

Online Appendix for “The Macroeconomics of Firms’ Savings”

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Abstract

This appendix summarizes additional empirical results using Flow of Funds Accounts of the US and Compustat database.

Keywords: Corporate savings, debt, equity, dividend taxation.

Part I

Flow of Funds Accounts

In this part we document and extend our analysis of net financial assets, gross positions, and capital, as well as their components, for the nonfinancial corporate sector. Our data set the Flow of Funds data set, collected by the Federal Reserve Board each quarter.¹ Unless we note otherwise, the data can be found in table B.102 “Balance Sheet of Nonfarm Nonfinancial Corporate Business.” The balance sheet is consolidated for the nonfinancial corporate sector as a whole, so the data reflect the asset and liability positions vis-a-vis with the rest of the economy. For example, only commercial paper issued by financial institutions will appear as a financial asset in the balance sheet.

1 Main facts

We start by documenting the full available time series at the quarterly frequency, 1952:Q1 to 2011:Q2. We define net financial assets (NFA) as the difference between financial assets (line 6) and debt (line 21). We scale the NFA variables by capital, defined as nonfinancial assets

¹The data can be accessed free of charge at <http://www.federalreserve.gov/apps/fof/>.

measured at market value or replacement cost (line 2). Figure 1 displays the time series for NFA to capital at the quarterly frequency, and Figure 2 does the same separately for financial assets and debt to capital.

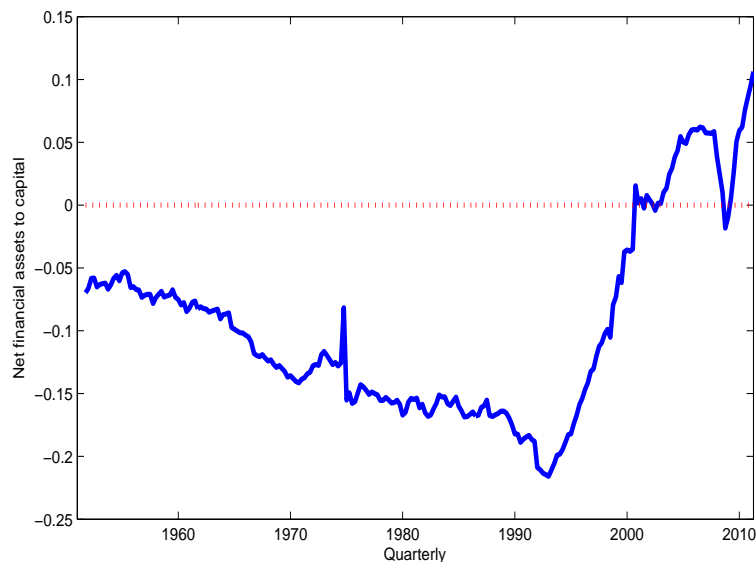


Figure 1: NFA to capital

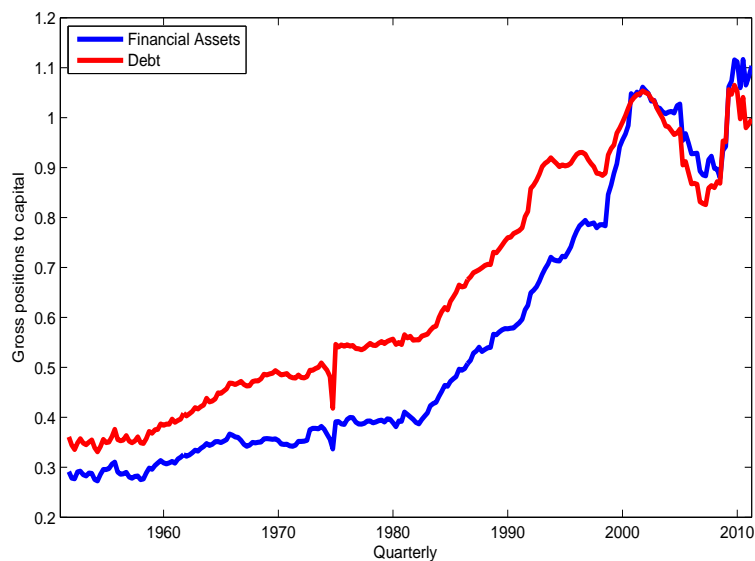


Figure 2: Financial assets and debt to capital

The time series for NFA to capital displays a downward secular trend from 1960 until early 1990s. Then the NFA to capital swings upwards, and in ten years the corporate sector swiftly turns from a net borrower into a net lender. The impact of the financial crisis in the late 2000s is easily spotted. Note the NFA promptly recovered, and then surpassed, the levels prior to 2008.

Regarding gross positions, Figure 2 shows that both financial assets and debt have been growing rapidly as a fraction of capital.² The comovement between both gross positions is remarkable. The large run-up in NFA of the 1990s reflects an acceleration in the accumulation of financial assets. Liabilities remained somewhat stable for the first half of the 1990s: they increase rapidly towards the end of the decade, but not as fast as financial assets.

Next we will take a look at the components of capital, financial assets, and debt. Then we will match the components of financial assets and liabilities to provide a decomposition of the movements in NFA. Finally we take a brief look at the noncorporate sector.

2 Capital

Capital, or tangible assets, is composed of real estate, equipment and software, and inventories. Real estate is available at market value (line 3) or historical cost (line 41). Equipment and software, as well as inventories, are available at replacement value (lines 4 and 5, respectively) or at historical cost (lines 42 and 43).

Let us take a look at the composition of tangible assets. Figure 3 displays on the upper left corner log capital. In the others plots we display the share of each component relative to the total, valued at market or replacement value. Real estate is the largest component, representing more than half of total capital, and shows perhaps some secular decline. The vast majority of structures are non-residential—over 97 % of them. Figure 3 also shows that the importance of equipment and software has grown over time, while inventories decreased as a share of total capital.

When using historical cost instead, the share of capital in real estate assets is significantly lower, on the range 40 % to 45 %. The share of inventories is essentially unchanged, so it is equipment and software that gain in importance. The upward trend on the latter component is also starker.

For our baseline calculations we use real estate at market value as well as replacement value for the other tangible assets. Figures 4 and 5 redo the time series for NFA and gross positions using capital valued at historical cost. Since capital at historical cost is significantly lower, the magnitudes of NFA and gross positions are larger. The pattern, though, is very similar to Figures 1 and 2

Finally we replaced the actual series for tangible assets (including all components) by its log-linear trend. This way we insulate our measures from fluctuations in capital. For example, real estate (both at market or historical cost) displays significant fluctuations at the medium

²This is likely to reflect the growing importance of intangible assets. We should note, though, that intangible assets cannot change the switch in sign of the NFA.

