

Article

Experimental historical data for the households and NPISH financial categories AF.6, AF.7 and AF.8 assets and liabilities

Historical time series data article for the households and non-profit institutions serving households financial categories AF.6, AF.7 and AF.8 assets and liabilities.

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1 . Overview

Since December 2014, the Office for National Statistics (ONS) and the Bank of England (BoE) have been working in partnership, as part of a larger [flow of funds statistics for the UK](#) project, to enhance and improve the availability and quality of financial accounts data, to support monetary policy and financial stability analysis.

The most recent financial crisis not only highlighted the importance of how financial assets and liabilities are distributed across the different sectors of the economy, but also the importance of placing current data into an historical context, in effect creating an additional tool that will help to identify and contextualise any build-up of financial vulnerabilities in the future. The current set of published financial accounts and balance sheets began in 1987, although some older estimates of the financial accounts are available, but often not on a consistent basis.

This article is the fifth in a series of articles presenting our work to [develop the historical data for the combined households and non-profit institutions serving households \(NPISH\)](#) sector. It presents historical time series separately for total assets and total liabilities (where available) for the combined sectors "Insurance, pensions and standardised guarantees" (AF.6), "Financial derivatives and employee stock options" (AF.7), and "Other accounts receivable/payable" (AF.8). It also describes the issues that arose during the building of these historical estimates. This work is part of a wider programme within the ONS to construct historical balance sheet data for the different institutional sectors of the UK economy.

This work used the historical balance sheet data sources already referenced in the previous article [Historical estimates of financial accounts and balance sheets](#), but we have also identified [other sources](#). We have explored the way these historical data have been compiled, trying to highlight and resolve any emerging issues. We hope this will form the basis of an approach that can be used in future publications presenting historical data for the remaining financial assets categories within this institutional sector.

The published annual estimates for the financial categories AF.6, AF.7 and AF.8 assets and liabilities held by the combined households and NPISH sector currently go back to 1987 only. The historical time series data presented in this article provide users with annual data that go back further, including:

- historical series, 1957 to 2017 for the "Insurance, pensions and standardised guarantees" (AF.6) assets data but not for liabilities
- historical assets and liabilities series, 1957 to 2017, restored for the "Other accounts receivable" (AF.8)

No historical assets or liabilities data were found for the "Financial derivatives and employee stock options" (AF.7) going back beyond 1987.

The work has been done as part of the [ONS flow of funds](#) initiative, which aims to transform financial statistics and enhance estimates in the national accounts. These are "best endeavour" provisional annual historical estimates and should be evaluated in conjunction with other initiatives such as the [Economic Statistics Centre of Excellence project](#), which also constructs historical data, although looking at different aspects of the economy.

2 . Introduction

As noted in our previous article, [Historical estimates of financial accounts and balance sheets](#), the need to monitor the distribution of assets and liabilities throughout the UK economy has increased since the financial crisis in 2008. This highlights the need for the analysis of financial stocks and flows in the economy, and for a deeper understanding of the historical context. The study of infrequent financial events benefits from the availability of long historical time series data that cover periods of structural change in the financial sector.

The Office for National Statistics's (ONS) published annual financial balance sheet data cover a relatively short period only, back to 1987, on a [European System of Accounts \(ESA\) 2010](#) basis. In this article, we focus on the financial categories:

- "Insurance, pensions and standardised guarantees" (AF.6)
- "Financial derivatives and employee stock options" (AF.7)
- "Other accounts receivable/payable" (AF.8)

These are part of the balance sheet for the combined households and non-profit institutions serving households (NPISH) sector, and propose an experimental historical time series for use in future analyses (see [Reconciling the sources of historic data for the households and non-profit institutions serving households \(NPISH\) sectors](#) and [historic versions of national accounts](#) for more information about the AF categories).

The proposed historical series in this article:

- are for total assets and for total liabilities levels (where available) separately
- contain data relating to periods prior to 1987
- consider differences in the data between different sources for specific time periods
- are consistent with ESA 2010 definitions

It is worth noting that the content of the personal sector, the category used in our earlier data sources and that is sometimes referred to as being equivalent to the combined households and NPISH sector, is slightly different. For example, the definition of the personal sector in ESA 1995 included partnerships, whereas in ESA 2010 partnerships are included in the definition of the corporate sectors.

We faced various challenges in creating these historical time series, mainly related to bringing together different sources of data. The datasets used were constructed by several authors, over different periods of time, working in different sectors and sometimes using different methodologies. Some sources used different content (instruments, sub-instruments and headings) when presenting data for a particular financial category. As is often the case with historical data, there were also periods when data were missing for a particular source. Missing data have been dealt with on a case-by-case basis.

The time series produced in this article are an initial step within a wider [Economic Statistics Centre of Excellence project](#), which aims to achieve the reconstruction and restoration of historical data for all economic institutional sectors and for both balance sheets and financial transactions data.

3 . Data sources

A variety of historical data sources have been used in the reconstruction and restoration of the financial categories "Insurance, pensions and standardised guarantees" (AF.6), "Financial derivatives and employee stock options" (AF.7), and "Other accounts receivable/payable" (AF.8) historical time series for the combined households and non-profit institutions serving households (NPISH) sector. These were described in detail in the article [Historical estimates of financial accounts and balance sheets](#).

A few of the data sources in this article were also enhanced with additional relevant granular data on assets and liabilities, derived from the Office for National Statistics (ONS) Central Shared Database (CSDB¹). A brief description of the sources for these datasets is given in this section.

Financial assets and liabilities by institutional sector

[Financial assets and liabilities by institutional sector \(Roe, 1971\)](#) is taken from Roe's "Financial Interdependence of the UK Economy" (1971a). This provides a highly detailed breakdown of financial assets and liabilities from 1957 to 1966, organised by both instrument and sector, which is rare for historical balance sheet data. The level of detail will be valuable for estimating the finer level of detail of instruments in other datasets.

Miscellaneous balance sheet data

[Miscellaneous balance sheet data, 1957 to 1986](#) contains miscellaneous official balance sheet data that enable some linking of the pre-European System of Accounts (ESA) 1995 dataset. The data within these spreadsheets were derived from "Economic Trends" (1980 and 1981) and "Financial Statistics Supplementary Tables" (1987) publications. The data for the non-bank private sector (NBPS) reported within these balance sheets are less heavily rounded than the data for the other balance sheets. The dataset derived from the "Financial Statistics Supplementary Tables" will be referred to as [FinStats](#) in this article.

Pre-ESA 1995 financial accounts and balance sheets

[Pre-ESA 1995 financial accounts and balance sheets](#) is the last set of sector financial account and balance sheet estimates produced by the ONS under the pre-European System of Accounts (ESA) 1995. This forms part of the annual UK National Accounts (Blue Book) 1997 dataset and contains data as published in mid-1998, prior to the introduction of the ESA 1995 set of accounts. Balance sheet data, by sector, are available only as far back as 1982 for most detailed instruments. However, data for total financial assets and liabilities, by sector, is given back to 1975 for many sectors and in some cases back to 1966. As noted in [Historical estimates of financial accounts and balance sheets](#), there are some discrepancies between these totals and the sum of the individual assets and liabilities to which they relate. In this article, we try to find an approach for reconciling these differences.

CSDB-extended pre-ESA 1995 data

This is the main new development presented in our previous article [Historic households and non-profit institutions serving households \(NPISH\) sectors data on currency and deposits](#). It provides a large amount of granular-level data for earlier years that was not available in the previously mentioned pre-ESA 1995 source in [Historical estimates of financial accounts and balance sheets](#).

In the CSDB-extended pre-ESA 1995 dataset, sub-instrument data were generally available back to 1966 and, for some sub-instruments, back to 1957. As mentioned in our previous article [Historic households and non-profit institutions serving households sectors data on currency and deposits](#), in assessing the validity of this newly identified data compared with [pre-ESA 1995 financial accounts and balance sheets](#), the data from the two datasets were found to be highly consistent.

Having said that, this dataset is being developed with further historical granular-level data from the Central Shared Database (CSDB) to support the construction of granular-level historical time series data for all the economic institutional sectors. These data are usually identified using Central Database identifiers².

UK Economic Accounts: institutional sector

The final sources used are ONS's UK Economic Accounts: institutional sector - households and non-profit institutions serving households, [financial balance sheets Quarter 4 \(Oct to Dec\) 2017 data \(published 29 March 2018\)](#), which will be labelled as [ESA 2010-BB2018](#) data in this article. These data are consistent with ESA 2010 and provide a benchmark for the historical series we are aiming to achieve. These datasets were particularly helpful in allocating pre-ESA 1995 balance sheet instruments to ESA 2010 categories.

Notes for Data sources

1. CSDB is an ONS computer system that contains the time-series components from which all of the series published in Financial Statistics are derived.
2. CDID is a central data-base identifier, each data series on CSDB is identified by four letters.

4 . Reconciling the historical estimates for the combined households and NPISH sector

The general approach used for the reconstruction and reconciliation of the combined households and non-profit institutions serving households (NPISH) sector's historical data is fairly similar to that presented in our [previous article](#).

The instruments from each dataset were assigned to the appropriate European System of Accounts (ESA) 2010 classification, after comparing the financial instrument definition with the [ESA 2010 guidelines](#). Where possible, the instruments were grouped based on their sub-classification. Once the instruments were classified, they were summed to produce totals for each year, for each classification, in each dataset. These series were then translated into a single overlapped series for the total combined households and NPISH sector's assets and liabilities data.

One of the main issues faced when attempting to produce a single, historical data series consistent with ESA 2010 for the combined households and NPISH sector's financial instruments was that often we were unable to find sub-instrument estimates overlapping in time to validate the data for earlier years contained in some of the historical sources. As there is no other data source for these earlier years, the broad approach taken in this article was to use the figures as presented in those sources.

A further issue was the lack of granular-level data for some sub-instruments for some years. We have tried to find data for any missing sub-instruments using other equivalently detailed historical sources when possible, as this may lead to more accurate totals overall.

In order to reconcile the data from the different historical sources to meet current ESA 2010 requirements, we have continued to use data from the [ESA 2010-BB2018](#) data as the basis of our reconciliation process, to maintain consistency with our previous work.

