

**Analysis of Wealth Using Micro and Macro Data:  
A Comparison of the Survey of Consumer Finances  
And Flow of Funds Accounts**

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Researchers use different types of household balance sheet data to study different aspects of lifecycle saving and wealth accumulation behavior. Macro data from the Flow of Funds Accounts (FFA) are produced at a quarterly frequency and are available in a timely manner, but they can only be used to study the behavior of the household sector as a whole. Micro data from the Survey of Consumer Finances (SCF) are available every three years and only with a lag, but they can be used to address questions that involve differences in behavior over time and across various types of households. Despite the very different approaches to estimating household net worth, the two data sets show the same general patterns wealth changes over the past twenty-five years. Areas where the FFA and SCF diverge in aggregate levels—in categories such as owner-occupied housing, noncorporate equity, and credit cards—may be explained by methodological decisions applied in the production of the data. Those differences do not fundamentally alter one’s perception of household wealth dynamics in the period leading up to and following the Great Recession.

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## 1. Introduction

Household balance sheets are key inputs into macroeconomic analysis and forecasting, and thus the Federal Reserve Board allocates substantial resources towards two major data products that are used to independently generate estimates of household net worth over time. The Board is responsible for the most widely-used macro-level estimates of U.S. household sector net worth, generated as part of the quarterly Flow of Fund Accounts (FFA).<sup>1</sup> The Board is also responsible for the micro-level Survey of Consumer Finances (SCF), used extensively to study household behavior.<sup>2</sup> Despite substantial differences in the goals and methods used to produce the two measures of household net worth, the patterns of aggregate household wealth change over the past twenty-five years are similar. The differences that do exist in a few sub-components of the household balance sheet—such as owner-occupied housing, noncorporate equity, and credit cards—are attributable to methodological decisions made in the production of the data. Those methodological decisions do not fundamentally alter one’s perceptions of household wealth changes leading up to and following the Great Recession.

Macro and micro wealth data are used to answer different types of questions about lifecycle saving and wealth accumulation. Macro wealth data from the FFA are often used in conjunction with macro income and macro consumption data to study household-sector saving and spending over time.<sup>3</sup> One might ask, for example, whether the dramatic decline in aggregate personal consumption expenditures during the Great Recession and subsequent slow growth have been unusual, given what happened to aggregate household wealth and income.<sup>4</sup> This sort

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<sup>1</sup> The FFA data are available for download at <http://www.federalreserve.gov/releases/z1>.

<sup>2</sup> Results of the most recent SCF, conducted in 2010, are discussed in Bricker, Kennickell, Moore, and Sabelhaus (2012). SCF micro data are available for download or on-line tabulation and analysis at <http://www.federalreserve.gov/econresdata/scf/scfindex.htm>. Longer term trends in wealth on the SCF are discussed in Wolff (2011, 1998) and Kennickell (2011).

<sup>3</sup> For example, Wilson et al (1989).

<sup>4</sup> This issue has been addressed in a number of papers. See, for example, Lettau and Ludvigson (2004).

of aggregate time-series analysis leads to estimates of key macroeconomic forecasting parameters, such as the marginal effect of wealth change or the effects of permanent and transitory income shocks on personal consumption expenditures. Answering such questions requires high-frequency, timely, and comprehensive data.

The drawback to using macro data is that the aggregate behavior of the household sector is modeled as though households are a monolithic entity, rather than generated by summing the behavior across the many millions of different types of households actually making the spending and saving decisions.<sup>5</sup> In a perfect world of household data (a world where this paper would never have to be written) the macro wealth data would be aggregated from household-level wealth data, and that underlying household-level data would also have the key income, demographic, socioeconomic, labor force, credit market experience, and expectation attributes of the individual households that theory tells us should affect their saving and spending decisions. Micro data is desirable for studying behavior both because households differ in terms of these underlying characteristics, but also because any given set of changes to the macroeconomic environment will have differential effects across households, depending on their initial conditions.<sup>6</sup>

The SCF is a widely-used micro data set for studying saving and wealth accumulation behavior across different types of households. The popularity of the SCF among economic researchers is attributable to a unique sampling and data production strategy, and because the SCF collects both comprehensive balance sheet data and the extensive income, demographic, and

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<sup>5</sup> One exception is Maki and Palumbo (2001) who use the SCF to provide evidence of heterogeneity inherent in the FFA values.

<sup>6</sup> See, for example, De Nardi, French, and Benson (2012) and Petev, Pistaferri, and Eksten (2011).

other supplemental information that researchers want.<sup>7</sup> SCF data has been used in several different ways for studying basic lifecycle saving and wealth accumulation behavior. For example, one important use of the SCF is to calibrate structural lifecycle models. Given income dynamics, realistic budget constraints, and assumptions about utility functions, deep parameters, and intertemporal optimizing behavior, one can solve for the predicted net worth outcomes of different types of households in different situations and then compare those predictions to actual outcomes in the SCF.<sup>8</sup> A second example of how the SCF has been used to study lifecycle behavior is the so-called “synthetic cohort” approach, where observations are grouped within the independent cross-sections in such a way as to make it possible to measure wealth changes for those groups between survey waves.<sup>9</sup>

The SCF has much of the household-level balance sheet and other information that researchers desire for studying saving and wealth accumulation behavior, but the primary drawbacks are the triennial frequency, the lag between data collection and data release, and the relatively small sample sizes.<sup>10</sup> These limitations arise because the SCF is a complicated household survey, and (like every data collection effort) faces a budget constraint. Conducting

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<sup>7</sup> The sampling strategy of the SCF involves combining a standard area-probability sample with a special “list” sample of (probabilistically) high-wealth households. The list sample is chosen based on statistical records derived from income tax returns. Other household surveys that collect measures of household net worth, such as the Survey of Income and Program Participation (SIPP), Panel Survey of Income Dynamics (PSID), and Health and Retirement Study (HRS), generally find wealth levels comparable to the SCF for much of the wealth distribution, but they fall far short for the wealthiest households. Given the highly concentration of wealth, this also means those other data sets fall well short of producing aggregate net worth estimates that would match a data set like the FFA. In addition to the unique sampling strategy, SCF data is also subject to extensive data edit and imputation.

<sup>8</sup> See, for example, Hubbard, Skinner, and Zeldes (1994). Browning and Lusardi (1996) provide an extensive overview of how different types of micro data have been used to study saving and wealth accumulation in different ways.

<sup>9</sup> See, for example, Gale and Pence (2006) and Sabelhaus and Pence (1999).

<sup>10</sup> Another potential drawback is that the SCF has been almost exclusively a cross-section since 1989, with the one exception being a 2009 re-interview of 2007 respondents that the Board undertook in order to study the financial effects of the Great Recession; see Bricker, Bucks, Kennickell, Mach, and Moore, 2011. Bosworth (2012) shows that measuring saving (and thus consumption, solved for by subtracting saving from income) by first-differencing wealth levels in the PSID is extremely problematic and probably uninformative. Rather than rely on measured wealth change, Dynan (2012) uses the direct expenditure estimates now being collected by the PSID to study the effect of housing wealth on consumption.

and processing the data from even a few thousand household interviews is a substantial undertaking, and survey resources are allocated to balance competing objectives of data quality, frequency, and timeliness.

FFA data are collected in a very different way and with different goals in mind, and thus there is a different set of tradeoffs. As much as possible, the FFA as a whole are based on reports that provide comprehensive coverage of sectors or entities. For example, call reports provide the source data for banks, and regulatory filings with the Securities and Exchange Commission are source data for the government-sponsored enterprises. In addition, the FFA use trade association data in some cases, which typically offer nearly complete coverage of a sector. Data from the Investment Company Institute are used to compile balance sheets for the mutual fund sector. Other key source data for the FFA are obtained from various government agencies, including the Bureau of Economic Analysis (BEA), the Census Bureau, and the Internal Revenue Service.

Many components of the FFA's balance sheet for the household sector (Table B.100) are estimated as residuals, including households' holdings of checkable deposits and currency, time and savings deposits, bonds, and mutual funds. The household sector is estimated as a residual when the economy-wide total, as well as the components for all other sectors for which the FFA compiles a balance sheet, is known. Sufficient data do not exist to estimate a balance sheet for nonprofit organizations; thus, by default, they are included in the household sector. In addition, some entities, such as hedge funds and some privately-held trusts, for which virtually no comprehensive source data are available, also are included in the household sector's residual calculations. The FFA historical series are frequently updated when additional source data can be incorporated to improve their estimates.

Despite the very different approaches to estimating household net worth, the two data sets show the same general patterns of saving and wealth accumulation over the past twenty-five years.<sup>11</sup> Levels of net worth are nearly identical in the period 1989 to 1998. Beginning in 2001, and through 2010, the SCF estimates of net worth exceed the FFA estimates by approximately 20 percent. The gap that emerged in the 2000s is a combination of higher values for tangible assets in the SCF, in particular noncorporate business equity and owner-occupied housing, and larger values of liabilities in the FFA, especially for consumer credit.

These areas of divergence between the SCF and FFA in aggregate owner-occupied housing, noncorporate business, and credit card balances appear to be largely attributable to methodological decisions used in the production of the data, but they do not dramatically alter one's perceptions of household net worth changes leading up to and following the Great Recession. The aggregate trend in household wealth most often mentioned when describing the past decade or so is the boom and bust in owner-occupied housing. The aggregate values of owner-occupied housing in the FFA and SCF were nearly identical in 1995. Between 1995 and 2007, the FFA value increased nearly 170 percent, while the SCF value increased nearly 250 percent. Between 2007 and 2010, the FFA value fell 22 percent, while the SCF value fell 17 percent. The boom and bust in housing is clearly evident in both data sets, but the more dramatic boom and slightly less dramatic bust has left the SCF value some 40 percent higher as of 2010. This pattern is unsurprising given methodological differences between the two estimates, and it is not immediately clear how these differences should be interpreted.