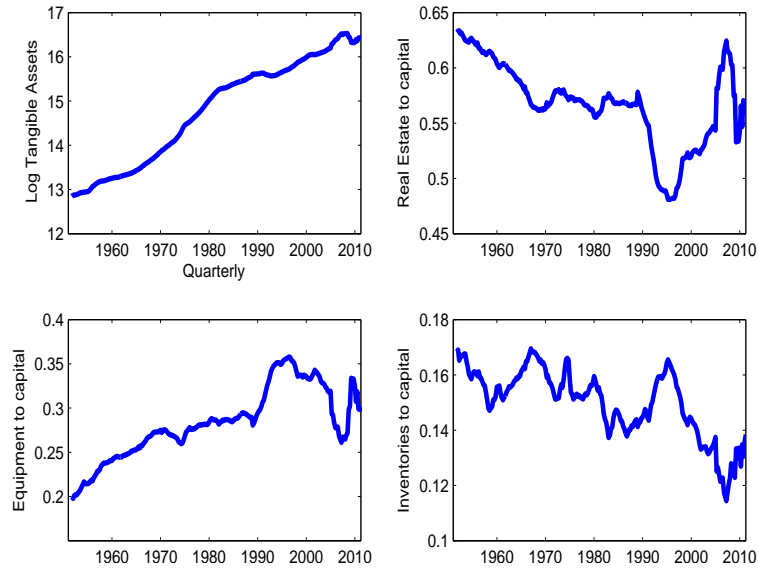


Figure 3: Tangible assets and components

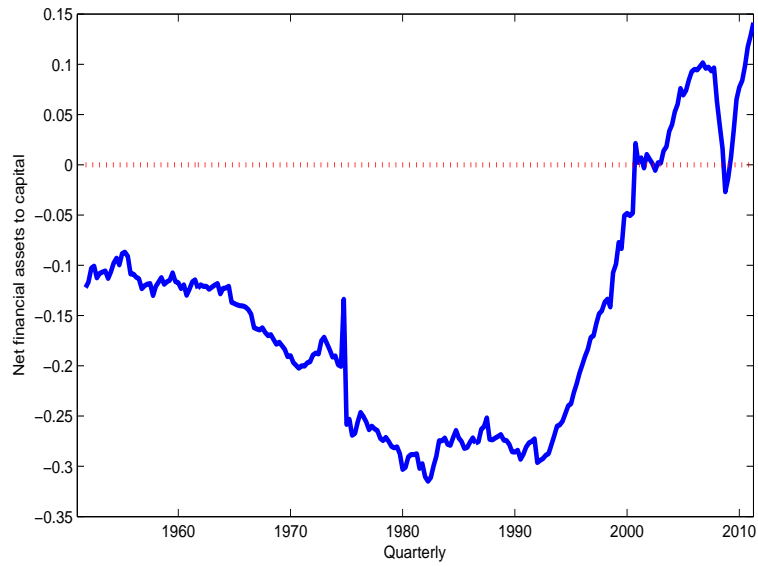


Figure 4: NFA to capital (at historical cost)

term, while equipment and inventories move with the business cycle. Figure 6 displays the NFA and gross position series, as a ratio to the trend in capital. Clearly most of the fluctuations in the series remain.

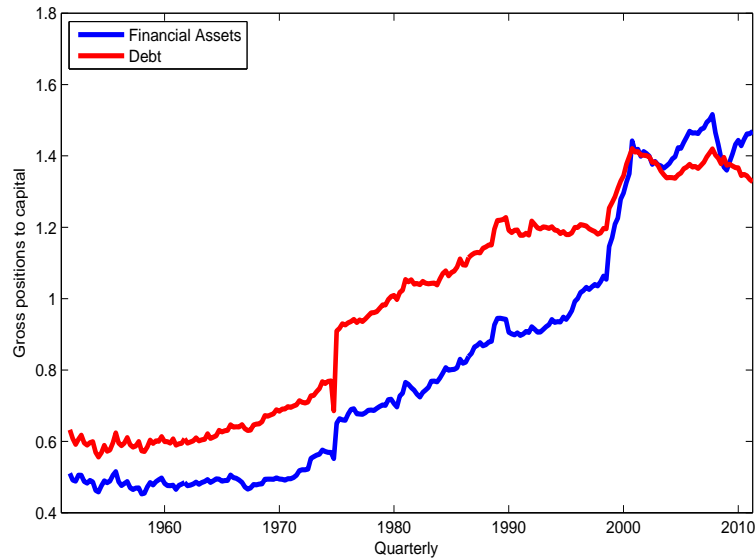


Figure 5: Financial assets and debt relative to capital (at historical cost)

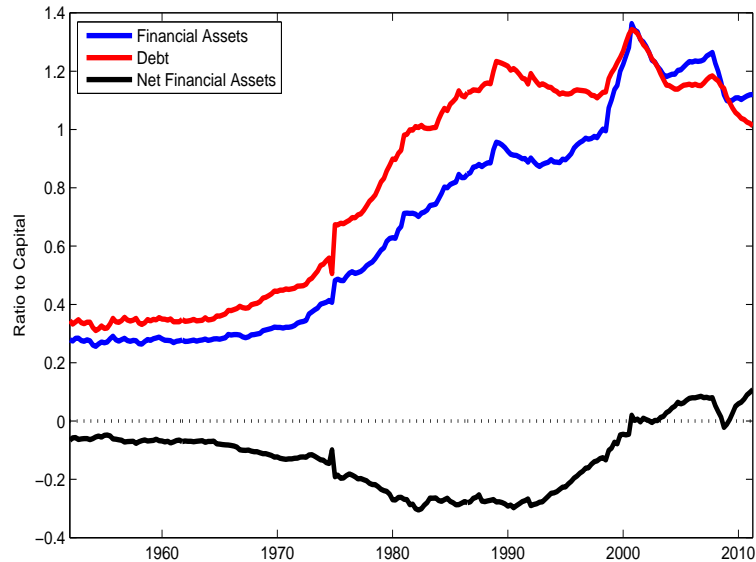


Figure 6: NFA and gross positions, relative to log-linear trend in capital

3 Financial Assets

Next we decompose financial assets in the 14 distinct subcategories reported in lines 7 to 20: Foreign deposits, checkable deposits and currency, time and savings deposits, money market fund shares, security RPs (repos), commercial paper, Treasury securities, agency- and GSE-backed securities, municipal securities, mortgages, consumer credit, trade receivables, mutual fund shares (at market value), and miscellaneous assets.

Figure 7 displays financial assets (upper left corner) as well as each of the components as a ratio to capital. There are several noticeable differences in the evolution of each component. Checking deposits, Treasuries, and consumer credit show a clear downward trend. Indeed these three categories combined accounted for more than half of the financial assets in the early part of the sample but are close to negligible in the 2000s. Trade receivables are roughly constant as a fraction of capital, and as a result their share over total financial assets decreased from just below half of financial assets to less than a fifth.

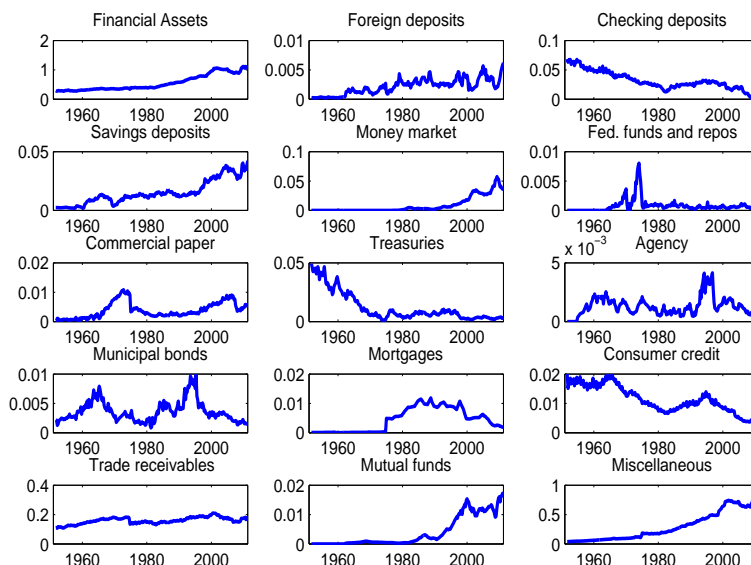


Figure 7: Financial asset components, relative to capital

The growth in financial assets has been driven by several components, most notably by the miscellaneous category. Unfortunately, we have only limited information on the miscellaneous category. Table L.102 breaks miscellaneous assets into several components in lines 17 to 21. U.S. direct investment abroad is a large component, between one fourth and one third of the total miscellaneous assets. However, the residual “others” category remains the largest entry. In our conversations with Board staff, we learned that the large size of the residual category reflects the difficulties to collect data on corporate debt cross-holdings as well as certain equity instruments.³ The latter include the accounting of goodwill, as well as some venture capital investments. With some caveats, we are comfortable considering these entries as financial assets for our purposes.

