An inflation measure past its sell-by date?

Why the days of RPI are numbered and how the market must catch up

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What is it you can measure and get three different answers, all of which are accurate? The answer to the riddle is inflation. In March 2019, the rate of UK inflation simultaneously stood at 1.8%, 1.9% and 2.4%.

The explanation, of course, is that three different price indices are currently used to measure consumer price inflation: Retail Price Index (RPI), the longest standing measure, Consumer Price Index (CPI), which is used by the Bank of England as its target, and the most recently added Consumer Price Index including owner-occupiers' housing costs (CPIH). But this is more than just a curiosity: these differences can cost you a lot of money.

In this article we explain how this can impact different users of inflation indices and the significance of a shift away from the most traditional measure of inflation.

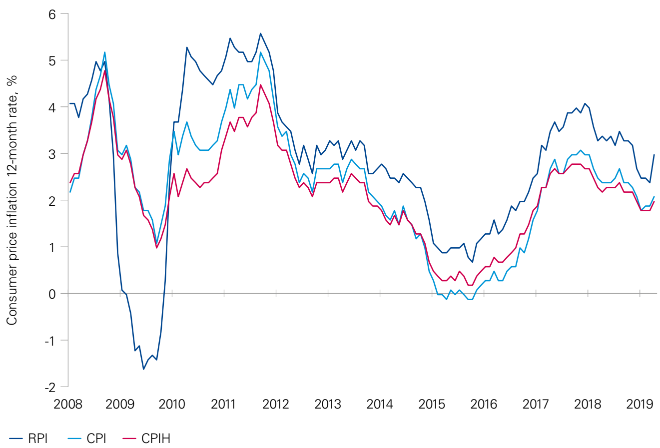
- Inflation indices are extensively used in business life, from determining the rise in regulated prices to the costs of loans and more. A higher index means borrowers, such as the government and graduates, have to pay more for the interest on their loans, because index-linked gilts and student loans are pegged to the higher measure of RPI. While consumers of some public utilities, such as rail, water and telecom, face higher prices because the revenue allowances of these regulated industries are linked to the RPI.
- The choice of inflation index has become an increasingly relevant concern since 2010 as the gap between the main two measures of inflation (RPI and CPI) widened.
- Although the deficiency of the RPI has become well recognised in recent years, its historical legacy still makes it the most widely used inflation index.
- Ultimately, both public and private users will need to make a decisive switch to the CPI given that it is a more realistic measure of consumer prices. It is also much easier to hedge as it is the Bank of England's monetary policy target.
- However, the process will take time. The lack of a mature and liquid market for CPI-linked gilts is one of the obstacles.
- Businesses that need to move ahead of the market, especially those required by regulatory mandate, need to plan ahead for a smooth transition.

The gap between two competing measures of inflation

Currently, the Office for National Statistics (ONS) publishes three measures of consumer-facing inflation: the RPI, the CPI and the CPIH. The RPI, once the official measure of inflation but superseded by the CPI, is still widely used. And in 2013, the ONS introduced the CPIH to remedy the problem that the CPI does not take housing costs into account[1].

As Chart 1 illustrates, the CPI and the CPIH tend to move more or less in line with one another, but the gap between the RPI and the CPI is often significant, with the former typically giving a higher reading of inflation. Since 2010, the 12-month RPI rate has, on average, been 0.8 percentage points higher than the CPI.

Chart 1: Three different indices, three different results



Source: *ONS via Haver*

[1] ONS, Consumer Price Inflation (includes all 3 indices – CPIH, CPI and RPI) QMI, 20 Dec 2017.

There are four main contributors to the gap between CPI and RPI:

1. RPI includes a measure of the price of owner-occupied housing, but CPI does not.
2. Even leaving aside housing, the mix of goods and services covered by the two measures is slightly different.
3. For a given mix of goods and services, the two measures apply different weights to each component.
4. Given the mix of goods and services and the weights applied to them, the two measures use different formulas to calculate the averages. This is referred to as the 'formula effect'.