5 . Historical estimates of “Insurance, pensions and standardised guarantees” (AF.6)

The UK National Accounts financial balance sheet, [ESA 2010-BB2018](#), for the combined households and non-profit institutions serving households (NPISH) sector shows the assets and liabilities data for the financial category "Insurance, pensions and standardised guarantees" in accordance with the [European System of Accounts \(ESA\) 2010](#).

The assets and liabilities estimates on the new ESA 2010 basis for this category were first introduced to the UK National Accounts in September 2014. Thereafter, work continued to try to improve these estimates as part of the larger "[flow of funds](#)" project, which aims to transform financial statistics and enhance financial account estimates in the UK National Accounts.

Conceptually, within the balance sheets, assets are mainly the entitlement of households and not NPISH, as households are the main consumers of pensions and insurance. The main providers of pensions and insurance are financial corporations (S.12), represented by insurance corporations (S.128) and pension funds (S.129). These two sub-sectors are usually the main holders of liabilities. As the focus in this article is on households and NPISH combined, no data will be provided for the liabilities of financial corporations (S.12), which could be the subject of future publications.

The current limited published liabilities data for the combined households and NPISH sectors are held by the NPISH sector. Initial investigation revealed no historical data for these liabilities beyond the published, [ESA 2010-BB2018](#) data, going back to 1987. Therefore, no further historical work will be presented for them in this article.

Although the ESA 2010 assets balance sheet data are publicly available, these data currently also go back only to 1987. In the following section, the historical total assets data series for "Insurance, pensions and standardised guarantees" will be presented, in an attempt to extend the current series beyond 1987. It is worth mentioning that these total assets data appeared in a previous article, [Money in funded pensions](#). As part of the series of articles on historical data for the combined households and NPISH sector, in this current article we present the way these data were constructed.

Historical "Insurance, pensions and standardised guarantees" assets data for the combined households and NPISH sector

According to the Office for National Statistics (ONS)-published [ESA 2010-BB2018](#) data, the combined households and NPISH assets series for the financial category "Insurance, pensions and standardised guarantees" (AF.6) consists of three lower-level series:

- "Non-life insurance technical reserves" (AF.61): representing financial claims that non-life insurance policy holders have against non-life insurance corporations in respect of unearned premiums and claims incurred
- "Life insurance and annuity entitlements" (AF.62): representing financial claims that life insurance policy holders and beneficiaries of annuities have against corporations providing life insurance
- "Pension schemes entitlements" (AF.63): representing claims that current employees and former employees hold against either their employers, a scheme designated by the employer to pay pensions, and an insurer

The [time series data](#) listed within these categories currently goes back only to 1987. To restore historical data for these series prior to 1987, historical data first needed to be restored for all these financial instruments and/or their components. These financial instruments were then reconciled against equivalents from historical sources to ensure validity.

Investigation suggested that currently no ESA 2010 historical data exist prior to 1987 for any of the previous three listed instruments that feed into the "Insurance, pensions and standardised guarantees" (AF.6) assets from any of the historical data sources. Instead, equivalent historical instruments for the "Insurance, pensions and standardised guarantees" (AF.6), were identified using the historical sources data noted early in this article. Their definitions were then compared with ESA 2010 to decide if they were relevant ([ESA 1979](#) and [ESA 1995](#) (PDF, 6.78MB)). Instrument map 1 has been created to illustrate the way these data were mapped between the different historical sources of available data.

[Instrument map 1: Reconciled instruments for total households and NPISH sectors' Insurance, pensions and standardised guarantees \(AF.6\) assets data](#)

As can be seen from Instrument map 1, based on their published Central Database identifiers (CDIDs), historical data series for some of the historical sources were extended, back to 1966, using equivalent data from the ONS Central Shared Database (CSDB).

Table 1 was created to present all the restored historical data for the currently published [ESA 2010-BB2018](#) data, for the financial category "Insurance, pensions and standardised guarantees" (AF.6) and its instruments and for all those equivalents from other historical sources under consideration.

[Table 1: The full set of combined households and NPISH sector's 'Insurance, pensions and standardised guarantees' \(AF.6\) assets data available from the various sources \(in £millions\)](#)

A challenge, however, in attempting to produce a single, historical data series was finding consistency between different historical data sources. One way to improve consistency between sources is to compare similar sub-instrument estimates that overlap in time. Unfortunately, the earlier the historical data, the fewer are the overlapping data that can be found. This is particularly true with data prior to 1966. As there is no other data source for these earlier years, the broad approach taken was to use the figures as presented in those sources.

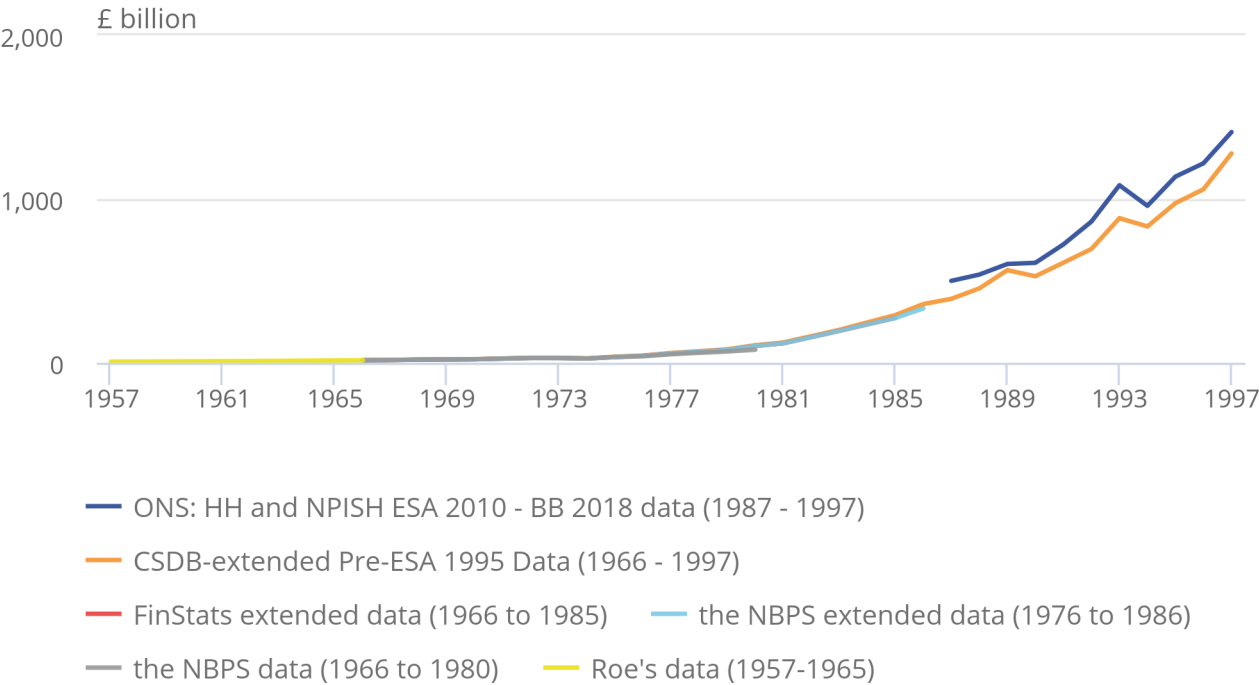
To assess the consistency of the newly identified combined households and NPISH sectors' data, a total AF.6 series from each of the historical sources was estimated by summing components and then comparing them against each other and against current [ESA 2010-BB2018](#) data. The results are presented in Figure 1.

Figure 1: Comparing historical total ‘Insurance, pensions and standardised guarantees’ (AF.6) assets with equivalents from other historical sources

1955 to 2000

Figure 1: Comparing historical total ‘Insurance, pensions and standardised guarantees’ (AF.6) assets with equivalents from other historical sources

1955 to 2000



Source: Office for National Statistics and expert studies

The data in Figure 1 appear to show there were almost no differences in the time series between the different historical sources, except when compared with the [ESA 2010-BB2018](#) data series, where differences do exist. As mentioned earlier, these differences are likely to be because of the considerable changes and improvements to the treatment of pensions and insurance since the move to ESA 2010 (see [Levy, S](#) and [Jones](#) for further details).

Using these data, the possible building blocks to use for the construction of a continuous historical "Insurance, pensions and standardised guarantees" (AF.6) total assets time series back to 1957 are:

- Roe's dataset: 1957 to 1965
- CSDB-extended pre-ESA 1995 dataset: 1966 to 1987
- ESA 2010 dataset: 1987 to 2017

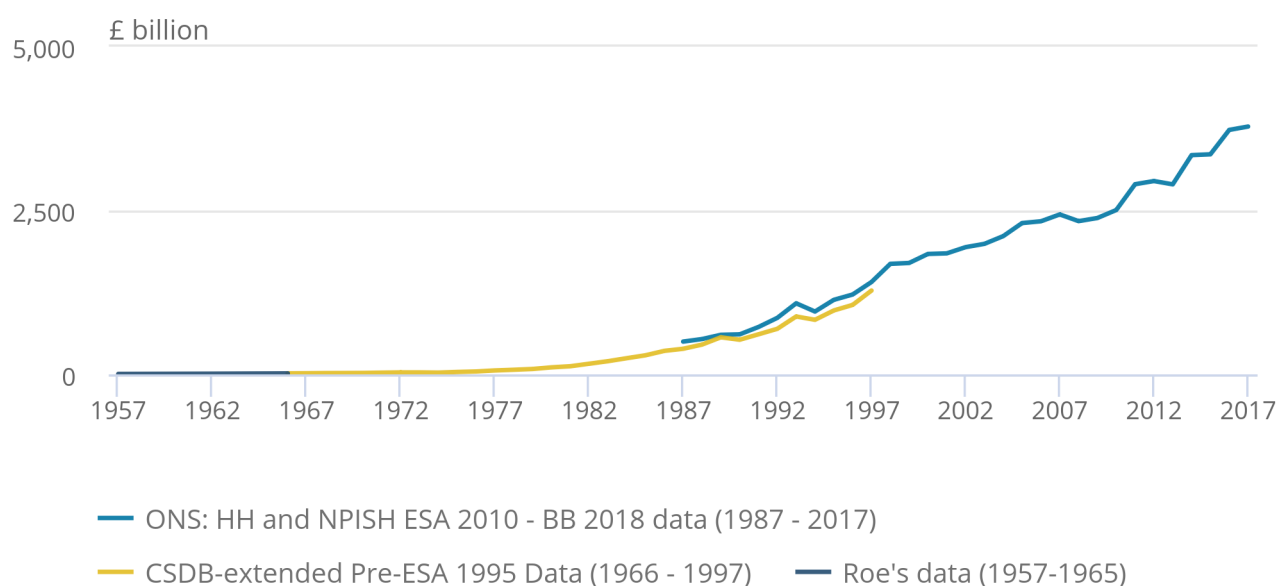
Figure 2 illustrates the suggested historical annual time series for the combined households and NPISH sector's "Insurance, pensions and standardised guarantees" (AF.6) assets, 1957 to 2017.