We also note that time deposits, money market and mutual funds also experienced important increases over time, from being virtually nonexistent to accounting close to a tenth of total financial assets. Foreign deposits also display an upward trend, but remain a very small fraction

³There is a very high correlation between miscellaneous financial assets and corporate debt, over .9, as well as with miscellaneous liabilities.

of financial assets.

4 Debt

It is now the turn to break the gross liabilities, or debt, into components. There are 9 distinct subcategories reported in lines 23 to 31: Commercial paper, municipal securities, corporate bonds, bank loans not elsewhere classified, other loans and advances, mortgages, trade payables, taxes payable, and miscellaneous liabilities.

Figure 8 displays debt (upper left corner) as well as each of the components as a ratio to capital. In contrast with financial assets, the composition of debt is more stable. The only component that shows a marked decrease is taxes payable, and it had already become a very small fraction of total debt early in the 1990s. Trade payables, mortgages, and bank loans are roughly constant.

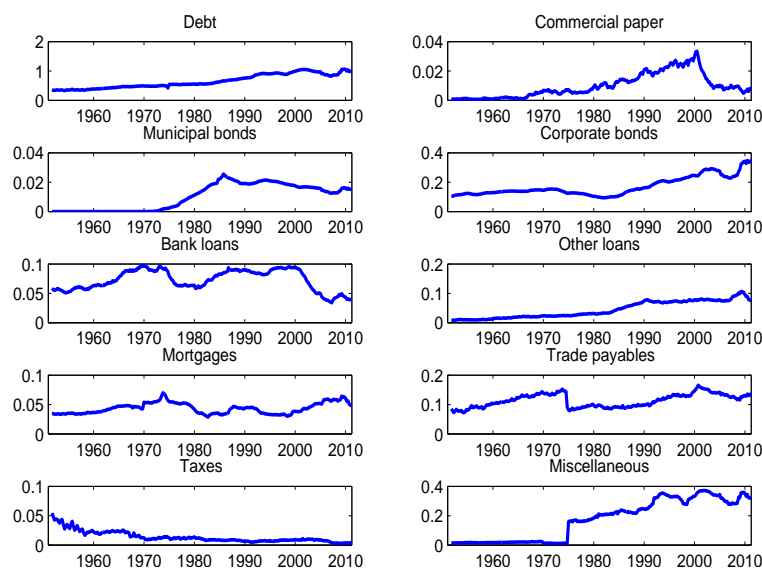


Figure 8: Debt components, relative to capital

The increase in debt is driven by corporate bonds, miscellaneous assets, and to a lesser extent, by other loans. Corporate debt took off starting in the mid-1980s, and accounts for close to 40 % of total debt. The miscellaneous category is also a large contributor to debt growth. Some of the increase is due to reclassification, dated in the mid 1970s, that subtracted from trade payables. Table L.102 provides some further information, with foreign direct investment in the U.S. being a large component. Unfortunately, the “other” category is again the largest one. In this case, the size of this category is a direct outcome of the difficulties to measure cross-holdings of corporate debt. This is somewhat reassuring since mismeasurement due to

cross-holdings of debt will be netted out in our calculation of NFA. Finally, other loans, which include business loans like collateralized loan obligations, also experienced a significant increase.

5 Net financial assets

We now attempt to provide a decomposition of NFA by matching asset and debt components together into several categories. The exercise is necessarily arbitrary, for the categories in each side of the balance sheet reflect very different characteristics.

In the first exercise we try to match assets and liabilities according to maturity. This allows a closer comparison with the components reported in the Compustat sample. Table 1 summarizes our allocation of FoF assets and liability components into various categories. In particular, we distinguish short-term and long-term NFA. We collapse consumer credit and taxes payable with trade receivables and payables. Mortgages tend to be long-term, but since their characteristics are very different from corporate debt, we decided to show them in a separate category. Finally, miscellaneous assets and liabilities cannot be readily collapsed into any maturity classification, and thus stand by themselves.

Table 1: Net Financial Asset - Categories by Maturity

<i>Category</i>	<i>Description</i>	<i>Name</i>	<i>Financial Assets Included</i>	<i>Liabilities Included</i>
Short-term		<i>short</i>	Checking deposits	Bank loans
			Savings deposits	Other loans
			Foreign deposits	Commercial paper
			Treasuries	
			Agency securities	
			Municipal bonds	
			Commercial paper	
			Fed. funds and repos	
			Money market	
			Mutual funds	
Long-term		<i>long</i>		Corporate bonds
				Municipal bonds
Mortgages		<i>mort</i>	Mortgages	Mortgages
Trade		<i>trade</i>	Trade receivables	Trade payables
			Consumer credit	Taxes
Miscellaneous		<i>other</i>	Miscellaneous assets	Miscellaneous liabilities

Figure 9 plots the evolution of each of these components over time, as a ratio to capital. The most immediate features are the magnitude of changes in the miscellaneous and long-term NFA. The former is a large force for positive total NFA, while the latter is a large drag. Note that both series are highly correlated and, to some extent, cancel each other out. That said, it remains the

case that total NFA is mainly driven by the miscellaneous category, even if we perform a crude attempt at accounting for cross-holdings by subtracting corporate bonds. Indeed, Figure 10 compares the total NFA with the sum of the miscellaneous and long-term NFA, as a ratio over capital. Both series are strikingly similar, thus we confirm that the category of miscellaneous assets is the main driver of the fluctuations in total NFA, even after subtracting miscellaneous liabilities and long-term debts.

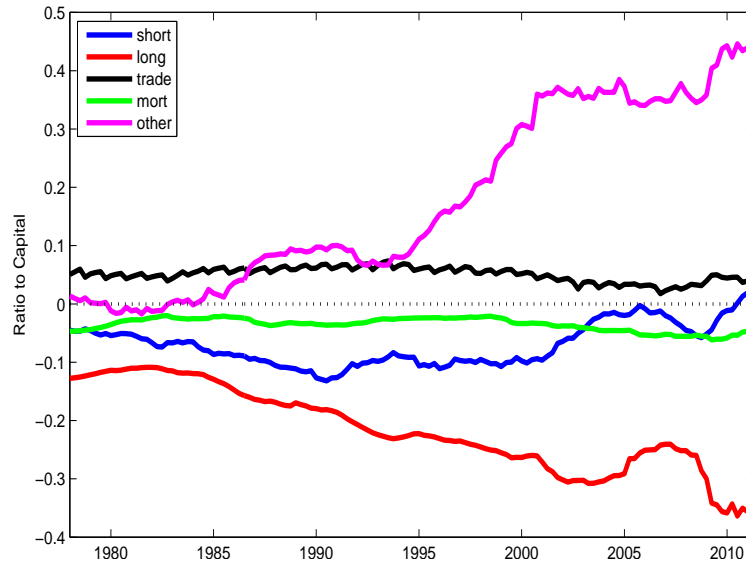


Figure 9: NFA components, relative to capital, by maturity

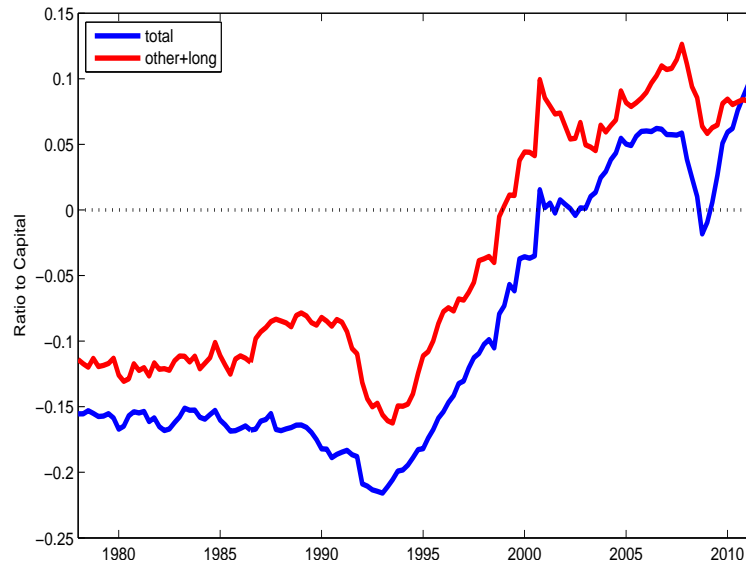


Figure 10: Total NFA and Miscellaneous plus Long-term NFA, relative to capital

Returning to Figure 9 we should also highlight that short-term NFA has increased over time

and came very close to zero in the mid 2000s.⁴ Net tradeables is positive a contributor to NFA, but its importance has decreased over time. Mortgages are a net liabilities for the sector, remaining quite stable over the sample.

