



Making Business Sense

## Digital Retail Price Index –

### A comparator of online and in-store retail price inflation

#### Introduction

The Centre for Economics and Business Research (Cebr) was commissioned by TalkTalk to undertake a study quantifying the levels of price inflation observed in both online and in-store retail channels. The study adopts a top-down approach, using macroeconomic retail trade data from the Office for National Statistics (ONS), overseas trade data from HM Revenue & Customs (HMRC) and inflation data from the UK's main import markets.

#### Our Findings

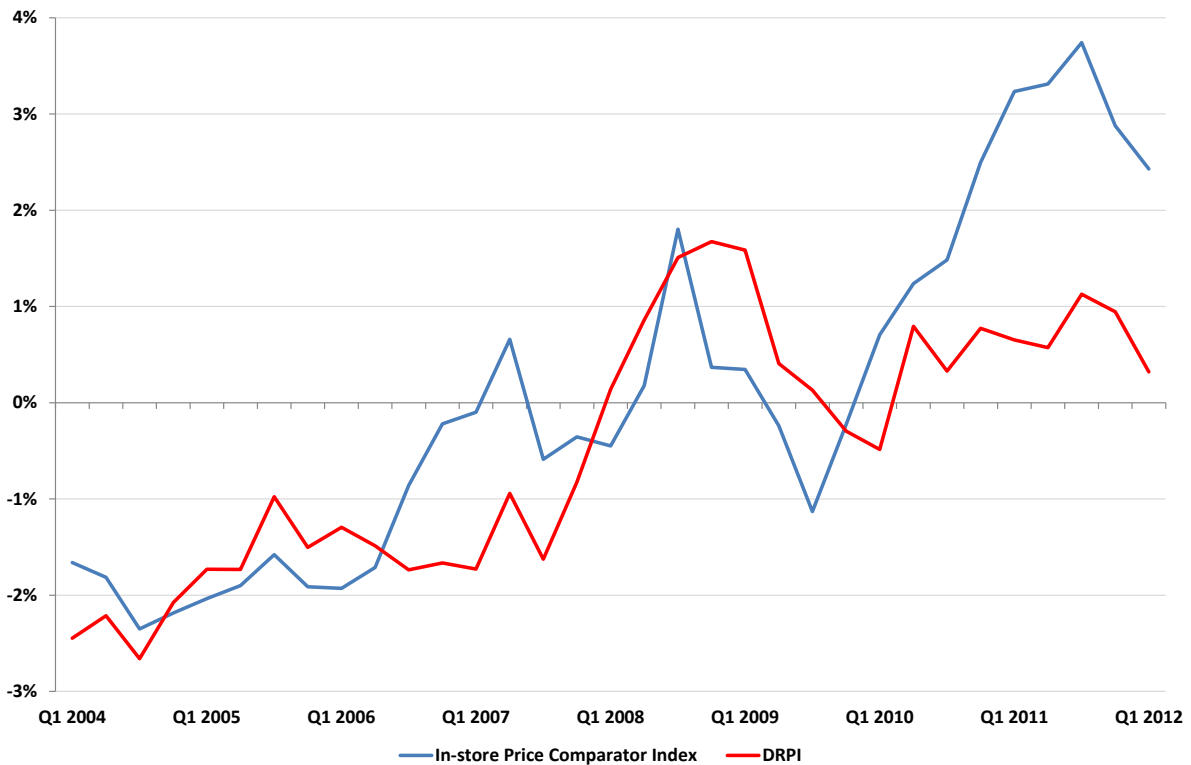
- The *Digital Retail Price Index (DRPI)* shows online prices growing by around 2.2% between Q1 2007 and Q1 2012, averaging an annual rate of 0.4%.
- In contrast the *In-store Price Comparator Index* shows in-store prices rising by around 6.4% over the same period, averaging 1.2% annually.
- Based on this evidence, this suggests that a consumer faces a rate of inflation that is **three times** higher if they replicated their online spending habits in-store.
- *UK-based internet retailers* are the main drivers of lower DRPI inflation in the last two years. This is in contrast with *Internationally-based internet retailers* and *in-store retailers* who have both seen retail prices rise faster. For the former, this is in part due to a weaker Sterling. For the latter, increased inflationary pressures on fixed overheads may have contributed to faster retail price growth in-store.
- The latest data shows annual DRPI inflation at 0.3% in Q1 2012, whilst the In-store Price Comparator Index registered annual inflation of 2.5%.

