



Seasonal adjustment: 2018 update

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This regular article reports on the annual review carried out in 2017 of the seasonal adjustment of the Bank of England’s money and credit data and other series.

Introduction

Seasonal adjustment aims to identify, estimate and remove regular seasonal fluctuations and typical calendar effects (e.g. numbers of trading days in a month) from time series data. This article describes the 2017 annual review and summarises its results. It also provides an update on other seasonal adjustment workstreams.

Annual Review Process

The Bank of England reviews the seasonal adjustment of published series on a regular basis. The frequency of reviews of particular series will vary, based on the usage of the series. The annual review is divided into three phases spread across the year, as detailed in Table 1.

For each data series reviewed, the following issues are routinely considered:

- presence of seasonality;
- seasonal adjustment settings:
 - choice of ARIMA model;
 - calendar effects¹;
 - outliers;
 - seasonal and trend filters;
- residual seasonality;

Table 1: Phases of the 2017 review

Phase	Types of series covered	Period reviewed
1	Broad money and credit, notes and coin	Data up to January 2017 (implemented for April 2017 data)
2	Balance sheet, industry analysis of deposits and loans, capital issuance, housing equity withdrawal and other series	Data up to May 2017 (implemented for August 2017 data)
3	Lending to individuals	Data up to September 2017 (implemented for January 2018 data) ²

¹ The effects of the 2002 Golden Jubilee and 2012 Diamond Jubilee were also considered. For further details, see ‘Seasonal adjustment: Effects of the 2012 Diamond Jubilee’, by Jenny Owladi, Bank of England *Bankstats (Monetary & Financial Statistics)*, January 2013, available [here](#).

² These changes had been due to be implemented for December 2017 data, but were postponed.

Results of 2017 review

In total, 115 published series were reviewed in 2017, as detailed in Table 2. This resulted in changes to 23 existing published series (Table 3).

Of the 23 altered series: 1 series which previously showed no seasonality was assigned seasonal adjustment settings; 20 series had their existing seasonal adjustment settings amended to benefit the adjustment; 1 series changed from an indirect adjustment to a direct adjustment² and therefore was assigned seasonal adjustment settings.

The remaining series changed from a direct adjustment to an indirect adjustment³. A comparison of the direct and indirect adjustment is sometimes carried out in addition to the routine issues reviewed. Consumer credit excluding securitisations⁴ was reviewed in this way. As a result, the series was changed to an indirect adjustment, resulting in better diagnostics and less residual seasonality. Chart 1 shows that the new indirect adjustment is smoother than the direct in some periods.

Chart 1: Flow of Consumer credit excluding securitisations⁴ old vs new adjustment as at September 2017

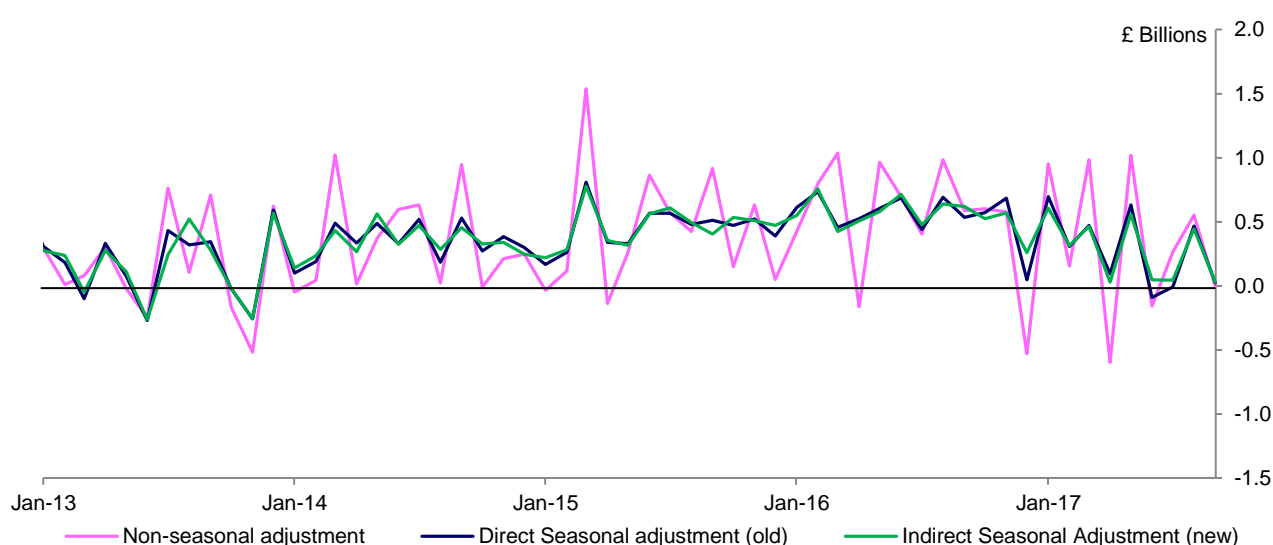


Table 2: Summary of series reviewed

	2016 ⁵	2017
Seasonal series – settings reviewed (this includes reviewing whether the series should still be seasonally adjusted)	78	62
Non-seasonal series reviewed for seasonality (excluding those resulting in newly published seasonal series)	20	17
Indirectly adjusted series reviewed for residual seasonality	27	36
Total	125	115

Table 3: Summary of series changed

	2016 ⁵	2017
Number of existing published series changed	36	23
Changed from non-seasonal to seasonal	3	1 ⁶
Changed from seasonal to non-seasonal	1	0
Seasonal adjustment settings changed	32	20
Other Changes	0	2 ⁷

³ Some series can be adjusted either directly or indirectly (as the sum, or the difference, of their seasonally adjusted components). The method chosen depends on various properties of the series and its components, and the relationships between them. The Bank continues to monitor the adjustment structures of key series to ensure that these remain appropriate.

⁴ This is the series LPMBC54 for Level and LPMVWGY for flow

⁵ For further details on the 2016 review, see 'Seasonal adjustment: 2017 update', by Katie Taylor, Bank of England, *Bankstats (Monetary & Financial Statistics)*, May 2017, available [here](#).

⁶ This series is LPMVWRN (from the "Monetary financial institutions' consolidated balance sheet" in *Bankstats* Table B2.1).

⁷ These series are LPQBE92 and LPMBC54 (from the Bank of England's Statistical database).