We perform one more decomposition exercise, this time basing our categories on market access. Table 2 documents the classification.

Table 2: Net Financial Asset - Categories by Market Access

<i>Category Description</i>	<i>Name</i>	<i>Financial Assets Included</i>	<i>Liabilities Included</i>
Fixed rent, not-traded	<i>nontraded</i>	Checking deposits	Bank loans
		Savings deposits	Other loans
		Foreign deposits	
Mortgages	<i>mortgages</i>	Mortgages	Mortgages
Trade	<i>trade</i>	Trade receivables	Trade payables
Fixed rent, traded	<i>market</i>	Money market	Corporate bonds
		Fed. funds and repos	Municipal bonds
		Treasuries	
		Agency securities	
		Municipal bonds	
Commercial paper	<i>cp</i>	Commercial paper	Commercial paper
Consumer credit	<i>cc</i>	Consumer credit	
Mutual funds	<i>mutual</i>	Mutual funds	
Taxes	<i>taxes</i>		Taxes
Miscellaneous	<i>other</i>	Miscellaneous assets	Miscellaneous liabilities

Figure 11 plots the NFA components over time, as a ratio to capital. Once again the miscellaneous and long-term NFA dominate the picture. The nontraded component has a small upward trend in the 1990s, as well as a curious pattern in the 2000s: it picked up in the first half of the decade, then undid the gains from 2006-2008, and finally bounced back strongly on the heels of the financial crisis.

6 The Noncorporate Business Sector

Finally we give a quick view at the nonfinancial noncorporate sector. For this we use table B.103, “Balance Sheet of Nonfarm Nonfinancial Noncorporate Business.” The noncorporate sector accounts for about 40 percent of total tangible assets in the business sector. However, this figure grossly exaggerates the importance of the noncorporate sector, because the largest capital component for the noncorporate sector is residential real estate.⁵ For example, equipment and software capital in the noncorporate is less than 15 percent of the total equipment and software

⁴It finally turned positive after 2007.

⁵As for many entrepreneurs, the business is located in their primary residence.

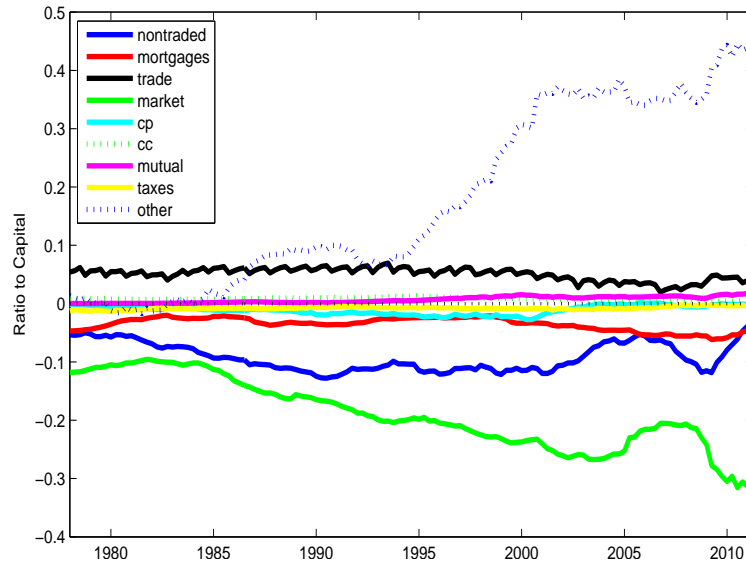


Figure 11: NFA components, by market access

capital in the business sector. Regarding financial assets and liabilities, the noncorporate sector also accounts for 18 and 26 percent, respectively, of the total gross amounts.

Figure 12 displays the time series for NFA over capital for the noncorporate sector. Unlike the corporate sector, the noncorporate sector did not turn into a net lender. For the period 1960-1990 its NFA position actually worsened by a large amount. There are similarities, though, in the patterns starting with the 1990s. There is a large run-up starting in early 1990: the size of the change 1990-2007 is actually significantly larger than for the corporate sector. As with the corporate sector, there was a sudden dip in NFA around 2008, although so far the data do not show a quick recovery as it does for the corporate sector. Figure 13 displays the gross positions for financial assets and debt. Clearly the worsening of the NFA position is due to stagnant growth in financial assets. The run-up, starting in 1990, does indeed look similar to the experience in the corporate sector.

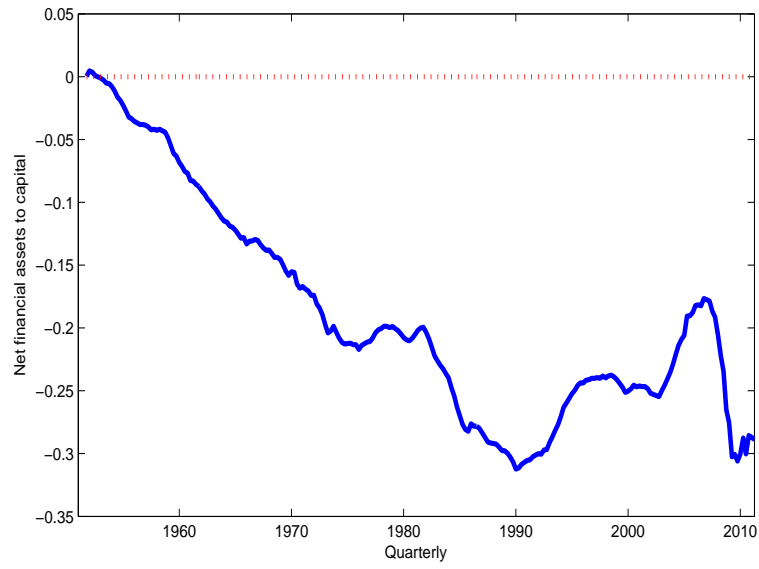


Figure 12: NFA to capital - Noncorporate sector

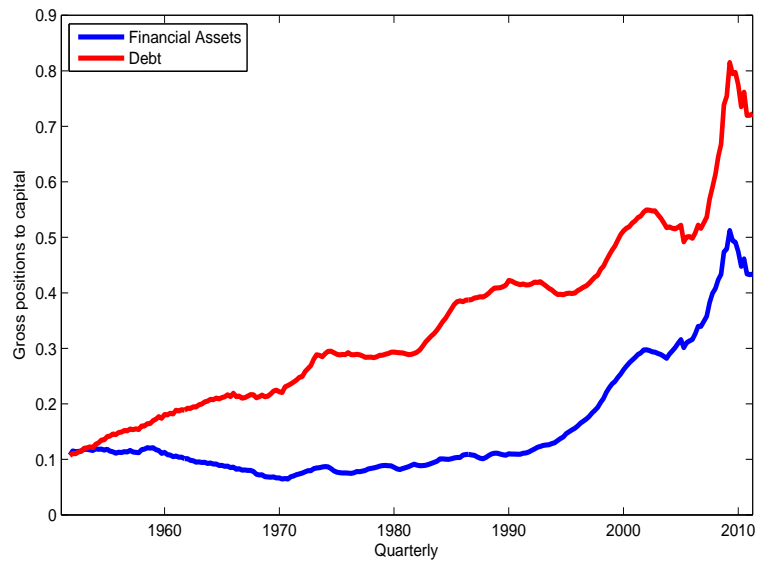


Figure 13: Financial assets and debt to capital - Noncorporate sector

Part II

Compustat

7 Size of Compustat relative to Flow of Funds

To evaluate the size and representativeness of our working sample relative to Compustat we must decide on the benchmark Compustat characteristics. We will then use this sub-sample as our benchmark for comparison with our working sample. We use the following characteristics to define the **benchmark sub-sample** of Compustat:

- industry information must be non-missing;
- firm must have information on its financial assets, liabilities, capital, equity and sales;
- company financial information must be provided in USD;
- industry of operation is not Finance (this makes our benchmark sub-sample consistent with the FoF).

