

Article

# Economic Statistics Transformation Programme: enhanced financial accounts (UK flow of funds) – 2018 matrix update

This is the annual update of the flow of funds matrices. This release incorporates the latest Blue Book publication published on 31 July 2018.

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# 1 . Abstract

This article summarises the latest flow of funds matrices, which show the financial relationships between the various sectors of the UK economy.

Included in this article is a presentation of the latest experimental “from-whom-to-whom” statistics, with estimates for the majority of financial instruments from 1997 to 2017. These data are consistent with the data published in the Office for National Statistics publications [UK Economic Accounts \(UKEA\) Quarter 1 \(Jan to Mar\) 2018](#) and the [UK National Accounts. The Blue Book 2018](#).

This article also includes visualisations for these statistics as well as an updated Sankey diagram ([initial Sankey diagram was published in March 2016](#)). These visualisations are a result of ongoing development work aimed at making our data more accessible and informative for our users. We welcome further feedback on the way we present this data. We have also produced a refreshed suite of explanatory notes, which are linked into Section 9 of this article.

Please contact us via [FlowOfFundsDevelopment@ons.gov.uk](mailto:FlowOfFundsDevelopment@ons.gov.uk) if you would like to provide feedback.

## 2 . Introduction

We have ambitious plans to transform our economic statistics over the coming years, informed by our [Economic Statistics and Analysis Strategy](#) and with the aim of increasing the robustness and quality of the UK’s economic statistics. Office for National Statistics (ONS) and Bank of England (BoE) are working in partnership to deliver the UK’s enhanced financial accounts (flow of funds) initiative. An important part of this work is to develop “from-whom-to-whom” (W2W) estimates for financial account transactions and balance sheet levels, publishing the counterparty relationships for each financial instrument rather than the total asset and/or liability position for each institutional sector in isolation. These data have been published annually since 2015, with many improvements to mapping the counterpart data over the last 12 months. Please note that due to changes in the counterpart mappings, data are not directly comparable to previous releases. ONS is committed to publishing experimental data in 2019, with the ambition of incorporating them into the UK National Accounts in 2021.

This article includes data consistent with the ONS publications: [UK Economic Accounts \(UKEA\) Quarter 1 \(Jan to Mar\) 2018](#)) and the [UK National Accounts. The Blue Book 2018](#).

This article includes visualisations that have been designed to aid the understanding of this complex area. It also provides greater granularity by providing a breakdown of equity into listed and unlisted UK shares, other equity and investment fund shares.

Lastly, the article briefly highlights other areas of development within the enhanced financial accounts initiative, which will add further granularity and improve the quality and coverage of the flow of funds matrices in the future.

## 3 . Visualising flow of funds statistics

In an article published in March 2016, Office for National Statistics (ONS) introduced [a new way to visualise flow of funds \(FoF\) statistics](#). Sankey diagrams were used to visualise the counterparty relationships between institutional sectors. These visualisations have a tooltip chart to show the underlying time series data for each interaction in the Sankey. This tooltip chart can be toggled on and off using the buttons at the top of the Sankey. These visualisations have now been updated to incorporate the latest published national accounts data (Figures 1 and 2).

## Figure 1: UK flow of funds Sankey diagram: sector-to-sector interactions for financial balance sheets

### Notes:

1. Separate NMMF data is available in the data tables that accompany this release.
2. Negative values cannot be displayed in the data visualisations.
3. PC – public corporations, PNFCs – private non-financial corporations, MFIs – monetary financial institutions, OFIs – other financial institutions, ICPFs – insurance corporations and pension funds, CG – central government, LG – local government, HH – households, NPISH – non-profit institutions serving households, RoW – rest of the world.

## Figure 2: UK flow of funds Sankey diagram: sector-to-sector interactions for financial balance sheets by financial instrument

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Further explanation of the institutional sectors and financial instruments included in Figures 1 and 2 can be found [in the accompanying explanatory notes](#).

## Interpreting Figures 1 and 2

In the national accounts, all financial instruments have an economic owner – the people or entities that are considered to hold the asset – and, with the exception of monetary gold, they all have counterparty relationships – the people or entities that are considered to hold the liability. For example, when a private individual deposits cash in a bank account, the national accounts balance sheets record several things simultaneously, as follows:

- a decrease in the amount of cash the person holds as a financial asset
- an increase in the amount of cash the bank holds as a financial asset
- an increase in the amount of deposits the person holds as a financial asset
- an increase in the amount of deposits the bank holds as a financial liability

While the national accounts record the counterparties' transactions separately, the "from-whom-to-whom" accounts link the asset and liability holders.

