

## G Debt service ratios of the private non-financial sector

[www.bis.org/statistics/dsr.htm](http://www.bis.org/statistics/dsr.htm)

The BIS compiles and publishes aggregate debt service ratios (DSRs) for the private non-financial sector (PNFS). The DSR reflects the share of income used to service debt, given interest rates, principal repayments and loan maturities. It provides a more comprehensive assessment of credit burdens than the credit-to-income ratio or simple measures of interest payments relative to income, because it takes both interest payments and amortisations into account.

The DSRs are constructed using data inputs such as income, debt, interest rates and average remaining maturity. The data are primarily based on national accounts and reasonable estimates made by the BIS in liaison with national authorities about maturity structures from countries where more granular data are available. The DSRs are available for the household sector, the non-financial corporate sector and the total PNFS, which includes the other two sectors. The three-sector decomposition is available for 17 countries. Total PNFS DSRs are also available for 15 additional countries, using different and simplified income and interest rates measures, due to limited data availability at the national level.

The DSR is an especially important variable for understanding the interactions between the financial and the business cycle. Even in the absence of a crisis, a high DSR can have a strong negative impact on consumption and investment.<sup>33</sup> It was also proven to be a highly reliable early warning indicator for systemic banking crises, as a complement to stock-based leverage measures.<sup>34</sup> It is most meaningful to compare DSRs over time within a specific country, for instance by looking at deviation of DSRs from a country-specific mean, because of the difficulties in pinpointing the level accurately. In a cross-country context, such an approach will also take care of different institutional and behavioural settings affecting the underlying estimates for remaining maturities. Thus, removing country-specific averages first allows for a more appropriate cross-country comparison of how DSRs have evolved over time.

<sup>33</sup> See eg M Juselius and M Drehmann “Leverage dynamics and the real burden of debt”, *BIS Working Papers*, no 501, May 2015.

<sup>34</sup> See eg M Drehmann and M Juselius (2014): “Evaluating early warning indicators of banking crises: satisfying policy requirements”, *International Journal of Forecasting*, vol 30(3), pp 759–80.