In addition to the restrictions above, our **working sample** imposes the following conditions:

- firms capital stock is above 50,000\$
- firms equity is non-negative
- firms sales are positive
- we exclude utilities and technology firms

7.1 Compustat size

First, we show how our benchmark sub-sample compares to the unrestricted Compustat sample. Figure 14 reports the share of the benchmark sub-sample in the unrestricted Compustat sample in terms of employment (panel (a)), tangible assets or capital (panel (b)), total financial assets (panel (c)), and total liabilities (panel (d)). Decline in all shares plotted reflects, primarily, the growing importance of financial companies in the Compustat.

The vertical line indicates year 2007 which is the last year we included in the data analysis in the main text.

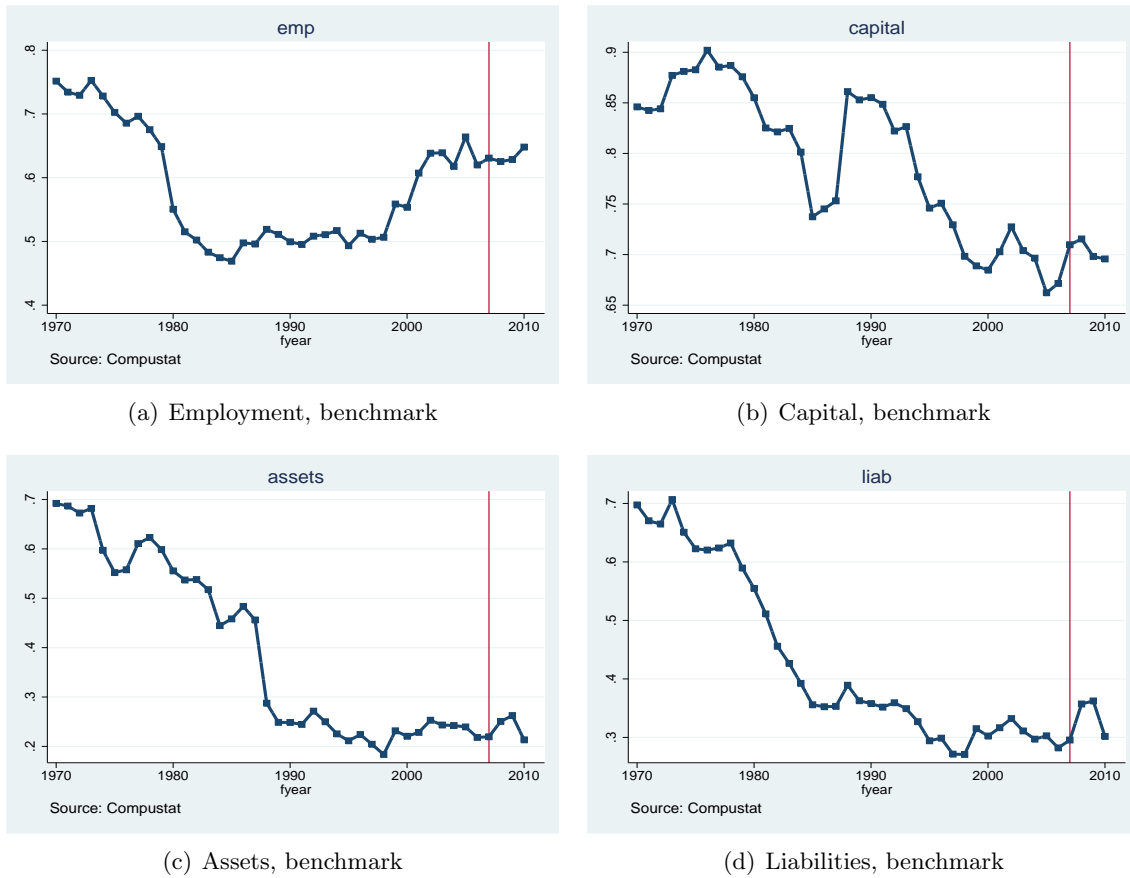


Figure 14: Size of the benchmark sub-sample relative to the unrestricted Compustat sample

Next, we report how our working sample compares to the benchmark sub-sample. Figure 15 plots the employment, capital, financial asset and liabilities share of companies included in our working sample relative to the benchmark sample. Aside from a small decline in the early 1970s, the size of our working sample has remained stable in terms of all four characteristics.

Finally, Panel A of Table 3 presents the decade averages for total employment (E), capital (K), financial assets (A) and liabilities (L) in the unrestricted Compustat, benchmark sub-sample and our working sample during the 1970s and 2000s. Rows labeled “total US” report the corresponding numbers for the aggregate U.S. economy. Panel B reports the ratios of Compustat averages to their corresponding total U.S. values. Thus, in the 2000s, firms in our working sample employed 29 percent of total U.S. labor force, owned about 37 percent of total U.S. capital and held, respectively, 17 and 26 percent of total U.S. financial assets and liabilities.

We should caution the reader that gross assets and liabilities in Compustat are not directly comparable with the corresponding positions in the Flow of Funds. One of the main reasons for this is the differences in accounting for cross-holdings of assets and liabilities in the two datasets.