- We expect the DRPI to be lower than the In-store Price Comparator Index over the next twelve months as energy prices still remain elevated – disproportionately affecting high-street businesses with relatively higher overhead costs. Furthermore, *Internationally-based internet retailers* are expected to benefit from lower air freight costs whilst consumer goods prices in global markets are expected to remain broadly stable.

## Results & Analysis

Figure 1 illustrates the levels of inflation based on the Digital Retail Price Index (DRPI) and In-Store Price Comparator.

**Figure 1 DRPI and In-Store Price Comparator Index, annual percentage change**



Source: Office for National Statistics, HMRC, Cebr analysis

The analysis shows that the DRPI (red line) exhibits a lower level of inflation than the In-store Price Comparator Index (blue line) between 2004 and 2012. There is a relatively close link between the movements of the two indices, although in recent years the gap has widened. In the last two years, DRPI inflation is around 4.7 percentage points lower per annum than the In-store Comparator Index. This is indicative of inflationary pressures in the economy having a disproportionate effect on high-street businesses with fixed overheads (e.g. energy and rents) than ‘virtual’ retailers. Figure 2 illustrates the price changes between the two indices over the past 2, 5 and 7 years.

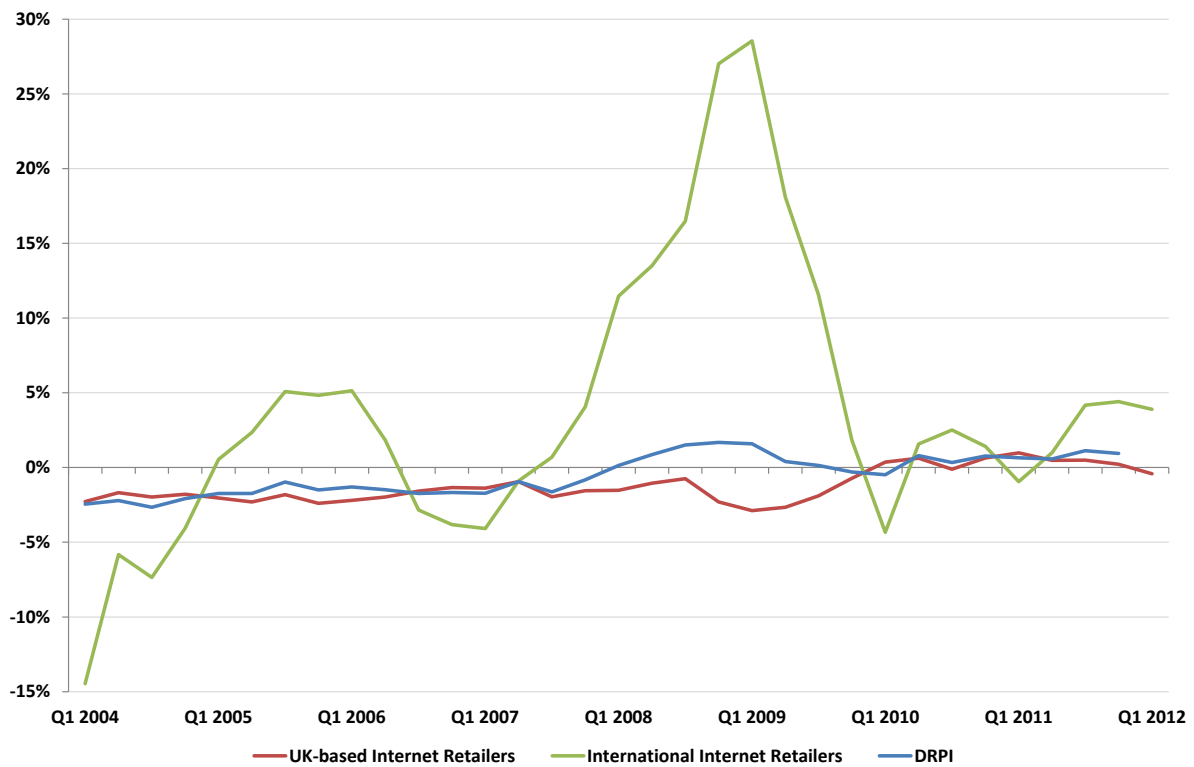
**Figure 2 Two, Five, Seven Year growth in DRPI and In-store Price Comparator**

