>
<td>2.4%</td>
</tr>
<tr>
<td><strong>Unemployment</strong></td>
<td>4.4%</td>
<td>3.9%</td>
<td>3.6%</td>
<td>3.8%</td>
</tr>
<tr>
<td><strong>Fed Funds</strong></td>
<td>1.375%</td>
<td>2.375%</td>
<td>3.125%</td>
<td>3.125%</td>
</tr>
<tr>
<td><strong>10-year Treasury</strong></td>
<td>2.4%</td>
<td>3.1%</td>
<td>3.4%</td>
<td>3.4%</td>
</tr>
<tr>
<td><strong>30-year Mortgage</strong></td>
<td>3.9%</td>
<td>4.8%</td>
<td>5.2%</td>
<td>5.3%</td>
</tr>
<tr>
<td><strong>New home sales (000s)</strong></td>
<td>617</td>
<td>643</td>
<td>661</td>
<td>673</td>
</tr>
<tr>
<td><strong>Existing home sales (000s)</strong></td>
<td>5,542</td>
<td>5,439</td>
<td>5,560</td>
<td>5,643</td>
</tr>
<tr>
<td><strong>Purchase originations ($B)</strong></td>
<td>1,110</td>
<td>1,149</td>
<td>1,197</td>
<td>1,236</td>
</tr>
<tr>
<td><strong>Refi originations ($ B)</strong></td>
<td>600</td>
<td>457</td>
<td>395</td>
<td>395</td>
</tr>
<tr>
<td><strong>Total originations ($B)</strong></td>
<td>1,710</td>
<td>1,606</td>
<td>1,592</td>
<td>1,631</td>
</tr>
<tr>
<td><strong>Mortgage debt outstanding ($B)</strong></td>
<td>10,010</td>
<td>10,370</td>
<td>10,760</td>
<td>11,130</td>
</tr>
</tbody>
</table>

Source: MBA Forecast
Job Growth Unexpectedly Strong

Monthly Payroll Growth

Source: BLS
Unemployment and Participation Low

Source: BLS

Unemployment and Labor Force Participation

Civilian Participation Rate: 16 yr + (SA, %)
Civilian Unemployment Rate: 16 yr + (SA, %)
Unempl+Margin Attach+Part Time Econ Reasons/CLF + Margin Attach (SA,%)
Compositional Changes Holding Down Wage Growth

Unemployment Rate By Educational Attainment

Source: BLS
Core Inflation Stepping Up

Consumer Price Index
Year over year percent change

Source: BLS
Global Yields Have Started to Increase

Source: Thomson Reuters
Trade Tensions…What is the Impact?

Figure 1 US imports from China subject to Section 301 tariffs by type, July 10, 2018 list

- Consumer goods: 23%
- Capital goods: 29%
- Intermediate goods: 47%
- Others: 1%

Note: Harmonized System (HS) 8-digit tariff code is converted to Broad Economic Categories (BEC) code, using the correspondence table at https://unstats.un.org/unsd/trade/classifications/correspondence-tables.asp.

Sources: United States International Trade Commission (USITC) Dataweb. Others include BEC 7 (Health, pharmaceuticals, education, cultural, sport), 12 and 32 (services in food and beverages, and services in construction, wood, glass, stone, metals, housing and furnitures) and HS codes that have no match with BEC code.
Rates Expected to Increase

Rate History and Forecast

Percent

0.0  1.0  2.0  3.0  4.0  5.0  6.0  7.0  8.0


30 yr fixed mortgage
10 Yr Treasury
2 Yr Treasury
Fed funds

Source: Federal Reserve, Freddie Mac, MBA Forecast
How High Will the Fed Go?

Chart 2: How Fed tightening cycles end

Source: BofA Merrill Lynch Global Investment Strategy, Bloomberg
Millennials Hitting Peak Housing Demand Years

Source: Census Bureau
Potential for 16 Million Additional Households by 2024
Changing Demographics and Economy Plus Trends

Projected Changes in Households, by Age 2014-2024

Using Forecasted Headship Rates

Source: IPUMS CPS and MBA

Potential for 16 Million Additional Households by 2024
Changing Demographics and Economy Plus Trends

Projected Changes in Households, by Age 2014-2024

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Source: IPUMS CPS and MBA
Purchase Volume Rising: Seasonality Increasing in Importance

Source: MBA Weekly Applications Survey
## “Gig Job” Share Growing?

<table>
<thead>
<tr>
<th></th>
<th>1995</th>
<th>2005</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent contractors</td>
<td>6.7</td>
<td>7.4</td>
<td>6.9</td>
</tr>
<tr>
<td>On-call workers</td>
<td>1.7</td>
<td>1.8</td>
<td>1.7</td>
</tr>
<tr>
<td>Temporary help agency</td>
<td>1.0</td>
<td>0.9</td>
<td>0.9</td>
</tr>
<tr>
<td>Contract workers</td>
<td>0.5</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>Total</td>
<td>9.9</td>
<td>10.7</td>
<td>10.1</td>
</tr>
</tbody>
</table>

Sources: BLS, Washington Post (Robert Samuelson) “Is the gig economy a myth?”
College Graduates Earn Nearly Twice the Wages of High School Graduates

Source: IPUMS CPS, MBA, Autor (2014)
Diverging Homeownership Trends

Homeownership Rate of 16 – 64 Year Old Heads By Education

Source: IPUMS CPS, MBA
The Rise of Alternative Student Debt Repayment Plans

Chart of the Week - January 27, 2017
Federal Direct Student Loans in Repayment ($B), By Repayment Type

Source: Office of Federal Student Aid and MBA
Fig. 2
First-Time Homebuyer Market—Annual

Source: Genworth Mortgage Insurance
Homeownership Rates—by Age, Quarterly

Source: Census Bureau Housing Vacancy Survey
Single Family Starts Still Gathering Steam; MF Steady

Source: Census, MBA
Unfilled construction jobs rising
Sluggish Home Sales As Inventory Remains Tight

Home Sales (left axis) and Inventory (right axis)
Seasonally adjusted annual rate

Source: Census. NAR
Impact of International Buyers on US Existing Home Sales

Purchases of U.S. homes by international buyers was $121B in the fiscal year ending March 2018, down from $153B the previous year, a 21% decline, according to the NAR.