Figure 2: Total 'Insurance, pensions and standardised guarantees' (AF.6) assets for the combined households and NPISH sector

1957 to 2017

Figure 2: Total 'Insurance, pensions and standardised guarantees' (AF.6) assets for the combined households and NPISH sector

1957 to 2017



Source: Office for National Statistics and expert studies

The series in Figure 2 has been left disjointed to highlight the fact that the newly extracted historical time series estimates were compiled prior to the implementation of ESA 2010 and to the changed treatment of pensions and insurance. No attempt is made in this article to join the series, as quality improvements are ongoing in the "[flow of funds](#)" project and these improvements may lead to changes to the current pensions and insurance estimates.

6 . Historical estimates of “Financial derivatives and employee stock options” (AF.7)

The UK National Accounts financial balance sheet, [ESA 2010-BB2018](#), for the combined households and non-profit institutions serving households (NPISH) sector, shows the assets and liabilities data for the financial category "Financial derivatives and employee stock options" in accordance with the [European System of Accounts \(ESA\) 2010](#).

Our investigation suggested that currently no historical data prior to 1987 exist for this instrument or for any of its components and that the only data available are [what were published](#), see [Miller \(2019\)](#) for further clarification. This is because the assets and liabilities estimate for this instrument have only been measured for the combined households and NPISH sectors with the introduction of ESA 2010.

7 . Historical estimates of “Other accounts receivable /payable” (AF.8)

According to the [European System of Accounts \(ESA\) 2010](#), the combined households and non-profit institutions serving households (NPISH) sector's financial category "Other accounts receivable/payable" (AF.8) is defined as financial assets and liabilities created as counterparts to transactions where there is a timing difference between these transactions and the corresponding payments. The financial transaction within this category under ESA 2010 consists of:

- "Trade credits and advances" (F.81); which are financial claims arising from the direct extension of credit by the supplier of goods and services to their customers, and advances for work that is in progress or is yet to be undertaken
- "Other accounts receivable or payable, excluding trade credits and advances" (F.89); which are financial claims arising from timing differences between distributive transactions or financial transactions on the secondary market and the corresponding payments

Historical "Other accounts receivable" (AF.8) assets data for the combined households and NPISH sectors

According to [ESA 2010-BB2018](#) European System of Accounts (ESA) 2010 data, the combined households and NPISH sector's "Other accounts receivable" total assets data are published under a single time series.

These time series data currently go back only to 1987. To restore historical data for this series, prior to 1987, historical data first needed to be restored for all its components, where possible. These components and financial instruments were then reconciled against equivalents from historical sources. Totals for the "Other accounts receivable"(AF.8) assets were then estimated and compared with equivalents from other historical sources to ensure validity. Instrument map 2 has been created to illustrate the way these instruments data are reconciled between the different historical sources of available data.

[Instrument map 2: Reconciled instruments for total households and NPISH sector's 'Other accounts receivable' \(AF.8\) assets data](#)

As illustrated in Instrument map 2, most historical data sources under consideration contained the two main sub-categories that feed into the "Other accounts receivable" (AF.8) total, except for the historical data obtained from [Roe, 1957 to 1966](#), where the split was not available in the same manner. In the absence of comparable data, the broad approach taken was to use the Roe data, aggregated to total "Other accounts receivable" as presented by its source [Roe, 1957 to 1966](#).

Investigation suggested that equivalent historical data prior to 1987 do exist for the [ESA 2010-BB2018](#) sub-category "Trade credits and advances" (F.81) from the other historical sources. Using these sources and their relevant Central Database identifiers (CDIDs) we have even managed to extend these historical time series data back to 1966 using archived data obtained from the Office for National Statistics's (ONS's) Central Shared Database (CSDB).

Table 2 was created to present all the restored historical data for the currently published [ESA 2010-BB2018](#) data, for the financial category "Other accounts receivable" (AF.8) and its instruments and for all those equivalents from other historical sources under consideration.

[Table 2: The full set of combined households and NPISH sector's 'Other accounts receivable' \(AF.8\) assets data available from the various sources \(in £millions\)](#)

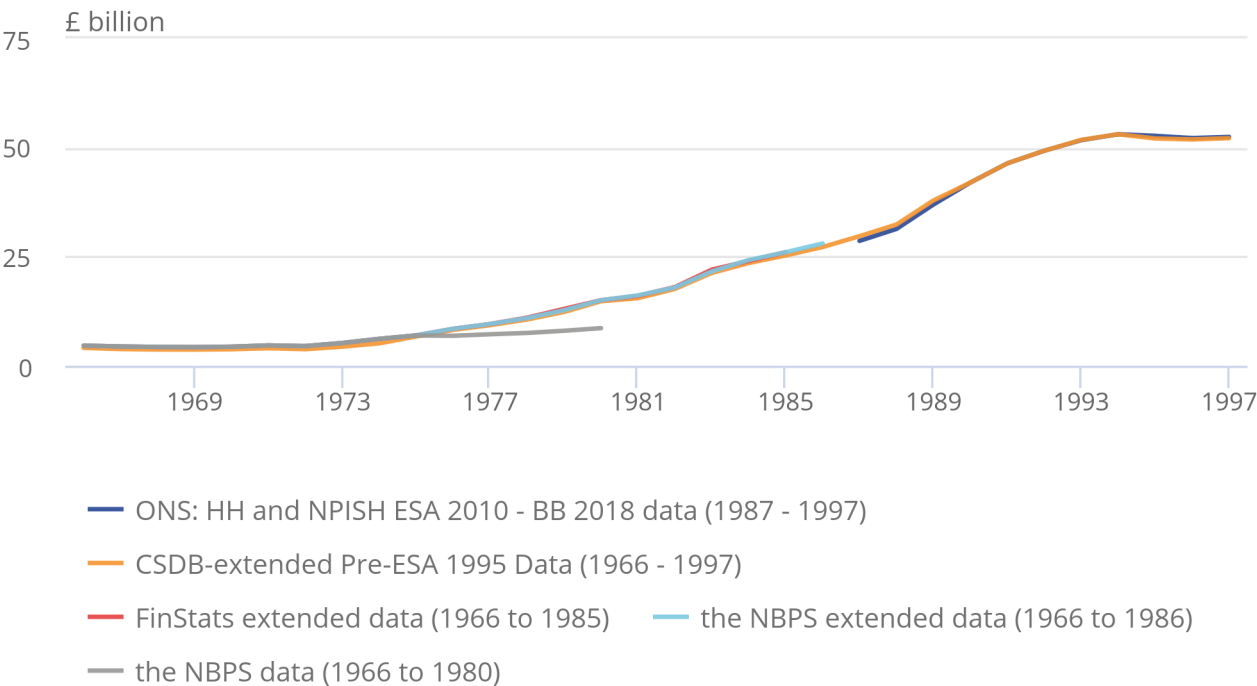
To assess the validity of the reconciled and extended historical data, for the sub-category "Trade credits and advances" (F.81), overlapped data were compared with each other and with data (1987 to 1997) obtained from [ESA 2010-BB2018](#). The result is presented in Figure 3.

Figure 3: Comparing reconciled historical ‘Trade credits and advances’ (F.81) data

1965 to 1997

Figure 3: Comparing reconciled historical ‘Trade credits and advances’ (F.81) data

1965 to 1997



Source: Office for National Statistics and expert studies

As can be seen from Figure 3, despite the differences in the way this instrument was labelled by the various historical sources (see Instrument map 2) there were very minor differences in the time series data between the compared sources likely to have been caused by revisions, except for one of the non-bank private sector (NBPS) sources, 1976 to 1980, which showed larger differences for the period 1976 to 1980. Further investigation suggested that the differences were once again the result of revisions to data because of improved estimation methods and the move from annual to quarterly estimates during 1980 (see [Financial wealth of the non-bank private sector](#)).

Using these data, the possible building blocks we have used for the construction of a continuous historical "Trade credits and advances" (F.81) total assets time series data, back to 1966 are:

- CSDB-extended pre-ESA 1995 dataset: 1966 to 1986
- ESA 2010 dataset: 1987 to 1997

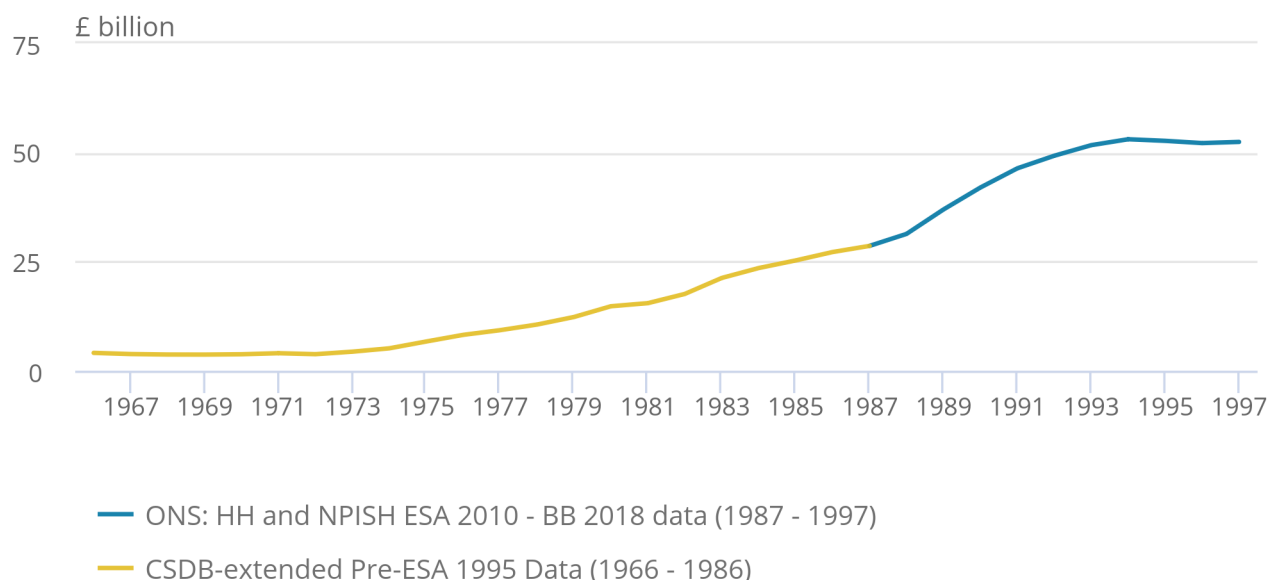
Figure 4 illustrates the suggested historical time series for the combined households and NPISH sector's "Trade credits and advances" (F.81) assets, 1966 to 1997.