Among tangible assets, noncorporate businesses are held by the fewest households, and the distribution of business values is extremely skewed. Differences in the valuation methods

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<sup>11</sup> Previous studies have also looked at the relationship between SCF and FFA aggregate net worth over time. See, in particular, Avery and Kennickell (1991), Avery, Elliehausen, and Kennickell (1988), Curtin, Juster, and Morgan (1989), and Antoniewicz (2000).

used by the SCF and FFA, along with a high degree of sampling variability because of the skewed distribution of owned business values possessed in the survey, combine to generate a volatile measure in which SCF business values typically exceed those in the FFA. However, as with owner-occupied housing, the general pattern of boom and bust in recent years is evident in both data sets.

Another example of apparent divergence between the SCF and FFA is in the category of consumer credit outstanding, especially credit card balances.<sup>12</sup> The SCF estimate of total consumer credit in any given year is generally only about two-thirds of the FFA value, and in the period of rapidly rising household debt leading up to the Great Recession, this divergence in levels contributed modestly to the widening of the gap in net worth. Again, however, a substantial fraction of this divergence appears possibly due to methodological decisions. In particular, the SCF asks about credit card balances as of the time the respondent made their last payment (and thus excludes charges incurred in the interim) while the FFA measure balances at a discrete point in time without reference to the payment cycle. Both measures have their merits from the perspective of studying household behavior, and the overall impression of rapidly growing (then slowing or falling) consumer credit is evident using either concept.

## **2. Comparing SCF and FFA Net Worth**

The SCF measure of net worth, as found in Bricker, et al. (2012), and FFA's measure of net worth reported in the B.100 table of the Z1 release are conceptually different in several ways. We perform adjustments to each measure to reconcile the two concepts as much as possible, given the available data, for comparability. While the adjustments affect aggregate levels of net worth, trend and cyclical patterns of net worth are relatively unaffected.

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<sup>12</sup> See, for example, Zinman (1999) and Brown, Haughwout, Lee, and van der Klauw (2011).

*Conceptual Adjustments to FFA Net Worth*

First, FFA household net worth includes the nonprofit sector. Where possible, we remove values that are attributable to the nonprofit sector. Certain categories are separately collected for nonprofit holdings and non household holdings (e.g. trade payables), and therefore these can be directly removed. Other categories of household net worth are calculated as residuals after subtracting other sectors from the economy-wide total. For these categories, we cannot separate holdings of nonprofits from those of households, so the values associated with nonprofits remain in the FFA measure of net worth.

Second, pension wealth is treated differently in the two measures. Assets accruing through defined benefit (DB) pensions plans are an important component of overall household wealth but one whose levels cannot be determined unambiguously using the SCF. Since pension recipients and the SCF by extension cannot put a value on the assets associated with future or current DB pension payouts without numerous assumptions, we must remove these holdings from the FFA balance sheet.

Lastly, we also remove a few small categories of assets and liabilities which are difficult to measure or compare. On the asset side these categories are life insurance reserves and other financial assets (listed as security credit in FFA). We also remove margin loans and loans against life insurance policies from total liabilities.

The impact of these three adjustments can be found in Figure 1, which presents household net worth measured by FFA from 1989 to 2010. The top-most series is the net worth as reported on the B.100 table; the second line removes nonprofits where possible, and the lowest line is the FFA net worth that is fully adjusted for comparability with the SCF. These



adjustments lower the level but do not substantially alter the time trend of FFA net worth. FFA net worth climbs steadily between 1986 and 1999, after which it levels off for three years. FFA net worth then climbs steeply until 2007, declines between 2007 and 2008, then recovers somewhat between 2008 and 2010.

### *Conceptual Adjustments to SCF Net Worth*

There are a few small adjustments made to the SCF to make the aggregates more comparable with FFA. We allocate assets from trusts and IRAs to their component asset types. We remove the smaller categories of asset and liabilities as done with FFA. These categories include assets in hedge funds (for recent surveys), other expected payments or accounts like lottery winnings or proceeds from a lawsuit, and IRA assets in mineral rights. Life insurance and any loans against the policy are removed from assets and liabilities, respectively. Finally, we remove second homes that collect rental income but are not reported as investment properties by the respondent.

These adjustments yield more comparable administrative and survey-based measures of net worth. Figure 2 shows that the fully adjusted net worth measures from the two sources track each other closely in the 1990s, with SCF generally coming in just shy of the FFA aggregates. In 2001, SCF net worth is about 25 percent higher than FFA net worth, and this difference persists in all subsequent waves. The leveling between 1999 and 2002 of the FFA is driven by a decline in corporate equity over this time period. If corporate equity is excluded, the two series match up better between 1998 and 2004, but the SCF still shows higher growth in net worth, particularly from 1998 to 2001. Similarly, because the SCF is conducted every three years, it

cannot capture the uptick between 2008-2010 reflected in the FFA. However, both data sources show a similar three-year trend between 2007 and 2010.

The ratio of SCF to FFA net worth was very consistent and close to unity between 1989 and 1998 with a persistent increase in the ratio beginning in 2001, after which the SCF shows at least 10 percent more household wealth (Figure 3). The patterns differ by broad categories of net worth: tangible assets, financial assets, and liabilities. Beginning in 1995, there is a steady upward trend in tangible assets represented in the SCF compared to FFA. In 2001, there is a sharp break in financial assets patterns; while SCF financial assets were previously less than FFA financial assets, after 2001 SCF levels exceeded FFA, due to very little growth in the FFA between 1998 and 2001. In 2007 and 2010, the SCF again shows less financial assets than the FFA, covering approximately 90 percent of the value. The SCF to FFA ratio of total liabilities is relatively flat in comparison, remaining between 77 percent and 87 percent for all periods before reaching 90 percent in 2010.

### **3. Tangible Assets**

Tangible assets consist of three categories: (1) owner-occupied residential real estate, (2) consumer durable goods, and (3) noncorporate business equity. In general, the level of tangible assets measured in the SCF gradually increases compared to the FFA starting in 1995 and continuing through 2010 (Figure 3). This is a combination of relatively faster increases in both housing and noncorporate business values reported by households in the SCF. Although the SCF and FFA use fundamentally different approaches to valuing these infrequently traded assets, the overall pattern of boom and bust in asset values during the period leading up to and following the Great Recession is evident in both data sources.

*Owner-Occupied Real Estate*

The SCF and FFA once took relatively similar approaches to valuing owner-occupied real estate, but diverge methodologically in recent periods. The SCF collects owner-reported values in every survey year, which reflects respondents' subjective valuations at that point in time. The FFA also starts with self-reported values for owned housing, from the American Housing Survey (AHS), which is conducted every two years. In between AHS surveys, the FFA use a national housing price index (HPI) from CoreLogic and net investment from the Bureau of Economic Analysis (BEA) to interpolate between the AHS reference points.<sup>13</sup> AHS data from 2007 and 2009 were not incorporated into the FFA.<sup>14</sup> Thus, since 2005, a perpetual inventory equation has been used to estimate the value of residential real estate in the FFA; the CoreLogic national house price index is used as a proxy for appreciation/depreciation in the existing stock, and net investment is from BEA.

Throughout most SCF survey years since 1989, the SCF and FFA measures of aggregate home values are very close. This is not surprising, as both are grounded in owner-reported values of homes.<sup>15</sup> The SCF asks homeowners how much their house would be worth if sold at the time of the interview. The AHS poses a question with the exact same wording as the SCF. The primary difference between the AHS and the SCF is that the AHS is a sample of *homes*, not households, and is collected in odd years, while the SCF is collected every three years. Given these minor differences, it is not surprising that from 1989 through 2001, the levels of owner-

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<sup>13</sup> The CoreLogic HPI is calculated using multiple sales of the same property to remove unobserved heterogeneity associated with each property. <http://www.corelogic.com/products/corelogic-hpi.aspx>

<sup>14</sup> A comparison of changes various measures of home prices indicated much larger average values in the AHS responses from 2005 to 2009; had the AHS been incorporated into the FFA, this would have resulted in a substantial increase in the value of residential real estate.

<sup>15</sup> For comparability, following the FFA approach of measuring owner-occupied residential real estate, we remove any residential property that collects rental income removed from the aggregate SCF measure. The SCF also measures vacation homes more accurately than the AHS which is another reason why the SCF values are larger than the FFA.

occupied real estate observed in the SCF and the FFA (which is bench-marked to the AHS) match well. In 1998 and 2001, there is a slight divergence, with the SCF reporting higher values by approximately 5 percent (see Table 3 and Figure 4).

The comparability between SCF and AHS owner-reported house values is evident at all points in the distribution of house values and across survey years. Comparison of values over time requires harmonizing the top-coding of high values in the AHS with the SCF values. The public-use AHS is topcoded at \$350,000 through 2003, but that topcode limit was raised in 2005 and is now tied to house price growth. In order to facilitate a direct comparison across the house price distributions, we artificially cap the AHS values at \$350,000 in 2005, so that the increase in the topcode effectively occurs in 2007 when the next wave of the SCF was conducted. We topcode SCF home values at the same thresholds as the AHS in every year. The FFA adjusts down the aggregate AHS value of residential real estate 5.5 percent in 2001, 2003, and 2005 to account for the apparent upward bias in reported home values shown in Goodman and Ittner (1992) and others.

After making the top-code adjustments, owner-reported house values across survey years line up very well both in terms of the aggregate (Figure 5) and at various percentiles in the distribution of house values (Figure 6).<sup>16</sup> One small difference is the value at the 90<sup>th</sup> percentile in the AHS is slightly smaller than in the SCF beginning in the late 1990s. Thus, even though the sampling approach is very different between the two surveys, the picture of housing values and trends is very similar. That is, the boom and bust in house prices leading up to and following the Great Recession is evident in both surveys.

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<sup>16</sup> The 90<sup>th</sup> percentile in 2005 is missing because it corresponds to a topcoded value. Beginning in 2005, AHS observations with values above the topcode value are given the mean of all properties above the threshold.