Growth over:	Past 2 Years	Past 5 Years	Past 7 Years
DRPI	1.0%	2.2%	-0.9%
In-store Price Comparator	5.7%	6.4%	4.2%
Difference	-4.7 percentage points	-4.2 percentage points	-5.1 percentage points

Source: Office for National Statistics, HMRC, Cebr analysis

This shows that DRPI inflation has historically been around 4-5% per annum lower than in-store. Figure 3 illustrates price inflation trends amongst the two components of the DRPI: *UK-based* and *Internationally-based Internet Retailers*.

**Figure 3, Components of DRPI: UK-based internet retailers & Internationally-based internet retailers, annual percentage change**



Source: Office for National Statistics, HMRC, Cebr analysis

The analysis shows UK-based internet retailers have been driving the vast majority of price reductions over the last seven years. **Internationally-based internet retailers have been subject to a substantial depreciation in Sterling** in 2008 which has made imports more expensive and contributed to higher inflation through this distribution channel.

In the last two years, **UK-based internet retail price inflation has remained broadly flat** whilst internationally-based price inflation has edged up to around 4%. The In-store price Comparator Index was higher than both over this period (see Figure 2).

## Methodology

### Q. How is the Digital Retail Price Index (DRPI) constructed?

**A. The DRPI is a composite index based on estimations of changes in retail prices observed amongst both domestic and international internet retailers respectively.**

The price changes affected by *domestic internet retailers* are calculated from Office for National Statistics (ONS) retail sales data on non-store retailing volume and value growth.

The price changes affecting *international internet retailers* are assumed to follow macroeconomic price trends in the global marketplace. In this study, these price trends are based on the observed rate of clothes/household goods price inflation in the UK's major import markets. These price changes are adjusted for fluctuations in the **Sterling exchange rate** and take into account changes in **international air-freight costs**.

### Q. What does the DRPI include in its calculations?

**A. The DRPI provides a top-down estimate of quarterly changes in the internet price of goods that are purchased online by UK consumers. These goods are typically food, household goods or clothing.**

The DRPI **does not include** services that are purchased online such as travel & accommodation, finance & insurance and utilities.

### Q. What is the difference between the Digital Retail Price Index (DRPI) and the CPI or RPI?

**A. The DRPI represents a price index for the typical basket of goods bought online, which varies from the typical basket of goods bought in-store as captured by the CPI/RPI.**

Figure 4 illustrates that, in the food, household goods and clothing sectors, consumers buy a different mix of products online compared to in-store. Consumers are twice as likely to spend money on household goods on the internet – in general there is more competition between the three sectors online.

**Figure 4: How £1 is spent between the three sectors online and in-store**

Sector	Online	In-store
Food	39p	65p
Household goods	34p	15p
Clothing	27p	20p

Source: Office for National Statistics

Furthermore, the CPI/RPI includes services such as energy, housing, transport and accommodation which are not included in the DRPI.

**Q. What is the In-store Price Comparator Index?**

**A. The In-store Price Comparator Index is a representative measure of the price changes faced by a consumer if they replicated their online purchasing habits in a store. The price index is constructed from Office for National Statistics (ONS) food, clothing and household goods volume and value growth data.**

## Tables

*Price Indices, 100 = April 2005*

Period	In-store Price Comparator index	UK-based Internet Retailers	Internationally-based Internet Retailers	DRPI
Q1 2003	103.8	104.7	113.5	104.2
Q2 2003	104.0	104.2	105.3	104.3
Q3 2003	103.0	103.2	105.7	103.5
Q4 2003	103.7	103.9	104.9	104.0
Q1 2004	102.1	102.3	97.1	101.6
Q2 2004	102.1	102.4	99.2	102.0
Q3 2004	100.6	101.2	97.9	100.8
Q4 2004	101.4	102.0	100.6	101.8
Q1 2005	100.0	100.2	97.6	99.9
Q2 2005	100.2	100.0	101.5	100.2
Q3 2005	99.0	99.3	102.9	99.8
Q4 2005	99.4	99.6	105.5	100.3
Q1 2006	98.0	98.0	102.6	98.6
Q2 2006	98.4	98.1	103.4	98.7
Q3 2006	98.1	97.8	100.0	98.1
Q4 2006	99.2	98.2	101.4	98.6
Q1 2007	97.9	96.6	98.4	96.9
Q2 2007	99.1	97.1	102.5	97.8
Q3 2007	97.5	95.9	100.7	96.5
Q4 2007	98.9	96.7	105.6	97.8
Q1 2008	97.5	95.2	109.7	97.0
Q2 2008	99.3	96.1	116.3	98.6
Q3 2008	99.3	95.1	117.2	97.9
Q4 2008	99.2	94.5	134.1	99.5
Q1 2009	97.8	92.4	141.0	98.5