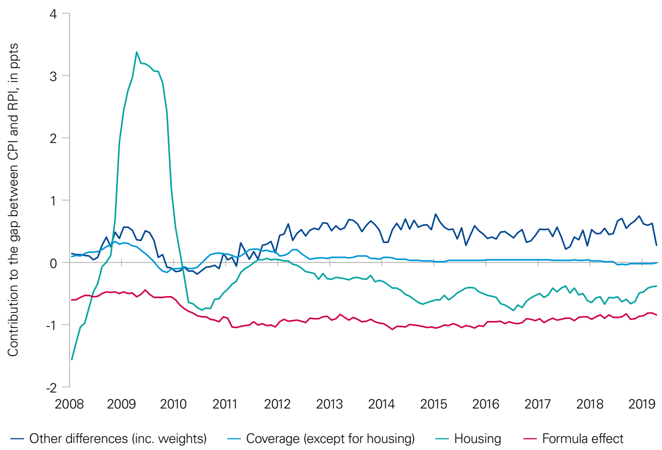
Chart 2 illustrates how each of these factors contributes to the gap between RPI and CPI. The formula effect is the most significant factor, adding an average of 0.9 percentage points to RPI compared to CPI since 2011. The housing component is also sizeable, accounting for an average of 0.4 percentage points of gap over the same period, though its impact was more pronounced during the financial crisis in 2009 when housing market volatility was elevated. The effect of other differences usually works in the opposite direction. Combining all factors, CPI has, on average, run 0.5 percentage points ahead of RPI since 2011.

As well as being the most significant contributor to the gap between the CPI and the RPI, the formula effect is also the most controversial. While the RPI relies on the Carli formula (which takes an arithmetic average), the CPI and the CPIH use the Jevon formula (based on a geometric average), resulting in an average difference in the 12-month growth rate of close to 0.7 percentage points. In 2010, the ONS adjusted the methodology it used when collecting data on clothing, which increased sample size due to the relaxation of rules on the comparability of different clothing styles. Unexpectedly, the new methodology interacted with the different formulas for the RPI and the CPI in such a way that the gap between the two measures attributable to the formula effect almost doubled. This made it untenable to continue overlooking the extent to which the RPI overestimates inflation compared to the CPI.

Accordingly, the UK Statistical Authority and the ONS investigated the RPI methodology, concluding that its use of the Carli formula was just one of several weaknesses. In 2013, the RPI was stripped of its national statistic status. In addition, earlier this year, the House of Lords Economic Affairs Committee reviewed the issue and published a report recommending that a statistic that is "admitted openly" to be flawed should not continue to be used so widely[2].

The UK Statistical Authority had intended to treat the RPI as a legacy measure, anticipating that it would gradually be phased out, but this position is facing increasing challenge. The House of Lords now recommends that statisticians instead consider how to fix the index's methodological problems on a regular basis.

Chart 2: The gap between CPI and RPI explained



Source: *ONS via Haver*

[2] House of Lords Economic Affairs Committee, Measuring Inflation, 17 January 2019.

How the RPI and the CPI are used

RPI remains a widely-used inflation index despite its well-recognised drawbacks. The index has a longer history and is embedded as a reference point in many financial and commercial contracts, as well as in legislation. Indeed, most traditional financial instruments historically indexed to the RPI continued to use it as the default after the 2013 changes.

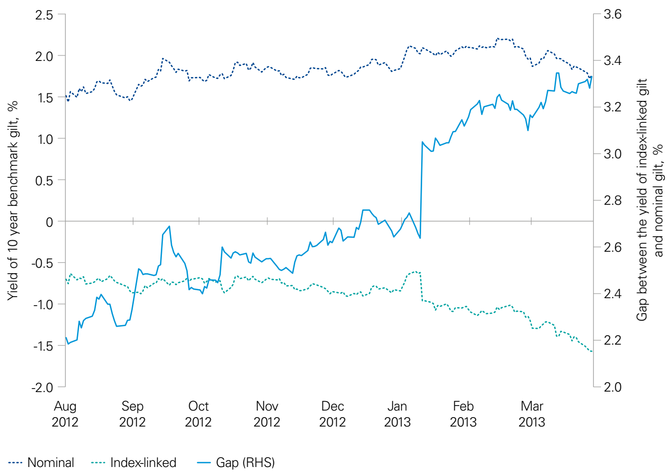
Since 2010, the problem with the RPI has become more pronounced. Both the government and the private sector have slowly started to recognise this would not be sustainable. The House of Lords report recommends that the government should switch to CPI from RPI "in all areas of present use that are not governed by private contracts". We see examples of both public and private users of inflation indices transitioning away from the RPI, but the process is still in its early stages.