Beginning with the 2004 SCF survey, there is a growing divergence between the SCF and FFA; in 2007 and 2010, the SCF estimate was more than 30 percent larger than the FFA estimate. The 2004 FFA value is a combination of the 2003 AHS, the CoreLogic index and net investment in housing. It was a period of rapidly rising house prices, with the growth in 2004 exceeding the gains in 2002 and 2003 according to the national CoreLogic HPI. Between 2001 and 2004, the SCF reported total growth of 50 percent while the FFA and CoreLogic HPI report change of approximately 40 percent. It is unclear whether the divergence is happening more in the early period (2001-2002) than the later period (2003-2004). According to CoreLogic, the growth from 2003-2004 was 50 percent larger than in the two preceding years (about 15 percent compared to annual growth rates of about 10 percent).

In the most recent period, from 2007 to 2010, the SCF data show much higher aggregate values than the FFA. The divergence in 2007 and 2010 may not be surprising given the differences in estimation methodology. Since the FFA have not been benchmarked to the AHS since 2005, the estimates are now driven by transaction based measures of home values, rather than owners' reports. The CoreLogic HPI represents changes in the value of houses that transact in a given period, whereas the SCF is a sample of households, most of who did not engage in a recent transaction. As a result, the SCF and FFA are now using different conceptual frameworks to measure changes in house prices over time.

Most of the increased gap between SCF and FFA aggregate house values occurred between 2004 and 2007, which was the height of the boom period leading up to the Great Recession. The housing bubble burst between 2004 and 2007 across the country, with the peak typically occurring in 2006. In the period 2007 to 2010, the decline in SCF self-reported house

values was less than the value indicated by the CoreLogic transaction-based index, and thus the gap between SCF and FFA aggregates continued to widen, albeit at a slower pace.

### *Durable Goods*

The second category of tangible assets common to the SCF and FFA is durable goods. FFA obtains values directly from BEA. The data collection in the SCF is consistent over the full time period.<sup>17</sup> The ratio of SCF to FFA is fairly constant over the full time period, averaging 60 percent representation of what the FFA reports. This difference is confirmed using BEA tables that show categories not measured by the SCF account for more than 30 percent of all consumer durable goods. As a result, both sources show similar trends in households' holdings of durable goods.

### *Equity in Noncorporate Business*

Among tangible assets, noncorporate businesses are held by the fewest number households, and the distribution of the holdings is extremely skewed.<sup>18</sup> Noncorporate businesses include sole proprietorships, partnerships and investment real estate including one-to-four unit rental properties. Differences in the valuation methods used by the SCF and FFA along with a high degree of sampling variability (see Appendix) because of the distribution of owned business values combine to generate a volatile measure in which SCF business values typically exceed those in the FFA.

There is no aggregate benchmark for the value of noncorporate businesses, thus the FFA relies on intermediary sources for noncorporate financial and non-financial noncorporate

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<sup>17</sup> Durable goods measured by the SCF include vehicles, which comprise the majority of this category, small valuables and other collectibles.

<sup>18</sup> Fewer than 15% of households held noncorporate equity in 2007 and 2010.

business values. For noncorporate financial businesses the FFA gets their estimates from security brokers and dealers, and for non-financial businesses, the IRS provides estimates of business values based on business income reported on tax returns.<sup>19</sup> Estimates of real estate holdings incorporate data from CoStar. As with owner-occupied housing, the SCF asks noncorporate business owners how much they believe their business would sell for today.

The SCF finds higher aggregate values for noncorporate equity than the FFA in every year except for 1995.<sup>20</sup> From 1989 to 1995, the two series moved closer together, and in fact, the FFA estimate exceeded the SCF aggregate in 1995. Since then, the two series have diverged substantially, but the overall pattern of boom and bust leading up to and following the Great Recession is evident in both data sets. The value of noncorporate business grew roughly 80 percent in both data sets between 2001 and 2007, though the growth during the boom underscores the difficulties with getting precise estimates. The ratio of SCF to FFA noncorporate equity fell from 122 percent to 108 percent between 2001 and 2004, before rising to 123 percent by 2007. Since the FFA show that real estate holdings comprise much of the net worth of noncorporate businesses, differences in owner-reported and index-based values might explain why SCF measures tend to exceed FFA measures.

Sampling variability may also be an issue in the latest comparison (see Appendix), but methodological differences may also have played a role. The aggregate value of noncorporate businesses fell about 27 percent in the FFA between 2007 and 2010, while the corresponding decline in the SCF was 12 percent. Thus, the gap between the two estimates widened

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<sup>19</sup> A description of the data sources and limitations can be found at <http://www.irs.gov/taxstats/bustaxstats/article/0,,id=214346,00.html>

<sup>20</sup> Antoniewicz's (2000) values for noncorporate equity in the SCF are much lower for 1989-1998. As a result she finds that either FFA and SCF are very comparable or that SCF is smaller. Antoniewicz (2000) includes our definition of other residential real estate (vacation homes) as investment real estate instead of net nonresidential real estate. From 1989 through 1998, the value of net nonresidential real estate is more than twice the value of other residential properties.

substantially in the most recent survey. One possible explanation for this recent divergence is that FFA values are tied more directly to realized business incomes, which took a substantial hit during the Great Recession.

#### **4. Financial Assets**

Financial assets are a large component of total assets and net worth. These assets, which include risky assets like corporate equity and non-risky assets like deposits, can be held in various types of accounts. High level FFA-SCF comparisons across account types and risk types are close, though we see divergence in detailed drilldowns of portfolio allocation. In both datasets, the aggregate level of financial assets reached about 31 trillion dollars in 2010 (see Tables 1 and 2). In the first half of our study period, the SCF reported lower levels of financial assets than the FFA. The trend has a large break in 2001, after which the ratio of SCF to FFA financial assets fell. In the past two SCF surveys, both SCF and FFA show similar levels of financial assets. However, patterns for detailed asset types are not as close for the two datasets, which can be expected due to the very different methods used by the FFA and SCF for allocating financial assets to asset classes.

##### *Assets Inside and Outside Retirement Accounts*

The highest level breakdown within financial assets is the distinction between assets held inside and outside 401(k)-type accounts, trusts, and managed investment trusts (MIAs). Since data on 401(k) accounts are collected separately from other financial assets for both the SCF and the FFA, we will consider these assets on their own. Figure 7 displays the SCF-FFA ratio of safe and risky assets held outside 401(k) accounts and assets inside 401(k) accounts over time. While



the time trend of measurement of safe and risky assets outside 401(k) on the two datasets are similar, the SCF level of 401(k) assets has grown relative to the FFA since 1998.

For financial assets outside 401(k) accounts the FFA values are residuals and include assets held by nonprofits and hedge funds.<sup>21</sup> The FFA data on IRA holdings are reported in their respective asset class: deposits, bonds, corporate equity and mutual funds. Making the SCF comparable to the FFA here requires allocating assets to the same asset categories. Furthermore, the SCF methodology for estimating the value of non-401(k) holdings of detailed asset types has changed over time so we will instead focus primarily on analyzing risky assets, which include corporate equity and mutual funds, versus safe assets, which include deposits and bonds.

#### *Deposits and Bonds Outside 401(k)-type Accounts*

SCF levels of safe assets (deposits and bonds) are consistently lower than FFA levels. One explanation is that the residual nature of FFA safe assets likely increases their value relative to the SCF since the FFA includes assets held by non-household entities, such as churches and other non-profits, which are likely to have significant holdings of deposits and bonds. The SCF-FFA ratio of safe assets is generally between 0.53 and 0.64, with slightly elevated ratios in 2001-2004.

Deposits in the SCF are consistently lower than the FFA measures. The levels of deposits measured by the SCF were stable at about 60 percent of FFA deposits until 1998. The SCF-FFA ratio rose to about 70 percent in 2001 and since has stabilized around 80 percent.

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<sup>21</sup> Hedge funds are also included in FFA residuals as they do not have direct reporting requirements that could be used to remove them.

Some of the reasons for this persistent gap between the SCF and FFA have been established.<sup>22</sup>

The SCF also reports much lower bond holdings than the FFA. The SCF-FFA ratio of bonds has declined somewhat from 59 percent in 1989 to 50 percent or below in all years except 2001. In 2001, the ratio reached over 80 percent. Furthermore, the pattern is also partially driven by no growth in bond holding in the FFA between 1998 and 2001 with a large increase measured in the SCF, which saw almost 100 percent increase. Lastly, SCF respondents are likely to report the face value of their bonds, which may differ from the book values or other types of valuations used in the FFA (see Antoniewicz, 2000).<sup>23</sup>

#### *Mutual Funds and Corporate Equity Outside 401(k)-type Accounts*

Risky financial assets consist of mutual funds and corporate equities. The SCF-FFA ratio is quite close to one earlier in the 1990s. The ratio jumps from 1.12 in 1998 to 1.61 in 2001. This is likely attributable to new SCF questions on asset allocations within IRAs added during the 2001 wave.<sup>24</sup> In previous waves, IRA accounts were allocated to risky and safe assets based on simple rules-of-thumb drawn from brief follow-up survey questions.<sup>25</sup>

Comparing SCF and FFA measure of the two sub-components of risky assets requires even more detailed allocation of SCF assets. All risky assets held in IRAs, trusts, and MIAs were allocated to corporate equities for survey waves prior 2004, but were subsequently allocated to mutual funds from 2004 onward. Therefore, we expect that the SCF will understate

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<sup>22</sup> Avery, Elliehausen, and Kennickell (1988) discuss some of these explanations. For instance, unlike the FFA, the SCF measure does not include currency. Also, check float and the holdings of churches could account for some of the discrepancy.

<sup>23</sup> Our analysis yields different findings than Antoniewicz (2000) due to large upward revisions that have been made since 2000 to the FFA historical series.

<sup>24</sup> Unlike assets held within 401(k) type accounts and IRA accounts, SCF respondents are queried specifically about holdings of particular asset classes held outside these accounts during all waves.