Debt service ratios of the private non-financial sector<sup>1</sup>

Table G1

|                       | 2012        | 2013        | 2014        | 2015        | 2016        | Q3 16       | Q4 16       | Q1 17       | Q2 17       | Q3 17       |
|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Australia             | 20.5        | 20.1        | 20.2        | 21.0        | 21.6        | 21.5        | 21.5        | 21.3        | 21.2        | 21.0        |
| Belgium               | 20.5        | 20.8        | 20.7        | 21.0        | 21.9        | 21.7        | 22.3        | 22.1        | 21.9        | 21.4        |
| <i>Brazil</i>         | <i>16.0</i> | <i>15.3</i> | <i>16.9</i> | <i>19.6</i> | <i>21.7</i> | <i>21.6</i> | <i>21.4</i> | <i>20.7</i> | <i>18.5</i> | <i>17.6</i> |
| Canada                | 20.8        | 21.3        | 21.8        | 23.0        | 24.0        | 24.2        | 24.1        | 24.0        | 24.0        | 23.7        |
| <i>China</i>          | <i>16.8</i> | <i>18.2</i> | <i>19.3</i> | <i>19.2</i> | <i>20.0</i> | <i>20.0</i> | <i>20.1</i> | <i>20.1</i> | <i>20.0</i> | <i>20.0</i> |
| <i>Czech Republic</i> | <i>7.6</i>  | <i>8.1</i>  | <i>7.8</i>  | <i>7.5</i>  | <i>7.1</i>  | <i>7.1</i>  | <i>7.1</i>  | <i>7.3</i>  | <i>7.2</i>  | <i>7.2</i>  |
| Denmark               | 27.1        | 27.5        | 25.3        | 23.6        | 23.0        | 23.1        | 22.4        | 21.9        | 21.6        | 20.9        |
| Finland               | 17.1        | 17.3        | 16.9        | 17.6        | 16.9        | 16.7        | 16.4        | 16.6        | 16.9        | 16.7        |
| France                | 17.4        | 17.4        | 17.7        | 17.7        | 17.6        | 17.6        | 17.7        | 17.8        | 17.8        | 17.8        |
| Germany               | 10.0        | 10.2        | 10.0        | 9.8         | 9.7         | 9.7         | 9.7         | 9.6         | 9.7         | 9.8         |
| <i>Hong Kong SAR</i>  | <i>19.2</i> | <i>20.7</i> | <i>22.9</i> | <i>23.3</i> | <i>23.0</i> | <i>23.0</i> | <i>23.5</i> | <i>24.2</i> | <i>25.4</i> | <i>25.5</i> |
| <i>Hungary</i>        | <i>15.6</i> | <i>14.5</i> | <i>12.0</i> | <i>10.2</i> | <i>8.9</i>  | <i>8.6</i>  | <i>8.5</i>  | <i>8.1</i>  | <i>7.8</i>  | <i>7.7</i>  |
| <i>India</i>          | <i>8.7</i>  | <i>8.9</i>  | <i>8.8</i>  | <i>8.5</i>  | <i>8.0</i>  | <i>8.0</i>  | <i>7.5</i>  | <i>7.7</i>  | <i>7.2</i>  | <i>7.3</i>  |
| <i>Indonesia</i>      | <i>3.6</i>  | <i>3.9</i>  | <i>4.3</i>  | <i>4.6</i>  | <i>4.5</i>  | <i>4.5</i>  | <i>4.5</i>  | <i>4.3</i>  | <i>4.3</i>  | <i>4.2</i>  |
| Italy                 | 13.4        | 12.9        | 12.4        | 11.7        | 11.0        | 10.9        | 10.7        | 10.7        | 10.5        | 10.4        |
| Japan                 | 14.7        | 14.4        | 14.5        | 14.3        | 14.2        | 14.2        | 14.3        | 14.5        | 14.4        | 14.5        |
| Korea                 | 20.6        | 20.6        | 20.1        | 19.9        | 20.0        | 20.0        | 20.0        | 19.9        | 20.1        | 20.0        |
| <i>Malaysia</i>       | <i>11.6</i> | <i>12.1</i> | <i>12.4</i> | <i>13.3</i> | <i>13.4</i> | <i>13.4</i> | <i>13.5</i> | <i>13.4</i> | <i>13.3</i> | <i>13.1</i> |
| <i>Mexico</i>         | <i>3.4</i>  | <i>3.6</i>  | <i>3.7</i>  | <i>3.9</i>  | <i>4.3</i>  | <i>4.4</i>  | <i>4.5</i>  | <i>4.5</i>  | <i>4.5</i>  | <i>4.7</i>  |
| Netherlands           | 25.7        | 25.3        | 25.1        | 25.9        | 25.2        | 25.2        | 25.3        | 24.9        | 24.6        | 24.2        |
| Norway                | 29.5        | 28.0        | 26.3        | 26.0        | 26.4        | 26.5        | 26.2        | 25.9        | 25.9        | 25.4        |
| <i>Poland</i>         | <i>8.1</i>  | <i>8.1</i>  | <i>7.8</i>  | <i>7.7</i>  | <i>7.6</i>  | <i>7.5</i>  | <i>7.7</i>  | <i>7.5</i>  | <i>7.4</i>  | <i>7.3</i>  |
| Portugal              | 21.8        | 20.8        | 19.6        | 18.4        | 17.3        | 17.1        | 16.9        | 16.7        | 16.6        | 16.6        |
| <i>Russia</i>         | <i>6.7</i>  | <i>7.5</i>  | <i>9.8</i>  | <i>12.0</i> | <i>10.4</i> | <i>10.1</i> | <i>9.8</i>  | <i>9.3</i>  | <i>9.5</i>  | <i>9.5</i>  |
| <i>South Africa</i>   | <i>7.8</i>  | <i>7.7</i>  | <i>7.7</i>  | <i>8.1</i>  | <i>8.6</i>  | <i>8.6</i>  | <i>8.6</i>  | <i>8.8</i>  | <i>8.8</i>  | <i>8.9</i>  |
| Spain                 | 20.4        | 18.6        | 17.4        | 16.0        | 15.2        | 15.0        | 14.9        | 14.7        | 14.6        | 14.3        |
| Sweden                | 23.1        | 22.7        | 22.3        | 20.9        | 19.5        | 19.3        | 19.5        | 19.8        | 20.2        | 20.2        |
| <i>Switzerland</i>    | <i>16.1</i> | <i>16.0</i> | <i>16.6</i> | <i>16.9</i> | <i>17.2</i> | <i>17.2</i> | <i>17.3</i> | <i>17.3</i> | <i>17.4</i> | <i>17.4</i> |
| <i>Thailand</i>       | <i>10.1</i> | <i>10.4</i> | <i>10.6</i> | <i>10.6</i> | <i>10.2</i> | <i>10.1</i> | <i>10.1</i> | <i>9.9</i>  | <i>9.9</i>  | <i>9.7</i>  |
| <i>Turkey</i>         | <i>10.4</i> | <i>9.7</i>  | <i>11.8</i> | <i>13.3</i> | <i>14.3</i> | <i>14.0</i> | <i>14.3</i> | <i>14.6</i> | <i>15.3</i> | <i>15.6</i> |
| United Kingdom        | 17.0        | 16.5        | 15.7        | 15.1        | 15.5        | 15.7        | 15.5        | 15.4        | 15.4        | 15.5        |
| United States         | 14.5        | 14.2        | 14.3        | 14.2        | 14.4        | 14.5        | 14.5        | 14.7        | 14.8        | 14.9        |