Index-linked gilts

There is a great deal at stake given the role of the RPI in the sovereign debt market. Currently, the interest rate on all index-linked UK government bonds is pegged to the RPI. Even if the Debt Management Office decides to start issuing CPI-linked gilts, RPI-linked gilts will continue to be dominant for many years; existing RPI-linked issues include durations running up until 2068.

Based on estimates by the House of Lords Economic Affairs Committee, the rise in the RPI following the 2010 change in data collection methodologies has cost taxpayers £1 billion a year in additional interest payments[3]. The UK Statistics Authority's declaration that the RPI would not be fixed, but should no longer be treated as national statistic, on 10 January 2013 led to an immediate market reaction with a fall in the yield of RPI-linked gilts relative to nominal gilts (see Chart 3).

Chart 3: Gap between index-linked gilt yield and nominal yield



Source: *Refinitiv*

[3] House of Lords Economic Affairs Committee, Measuring Inflation, 17 January 2019.

Corporate bonds

The vast majority of private sector index-linked bonds are also linked to the RPI as corporate bonds tend to be priced relative to gilts. However, there are signs that the private sector is now starting to switch. In June 2018, Cambridge University issued the first ever listed CPI-linked bond, with high hopes in the market that this would be landmark moment for the CPI-linked market[4].

The Bank of England

The Bank of England was among the earliest official agencies to change inflation index. In December 2003, it changed the inflation target for monetary policy from the RPIX (RPI excluding mortgage interest payments) to the CPI.

Regulated industries

A variety of basic public goods, including water, electricity, urban public transport, railway transport, airport landing fees and telecoms charges, are delivered by profit-making businesses that have characteristics of natural monopolies or oligopolies. Those businesses are supervised by a number of industry regulatory bodies, which collectively form the UK Regulators Network (UKRN).

Many of these authorities actively regulate price and revenue, traditionally with reference to the RPI. This has often led to customers – public utilities users – paying more because public transport fares and the cost of public utilities have increased at a faster rate than they would have done if regulators used the CPI.

In June 2018, the UKRN published a paper echoing the view that the RPI is deficient as an inflation index and making it clear that regulators were changing tack. Telecoms regulator Ofcom began moving away from RPI indexation as early as 2013 and all of its main charging controls are now indexed to the CPI. In the water sector, Ofwat will have price controls linked to the RPI only until 2020. Electricity regulator Ofgem has not yet made the shift but proposes to do so[5].

This is especially important since the regulatory framework based on the RPI covers more than simply the fees companies charge. In practice, given that revenues are indexed to the RPI as required by regulators, many supply contracts for utility companies also have to include an element of RPI indexation so that the expected income stream can be matched with liabilities. Consequently, RPI-linked debt has also been a key part of the financing framework for regulated companies. Indeed, water companies are very large issuers of index-linked debt, accounting for nearly 50% of corporate bonds linked to inflation. Any change to the reference index therefore requires careful management throughout the supply chain.

Student loans

Interest on student loans is currently linked to the RPI. A report on student loans by the House of Commons Treasury Committee concludes that it sees "no justification" for the resultant additional interest payments that graduates are made to bear[6].

[4] Financial Times, Cambridge pioneers CPI linkage in inflation bond sale, 20 June 2018.

[5] UKRN, Position paper on the use of inflation indices, June 2018.

[6] House of Commons Treasury Committee, Student loans, 6 February 2018.

The public sector

With different inflation indices in place, users have often sought to switch between them for their own benefit. Even the government has indulged in 'index shopping'. The House of Lords' report[7] points out that the majority of payments to the public are indexed to the CPI, while the majority of payments by the public are indexed to RPI.

Nevertheless, many government agencies had acknowledged the need to change. In 2011, the basis of indexation for civil service pensions was switched to the CPI. In 2014, HM Revenue & Customs switched the basis of indexation for personal income tax allowances and thresholds to CPI; since April 2018, business rates have also increased in line with the CPI rather than the RPI.

Pension funds and insurers

KPMG estimates that of £2 trillion of pension scheme liabilities in the UK, around £1,100 billion, is RPI-linked and £300 billion is CPI-linked, with the latter expected to increase further. The majority of liability in pensions to be paid in the future is now linked to the CPI and the majority of liability in pensions already in payment is linked to the RPI.