<sup>25</sup> Antoniewicz (2000) assigns the assets in SCF based on the type of institution holding the account. However, this approach is no longer realistic due to consolidation in the banking industry.

true household holdings of corporate equity and overstate holdings of mutual funds prior to 2004, and vice versa thereafter.

FFA levels of corporate equity are drawn from direct measures of publicly traded shares and internal Federal Reserve Board estimates of the market value of closely held shares.<sup>26</sup> In all survey waves, the SCF levels of corporate equity exceed FFA levels. With one exception, the typical difference between SCF and FFA levels is approximately 15 percent. Like the SCF-FFA ratio of bonds, the ratio of corporate equity spiked in 2001, reaching 1.90. Similar to the trend between 1998 and 2001 for net worth, SCF and FFA measures of corporate equities diverge between these two waves. The FFA do not show an increase in corporate equity between these two waves, whereas the SCF levels increase over 40 percent.

The value of mutual funds in the SCF has increased relative to the FFA over the course of the study period. Initially, the SCF-FFA ratio of long-term mutual funds was approximately 0.65. It rose to 0.91 in 1995, dropped in 1998 and in 2001 rose to 0.95. Since 2004, the SCF levels of mutual funds have exceeded 1.4 times that of the FFA. This is consistent with the change in IRA allocations on the SCF discussed above.

#### *Assets Inside 401(k)-type Accounts*

Holdings in 401(k) accounts are collected separately from other financial assets in both the SCF and the FFA. Prior to 2001, the SCF and FFA show very similar levels of assets in 401(k) type accounts. Starting in 2001, the SCF reports levels of 401(k) holdings that are over 40 percent higher than those reported by the FFA. Some of this divergence may be due to data coverage. The SCF changed its questionnaire in 2001 to include current and future work-related

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<sup>26</sup> Estate tax forms are used to benchmark closely held corporate equity (Antoniewicz, 2000). There are some well-known biases in this estimation approach, as described by Antoniewicz and others.

defined contribution plans. In addition, a small amount of 401(k) assets are missing from the FFA due to a lack of reporting requirements for pensions with fewer than 100 participants. Using the SCF to create a benchmark of the fraction of assets held by these individuals, we estimate that no more than ten percent of assets may be missing from the FFA measure.<sup>27</sup>

Consequently, as expected, the SCF level of 401(k) holdings has exceeded that on the FFA persistently since 2001. The SCF-FFA ratio held relatively steady between 2001 and 2007 and increases in 2010. This is due to the fact that the SCF shows an increase in the value of assets between 2007 and 2010, whereas the FFA show a modest decline. Therefore, in recent years the two sources display the same general trend.

## **5. Liabilities**

Household liabilities cover home mortgages and consumer credit/debt. Levels of liabilities have increased over time, as shown both in the FFA and SCF data (see Tables 1 and 2). However, we do not expect aggregates levels of liabilities as measured on the FFA to perfectly match SCF aggregate levels due to major differences in their methods. While the SCF takes a similar approach to collecting both assets and liabilities, asking respondents account by account, the FFA collects data on liabilities by type of institution, including savings institutions, credit unions, government-sponsored enterprises, and finance companies. Data on mortgages, consumer credit, and other liabilities are collected separately, and sub-types are not drilled down. In contrast, SCF asks respondents about various types of outstanding debt within those three categories. For instance, respondents are asked separately about mortgages and home equity

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<sup>27</sup> The FFA shows that approximately 40 percent of 401(k) assets are reported through the Department of Labor's Form 5500. The SCF suggests that approximately 20 percent of 401(k) assets are held by household head's who work at firms with fewer than 100 participants. This leads to a back-of-the-envelope calculation of less than 10 percent of 401(k) assets potentially missing.

lines of credit on primary and second homes, credit cards, education loans, vehicle loans, and so forth. Furthermore, FFA collects data on consumer *credit*, whereas SCF focuses on outstanding consumer *debt*, meaning that the two sets of data measure fundamentally different concepts.

As can be seen in Figure 3, the ratio of total liabilities from the SCF and FFA has been relatively stable during this time period. Liabilities on the SCF were about 77 percent of those measured by the FFA in 1992, and this ratio subsequently hovered around 80 percent, ending at 88 percent in 2010. As shown in Figure 8, the SCF-FFA ratios of the two major categories of liabilities (mortgages and consumer credit/debt) have been relatively stable over time.

### *Home Mortgages*

Overall, the SCF and FFA measures of home mortgages track each other quite well. SCF levels of home mortgages have become modestly closer to FFA levels over time. SCF levels of mortgages were between 79 and 89 percent, rising to 92 percent in 2010. This comparison suggests that administrative and survey measures of home mortgages exhibit similar trends over time. The similarities are likely attributable to the fact that the FFA and SCF have relatively consistent conceptual definitions and data collection methods throughout the sample period. The results are consistent with Bucks and Pence's (2008) findings that the mortgage terms reported by homeowners on the SCF match administrative records well for fixed-rate mortgages. Both datasets show a growth in home mortgages over time, with a leveling off between 2007 and 2010.

*Consumer Credit and Debt*

While the SCF measures outstanding consumer *debt*, the FFA explicitly measures consumer *credit*, which includes current balances that consumers may pay off in full before incurring interest—so-called “convenience credit”. Therefore, SCF measures of consumer debt should, by virtue of definitional differences, be smaller than FFA measures. Furthermore, the discrepancy between the two sources of data may change over time depending on the importance of convenience credit.<sup>28</sup> The greater the convenience use of consumer credit, the greater the definitional discrepancy between the SCF and FFA measures of liabilities. Lastly, some differences may arise due to difficulties in separating spending for personal versus business purposes.

SCF consumer debt was about two thirds the level of consumer credit measured by the FFA in 1992, falling to half in 2001, then rose to 71 percent in 2010. This is consistent with previous studies documenting the gap between credit card measures, one of the primary components of consumer credit/debt, on the SCF and FFA. Zinman (2009) has shown a gap in aggregate credit card debt between the SCF and G.19 release<sup>29</sup>, the FFA’s main source for credit card data.

*Credit Card Balances on Administrative and Household Micro Data*

While the G19 data used by the FFA are aggregates, the Federal Reserve Bank of New York’s Consumer Credit Panel (CCP) provides administrative micro data on household liabilities for individuals with credit reports (Lee and van der Klaauw, 2010). In a comparison of 2007 data from the SCF and the CCP, Brown et al. (2011) find that the levels of overall debt from the

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<sup>28</sup> Johnson (2004) presents evidence that levels of convenience credit have increased over time.

<sup>29</sup> See Furletti and Ody (2006) for more details on the G.19 estimate of consumer credit.

two data sources are fairly close, as are levels of overall home-secured debt and education loans. However, the authors find that rates and levels of holding credit card debt are lower on the SCF than the CCP, as Zinman (2009) found with the G.19. Their results are consistent with the fact that the CCP and G.19 both measure *credit* from credit cards, not outstanding balances alone. In particular, Brown et al. find that about 46 percent of SCF respondents report outstanding credit card debt, whereas the Consumer Credit Panel implies 76 percent of households have credit card balances on their credit reports. The 46 percent rate calculated in the SCF is the proportion of households presumed to have credit reports that report outstanding balances on credit cards after the last payments on those accounts. However, the 76 percent of households with credit card balances from the Equifax is computed using any credit card balances from credit reports and cannot distinguish between convenience usage and such outstanding balances. Adding in the additional 28 percentage points of SCF 2007 households who report having new credit card charges (but no outstanding balances) yields an estimated 74 percent of credit report generating households with credit card charges, compared to the 76 percent found in the CCP.

Including new credit card charges as well as outstanding balances on credit cards on the SCF, which makes the SCF measure of credit card balances more comparable to the administrative data, also substantially increases SCF aggregate credit card levels. This broader measure would increase SCF levels of credit card debt by 28 percent in 2001 and 2004, 21 percent in 2007, and 25 percent in 2010.

Figure 9 shows the distribution of credit card balances by household, conditional on having any credit card spending, on the CCP and the SCF (using the broader definition including new charges) in 2010. The distributions are quite close across the four waves of the SCF that

overlap with the CCP data.<sup>30</sup> Therefore, the distributions of comparable concepts are very close for administrative and survey-based micro data.

Table 4 shows the proportion of total balances attributable to new charges, for waves between 2010. In all waves, the greater the total balance on credit cards, the smaller the proportion attributable to new charges. For instance, the vast majority of balances under \$1,000 are attributable to new charges rather than revolved debt. Both mean and median proportions of total balances attributable to new charges have declined in 2007-2010 for high balances over \$25,000, which would be consistent with the narrowing gap in consumer credit/debt on the SCF and FFA in recent waves.

Further research is needed to investigate if other characteristics of consumer debt are sources of discrepancies between survey and administrative data. In addition to conceptual differences between consumer credit on the FFA and consumer debt on the SCF, differences in credit card measures might be attributable to the individual nature of such accounts. Whereas mortgages might be considered household-level loans, credit card accounts are often held separately by different members of the family, and information on the account-level charges and debts may be shared across family members differently in different households. Since the SCF only interviews one respondent per household, such heterogeneity may lead to some respondents producing highly “accurate” levels of outstanding balances and new charges, if they are single or are fully aware of the credit card behavior of all other members of the family. Other respondents may not be able to accurately report credit card behavior on behalf of their relatives. In addition, the SCF asks respondents to exclude business credit cards. Individuals may use business cards

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<sup>30</sup> In 2001 and 2004, the CCP shows greater mass between \$7,500 and \$17,500, but the distributions line up remarkably for this range in 2007 and 2010. The figures for 2001-2007 are available upon request.



for personal spending, and personal spending for business purposes, which makes it difficult on both the survey and administrative side to isolate personal debt of households.