Figure 4: Total 'Trade credits and advances' (F.81) assets for the combined households and NPISH sector

1966 to 1997

Figure 4: Total 'Trade credits and advances' (F.81) assets for the combined households and NPISH sector

1966 to 1997



Source: Office for National Statistics and expert studies

Finding historical assets data for the second sub-category "Accounts receivable, excluding trade credits and advances" (F.89) was much more challenging. Although historical data prior to 1987 do exist for this sub-category, these data were often found to be inconsistent.

Our investigation revealed that one of the possible reasons for this inconsistency is that this sub-category, as estimated totals, consists of a number of accruals adjustments, which have varied and been revised over the years. Nevertheless, we have managed to historically extend the current [ESA 2010-BB2018](#) (F.89) and other sources equivalent data series back to 1966 using archived data obtained from the Office for National Statistics's (ONS) Central Shared Database (CSDB).

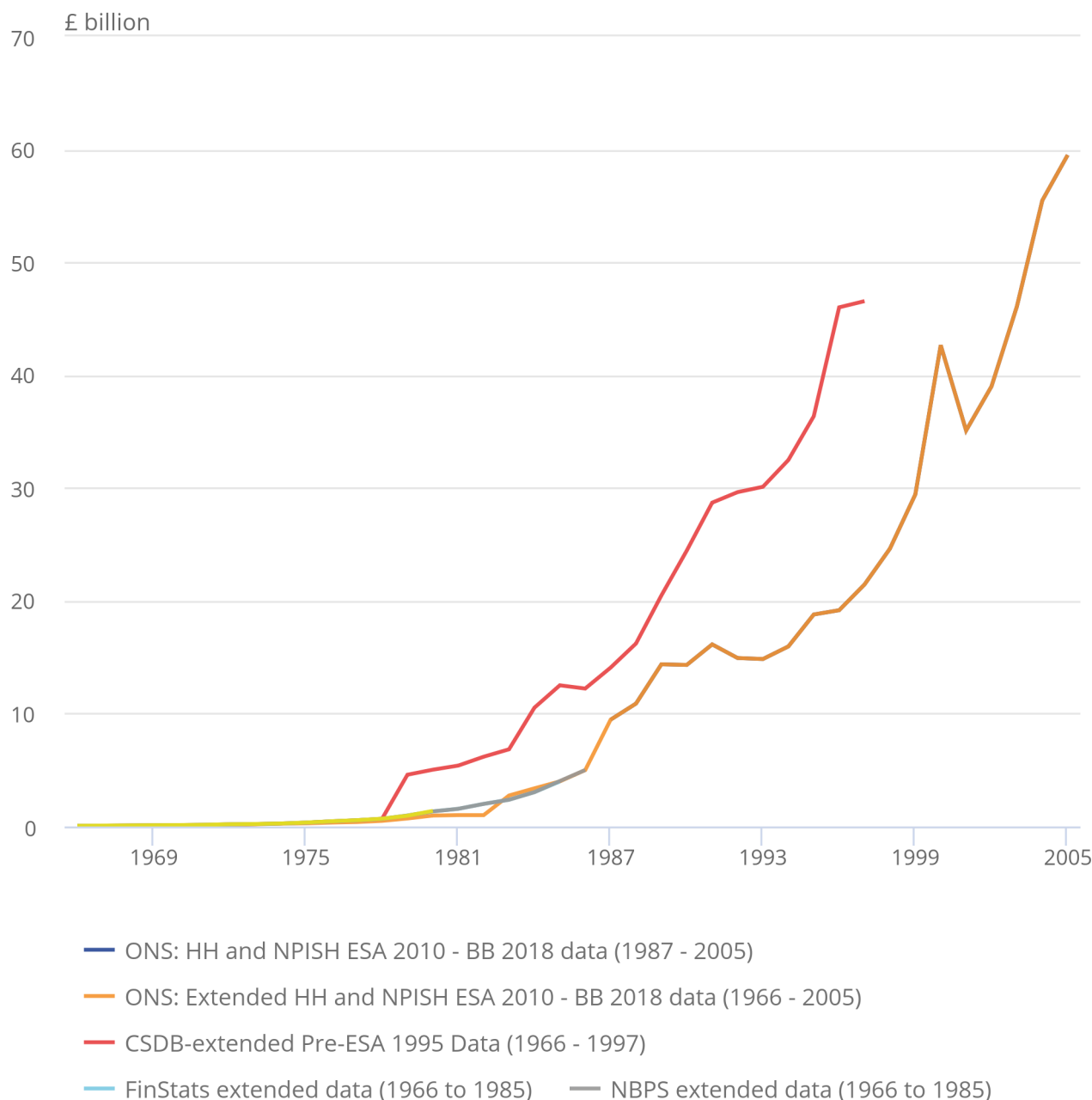
To assess the validity of the newly restored historical data for the sub-category "Other accounts receivable, excluding trade credits and advances" (F.89), overlapped annual data from the different sources were compared and the result is presented in Figure 5.

Figure 5: Comparing reconciled historical 'Other accounts receivable, excluding trade credits and advances' (F.89) data

1965 to 2010

Figure 5: Comparing reconciled historical 'Other accounts receivable, excluding trade credits and advances' (F.89) data

1965 to 2010



Source: Office for National Statistics and expert studies

Figure 5 shows that the combined households and NPISH sector's "Other accounts receivable, excluding trade credits and advances" (F.89) historical datasets, from the different sources, fit extremely well, except for the data from the pre-ESA 1995 dataset (1982 to 1997). This extended time series data was found to be significantly higher than the equivalent from [ESA 2010-BB2018](#) and from the other historical sources back to 1979. Earlier than that the differences disappear.

Our investigation into the differences between the pre-ESA 1995 dataset (1982 to 1997) and equivalently overlapped [ESA 2010-BB2018](#) data revealed that this difference is likely to have been caused by changes to the components that feed into total "Accounts receivable, excluding trade credits and advances" (F.89) as a result of the move to the [ESA 2010](#) (PDF, 6.4MB) system of accounts. As for the differences compared with other historical sources, the cause may have been the move to the ESA 1995 system of accounts, although we were unable to confirm the latter.

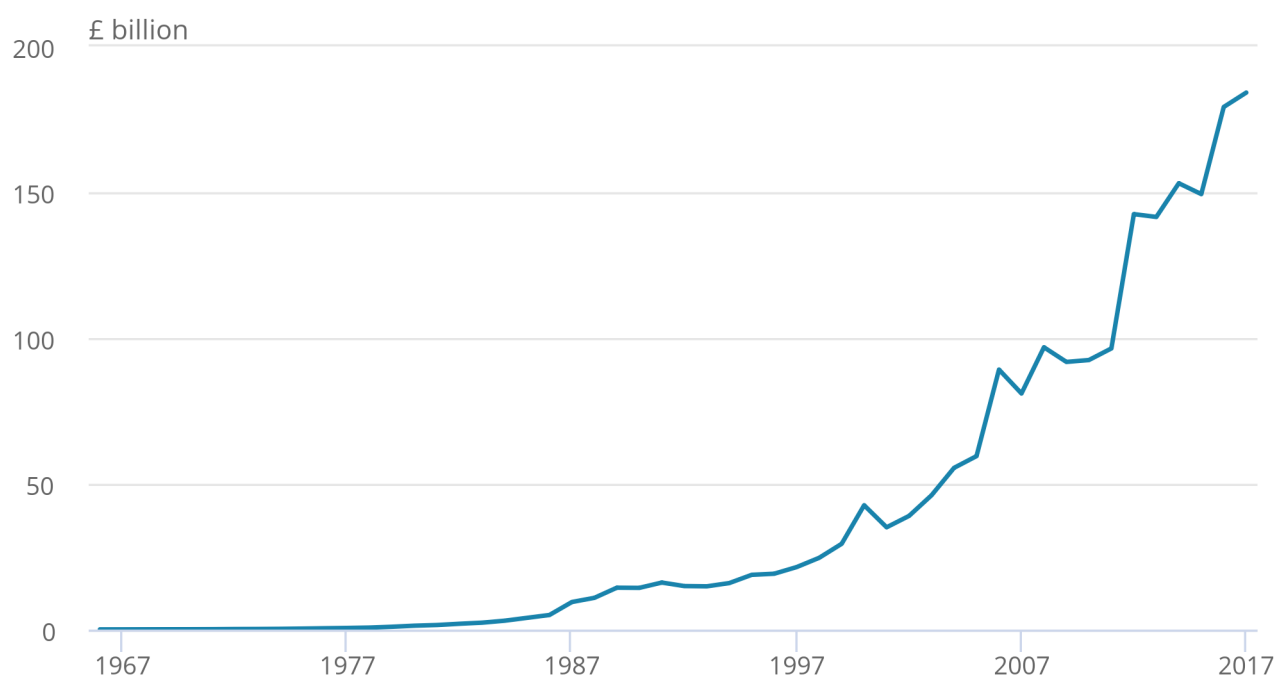
Using the historically extended [ESA 2010-BB2018](#) (F.89) data, Figure 6 shows the suggested historical annual time series for the combined households and NPISH sector's "Accounts receivable, excluding trade credits and advances" (F.89) assets, 1966 to 2017.