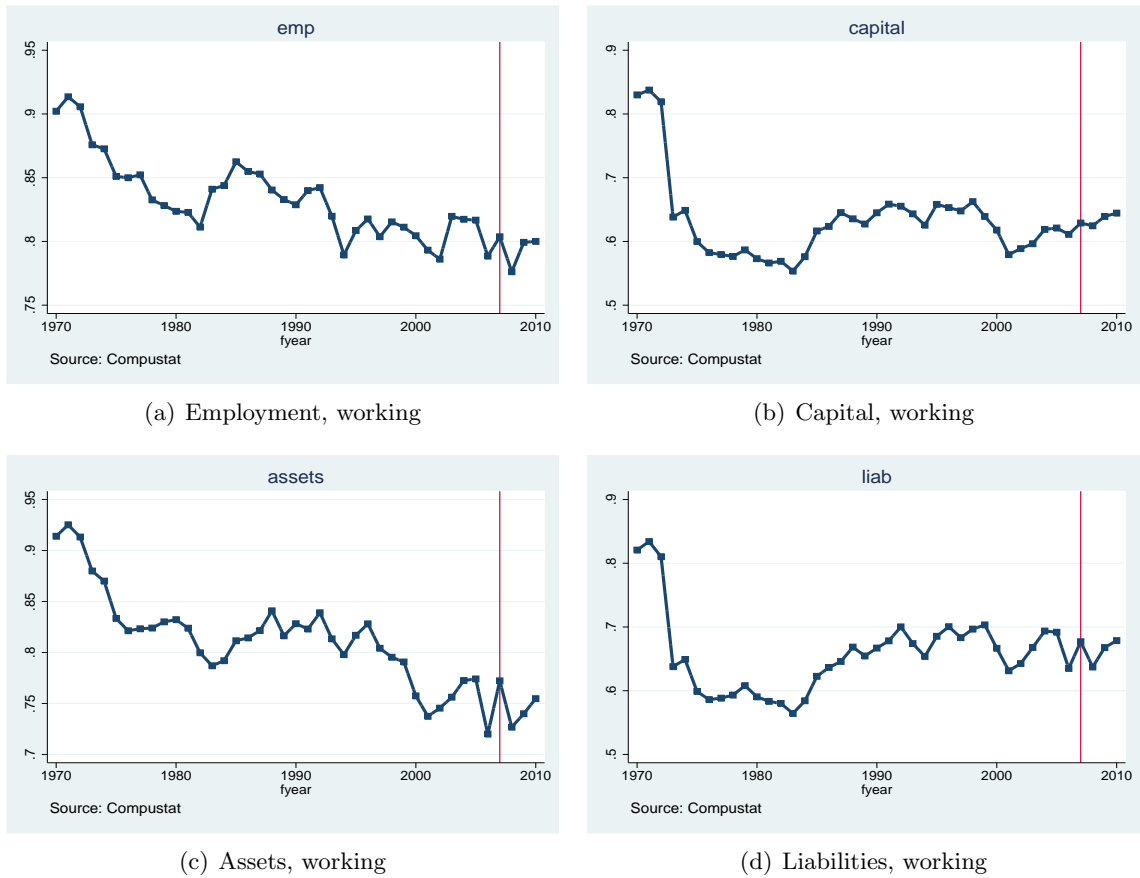


Figure 15: Size of our working sample relative to the benchmark sub-sample

Table 3: Summary stats for 1970s and 2000s: Compustat and US aggregate

	Panel A				Panel B			
	E, mln	K, bln	A, bln	L, bln	E,%agg	K,%agg	A,%agg	L,%agg
1970s								
unrestricted	32.12	1496.73	403.90	926.56	0.52	0.37	0.29	0.42
benchmark	22.72	1313.55	247.77	588.24	0.36	0.32	0.18	0.26
working	19.69	833.47	210.95	375.44	0.32	0.20	0.15	0.17
total US	62.3	4087.61	1410	2230				
2000s								
unrestricted	64.47	20650	16737.50	23525	0.58	0.87	0.97	1.30
benchmark	40.07	14325	3885.71	7145.07	0.36	0.60	0.22	0.39
working	32.21	8739.80	2935.23	4745.43	0.29	0.37	0.17	0.26
total US	111.2	23759	17279	18101				

In the Flow of Funds such cross-holdings are netted out to the extent possible (more so for equity than for debt, as we discussed earlier). In Compustat, accounting for cross-holdings is even more problematic, as no information on the counterparties is available. An illustration of this aspect

of our data can be found in 3 where gross liabilities in the unrestricted Compustat sample in the 2000s are larger than the total liabilities of the U.S. non-financial corporate sector.

7.2 Industry size

Given the time-series changes in the share of firms comprising our sample, it is instructive to look at the size of various industries included in our sample. We focus on size measures based on employment and capital. The top two figures in Figure 16 show the share of the industries included in our benchmark sub-sample, as measured by employment. Five of these industries – agriculture, manufacturing, trade, services and construction – are included in our working sample, while the remaining two – technology and utilities – are not. The shares reported on the left- and right-hand side, therefore, must add up to one. Clearly, manufacturing is the largest industry in our dataset, employing more than 40 percent of all workers in our benchmark sample. It is followed by trade and service industries, employing about 20 percent of all workers each. Technology sector has also increased in size, reaching 15 percent of our benchmark sample in the 2000s, in terms of employment.

The bottom panel shows the share of each industry in our working sample. Note that since finance, utilities, and tech are excluded from our working sample, their size does not add to the aggregate. Instead we report the size of these excluded industries as a share of our working sample. We draw the same conclusions as before: manufacturing is the largest sector in our working sample, employing about 60 percent of all workers. About 30 percent of the workers in our sample are employed in trade, and about 20 percent are in services. Of the excluded industries, technology is the largest employer. Interestingly, utilities sector is decreasing in size while financial sector is growing in terms of employment.

These rankings remain roughly unchanged when we measure sector size based on capital. Figure 17 presents the results. The top two graphs, as before, plots shares of industries included in our benchmark sample - the plot on the left is for the five industries that our working sample covers, while the plot on the right is for omitted two industries. The bottom panel reports the industry composition of our working sample (plot (c)), and the size of the omitted industries relative to our working sample (plot (d)). Not surprising, manufacturing is the largest industry based on capital and its share has remained stable over time at about 78 percent. Trade is the second largest industry in our sample based on capital, followed by agriculture. Of the excluded industries, interestingly, the share of finance in total capital has increased dramatically. Technology sector also expanded based on this measure, while the size of utilities declined. To put these changes in perspective, we next re-assess them in terms of capital-output ratios.

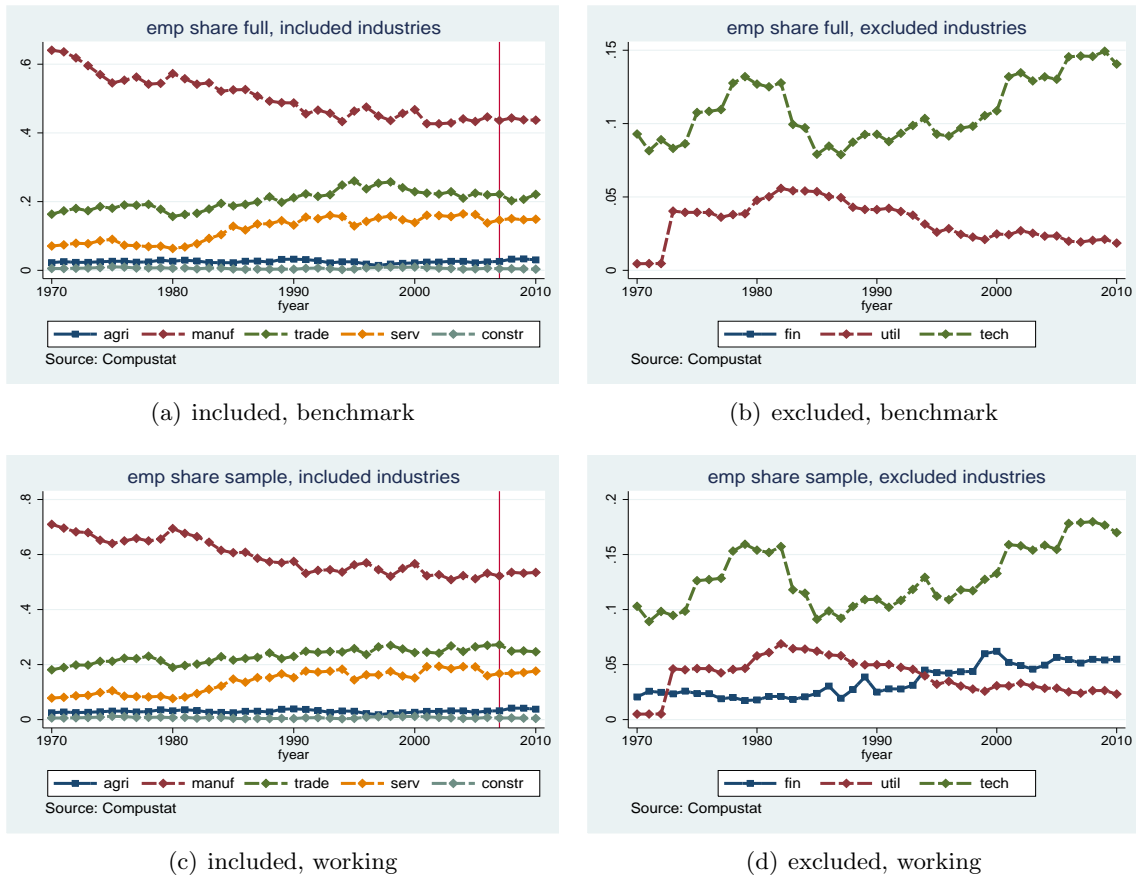


Figure 16: Size of industries in our benchmark and working samples, based on employment

7.3 Capital-output ratios

We obtain capital-output ratios for the aggregate Compustat sample and separately for each industry. To do this, we first compute the ratio of total capital to total sales, for the entire Compustat and for each industry individually. This is equivalent to having capital to gross output ratios. Figure 18 shows the K to sales ratios by industry in Compustat. The left panel (a) is for industries included in our working sample, while the right panel (b) is for excluded industries.