The Sankey diagram in Figure 2 illustrates this example, where the private individual appears in the households (HH) sector on the right-hand side and the bank appears in the monetary financial institutions (MFI) sector on the left. If you hover the mouse over the left-hand side of the savings instrument in Figure 2, this shows the total amount of liabilities held by the MFI sector in deposits. If you hover on the right-hand side of the savings instrument in Figure 2, this shows the total amount of assets in deposits held by each counterpart sector. We can see that the households are relatively small depositors with the majority of the deposits made to the MFI sector made by entities outside of the UK.

There are also bar charts embedded within the interactive, known as a tooltip, which show the underlying time series data of each thread. In Figure 2, by hovering on the right-hand side of the interactive, we can see that in 2017, the total assets held by the households sector in deposits is £1,515 billion.

Our third visualisation (Figure 3) presents a matrix of small multiples, [the original version of the matrix was first published in 2017](#). The small multiple interactive aims to give users an overview of all the data, focusing particularly on change over time. Each individual time series represents the institutional sector that holds the financial liabilities and the counterpart institutional sector that holds the financial assets for the combined total of all published transactions. The graphs can be displayed on the same scale or on different scales depending on the needs of the users.

### **Figure 3: Small multiples to illustrate the total financial transaction relationships, over time, within the matrices published**

#### **Notes:**

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### **Interpreting Figure 3**

The multiple graphs are displayed in a tabular form where each cell of the table represents an individual time series relationship, as described in numbers in the from-whom-to-whom matrices. Clicking on a specific cell will bring up a larger version of that particular time series including gridlines, which are useful for users to read values from the chart. To return to the main matrix you need to just click within the graph again. A user can also toggle the scaling at the top of the matrix as required.

## **4 . Changes to the flow of funds matrices**

### **Background**

This update includes four additional quarters of data for the year 2017, as well as updating the time series with the newly-published data in the [UK Economic Accounts \(UKEA\) Quarter 1 \(Jan to Mar\) 2018](#), consistent with the UK National Accounts, [The Blue Book 2018](#). A number of other changes have been implemented within the matrices in order to improve on the published information. Please note that due to changes in the counterpart mappings, data are not directly comparable to previous releases. This article looks at a further breakdown of F.5 transactions, with specific interest in separating listed UK shares from unlisted UK shares, and also separately identifies the non-money market fund sub-sector (S.124).

As part of the development this year, the majority of assets for listed shares (AF511) have been moved from the rest of the world sector to the unknown sector while investigative work on the appropriate allocation continues. We will look to improve this mapping and publish updated AF511 tables in the new year.

## **AF.5 financial instruments – equity and investment fund shares**

### **Equity**

Equity (AF.51) is a financial asset that is a claim on the residual value of a corporation, after all other claims have been met. These can be in the form of shares and stocks, depository receipts, participations or similar documents.

Equity is sub-categorised into:

- listed shares (AF.511)
- unlisted shares (AF.512)
- other equity (AF.519)

Listed shares are equity securities listed on either a recognised stock exchange or a form of secondary market. Listed shares are also referred to as quoted shares.

Unlisted shares are equity securities not listed on an exchange.

Other equity comprises, for example:

- all forms of equity other than those classified as listed and unlisted shares
- investment by general government in the capital of public corporations whose capital is not divided into shares and which by virtue of special legislation are recognised as independent legal entities
- government investments in capital of international and supranational organisations, with the exception of the International Monetary Fund
- the financial claims that non-residents have against national residents, and the other way around

### **Investment funds**

Investment funds (AF.52) are collective investment undertakings through which investors pool funds for investment in financial and/or non-financial assets. Investment funds are also called mutual funds, unit trusts, investment trusts and undertakings for collective investments in transferable securities. They may be open-ended, semi-open or closed-end funds. Investment fund shares may be listed or unlisted.

Between 2016 and 2017, total financial assets and liabilities experienced a small decrease at the total economy level of around £145 billion, due largely to a fall of around one-third (31%) in financial derivatives. Total deposits as well as equity and investment fund shares contributed the most to the value of net worth, providing a net increase of £615 billion and £712 billion respectively when compared with 2016. In 2017, we published the from-whom-to-whom statistics for equity and investment fund shares (AF.5), but only at an aggregate level. This year, efforts have been made to improve on the quality and granularity of the equity transactions by splitting them into listed (AF.511N1) and unlisted (AF.512N1) UK shares, other equity (AF.519) and investment fund shares (AF.52).