Figure 6: Historically extended 'Accounts receivable, excluding trade credits and advances' (F.89) assets for the combined households and NPISH sector

1966 to 2017

Figure 6: Historically extended 'Accounts receivable, excluding trade credits and advances' (F.89) assets for the combined households and NPISH sector

1966 to 2017



Source: Office for National Statistics and expert studies

Having identified the historical data for the two sub-categories "Trade credits and advances" (F.81) and "Other accounts receivable, excluding trade credits and advances" (F.89), these two instruments were then summed to estimate the "Other accounts receivable" (AF.8) historical time series.

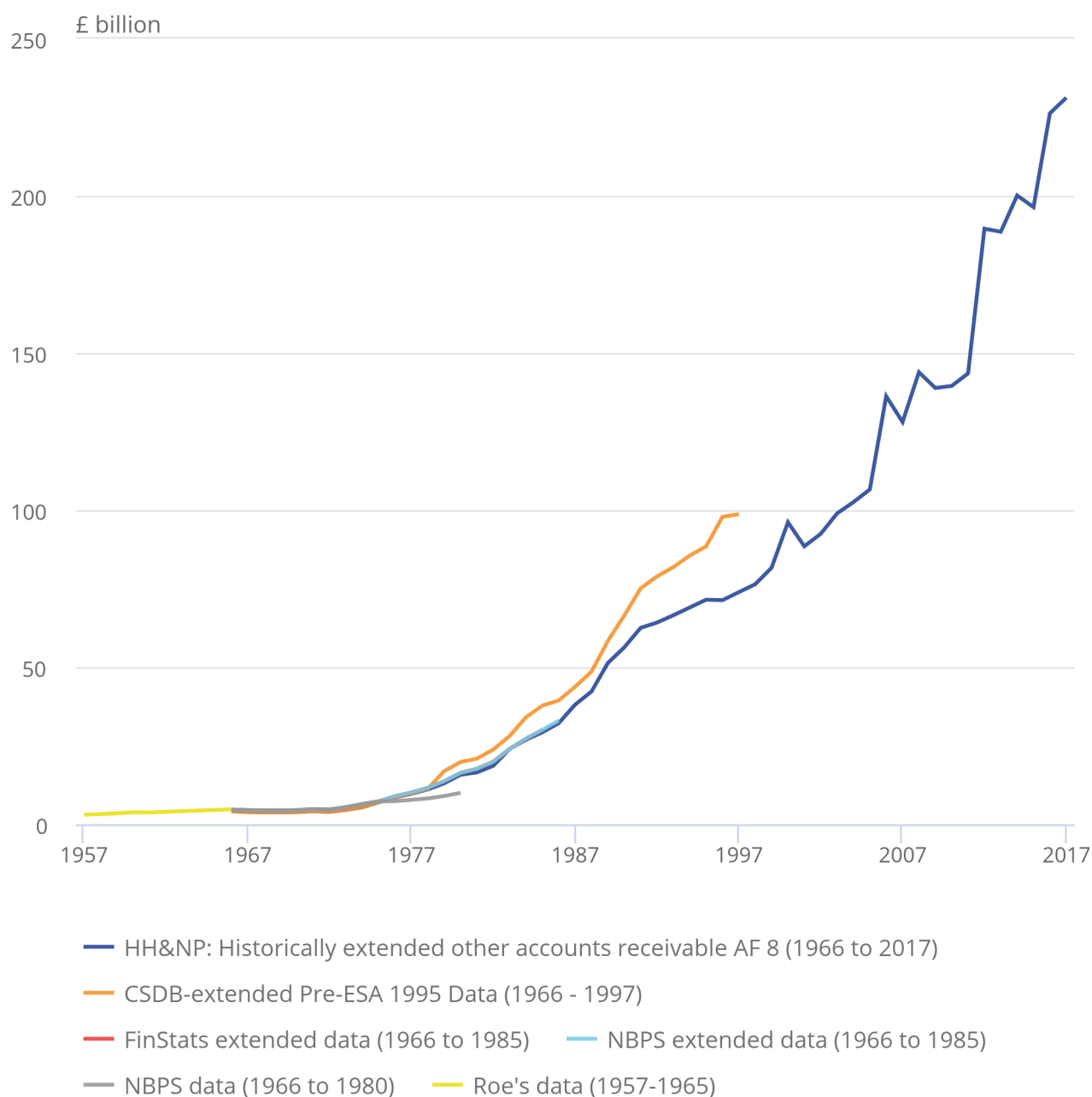
To assess the validity of the newly restored historical time series data for the [ESA 2010-BB2018](#) "Other accounts receivable" (AF.8) instrument, they were compared with equivalents from the other historical sources. The result is presented in Figure 7.

Figure 7: Reconciled historical estimates for the 'Other accounts receivable' (AF.8) for the combined households and NPISH sector

1965 to 2017

Figure 7: Reconciled historical estimates for the 'Other accounts receivable' (AF.8) for the combined households and NPISH sector

1965 to 2017



Source: Office for National Statistics and expert studies

As can be seen from Figure 7, the combined households and NPISH sector's "Other accounts receivable" (AF.8) historical datasets from the various sources and from the extended [ESA 2010-BB2018](#) are consistent overall, except for some of the discontinuities explained earlier. Therefore, what we believe to be the main building blocks to use for the construction of historical time series for the combined households and NPISH sector's "Other accounts receivable" (AF.8) assets data, back to 1957 are:

- Roe's dataset: 1957 to 1965
- Historically extended ESA 2010 dataset: 1966 to 2017

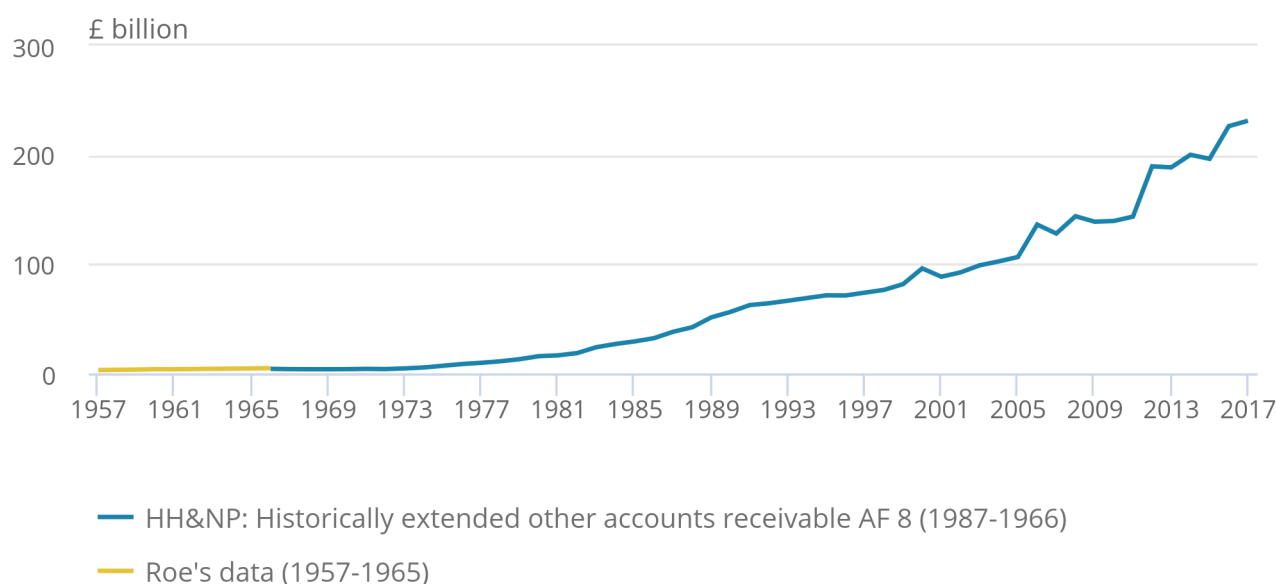
Using the data for these building blocks, Figure 8 illustrates the suggested experimental historical annual time series for the combined households and NPISH sector's "Other accounts receivable" (AF.8) assets, consistent with [ESA 2010-BB2018](#), 1957 to 2017.

Figure 8: Historically extended 'Other accounts receivable' (AF.8) assets for the combined households and NPISH sector

1957 to 2017

Figure 8: Historically extended 'Other accounts receivable' (AF.8) assets for the combined households and NPISH sector

1957 to 2017



Source: Office for National Statistics and expert studies

Historical "Other accounts payable" (AF.8) liabilities data for the combined households and NPISH sector

According to [ESA 2010-BB2018](#) data, the "Other accounts payable" (AF.8) annual liabilities estimates for the combined households and NPISH sector is published under a single instrument.

As mentioned previously, the current Office for National Statistics (ONS) annual data, based on ESA 2010, go back only to 1987. Therefore, in order to restore historical data for the "Other accounts payable" (AF.8) liabilities in line with ESA 2010 prior to 1987, equivalent historical data for this instrument's components, "Trade credits and advances" (F.81) and "Other accounts payable, excluding trade credits and advances" (F.89) needed to be restored. We have used an approach similar to that set out in the assets section.

Instrument map 3 has been created to illustrate the way these instruments data are reconciled and mapped between the different historical data sources.

[Instrument map 3: Reconciled instruments for the combined households and NPISH sector's 'Other accounts payable' \(AF.8\) liability data](#)

As illustrated in Instrument map 3, most of the historical data sources contained the two main sub-categories that feed into the "Other accounts payable" (AF.8) liability's total, except for the historical data obtained from [Roe, 1957 to 1966](#); in this data the split was not available. In the absence of comparable data, the broad approach taken was to use these Roe data's total for the "Other accounts payable" equivalent as presented by its source [Roe, 1957 to 1966](#).

Once again investigation revealed that equivalent historical data prior to 1987 do exist for the [ESA 2010-BB2018](#) "trade credits and advances" (F.81) liabilities, using some of the historical sources reported earlier in this article. Using these source's Central Database identifiers (CDIDs), we have also managed to extend these historical time series back to 1966, using archived data obtained from the ONS Central Shared Database (CSDB).