The drop was driven by accelerating home prices, a strengthening dollar, and geopolitical concerns. The estimated number of units bought by international buyers is 266,800, or 5 percent of existing home sales (units).

The share of dollar volume of home sales that this represents is around 8 percent.
House Price Growth Outpacing Income Growth; Price Gains to Slow
Cyclical Affordability Problems

House Price and Wage Growth

Indexes = 100 in 1991.
Source: FHFA and BEA
Cyclical Strain is Lower in Other Places

House Price and Wage Growth

Indexes = 100 in 1991. Source: FHFA and BEA
Exhibit 4: In the financial crisis, home prices dropped in 49 states compared to only 19 states in the early '90s

# of states in which home prices dropped during recessionary periods

Source: J.P. Morgan, NBER, Corelogic, Bloomberg
FHA Credit Easing

FHA Average Credit Scores on New Endorsements
Fully underwritten only, excludes streamlines

Source: HUD
Shape of the Mortgage Industry

Share of Home Purchase Volume (#) by Company Type

Share of Refinancing Volume (#) by Company Type

Source: 2011-2016 HMDA
The Independent Mortgage Banker
Mortgage Banker Production Profitability Through the Cycle

IMB Net Production Income (bps) vs. MBA Estimated Industry Volume

Source: MBA Origination Estimates, MBA Performance Report
IMB Net Production Income (basis points)

Source: MBA’s Quarterly Mortgage Bankers Performance Report, www.mba.org/performancereport
IMB Net Production Income (basis points)

Other Peer Groups
Peer Groups: Overall Net Production Income (bps)

Source: PGR: MBA and STRATMOR Peer Group Roundtables: www.mba.org/pgr
Peer Groups: Weighted Avg. Channel Mix (% based on $)

Total PGR Sample: Net Production Income by Channel (bps)

Source: PGR: MBA and STRATMOR Peer Group Roundtables; [www.mba.org/pgr](http://www.mba.org/pgr)
Peer Groups: Retail Product Mix (% based on #)

<table>
<thead>
<tr>
<th>Category</th>
<th>Large Banks</th>
<th>Large Independents</th>
<th>Mid-Size Hybrid Banks</th>
<th>Mid-Size CBCUs</th>
<th>Mid-Size Independents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase</td>
<td>82%</td>
<td>80%</td>
<td>63%</td>
<td>68%</td>
<td>63%</td>
</tr>
<tr>
<td>First-Time Homebuyer</td>
<td>24%</td>
<td>42%</td>
<td>26%</td>
<td>28%</td>
<td>26%</td>
</tr>
<tr>
<td>Government</td>
<td>13%</td>
<td>37%</td>
<td>15%</td>
<td>15%</td>
<td>15%</td>
</tr>
<tr>
<td>ARM</td>
<td>15%</td>
<td>15%</td>
<td>2%</td>
<td>5%</td>
<td>0%</td>
</tr>
<tr>
<td>Jumbo</td>
<td>23%</td>
<td>7%</td>
<td>3%</td>
<td>3%</td>
<td>0%</td>
</tr>
<tr>
<td>Originated for Portfolio</td>
<td>34%</td>
<td>35%</td>
<td>0%</td>
<td>7%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Peer Groups: Retail Channel Production Expenses

Chart of the Week: June 1, 2018
2017 Retail Production Expenses as % of Retail Production Revenues

Peer Groups: Retail Channel Productivity

Loans Closed per Loan Officer (per month)

<table>
<thead>
<tr>
<th></th>
<th>All Banks</th>
<th>All Independents</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>5.4</td>
<td>4.4</td>
</tr>
<tr>
<td>2014</td>
<td>4.4</td>
<td>3.9</td>
</tr>
<tr>
<td>2015</td>
<td>5.2</td>
<td>4.3</td>
</tr>
<tr>
<td>2016</td>
<td>5.7</td>
<td>4.5</td>
</tr>
<tr>
<td>2017</td>
<td>4.4</td>
<td>3.9</td>
</tr>
</tbody>
</table>

Loans Closed per Fulfillment FTE (per month)

<table>
<thead>
<tr>
<th></th>
<th>All Banks</th>
<th>All Independents</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>6.1</td>
<td>5.6</td>
</tr>
<tr>
<td>2014</td>
<td>5.7</td>
<td>5.2</td>
</tr>
<tr>
<td>2015</td>
<td>5.8</td>
<td>5.2</td>
</tr>
<tr>
<td>2016</td>
<td>5.3</td>
<td>5.1</td>
</tr>
<tr>
<td>2017</td>
<td>4.7</td>
<td>4.6</td>
</tr>
</tbody>
</table>

Source: PGR: MBA and STRATMOR Peer Group Roundtables: www.mba.org/pgr
MBA Research Sign-Ups and Services

- Mba.org/Forecasts
- Mba.org/StateProfile
- Mba.org/Research
- Mba.org/ChartOfTheWeek
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www.mba.org/research  www.housingamerica.org