<sup>1</sup> Entries in italics indicate countries which are using alternative measures of income and interest rates; please see the "Methodology and data for DSR calculation" at [www.bis.org/statistics/dsr.htm](http://www.bis.org/statistics/dsr.htm). Annual figures refer to the average of the year.

Debt service ratios of households<sup>1</sup>

Table G2

|                | 2012 | 2013 | 2014 | 2015 | 2016 | Q3 16 | Q4 16 | Q1 17 | Q2 17 | Q3 17 |
|----------------|------|------|------|------|------|-------|-------|-------|-------|-------|
| Australia      | 15.7 | 15.1 | 14.8 | 15.1 | 15.4 | 15.4  | 15.4  | 15.5  | 15.6  | 15.4  |
| Belgium        | 7.2  | 7.4  | 7.5  | 7.8  | 7.9  | 7.9   | 7.9   | 7.9   | 7.9   | 7.9   |
| Canada         | 12.6 | 12.5 | 12.4 | 12.3 | 12.5 | 12.5  | 12.6  | 12.5  | 12.6  | 12.6  |
| Denmark        | 19.3 | 18.4 | 17.5 | 16.6 | 16.0 | 16.1  | 15.7  | 15.5  | 15.3  | 15.2  |
| Finland        | 7.1  | 6.8  | 7.0  | 7.1  | 7.1  | 7.1   | 7.1   | 7.1   | 7.2   | 7.2   |
| France         | 6.3  | 6.4  | 6.3  | 6.3  | 6.1  | 6.1   | 6.1   | 6.1   | 6.1   | 6.1   |
| Germany        | 7.1  | 6.9  | 6.7  | 6.5  | 6.3  | 6.3   | 6.3   | 6.2   | 6.2   | 6.1   |
| Italy          | 5.3  | 4.9  | 4.8  | 4.5  | 4.4  | 4.4   | 4.4   | 4.4   | 4.4   | 4.4   |
| Japan          | 6.7  | 6.8  | 6.8  | 6.8  | 6.7  | 6.7   | 6.7   | 6.8   | 6.7   | 6.7   |
| Korea          | 12.0 | 11.7 | 11.2 | 11.4 | 12.1 | 12.2  | 12.4  | 12.5  | 12.6  | 12.7  |
| Netherlands    | 19.5 | 19.0 | 18.3 | 18.1 | 17.5 | 17.5  | 17.2  | 17.0  | 16.8  | 16.7  |
| Norway         | 15.2 | 15.4 | 15.3 | 14.6 | 14.4 | 14.5  | 14.5  | 14.5  | 14.6  | 14.7  |
| Portugal       | 9.7  | 8.8  | 8.5  | 7.7  | 7.1  | 7.0   | 6.9   | 6.9   | 6.8   | 6.9   |
| Spain          | 9.2  | 8.6  | 8.1  | 7.4  | 7.1  | 6.9   | 7.0   | 6.8   | 6.8   | 6.6   |
| Sweden         | 11.6 | 11.2 | 11.2 | 11.1 | 11.1 | 11.1  | 11.2  | 11.2  | 11.3  | 11.4  |
| United Kingdom | 10.4 | 10.2 | 10.0 | 9.7  | 9.7  | 9.7   | 9.7   | 9.8   | 9.8   | 9.7   |
| United States  | 8.8  | 8.5  | 8.5  | 8.3  | 8.2  | 8.2   | 8.2   | 8.2   | 8.2   | 8.2   |