Table 3 presents all the restored historical data for the currently published [ESA 2010-BB2018](#) data, for the financial category "Other accounts payable" (AF.8) liabilities and its instruments and for all those equivalents from other historical sources under consideration.

[Table 3: The full set of combined households and NPISH sector's 'Other accounts payable' \(AF.8\) liabilities data available from the various sources \(in £millions\)](#)

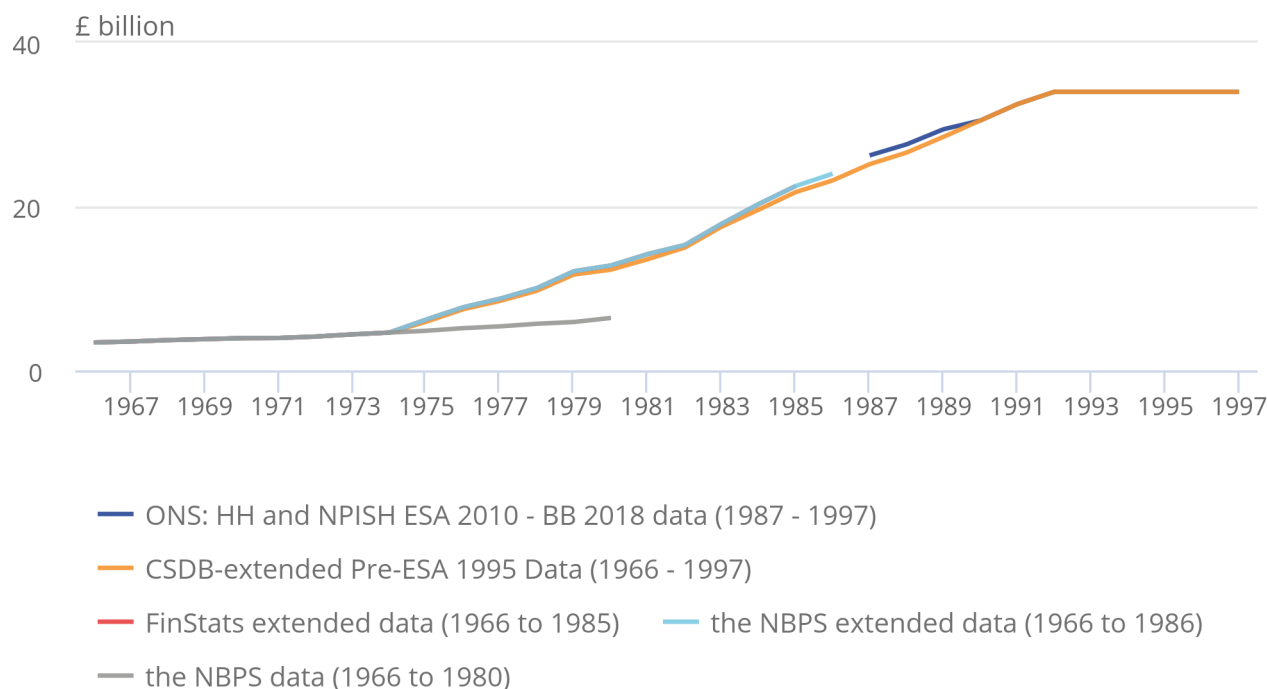
To assess the validity of the restored historical "Trade credits and advances" (F.81) liabilities data, obtained from all historical sources, overlapped data from all sources were compared with each other and with data (1987 to 1997) obtained from [ESA 2010-BB2018](#). The result is presented in Figure 9.

Figure 9: Comparing reconciled historical 'Trade credits and advances' (F.81) liabilities data

1965 to 1997

Figure 9: Comparing reconciled historical 'Trade credits and advances' (F.81) liabilities data

1965 to 1997



Source: Office for National Statistics and expert studies

As for the assets data for this instrument, Figure 9 shows there are minor differences in the time series between the compared sources, except for the non-bank private sector (NBPS) source data, 1966 to 1980, which showed differences for the period 1975 to 1980.

Once again, our investigation suggested that the differences were likely to be the results of revisions to data because of improved estimation methods and to the move from annual to quarterly estimates during 1980 (see [Financial wealth of the non-bank private sector](#)).

What we believe to be the building blocks to use for the construction of historical time series for the combined households and NPISH sector's "Trade credits and advances" (F.81) liabilities data, back to 1966 are:

- CSDB-extended pre-ESA 1995 dataset: 1966 to 1986
- ESA 2010 dataset: 1987 to 1997

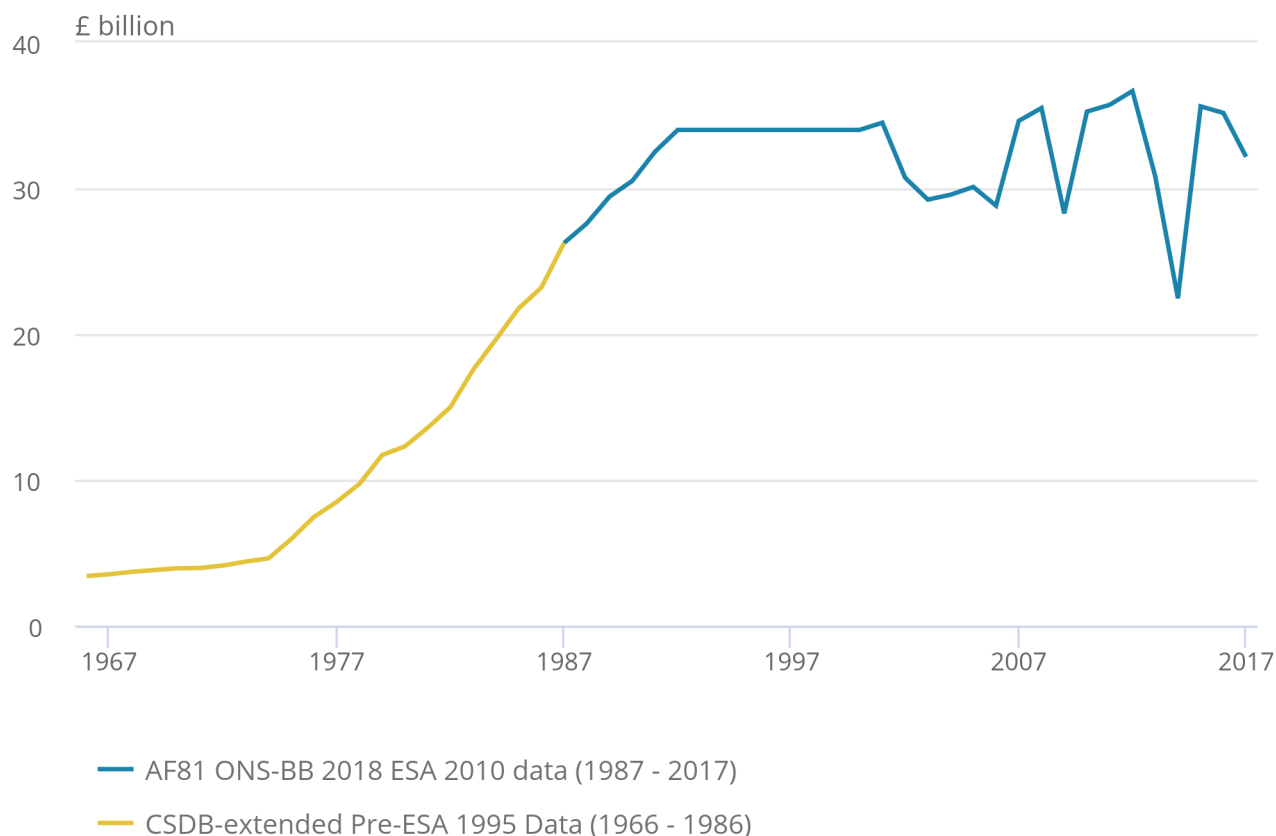
Using these building blocks, Figure 10 illustrates the suggested historical annual time series for the combined households and NPISH sector's "Trade credits and advances" (F.81) liabilities data in line with ESA 2010, 1966 to 2017.

Figure 10: Total 'trade credits and advances' (F.81) liabilities historical data for the combined households and NPISH sector

1966 to 2017

Figure 10: Total 'trade credits and advances' (F.81) liabilities historical data for the combined households and NPISH sector

1966 to 2017



Source: Office for National Statistics and expert studies

Finding historical liabilities data for the second sub-category [ESA 2010-BB2018](#) "Other accounts payable, excluding trade credits and advances" (F.89) liabilities once again proved to be challenging. As with assets, this sub-category's total estimate consists of the sum of a variety of accruals adjustments, which have either been improved or revised over the years.

No historical data have been found for this [ESA 2010-BB2018](#) sub-category's annual total or for its components beyond 1987. Having said that, time series data were restored for equivalent instruments obtained from the other historical sources. No further historical data were found to extend these time series using archived data from the Office for National Statistics's (ONS) Central Shared Database (CSDB). Instrument map 3 illustrates the way these data were mapped across the different sources of historical data.