## **6. Conclusions**

The period leading up to the Great Recession can be characterized by a dramatic increase in asset prices, especially for tangible assets like owner-occupied housing and non-corporate businesses, and to some extent in the value of corporate equities and other risky assets as well. The other dominant feature of the decade or so preceding the recent financial crisis was an explosion in household debt, especially mortgages, associated with that boom in asset prices. The financial crisis itself was of course driven by the subsequent collapse in asset prices, which combined with elevated debt levels, has left many household balance sheets in distress.

These overarching patterns of boom and bust in asset prices and debt accumulation along with the consequent effects on household balance sheets are evident in both the macro-level FFA and the micro-level SCF. There is some divergence between the SCF and FFA in terms of asset prices increases during the boom, and to a lesser extent in the severity of asset price declines in the most recent period, but the general implications for household behavior one takes away from the long-term trends and fluctuations is basically the same. The differential patterns that do exist in categories such as owner-occupied real estate, non-corporate businesses, and credit cards, are attributable, at least in part, to methodological decisions made in the production of the two data sets.

Researchers using the SCF and FFA to study various aspects of household behavior should keep those methodological differences in mind when drawing conclusions. For example, the fact that house values in the SCF are larger than in the FFA will lead one to conclude that

fewer households are underwater, and the lower credit card balances in the SCF will lead one to conclude that financial obligation ratios are lower. These differences are small relative to the overarching trend and cyclical patterns indicated in both data sets, but it is important to keep them in mind when using the data sets to study changes in household finances over time.

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Figure 1. Flow of Funds Accounts, Measures of Household Net Worth

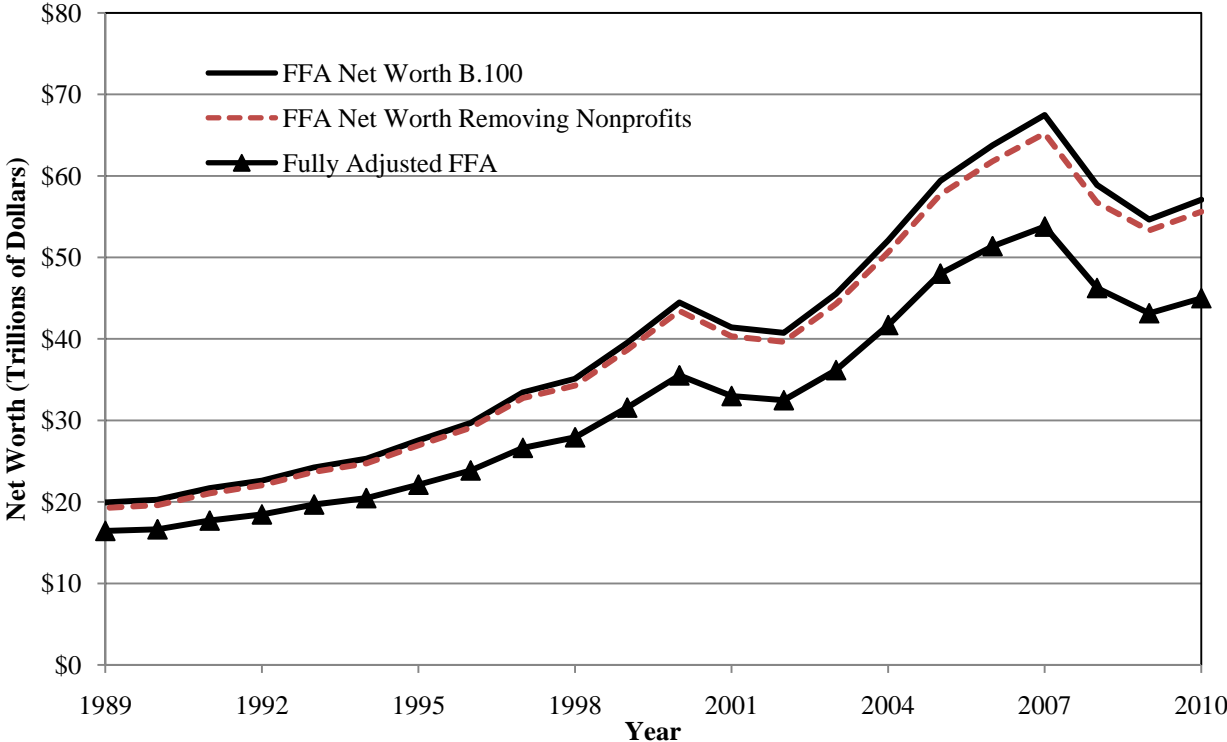


Figure 2: Net Worth in Comparable Terms, Flow of Funds Accounts & Survey of Consumer Finances