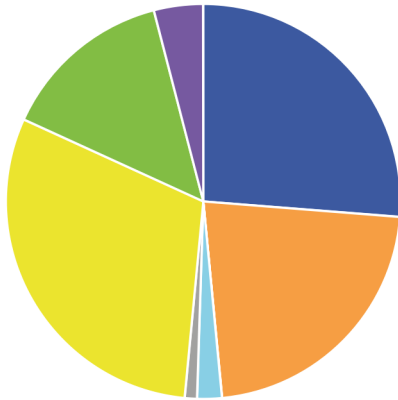
Excluding monetary gold, special drawing rights and other accounts payable/receivable, deposits have continued to account for the largest proportion of the UK balance sheets, with an estimated asset size of £10.4 trillion in 2017, which amounts to approximately 25% of the total economy. Equity, which includes listed and unlisted UK shares, accounts for about one-fifth (20.1%) of the market (Figure 4).

**Figure 4: Breakdown of Equity and Investment Fund Shares, 2017**

UK

Figure 4: Breakdown of Equity and Investment Fund Shares, 2017

UK



Source: UK Flow of Funds data

## Interpreting Figure 4

Figure 4 shows the breakdown of the equity and investment fund shares into their various components. The combination of listed and unlisted UK shares is responsible for around half (49%) of the equity and investment fund shares market. Shares and equity issued by the rest of the world, made up of direct outward investment in property, and rest of the world shares and other equity, account for 36% of the market. The investment fund shares component, which consists of UK and rest of the world mutual fund shares, constitutes 18% of the market.

## 5 . Commercial data

Improving financial statistics on unlisted equity, a financial instrument that has become a large part of non-financial corporations' balance sheet, remains one of the main drivers behind the exploration of new data sources, particularly commercial data.

In May 2018, we published an article on [the progress of commercial data use](#). This article provided an update on the use of commercial data on borrowing acquired from the credit reference agency Equifax for the enhanced financial accounts initiative. These data are not currently included within the flow of funds matrices and the article discusses our next steps.

We have more recently published a further article on [a data source that covers investment into and issuance of unlisted equity](#). This article provides an update on the investigations into commercial data acquired from Beauhurst, a London-based company that specialises in undertaking research on start-ups and private companies. These data are currently not included within the flow of funds matrices and the article discusses our next steps.

## 6 . Expansion of the financial sub-sectors

As previously announced in the 2017 “from-whom-to-whom (W2W)” publication, attempts are being made to provide [separate balance sheet statistics](#) for each of the European System of Accounts 2010: ESA 2010 financial sub-sectors S.123 to S.127, see Table 1, which are presently being compiled at aggregate level.

Table 1: Financial corporations sector breakdown

<b>Financial corporations sector and sub-sectors</b>		<b>S.12</b>
Monetary financial institutions (MFI)	Central Bank	S. 121
	Other monetary financial institutions	Deposit taking corporations except the central bank S. 122
		Money Market Funds S. 123
Financial corporations	Non-MMF investment funds	S. 124
	Other financial intermediaries, except insurance corporations and pension funds	S. 125
	Financial auxiliaries	S. 126
	Captive financial institutions and money lenders	S. 127
Insurance corporations and pension funds	Insurance corporations (IC)	S. 128
	Pension funds (PF)	S. 129

In line with the enhanced financial accounts initiative, there has been an ongoing effort at Office for National Statistics (ONS) to publish a series of S.123 to S.127 articles during 2018 that would ultimately pave way for the publication of a full set of experimental W2W accounts in 2019, with an ambition of incorporating the statistics into the UK National Accounts in 2021.

The Shadow Banking Introductory article sought to provide clarity on [the ESA 2010 sub-sectors that are included in the Financial Stability Board's broad measure of shadow banking](#), that is, the providers of non-bank credit intermediation activities, which include:

- money market funds (S.123)
- non-money market funds (S.124)
- other financial intermediaries (S.125)
- captive financial institutions and money lenders (S.127)

The [S.123 money market funds \(MMFs\)](#) article examined the money market funds as a financial sub-sector in the context of the UK's National Accounts and the joint ONS and Bank of England (BoE) enhanced financial accounts (EFA) "flow of funds" initiative. Also ONS has published a third article that made a good attempt at presenting some experimental statistics from the ONS [Financial Services Survey \(FSS 266\) Quarterly Return of Assets and Liabilities](#).

## 7 . Further work

As part of the enhanced financial accounts initiative, we will continue to improve these whom-to-whom statistics. In particular, we aim to reduce the size of the unknown sector as a counterpart for listed shares (AF.511) in the new year. Additionally, these matrices will continue to be updated with new data as they become available including commercial data mentioned in Section 5 and further publications of the UK Economic Accounts (UKEA) consistent with the National Accounts Blue Book. Any queries regarding this work or any comments should be sent to the [FlowOfFundsDevelopment@ons.gov.uk](mailto:FlowOfFundsDevelopment@ons.gov.uk) inbox.