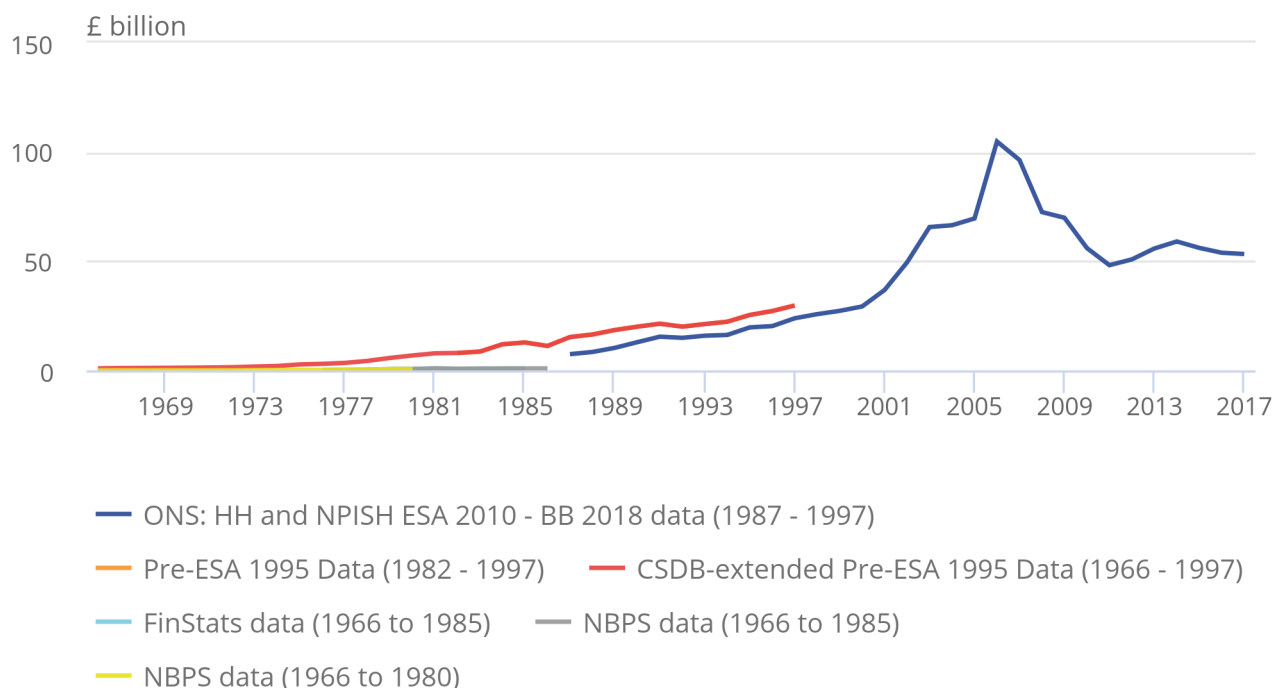
To assess the validity of the newly restored historical data for the sub-category "Other accounts payable, excluding trade credits and advances" (F.89) liabilities, overlapped annual data from the different historical sources were compared. The result is presented in Figure 11.

Figure 11: Comparing historical 'Other accounts payable, excluding Trade credits and advances' (F.89) liabilities data

1965 to 2017

Figure 11: Comparing historical 'Other accounts payable, excluding Trade credits and advances' (F.89) liabilities data

1965 to 2017



Source: Office for National Statistics and expert studies

As can be seen from Figure 11, while some historical sources, such as [FinStats](#) and the non-bank private sector (NBPS), are consistent in their reporting of the annual estimate for "Other accounts payable, excluding trade credits and advances" (F.89), other historical datasets were not. There are large inconsistencies between the CSDB-historically extended pre-ESA 1995 data (1966 to 1997) and all equivalents from other historical sources. More importantly, these differences were especially noticeable in the comparison with the data from the current [ESA 2010-BB2018](#) dataset for this category.

Investigation into the pre-ESA 1995 data instruments' feeds into the F.89 revealed that one of these instruments, labelled "Miscellaneous instruments" (REWL), not only contains accruals adjustments that are relevant to "Other accounts payable, excluding trade credits and advances" (F.89) but also contains elements of "Other domestic short-term loans" (RHHO), see Instrument map 3. Furthermore the "Miscellaneous instrument" (RHHQ), containing these accruals adjustments appeared to be missing from the historical data reported by other historical sources, such as [FinStats](#) and the non-bank private sector (NBPS). We found no reasons to explain why this instrument was missing from these sources. It may have been introduced at a later date.

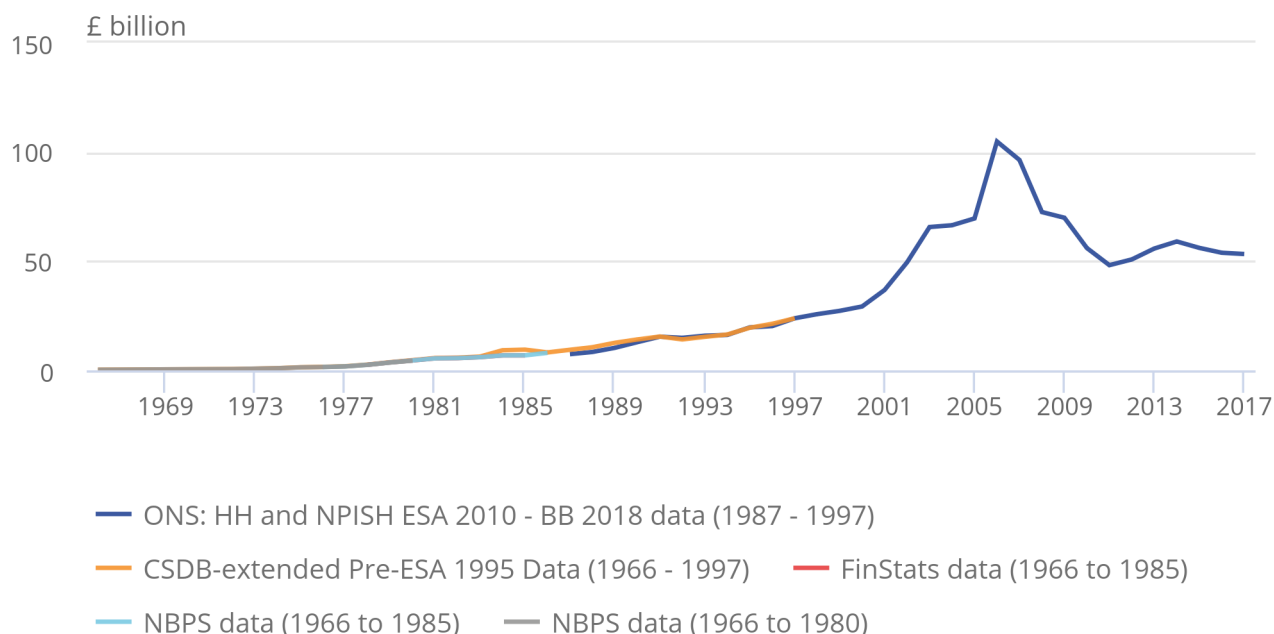
In order to reconcile the inconsistencies between the historical data sources, we decided to remove the "Other domestic short-term loans"(RHHO) instruments from the other miscellaneous instruments and added the remaining to the other historical sources data, mentioned previously. The results are presented in Figure 12.

Figure 12: Comparing reconciled historical ‘Other accounts payable, excluding trade credits and advances’ (F.89) data

1965 to 2017

Figure 12: Comparing reconciled historical ‘Other accounts payable, excluding trade credits and advances’ (F.89) data

1965 to 2017



Source: Office for National Statistics and expert studies

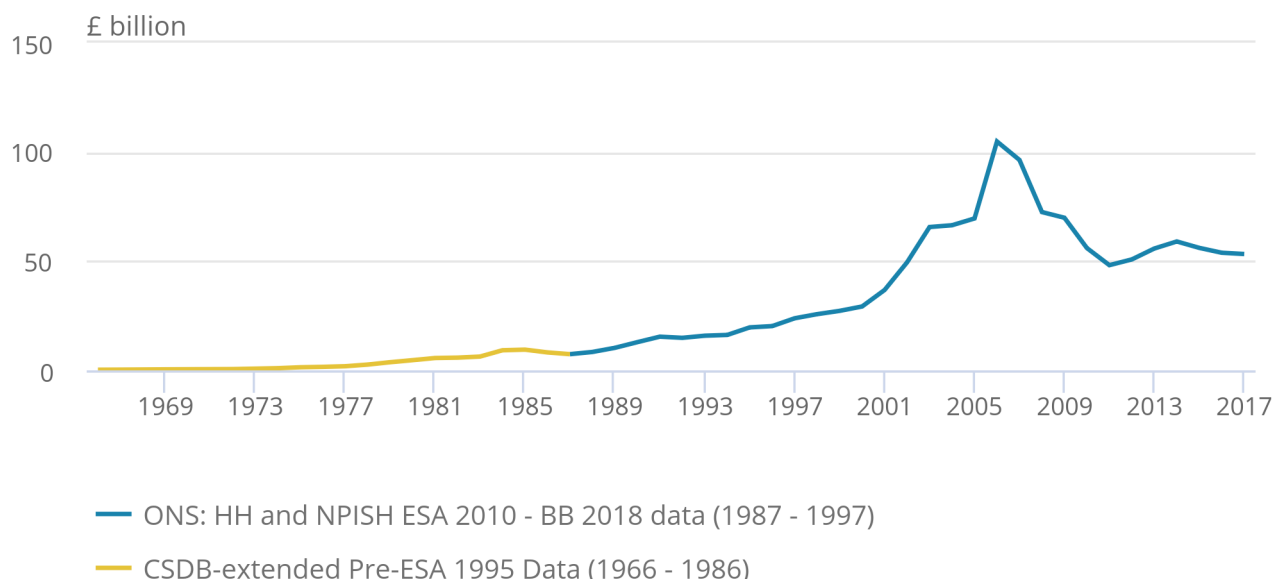
Figure 12 shows the reconciled datasets from the different sources are now much more consistent (but not absolutely identical). On that basis, Figure 13 shows what we believe to be the best building blocks to use for the construction of historical time series for the “Other accounts payable, excluding trade credits and advances” (F.89) liabilities.

Figure 13: Total 'Accounts payable, excluding trade credits and advances' (F.89) liabilities for the combined households and NPISH sector

1966 to 2017

Figure 13: Total 'Accounts payable, excluding trade credits and advances' (F.89) liabilities for the combined households and NPISH sector

1966 to 2017



Source: Office for National Statistics and expert studies

Having restored the historical liabilities data for the two sub-categories "Trade credits and advances" (F.81) and "Other accounts payable, excluding trade credits and advances" (F.89), these two instruments were then summed up to estimate the "Other accounts payable" (AF.8) liabilities historical time series.