<sup>1</sup> Annual figures refer to the average of the year.

Debt service ratios of non-financial corporations<sup>1</sup>

Table G3

|                | 2012 | 2013 | 2014 | 2015 | 2016 | Q3 16 | Q4 16 | Q1 17 | Q2 17 | Q3 17 |
|----------------|------|------|------|------|------|-------|-------|-------|-------|-------|
| Australia      | 41.4 | 43.4 | 45.6 | 51.8 | 55.9 | 56.1  | 54.7  | 52.2  | 51.7  | 51.0  |
| Belgium        | 50.7 | 52.6 | 51.2 | 50.1 | 52.9 | 52.3  | 54.5  | 53.7  | 54.0  | 52.6  |
| Canada         | 43.3 | 46.2 | 46.8 | 52.8 | 58.1 | 58.8  | 58.1  | 57.3  | 56.8  | 55.8  |
| Denmark        | 46.7 | 47.9 | 40.4 | 37.3 | 36.9 | 37.1  | 35.8  | 35.0  | 34.5  | 32.8  |
| Finland        | 40.8 | 44.5 | 41.3 | 42.1 | 41.1 | 40.0  | 38.6  | 38.2  | 39.5  | 38.8  |
| France         | 50.3 | 51.8 | 53.3 | 52.4 | 52.1 | 52.1  | 52.4  | 53.2  | 53.3  | 53.0  |
| Germany        | 18.2 | 19.4 | 19.2 | 18.8 | 18.8 | 18.9  | 19.0  | 19.2  | 19.8  | 20.1  |
| Italy          | 42.5 | 42.9 | 40.8 | 38.6 | 35.1 | 34.8  | 34.1  | 34.0  | 33.4  | 32.8  |
| Japan          | 37.3 | 35.4 | 34.9 | 33.5 | 33.0 | 33.1  | 33.6  | 34.0  | 33.9  | 34.2  |
| Korea          | 41.3 | 42.3 | 41.8 | 41.4 | 40.6 | 40.5  | 40.0  | 39.8  | 39.9  | 39.7  |
| Netherlands    | 37.2 | 37.2 | 39.0 | 41.0 | 40.6 | 40.8  | 41.7  | 41.1  | 40.1  | 39.0  |
| Norway         | 55.3 | 48.3 | 43.4 | 44.6 | 47.2 | 47.7  | 46.9  | 46.3  | 46.2  | 45.1  |
| Portugal       | 66.9 | 63.7 | 58.2 | 55.2 | 53.1 | 52.6  | 52.5  | 51.9  | 52.3  | 52.0  |
| Spain          | 53.6 | 47.7 | 43.6 | 39.6 | 37.4 | 37.0  | 36.3  | 36.0  | 35.4  | 34.8  |
| Sweden         | 43.4 | 43.9 | 43.0 | 37.8 | 32.6 | 31.9  | 32.4  | 33.0  | 34.8  | 34.7  |
| United Kingdom | 39.4 | 38.1 | 35.4 | 34.0 | 36.1 | 37.2  | 36.0  | 35.2  | 35.2  | 35.7  |
| United States  | 37.4 | 36.9 | 37.0 | 37.7 | 39.6 | 39.9  | 40.1  | 40.8  | 41.0  | 41.2  |

<sup>1</sup> Annual figures refer to the average of the year.