Q2 2009	99.0	93.6	137.3	99.0
Q3 2009	98.2	93.3	130.8	98.0
Q4 2009	99.0	93.8	136.5	99.2
Q1 2010	98.5	92.8	134.9	98.1
Q2 2010	100.3	94.1	139.5	99.8
Q3 2010	99.6	93.2	134.1	98.4
Q4 2010	101.5	94.4	138.4	99.9
Q1 2011	101.7	93.7	133.6	98.7
Q2 2011	103.6	94.6	140.9	100.4
Q3 2011	103.4	93.7	139.7	99.5
Q4 2011	104.4	94.6	144.6	100.9
Q1 2012	104.2	93.3	138.9	99.0

Source: Office for National Statistics, HMRC, Cebr analysis

**Price Indices, Annual percentage change**

Period	In-store Price Comparator index	UK-based Internet Retailers	Internationally-based Internet Retailers	DRPI
Q1 2004	-1.6%	-2.3%	-14.4%	-2.5%
Q2 2004	-1.8%	-1.7%	-5.8%	-2.2%
Q3 2004	-2.3%	-1.9%	-7.4%	-2.6%
Q4 2004	-2.2%	-1.8%	-4.1%	-2.1%
Q1 2005	-2.1%	-2.1%	0.5%	-1.7%
Q2 2005	-1.9%	-2.3%	2.3%	-1.8%
Q3 2005	-1.6%	-1.9%	5.1%	-1.0%
Q4 2005	-2.0%	-2.4%	4.9%	-1.5%
Q1 2006	-2.0%	-2.2%	5.1%	-1.3%
Q2 2006	-1.8%	-1.9%	1.9%	-1.5%
Q3 2006	-0.9%	-1.5%	-2.8%	-1.7%
Q4 2006	-0.2%	-1.4%	-3.9%	-1.7%
Q1 2007	-0.1%	-1.4%	-4.1%	-1.7%
Q2 2007	0.7%	-1.0%	-0.9%	-0.9%
Q3 2007	-0.6%	-1.9%	0.7%	-1.6%
Q4 2007	-0.3%	-1.5%	4.1%	-0.8%
Q1 2008	-0.4%	-1.4%	11.5%	0.1%
Q2 2008	0.2%	-1.0%	13.5%	0.8%
Q3 2008	1.8%	-0.8%	16.4%	1.5%
Q4 2008	0.3%	-2.3%	27.0%	1.7%
Q1 2009	0.3%	-2.9%	28.5%	1.5%
Q2 2009	-0.3%	-2.6%	18.1%	0.4%

<b>Q3 2009</b>	-1.1%	-1.9%	11.6%	0.1%
<b>Q4 2009</b>	-0.2%	-0.7%	1.8%	-0.3%
<b>Q1 2010</b>	0.7%	0.4%	-4.3%	-0.4%
<b>Q2 2010</b>	1.3%	0.5%	1.6%	0.8%
<b>Q3 2010</b>	1.4%	-0.1%	2.5%	0.4%
<b>Q4 2010</b>	2.5%	0.6%	1.4%	0.7%
<b>Q1 2011</b>	3.2%	1.0%	-1.0%	0.6%
<b>Q2 2011</b>	3.3%	0.5%	1.0%	0.6%
<b>Q3 2011</b>	3.8%	0.5%	4.2%	1.1%
<b>Q4 2011</b>	2.9%	0.2%	4.5%	1.0%
<b>Q1 2012</b>	2.5%	-0.4%	4.0%	0.3%

*Source: Office for National Statistics, HMRC, Cebr analysis*