## 8 . Acknowledgements

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## 9 . Relevant 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](#)



2 August 2018 Article – [Economic Statistics Transformation Programme: enhanced financial accounts \(UK flow of funds\): Using Thomson Reuters data to better understand the economy](#)

16 July 2018 – [Economic Statistics Transformation Programme: enhanced financial accounts \(UK flow of funds\) – Shadow banking – S.124 non-money market investment funds](#)

3 July 2018 – [Economic Statistics Transformation Programme: enhanced financial accounts \(UK flow of funds\) – using Beuhurst data to better understand the economy](#)

2 July 2018 – [Economic Statistics Transformation Programme: enhanced financial accounts \(UK flows of funds\) – Financial Services Survey 266 – quarterly return of assets and liabilities](#)

26 June 2018 – [Economic Statistics Transformation Programme: enhanced financial accounts \(UK flow of funds\) – enhancing the understanding of UK household finance](#)

8 May 2018 – [Economic Statistics Transformation Programme: enhanced financial accounts \(UK flow of funds\) – shadow banking, money market funds](#)

2 May 2018 – [Economic Statistics Transformation Programme: enhanced financial accounts \(UK flow of funds\) – using Equifax data to better understand the economy](#)

1 May 2018 – [Economic Statistics Transformation Programme: enhanced financial accounts \(UK flow of funds\) – shadow banking introductory article](#)

30 April 2018 – [Experimental financial statistics for insurance using Solvency II regulatory data – enhanced financial accounts \(UK flow of funds\)](#)

15 February 2018 – [Economic Statistics Transformation Programme: enhanced financial accounts \(UK flow of funds\) – historic households and non-profit institutions serving households \(NPISH\) sectors data on currency and deposits](#)

17 November 2017 – [Economic Statistics Transformation Programme: enhanced financial accounts \(UK flow of funds\) – 2017 matrix update](#)

23 October 2017 – [Economic Statistics Transformation Programme: enhanced financial accounts \(UK flow of funds\) – progress on commercial data use](#)

25 September 2017 – [Economic Statistics Transformation Programme: enhanced financial accounts \(UK flow of funds\) reconciling sources of historic data for households and the non-profit institutions serving households \(NPISH\) sectors](#)

12 September 2017 – [Economic Statistics Transformation Programme: Enhanced financial accounts \(UK flow of funds\) – A flow of funds approach to understanding financial crises](#)

31 August 2017 – [Economic Statistics Transformation Programme: enhanced financial accounts \(UK flow of funds\) estimating the value of other accounts receivable or payable in the UK economy](#)

21 July 2017 – [Economic Statistics Transformation Programme: enhanced financial accounts \(UK flow of funds\) improving the measurement of company quarterly profits](#)

3 July 2017 - [Economic Statistics Transformation Programme: Enhanced financial accounts \(UK flow of funds\) progress on financial derivatives data](#)

5 June 2017 – [National Accounts articles: The UK Enhanced Financial Accounts: the introduction of the new securities dealers survey data and expansion of financial sub-sector detail](#)

31 May 2017 – [Economic Statistics Transformation Programme: Enhanced financial accounts \(UK flow of funds\) commercial data use](#)

31 May 2017 – [Economic Statistics Transformation Programme: Enhanced financial accounts \(UK flow of funds\) improving the economic sector breakdown](#)

27 April 2017 – [Economic Statistics Transformation Programme: Enhanced financial accounts \(UK flow of funds\) employee stock options](#)

24 April 2017 – [Financial intermediation services indirectly measured \(FISIM\) in the UK revisited](#)

29 March 2017 – [Economic Statistics Transformation Programme: Enhanced financial accounts \(UK flow of funds\) Government tables for the special data dissemination standards plus \(SDDS plus\)](#)

30 January 2017 – [The UK Enhanced Financial Accounts: changes to defined contribution pension fund estimates in the national accounts: part 2 – the data](#)

16 January 2017 – [The UK Enhanced Financial Accounts: changes to defined contribution pension fund estimates in the national accounts: part 1 – the methodology](#)

8 August 2016 – [Economic Statistics Transformation Programme: UK flow of funds experimental balance sheet statistics, 1997 to 2015](#)

14 July 2016 – [Economic Statistics Transformation Programme: Flow of funds - the international context](#)

14 July 2016 – [Economic Statistics Transformation Programme: Developing the enhanced financial accounts \(UK Flow of Funds\)](#)

10 March 2016 – [Identifying Sectoral Interconnectedness in the UK Economy](#)

24 February 2016 – [Improvements to the Sector & Financial Accounts](#)

12 January 2016 – [Historical Estimates of Financial Accounts & Balance Sheets](#)

6 November 2015 – [Comprehensive Review of the UK Financial Accounts](#)

13 July 2015 – [Introduction progress and future work](#)