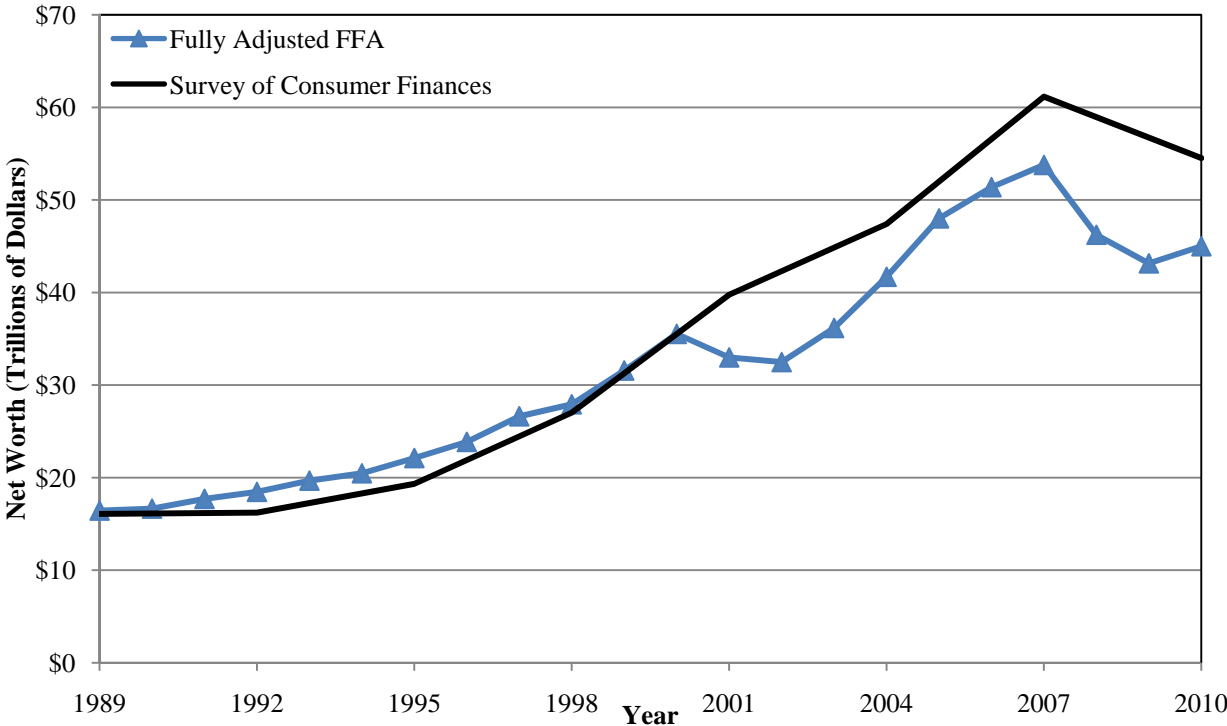


Figure 3. Ratio of SCF Aggregate to FFA Aggregate Value

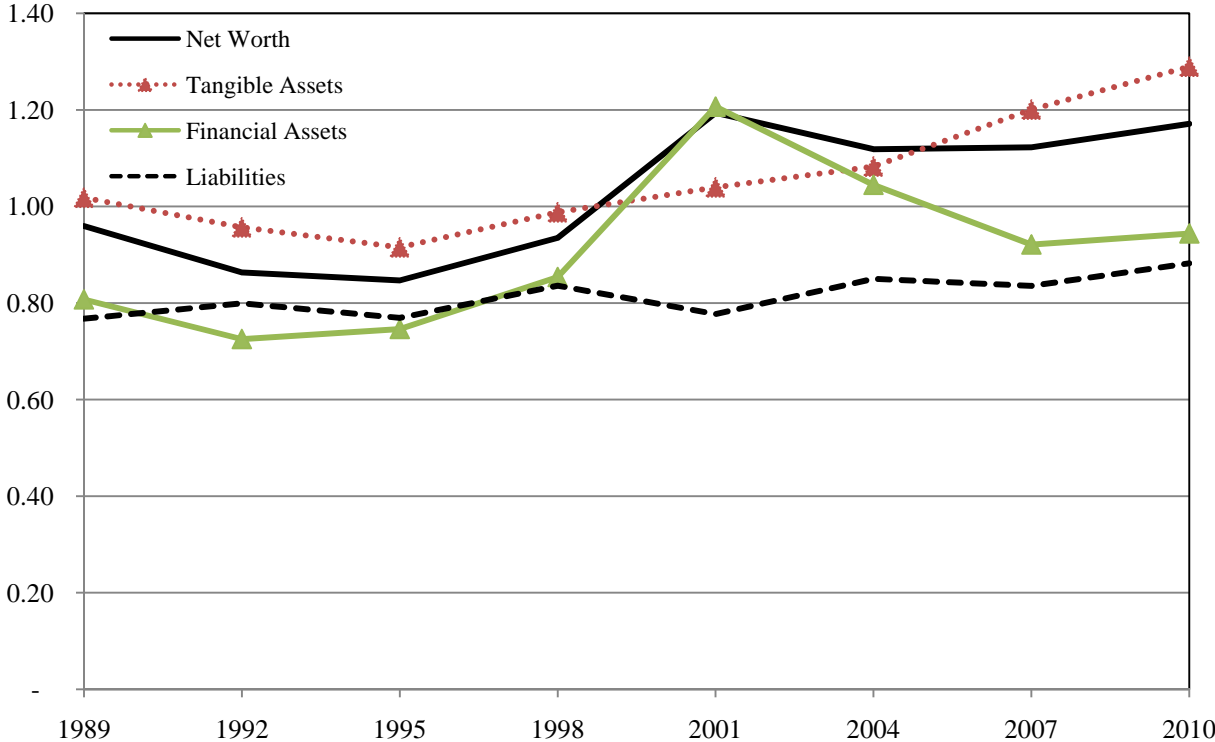


Figure 4. Ratio of SCF Aggregate to FFA Aggregate Value: Tangible Assets

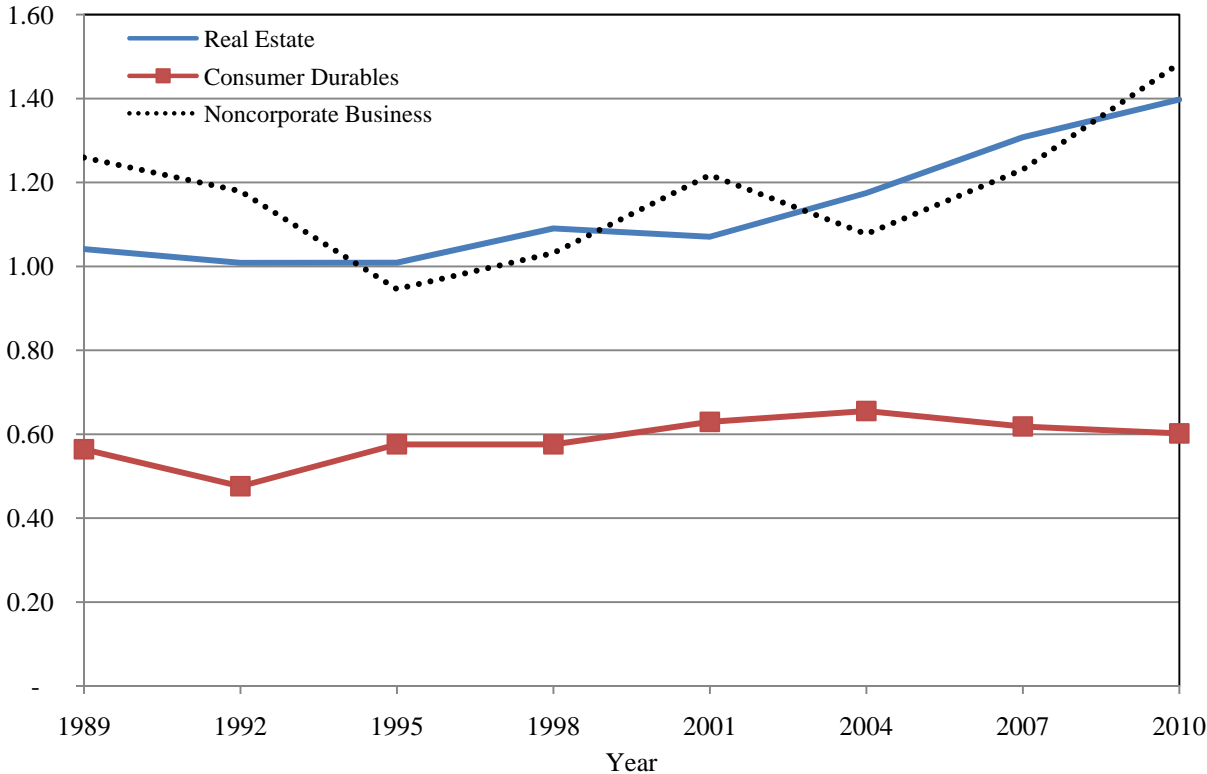


Figure 5. Aggregate Owner-Occupied Real Estate, SCF & AHS, topcoded

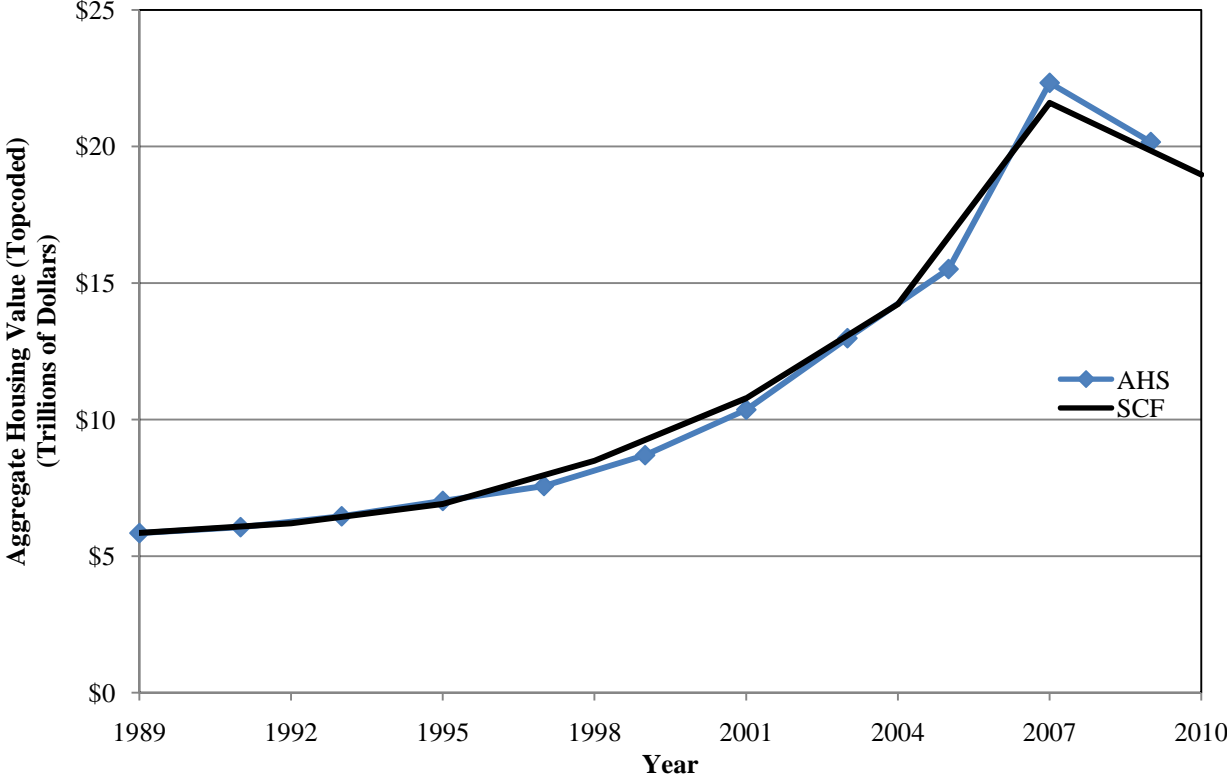


Figure 6. Percentiles from Distribution of Home Values, SCF & AHS