We also summarize the average capital to sales ratios for various industries in our sample during the 2000s in Table 4. It is interesting that Finance and Technology sectors have the highest capital to sales ratios in Compustat.

In order to express these ratios in terms of GDP instead, we adjust them by a factor of (gross output/GDP). The latter is obtained from BEA Industry Accounts.⁶ The gross output-to-GDP

⁶The data is available free of charge at <http://www.bea.gov/industry/>

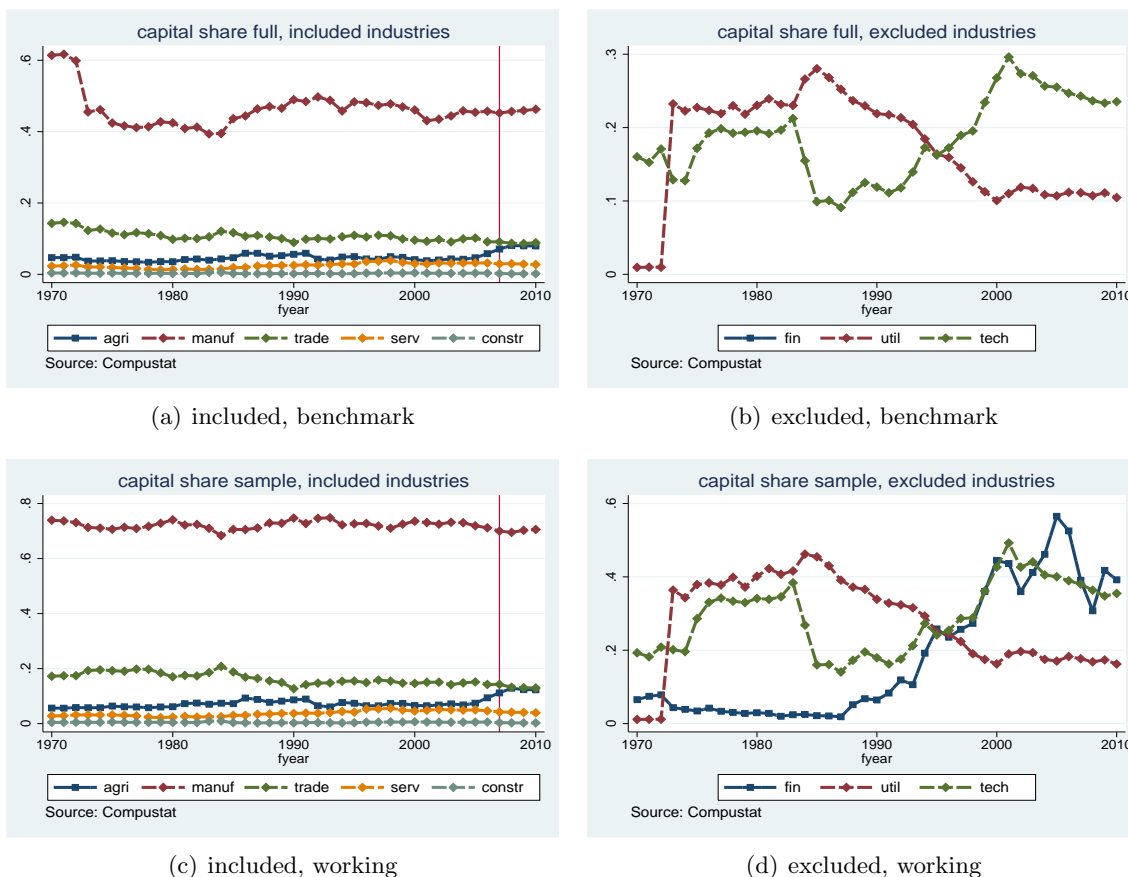


Figure 17: Size of industries in our benchmark and working samples, based on capital ratios in the 2000s for various industries and in aggregate for the U.S. are also summarized in Table 4.⁷ Finally, we also report the resulting capital-output ratios in that Table.

Table 4: Capital-output ratios: Compustat, 2000s

	agri	manuf	trade	serv	constr	fin	util	tech	agg
K to sales, Compustat	2.244	1.082	0.720	0.989	0.599	3.446	2.759	2.473	1.066
gross Y to GDP	2.073	2.929	1.534	1.588	2.005	1.615	1.862	1.944	1.836
K/Y ratio	4.652	3.170	1.104	1.572	1.201	5.565	5.136	4.807	1.957

The aggregate capital-output ratio in our Compustat sample is about 2. The ratios, however, show significant variation across industries, with trade being characterized by the lowest ratio, while finance having the highest capital-output ratio. Capital-output ratio in manufacturing is in line with typical estimates in the macro literature of 3.

To shed some light on the somewhat surprising finding of high capital-output ratios in Fi-

⁷Note that the aggregate gross Y to GDP ratio is computed for private industries only.

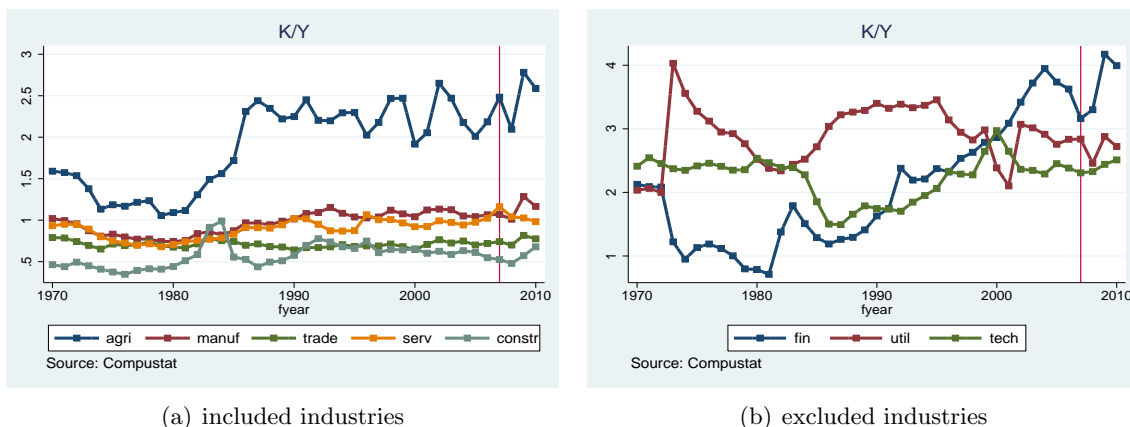


Figure 18: K to sales ratios by industry

nance, we take a closer look at various components included in our measure of capital in Compustat. Capital is computed as a sum of (a) ppeg - gross value of property, plant and equipment; (b) ivaeq - investment and advances (equity); (c) ivao - investment and advances - other; (d) intan - unamortized value of intangible assets; (e) invt - total inventories. Figure 19 summarizes each of the components of capital, as a share of total industry sales. Interestingly, “ivao” is the biggest component of capital in financial sector.⁸