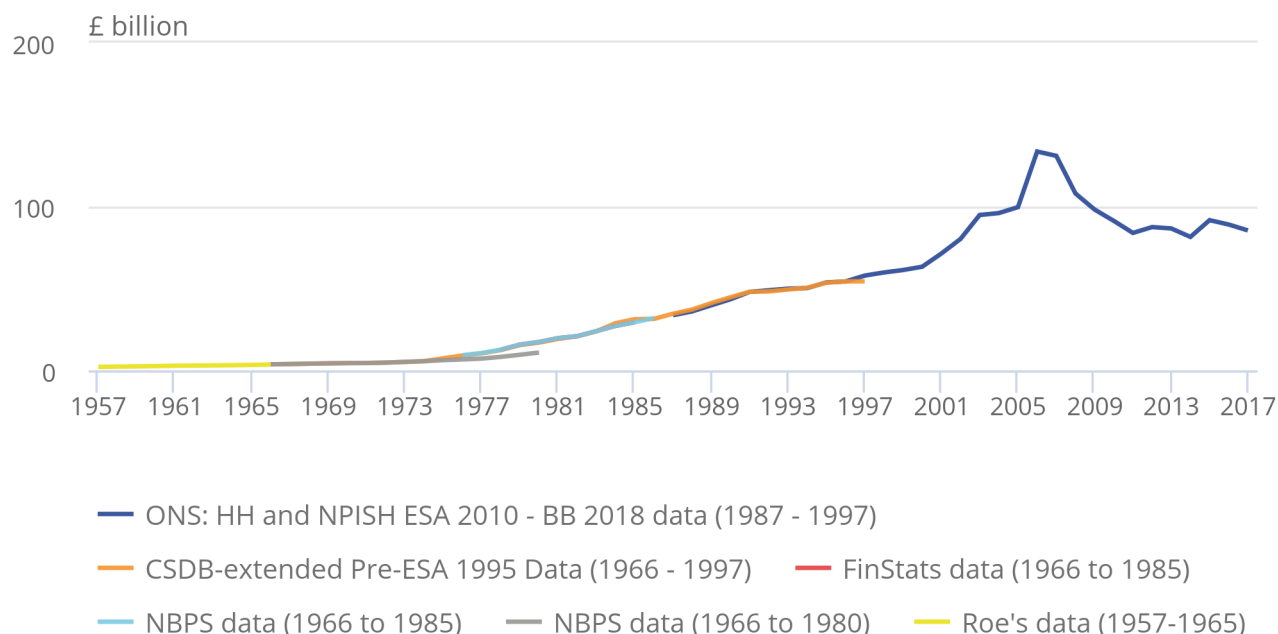
To assess the validity of this historical time series data for the [ESA 2010-BB2018](#), "Other accounts payable" (AF.8) instrument, they were compared with equivalents from all historical sources under consideration. The result is presented in Figure 14.

Figure 14: Reconciled historical estimates for the 'other accounts payable' (AF.8) liabilities for the combined households and NPISH sector

1957 to 2017

Figure 14: Reconciled historical estimates for the 'other accounts payable' (AF.8) liabilities for the combined households and NPISH sector

1957 to 2017



Source: Office for National Statistics and expert studies

As can be seen from Figure 14, the combined households and NPISH sector's "Accounts payable" (AF.8) liabilities historical time series data, comparing different historical sources and [ESA 2010-BB2018](#), are overall consistent and in parts indistinguishable (but not absolutely identical), except for the discontinuities highlighted and explained earlier.

Therefore, what we believe to be the main building blocks to use for the construction of a historical time series of the combined households and NPISH sector's "Other accounts payable" (AF.8) liabilities data, back to 1957, are:

- Roe's dataset: 1957 to 1965
- CSDB-extended pre-ESA 1995 dataset: 1966 to 1986
- ESA 2010 dataset: 1987 to 2017

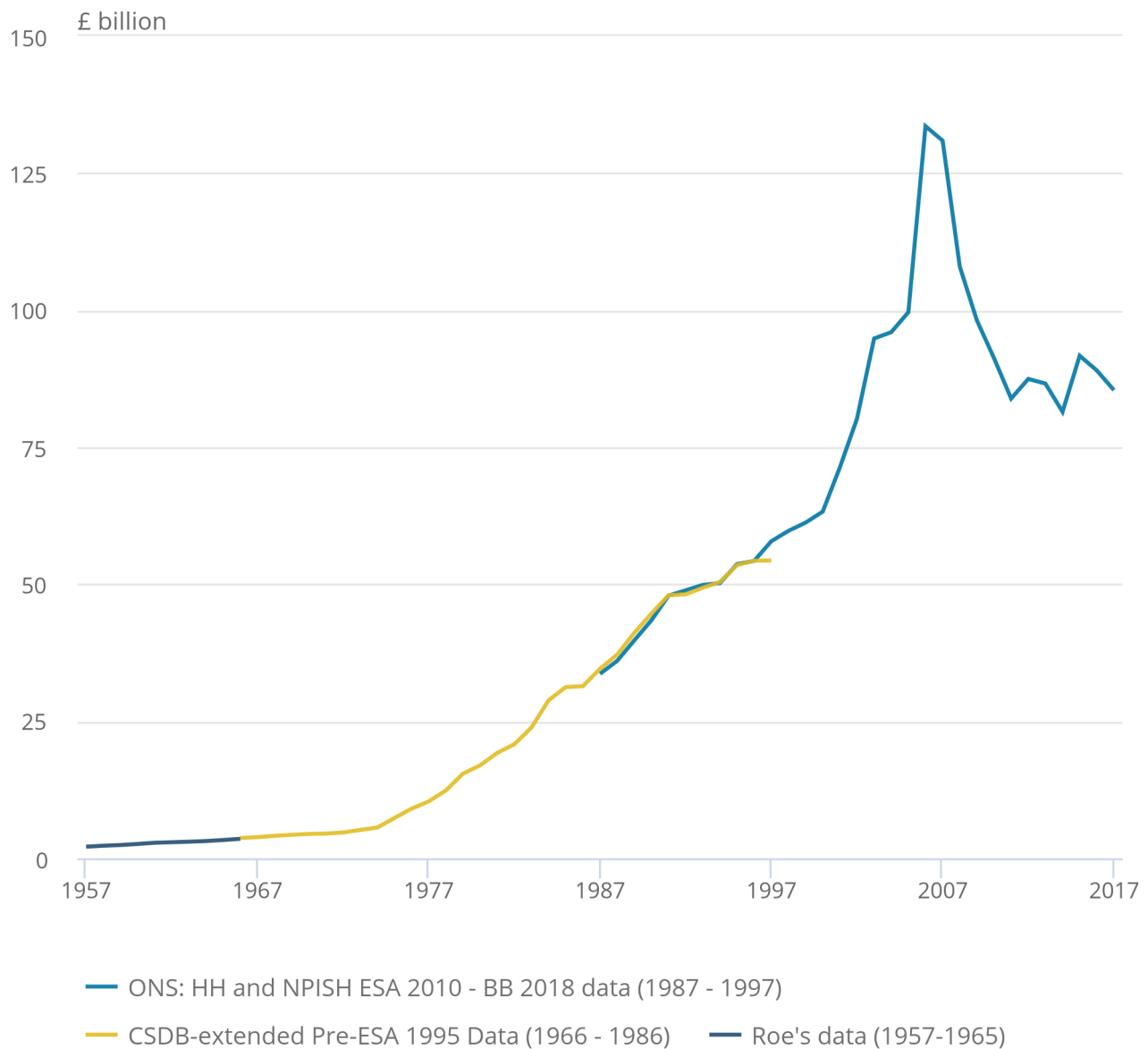
Using the data for these building blocks, Figure 15 illustrates the suggested experimental historical annual time series for the combined households and NPISH sector's "Other accounts payable" (AF.8) liabilities, consistent with [ESA 2010-BB2018](#) 1957 to 2017.

Figure 15: Total 'Other accounts payable' (AF.8) liabilities historical time series for the combined households and NPISH sector

1957 to 2017

Figure 15: Total 'Other accounts payable' (AF.8) liabilities historical time series for the combined households and NPISH sector

1957 to 2017



Source: Office for National Statistics and expert studies

8 . Conclusion and next steps

This article further develops our previous work [Reconciling the sources of historic data for the combined households and non-profit institutions serving households \(NPISH\) sectors](#). It proposes an experimental historical time series for the combined households and NPISH sector's remaining financial categories, "Insurance, pensions and standardised guarantees" (AF.6) assets and "Other accounts receivable" (AF.8) assets and liabilities in line with [ESA 2010-BB2018](#) European System of Accounts (ESA) 2010, 1957 to 2017. This work also revealed that currently no historical data exist prior to 1987 for the category "Financial derivatives and employee stock options" (AF.7). It also highlights some data issues and possible future areas for improvements.

It is worth highlighting, at this stage, the large volume of data this research has involved and also the limited availability of detailed sources providing explanation to historical data changes over time. This has made the task of restoring these historical data difficult. Nevertheless, it is our belief that this work provides a set of acceptable historical time series data and that it has gone some way towards setting out the challenges faced when dealing with such historical data. It has also provided some useful tools and principles, such as the instrument mapping approach.

Although the data and information provided in this article have been subject to a set of checks and balances, further quality improvements are possible and may be implemented in future work. The intention is to use the approach presented in this article to produce further articles that will cover assets and liabilities for all the financial institutional sectors. This would be a sizeable research programme, however, expected to take a number of years.

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10 . Related links

[Flow of Funds archived background information](#)

Explanatory Notes:

[Institutional sectors and financial instruments](#)

[AF.2 Currency and deposits](#)

[AF.3 Debt securities](#)

[AF.4 Loans](#)

[AF.5 Equity and investment fund shares or units](#)

[AF.6 Pensions, insurance and standardised guarantee schemes](#)

[AF.71 Financial derivatives](#)

26 November 2019 - [Transforming the UK Financial Accounts: flow of funds](#)

26 November 2019 - [UK financial accounts experimental flow of funds matrices: 2019](#)

26 November 2019 - [Enhanced financial accounts \(UK flow of funds\) - Using commercial data in experimental statistics](#)

26 November 2019 - [Enhanced financial accounts \(UK flow of funds\) - Banking sector update](#)

26 November 2019 - [Enhanced financial accounts \(UK flow of funds\) - Investment and other financial institutions \(IOFIs\)](#)

26 November 2019 - [Enhanced financial accounts \(UK flow of funds\) - Experimental financial statistics for the UK insurance sector using Solvency II data](#)

26 November 2019 - [Potential application of the European Market Infrastructure Regulation \(EMIR\) data in the national accounts: flow of funds](#)

7 November 2019 - [UK flow of funds accounts matrices: 2019](#)

Links to earlier articles are available on the [Economic Statistics Transformation Programme Articles page](#)

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