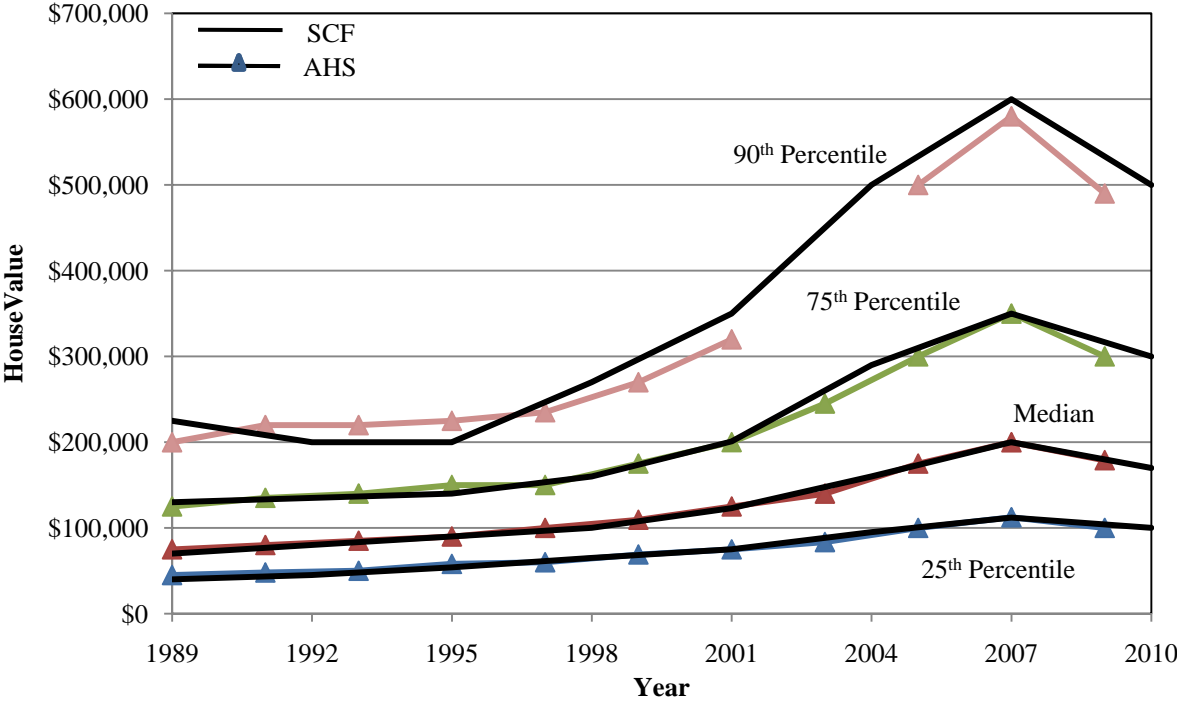




Figure 7. Ratio of SCF Aggregate to FFA Aggregate Value: Financial Assets

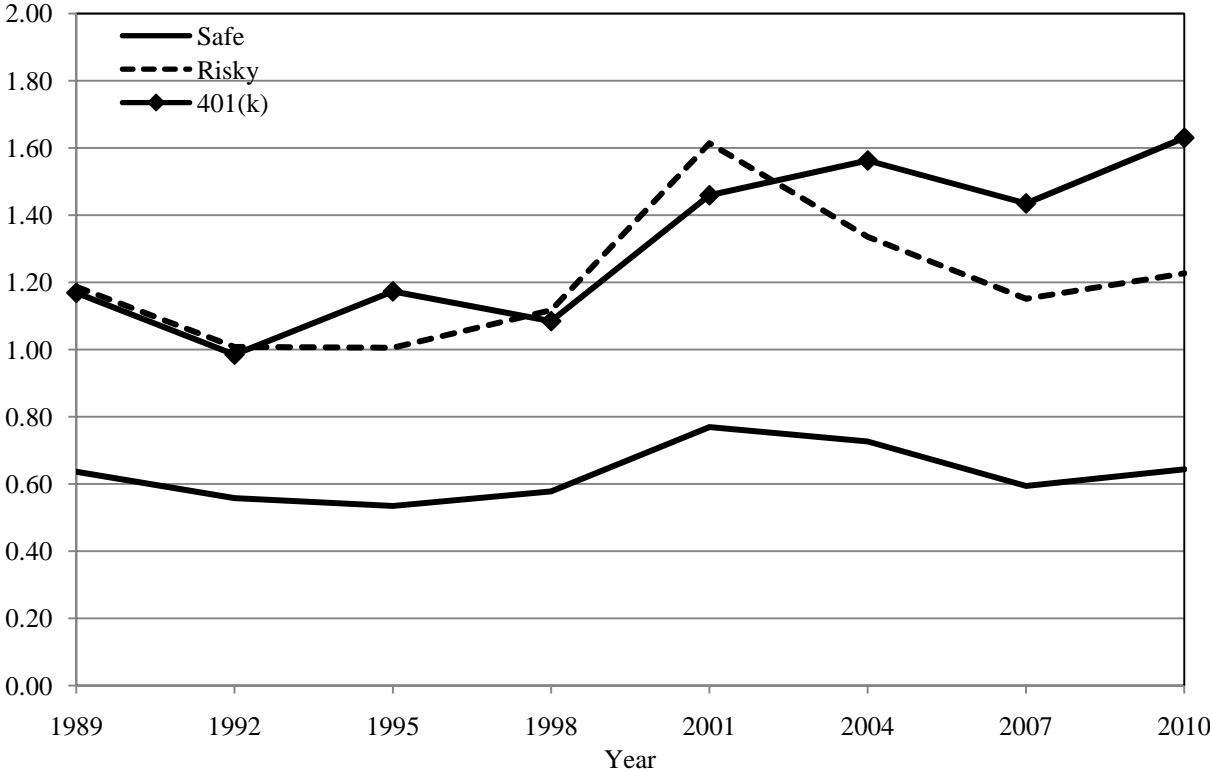


Figure 8. Ratio of SCF Aggregate to FFA Aggregate Value: Liabilities

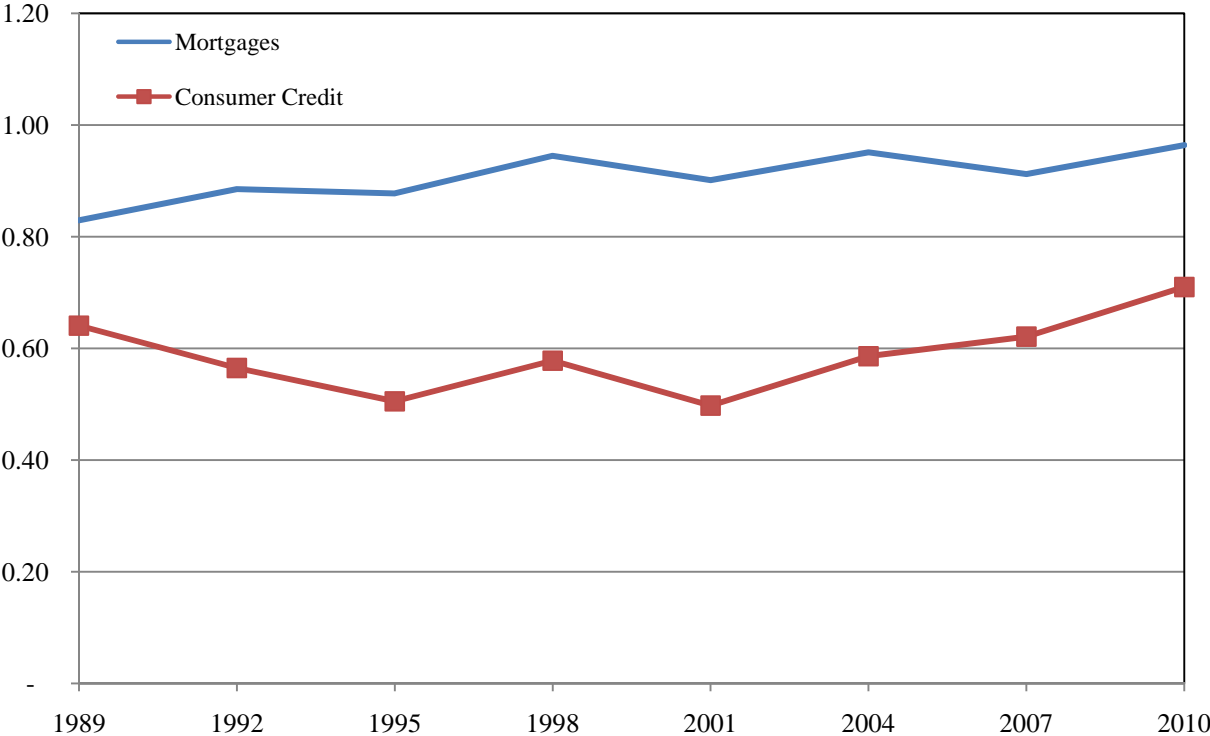


Figure 9. Distribution of Credit Card Balances on the SCF and CCP, 2010

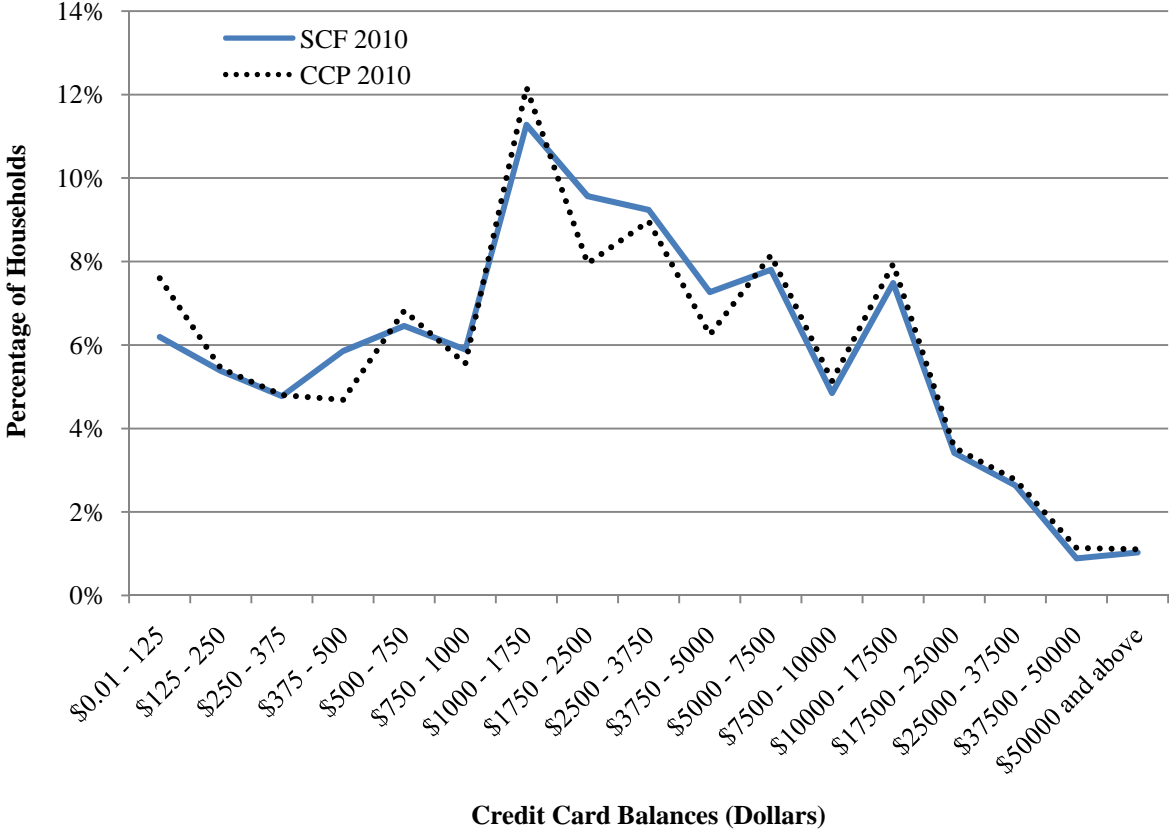


Table 1. Household Balance Sheet – FFA data Billions of dollars; levels outstanding

