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Revisions to the Value of Corporate Equities in the Flow of Funds Accounts

Summary

The December release of the Flow of Funds Accounts (FFA) includes substantially revised estimates of the market value of corporate equity for domestic firms. Our previous method relied on a “perpetual inventory” approach that used estimates of net equity issuance and capital gains to extrapolate the level of equity wealth outstanding from a benchmark in 2000. Our new method is as follows:

- **Common shares of publicly traded firms:** Values are benchmarked to quarterly aggregates of micro-data from the Center for Research in Security Prices.
- **Preferred shares of publicly traded firms:** Values are estimated using a perpetual inventory method based on data from Standard and Poor’s and Thomson Financial Services.
- **Closely held firms:** Values are estimated using data from the Internal Revenue Service (IRS), Compustat, and *Forbes*.

Details

The new method directly estimates the *level* of the market value of corporate equities, and estimates capital gains as the difference between changes in the market value of corporate equities and net equity issuance as estimated by Board staff. The value of corporate equities is calculated separately for publicly traded and closely held firms and the sum of the two components is reported in the FFA.

Publicly traded firms:

Common shares (83 percent of domestic corporate equity in 2008:Q2). We aggregate firm-level data from CRSP on share prices and the number of shares outstanding to compute the gross market value of equity for publicly traded domestic corporations.¹ We exclude American Depository Receipts (ADRs) and directly listed companies that are incorporated outside the United States because the FFA relies on data from the International Investment Position (for outstandings) and the Balance of Payments (for

flows) to measure the value of equity of foreign firms owned by U.S. residents.² Because CRSP does not include data on preferred stock, we use reports from Standard and Poor's for this very small component. In addition, we use data from Compustat to net out the value of intercorporate holdings among nonfinancial firms.³

Preferred shares (1 percent of domestic corporate equity in 2008:Q2). We will continue to use a perpetual inventory approach for this component. We benchmark the level of preferred shares in 2007:Q1 to data from a Standard and Poor's (S&P) report.⁴ We use S&P's preferred stock price index to measure capital gains and we estimate net issuance using data from the Thomson Financial Services SDC Platinum dataset.

Closely held firms:⁵

S-corporations (11 percent of domestic corporate equity in 2008:Q2).⁶ To calculate a market value for closely held S-corporations, we multiply the aggregate net worth (at book value) of S-corporations by the ratio of market value to net worth (at book value) for publicly traded firms in similar industries. This result is then adjusted downward by 25 percent to reflect the lack of liquidity of closely held shares.⁷

The aggregate net worth of S-corporations is reported each year (with a significant lag) by the IRS and the ratio of market value to net worth for publicly traded firms is estimated using data from Compustat. We make separate calculations for each of

¹ CRSP maintains a database that includes security prices and shares outstanding for the NYSE, AMEX and NASDAQ stock markets.

² The CRSP data include closed-end funds, real estate investment trusts, and exchange-traded funds, all of which are components of corporate equity as reported in the FFA. The CRSP data exclude holdings of corporate treasury stock, which are repurchased shares that are held by a corporation for potential reissue, and are not a component of corporate equity in the FFA.

³ We remove the value of intercorporate holdings from the nonfinancial business sector because we treat the sector as if it were a single "firm."

⁴ http://www2.standardandpoors.com/spf/pdf/index/PreferredStock_whitepaper.pdf.

⁵ Closely held firms include C-corporations and S-corporations that are not listed on public exchanges.

⁶ S-corporations represent about 65 percent of our estimated market value for closely held firms, while C-corporations represent 35 percent of closely held market value.

⁷ This liquidity discount for closely held shares matches that estimated by Claude Picart (INSEE, 2005).

fourteen industries and sum them to get a total value for all domestic S-corporations.⁸

The most recent available data from the IRS are for 2005:Q4. From 2006:Q1 through 2008:Q2, we forecast net worth for each industry (using the average growth rate over the prior 8 years of IRS data) and impute market values using the Compustat-based ratios. From 2008:Q1 on (when Compustat data are incomplete), we extrapolate the value of S-corporations using the Russell 2000 stock price index.