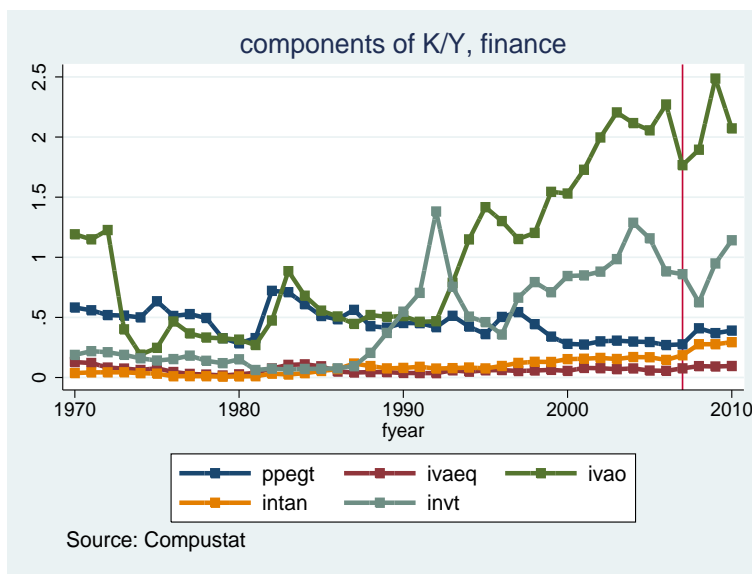


Figure 19: Finance sector’s K to sales ratios, by component

⁸“ivao” includes the following key components that might be important for financial companies: All investments carried at cost; Direct financing leases when the company is the lessor; Investments and advances to former subsidiaries; Joint ventures not yet operating; Land held for resale, for companies whose primary business is not land development; Leveraged leases when the company is the lessor; Marketable securities, unless restricted or held for collateral; Investments in securities and mortgage loans.

The other components of capital are smaller and do not show significant increase over time.

8 Net financial assets

In this Section we decompose net financial asset positions of Compustat companies into their components. There is no unique way of measuring aggregate NFA and its components in the Compustat. To facilitate the comparison with the Flow of Funds decompositions presented earlier, we choose to report total sums of various components of Compustat gross financial assets, liabilities and NFA here. Clearly, by reporting sums of those variables across firms, we allow them to be disproportionately affected by large firms. To provide a more comprehensive picture of firms' positions, we also report total NFA by firm size. This presentation is complementary to the one we used in the main text of the paper, where we attempted to account for firms size by measuring assets, liabilities and NFAs as ratios of firm's capital.

Recall financial assets consist of the following three components: (1) cash and other short-term investments, (2) other current assets, and (3) account receivables (trade and taxes). Liabilities are comprised of (4) debt in current (due within one year) liabilities, (5) other current liabilities, (6) long-term debt, and (7) account payable (trade and taxes). We construct the following four components of NFA where we try to match the definitions and maturity of the components on the assets and liability sides:

- short-term component defined as (1)-(4) (st on the Figure);
- other (current) component defined as (2)-(5) (st2 on the Figure);
- long-term component defined as -(6) (lt on the Figure);
- net account receivables defined as (3)-(7) (rect on the Figure).

Panel (a) of Figure 20 reports the total for each component, as a share of total capital.⁹

As is easy to see, on aggregate, total NFA to total capital ratio remained relatively unchanged at about -20 percent in our working sample. Our firms held negative positions in long-term net financial assets, borrowing roughly 20 percent of their capital. Short-term NFA fluctuated around zero in the 1970s and the subsequent two decades, but has turned clearly positive in the 2000s. Net account receivables were positive and increased over time reaching 10 percent of capital in 2004, but have declined since. Other current NFA has shown a slight decline over time and remained negative throughout the sample period.

⁹“oth” refers to the difference between “assets other” and “liabilities other”, which are not included in our calculation of NFA, but are reported here for completeness

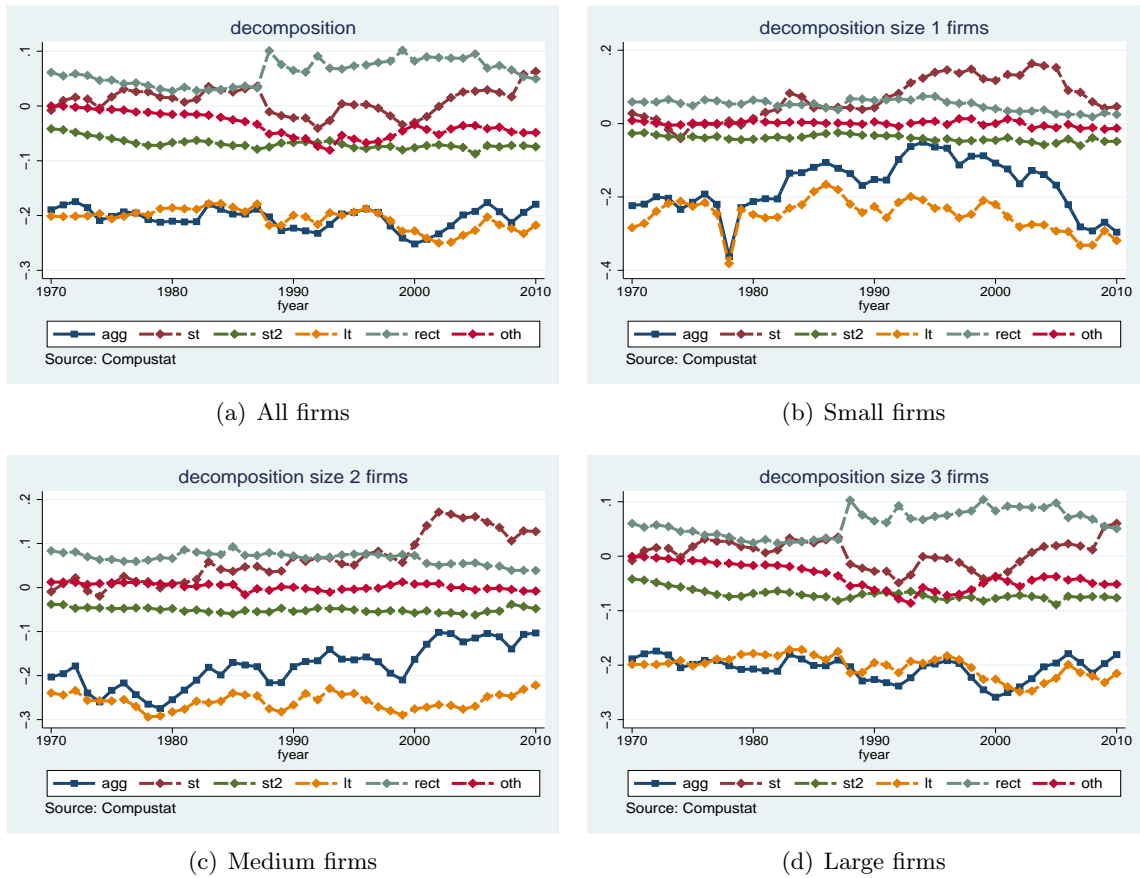


Figure 20: Decomposition of NFA to capital, all firms

We also recompute the decompositions above conditional on firms size, as measured by employment. In particular, we divide all firms into small, medium and large based on the 33rd and 66th percentiles of employment distribution. The results are presented in panels (b)-(d) of Figure 20.

Several differences across the firms of different size stand out. While NFA dynamics and its decompositions for large firms look almost identical to the aggregate decompositions presented in panel (a) and remained stable over time, NFA for small- and medium-size firms in Compustat has increased over time. The rise is particularly pronounced for medium-size firms, for which NFA went from -20 percent of capital in the 1970s and 1980s to -10 percent in the 2000s. These firms have been rapidly accumulating short-term NFA throughout the sample period, with all other components remaining relatively stable over time. The increase in NFA for small firms was even more rapid till mid- to late 1990s reaching -5 percent of their total capital, again primarily driven by acquisitions of short-term NFAs. However, while short-term NFA component kept going up well into the 2000s, the long-term component of NFA began to deteriorate, bringing

the overall NFA position of small firms down starting mid- to late 1990s.