	1989	1992	1995	1998	2001	2004	2007	2010
<b>Net Worth</b>	<b>16396.3</b>	<b>18421.2</b>	<b>22041.3</b>	<b>28059.9</b>	<b>33043.0</b>	<b>41668.1</b>	<b>53332.2</b>	<b>44919.7</b>
<b>Assets</b>	19390.6	22018.1	26439.8	33423.7	40064.9	51425.1	66246.8	57404.9
<b>Tangible assets and business equity</b>	11393.2	12395.0	14006.7	16577.2	21954.9	29426.8	35375.6	28221.2
Real estate, value of residences	6543.9	7186.3	7982.7	9459.7	13307.1	18323.5	21442.8	16719.2
Consumer durable goods	1896.2	2171.6	2506.3	2799.9	3306.4	3830.5	4421.6	4571.5
Equity in noncorporate business	2953.0	3037.1	3517.7	4317.6	5341.5	7272.8	9511.2	6930.5
<b>Financial assets</b>	7997.4	9623.0	12433.1	16846.5	18110.0	21998.4	30871.2	29183.7
Safe Assets	4713.3	5151.6	5726.0	6380.2	7372.2	9295.9	12114.4	13217.3
Deposits and MMMF shares	3246.7	3313.4	3348.3	3792.1	4831.3	5643.0	7223.4	7858.5
Bonds	1466.6	1838.3	2377.7	2588.1	2540.9	3652.9	4890.9	5358.8
Risky Assets	2603.3	3542.8	5341.2	8519.6	8632.7	10137.8	14866.5	12392.3
Directly held corporate equity	2090.2	2743.4	4088.2	6167.8	6018.1	6710.1	10268.6	7820.7
Long-term mutual funds	513.0	799.4	1253.0	2351.8	2614.6	3427.7	4597.9	4571.7
Assets inside 401(k)	680.87	928.606	1365.841	1946.585	2105.078	2564.573	3890.352	3574.161
<b>Liabilities</b>	2994.215	3596.93	4398.437	5363.75	7021.899	9757.084	12914.61	12485.26
Home mortgages	2210.008	2794.997	3288.838	3963.032	5207.548	7592.209	10435.32	10101.89
Consumer credit	784.207	801.933	1109.599	1400.718	1814.351	2164.875	2479.297	2383.369

Table 2. Household Balance Sheet – SCF data Billions of dollars; levels outstanding

	1989	1992	1995	1998	2001	2004	2007	2010
<b>Net Worth</b>	<b>16094.2</b>	<b>16238.8</b>	<b>19351.4</b>	<b>27039.7</b>	<b>39772.8</b>	<b>47401.0</b>	<b>61164.9</b>	<b>54524.2</b>
<b>Assets</b>	18486.3	19218.4	22853.4	31689.4	45494.3	56157.6	72369.8	65929.5
<b>Tangible assets and business equity</b>	11600.8	11860.1	12820.5	16379.4	22818.2	31859.6	42478.7	36391.3
Real estate, value of residences	6812.4	7245.8	8052.5	10313.8	14242.3	21522.6	28039.0	23360.5
Consumer durable goods	1069.4	1033.5	1443.0	1611.8	2080.1	2509.7	2734.3	2751.6
Equity in noncorporate business	3719.0	3580.9	3325.1	4453.8	6495.8	7827.3	11705.4	10279.2
<b>Financial assets</b>	6885.5	7358.3	10032.8	15310.0	22676.0	24297.9	29891.0	29538.2
Safe Assets	3000.5	2874.4	3061.7	3686.5	5671.0	6751.8	7200.4	8508.7
Deposits and MMMF shares	2064.5	1975.0	2028.0	2432.5	3420.7	4964.6	5596.8	6774.5
Bonds	936.0	899.4	1033.7	1254.1	2250.4	1787.3	1603.6	1734.2
Risky Assets	3089.2	3569.2	5369.1	9512.6	13933.9	13539.4	17108.5	15203.5
Directly held corporate equity	2757.1	3065.8	4224.5	7805.3	11456.1	8679.6	10606.2	8675.5
Long-term mutual funds	332.1	503.4	1144.5	1707.3	2477.8	4859.8	6502.4	6528.0
Assets inside 401(k)	795.8	914.6	1602.1	2110.8	3071.1	4006.7	5582.1	5826.0
<b>Liabilities</b>	2392.1	2979.6	3502.0	4649.7	5721.5	8756.6	11204.9	11405.2
Home mortgages	1873.6	2513.6	2911.9	3816.8	4780.3	7455.6	9617.9	9688.4
Consumer credit	518.6	465.9	590.1	832.9	941.2	1301.0	1586.9	1716.8

Table 3. Household Balance Sheet – Ratio of SCF Aggregate to FFA Aggregate

	1989	1992	1995	1998	2001	2004	2007	2010
<b>Net Worth</b>	0.98	0.88	0.88	0.96	1.20	1.14	1.15	1.21
<b>Assets</b>	0.95	0.87	0.86	0.95	1.14	1.09	1.09	1.15
<b>Tangible assets and business equity</b>	1.02	0.96	0.92	0.99	1.04	1.08	1.20	1.29
Real estate, value of residences	1.04	1.01	1.01	1.09	1.07	1.17	1.31	1.40
Consumer durable goods	0.56	0.48	0.58	0.58	0.63	0.66	0.62	0.60
Equity in noncorporate business	1.26	1.18	0.95	1.03	1.22	1.08	1.23	1.48
<b>Financial assets</b>	0.86	0.76	0.81	0.91	1.25	1.10	0.97	1.01
<i>Safe Assets</i>	0.64	0.56	0.53	0.58	0.77	0.73	0.59	0.64
Deposits and MMMF shares	0.64	0.60	0.61	0.64	0.71	0.88	0.77	0.86
Bonds	0.64	0.49	0.43	0.48	0.89	0.49	0.33	0.32
<i>Risky Assets</i>	1.19	1.01	1.01	1.12	1.61	1.34	1.15	1.23
Directly held corporate equity	1.32	1.12	1.03	1.27	1.90	1.29	1.03	1.11
Long-term mutual funds	0.65	0.63	0.91	0.73	0.95	1.42	1.41	1.43
Assets inside 401(k)	1.17	0.98	1.17	1.08	1.46	1.56	1.43	1.63
<b>Liabilities</b>	0.80	0.83	0.80	0.87	0.81	0.90	0.87	0.91
Home mortgages	0.85	0.90	0.89	0.96	0.92	0.98	0.92	0.96
Consumer credit	0.66	0.58	0.53	0.59	0.52	0.60	0.64	0.72

Table 4. Proportion of Total Credit Card Spending Attributable to New Charges, CCP

Balances (Dollars)	2001		2004		2007		2010	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
\$0.01 - 125	88.9%	100%	92.0%	100%	82.4%	100%	87.5%	100%
\$125 - 250	80.0%	100%	79.2%	100%	71.7%	100%	75.9%	100%
\$250 - 375	75.7%	100%	68.7%	100%	64.9%	100%	72.8%	100%
\$375 - 500	69.8%	100%	70.4%	100%	63.8%	100%	70.8%	100%
\$500 - 750	62.6%	77.6%	61.4%	68.1%	58.3%	69.2%	66.8%	100%
\$750 - 1,000	62.6%	68.7%	63.7%	100%	59.5%	82.2%	65.2%	100%
\$1,000 - 1,750	54.5%	51.1%	56.0%	53.8%	55.0%	58.9%	56.3%	59.8%
\$1,750 - 2,500	49.7%	44.7%	54.0%	52.5%	50.2%	48.9%	59.4%	83.4%
\$2,500 - 3,750	40.1%	21.3%	41.0%	18.4%	43.3%	27.0%	53.0%	50.0%
\$3,750 - 5,000	36.8%	10.4%	40.6%	24.6%	40.1%	16.7%	45.6%	26.3%
\$5,000 - 7,500	26.5%	7.7%	33.2%	13.1%	34.7%	9.8%	39.3%	11.7%
\$7,500 - 10,000	21.2%	7.3%	22.2%	4.8%	25.4%	5.9%	33.9%	6.7%
\$10,000 - 17,500	17.4%	3.8%	18.9%	5.1%	16.2%	3.8%	19.8%	3.9%
\$17,500 - 25,000	17.6%	3.5%	19.5%	4.5%	12.5%	2.3%	14.3%	2.2%
\$25,000 - 37,500	24.5%	4.1%	17.7%	2.5%	13.6%	3.2%	11.0%	1.6%
\$37,500 - 50,000	12.7%	0.9%	24.7%	2.8%	11.0%	5.1%	11.3%	1.3%
\$50,000 and above	29.2%	7.0%	18.8%	5.2%	6.4%	1.4%	11.0%	2.1%

## Appendix

Table A-1. Household Balance Sheet – SCF data Standard Errors

Billions of dollars; levels outstanding

	1989	1992	1995	1998	2001	2004	2007	2010
<b>Net Worth</b>	<b>898.0</b>	<b>409.3</b>	<b>523.9</b>	<b>652.7</b>	<b>710.4</b>	<b>1292.4</b>	<b>927.2</b>	<b>1076.3</b>
<b>Assets</b>	955.0	425.8	541.2	644.8	741.5	1348.5	939.8	1090.6
<b>Tangible assets and business equity</b>	720.7	234.6	266.3	316.6	475.7	745.4	783.6	634.1
Real estate, value of residences	250.1	166.5	148.6	216.4	241.5	501.9	448.8	384.8
Consumer durable goods	50.7	29.5	38.2	39.5	79.0	75.1	58.5	63.3
Equity in noncorporate business	545.4	176.0	193.4	324.2	385.3	463.7	656.4	545.7
<b>Financial assets</b>	416.7	286.8	407.7	523.7	562.0	782.4	682.9	862.4
<b>Safe Assets</b>	214.4	94.7	181.2	124.2	203.9	283.2	235.8	397.5
Deposits and MMMF shares	137.9	67.7	124.8	103.1	137.5	229.8	164.4	319.9
Bonds	122.4	66.0	92.7	83.1	148.6	148.3	132.3	224.1
<b>Risky Assets</b>	255.3	283.2	288.6	491.6	471.4	536.3	588.0	641.5
Directly held corporate equity	264.2	246.1	228.5	441.4	435.4	436.3	486.3	536.4
Long-term mutual funds	51.0	57.5	133.9	130.0	146.4	274.0	265.7	308.5
Assets inside 401(k)	78.9	77.9	83.9	106.6	169.1	196.1	244.4	249.2
<b>Liabilities</b>	101.8	84.8	63.7	103.8	123.7	188.2	206.5	228.4
Home mortgages	90.5	81.8	59.3	94.2	120.2	174.4	197.3	215.8
Consumer credit	29.5	25.0	15.1	22.5	35.0	47.8	43.7	48.1