C-corporations (5 percent of domestic corporate equity in 2008:Q2). To calculate a market value for closely held C-corporations, we multiply the revenue of C-corporations (as reported each year by *Forbes*) by the ratio of market value to revenue for a matched group of publicly traded firms (from Compustat).⁹ We match each firm on the *Forbes* list with a public company that has similar characteristics (based on industry, employment, and revenue) and obtain the ratio of aggregate market value to aggregate revenue for these matched firms. We use the Wilshire 5000 stock price index to extrapolate the total market value of C-corporations in quarters for which Compustat data are unavailable. As with our estimates for S-corporations, we make a downward adjustment of 25 percent to the resulting estimated market values to reflect the lack of liquidity of closely held shares.

⁸ The industries are mining, utilities, construction, computer and electronic product manufacturing, other manufacturing, wholesale trade, retail trade, transportation and warehousing, information, telecommunications, finance, insurance, real estate and rental and leasing, and services. Finance, insurance, and real estate and rental and leasing are considered the “financial” industries.

⁹ The list includes closely held C-corporations with more than \$1 billion in revenues. The most recent list is for 2007.

Revisions to the Value of Residential Real Estate in the Flow of Funds Accounts

Summary

The December release of the *Flow of Funds Accounts* (FFA) includes substantially revised estimates of the value of residential real estate. The revisions are based on improved data sources. First, we added three new benchmarks using data from the 2001, 2003, and 2005 American Housing Surveys (AHS). Second, we now estimate changes in the value of existing single-family homes in non-benchmark quarters using a recently developed house price index from First American LoanPerformance (LP) (a division of First American CoreLogic); previously we used an index from the Federal Housing Finance Agency (FHFA, formerly OFHEO).

Background

We estimate housing wealth using a “perpetual inventory approach” with periodic benchmarks. That is, for the different categories of residential real estate (indexed by i), we estimate the value of residential real estate as:

$$V_{i,t} = (1+g_{i,t}) * V_{i,t-1} + NI_{i,t}$$

where V denotes the value of the real estate, g is the percent change in a price index for residential real estate, and NI is an estimate of net residential investment based on data from the BEA. We use the equation to interpolate real estate values for quarters between benchmarks and extrapolate values for quarters after the most recent benchmark.

For owner-occupied and vacant homes in structures with one to four units and condos and coops in structures with five or more units (so-called “one-to-four homes”), we have added new benchmarks from the American Housing Survey (AHS) in 2001, 2003, and 2005 and have switched from using the FHFA purchase-only house-price index to the LP

index.¹⁰ For the other sectors that own residential real estate (which include nonfarm noncorporate businesses (rental homes), nonfinancial corporate businesses, and nonprofit organizations) we have only switched price indexes, but have not added new benchmarks.

New benchmarks for one-to-four homes

We benchmark the value of one-to-four homes to survey data from the AHS.¹¹ The benchmark values for these homes are based on the average response to the question: “how much do you think your home would sell for in today’s market?” asked of both owner-occupants and owners of second homes. With this revision, we have introduced benchmarks for 2001, 2003, and 2005; previously, the most recent AHS benchmark was in 1999. We also examined data from the 2007 AHS. Comparisons between the 2007 AHS benchmark and other data led us to believe that the benchmark was overstated. Specifically, there is evidence that the assessment of home values by respondents to the 2007 AHS survey (centered in about June of that year) may have been too optimistic, perhaps because homeowners had not yet fully recognized the extent of the deterioration in market conditions. Thus, we have decided to not incorporate the 2007 AHS benchmark for now. We plan to revisit this issue in 2010, when data from the 2009 AHS are released.

The LP house-price index

We have switched from FHFA’s repeat-sales house price index to LP’s index to estimate changes in the value of the existing stock of 1-4 homes in non-benchmark quarters. The LP index is a repeat-sales price index based on detailed transaction-by-transaction information on arm’s-length property sales. It is methodologically similar to the FHFA house price index, but is based on data that cover a larger fraction of the U.S. housing market than does FHFA. The LP index uses deed-level data collected from

¹⁰ Industry practice is to use the name “one-to-four homes” despite the inclusion of condos and coops in structures with five or more units. Vacant homes are second homes that are never rented.

municipalities. This allows the index to measure price changes for homes regardless of the method of finance—that is, for homes purchased not only with conforming conventional loans but also with subprime, jumbo, or Federal Housing Administration mortgages, or with cash. In contrast, the FHFA index is based only on data from loans purchased or guaranteed by Freddie and Fannie, the vast majority of which are conforming conventional mortgages.

¹¹ Every two years, the AHS surveys about 65,000 housing units, including owner-occupied, rental, and vacant homes; the response rate is typically between 90 to 95 percent.