As pension liabilities are long-term, the significant size of the potential market for CPI-linked pension schemes has generated demand from insurance companies for CPI-linked assets such as corporate debt to generate revenues matched to their liabilities. However, the market is not yet in a position to satisfy this demand.

Table 1. Users of CPI and RPI benchmarks

CPI	RPI
Bank of England monetary policy target	Index-linked gilts
Cambridge University bonds, July 2018	Most other listed bonds
Private sector pension funds under the rules of the Pensions Trust – since 6 April 2011	Private sector pension funds under the rules of the Pensions Trust – prior to 6 April 2011
State pensions and civil service pensions	National Savings & Investments index-linked savings certificates
Social housing rent uprating	Interest on student loans
Personal tax – income tax allowance and thresholds	Indirect tax (vehicle excise duty, fuel duty, alcohol duty, tobacco duty, gaming duty, air passenger duty)
Business rates	The rate of fuel benefit charge for company cars, fuel benefit charge for company vans, and the benefit charge for company vans
Working age benefits, maternity pay, personal independence payments	Charge controls imposed across a range of regulated industries such as rail, water and telecoms (member organisations of the UK Regulators Network (UKRN))
The most recent renewables subsidies (the contracts for difference)	Renewable energy subsidies under the Renewables Obligation (RO), the Feed-in-Tariff (FiT) and early adopters of the Renewable Heat Incentive (RHI)

[7] House of Lords Economic Affairs Committee, Measuring Inflation, 17 January 2019.

Towards a decisive switch to the CPI?

The fact that the Bank of England uses the CPI as its target for monetary policy means that the CPI should best convey average inflation in the long run. The risk of inflation, as measured by the CPI, is therefore much easier to hedge or manage, making it a preferred choice as an inflation index.

In addition, given the well-established flaws of the RPI, and the importance to embrace one index that will be used throughout the economy, the government needs to take the initiative to make the switch to CPI indexation, despite the potential impact this could have on government revenue. The private sector also needs to step up actions to move towards a wider ecosystem of CPI-linked market instruments, so that inflation risk can be more readily hedged.

While the RPI will need to be replaced with a more realistic measure of inflation in public and private contracts, the process will take many years to complete. It's not only time that is needed, but also political agreement given the often conflicting interests of different stakeholders. For example, the government would need to consider the revenue impact of any switch to the CPI for the indexation of indirect taxes etc.

In the corporate sector, with regulatory bodies such as Ofwat intending to switch, the businesses they supervise will have no choice but to adapt. More broadly, while public and private users can continue to rely on the RPI data in the near term, as the consensus builds on the need to move to the CPI, all businesses will need to be prepared.

The challenge for the private sector is that it needs a market for CPI-indexed debt and derivatives in order to hedge against the risk of inflation. This will take a long time to develop. While a mature and liquid market for sovereign index-linked bonds now serves as a basis for the market of corporate index-linked debt, it took 18 years after the first RPI-linked gilt issue in 1981 for the launch of the first corporate RPI-linked bond. With no CPI-linked gilt market even in place yet, it will be difficult for corporate CPI-indexed financial instruments to take off.

Moreover, while it would be possible to hedge CPI risk even without a well-functioning market for CPI-linked instruments if the gap between CPI and RPI were stable, this isn't always the case. In fact, the gap has been quite volatile over time, ranging between -3 and 3 percentage points since 1989[8]. The contribution made by some components of the gap – the formula effect and effects due to differences in coverage – are relatively stable, but changes to data collection methodologies like those made in 2010 can make a significant difference. The housing component and other effects, meanwhile, tend to fluctuate more markedly. And while it is possible to purchase an additional hedge against changes in the difference between the two measures as well as against movements in the RPI itself, the costs for businesses then begin to mount up.

Businesses therefore need to be conscious that in the transition from the existing world of RPI indexing towards a wider use of the CPI, the financial market may not provide all the support that they ideally require. Any business with RPI-linked liabilities will need to analyse the impact on their cash flow profiles and debt servicing capabilities of a possible switch to CPI indexing – and plan for mitigating strategy.

[8] Legal and General Investment Management, CPI Liabilities, the Wedge and the Hedge, 2019 Client Solutions.

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