



DeLaRue

Factors behind
cash in circulation
and issuance
pattern trends

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There are certain trends that we see in cash in circulation (CIC) and issuance patterns. But what causes them and how can we predict how cash will behave once it enters circulation?

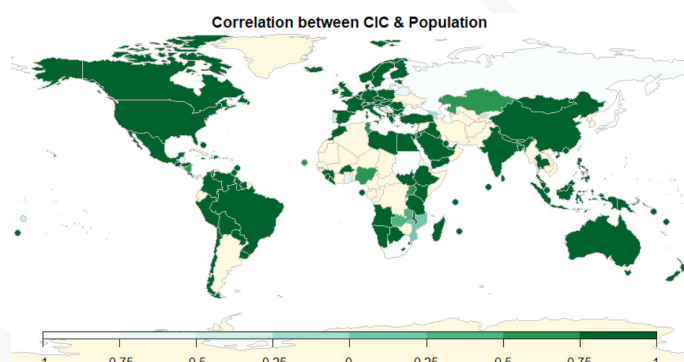
It can sometimes be challenging to understand the combination of different factors which affect the cash in circulation and to know how to influence it.

Multiple factors can influence the amount of cash in circulation:

- Economic factors such as GDP growth, inflation or an economic crisis.
- Things or people that store or hold cash. This includes the country's population, tourists, students and other overseas visitors as well as physical things such as ATMs, cash recycling machines, cash registers and bank branches.
- Alternative payment methods like credit cards, debit cards, mobile payments and digital currencies also affect cash in circulation.
- Major events and political changes for example natural disasters, political elections or seasonal events such as Christmas, New Year celebrations and year-end reporting.

How population affects the Value of CIC

Cash in circulation correlates with population. For most countries in the world: as population increases the value of cash in circulation increases too.



GDP vs CIC around the world

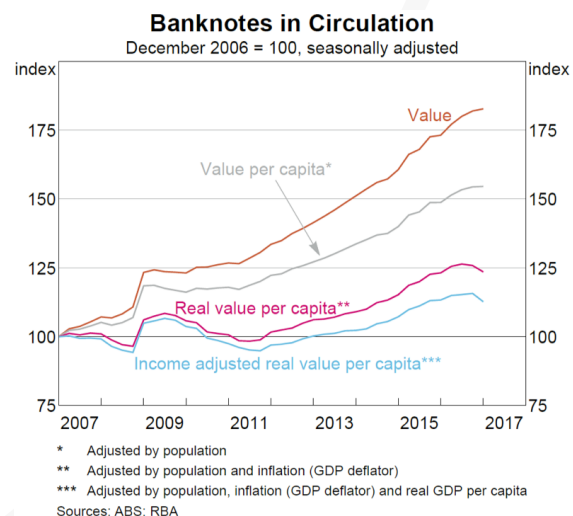
How does a country's GDP affect cash in circulation? There's a strong positive correlation between GDP and CIC: as GDP grows, the value of CIC grows too. There are a few exceptions such as India and some Nordic countries, which can be explained by specific circumstances in these countries.

GDP vs PCPIE around the world

In countries where the economy is heavily influenced by a particular commodity, for example oil, we see that the inflation of this commodity is a better predictor of CIC than GDP.

So we can use either GDP or PCPIE as a proxy for CIC: predictions for GDP or PCPIE of certain commodities can be used to predict the amount of cash that will be needed in circulation.

The exact data below from a Reserve Bank of Australia report¹ nicely illustrates what we see worldwide. The value of banknotes in circulation (brown line) increases over time. When this is adjusted to take population, inflation and GDP into account (blue line) we see that the demand for cash has stayed more or less constant over the past decade.



Globally, economic factors and population growth are driving cash in circulation.

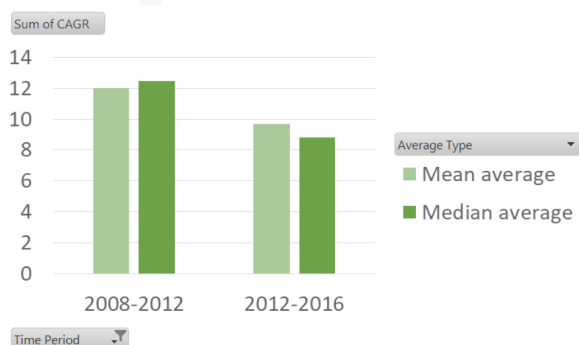
¹ <http://www.rba.gov.au/publications/bulletin/2017/sep/8.html>

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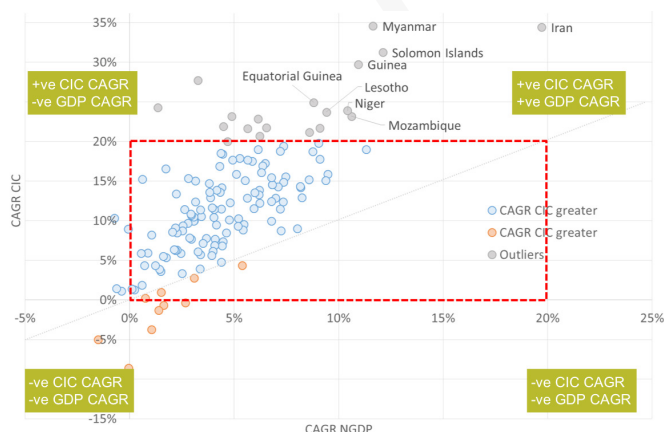
How did the global financial crisis affect cash in circulation?

Comparing the CAGR (Compound Annual Growth Rate) of CIC in 2008-2012 and 2012-2016 reveals that the growth rate was higher in the four years after the global financial crisis. Looking at a global view shows that countries such as Russia, China and Brazil have driven this change in growth.



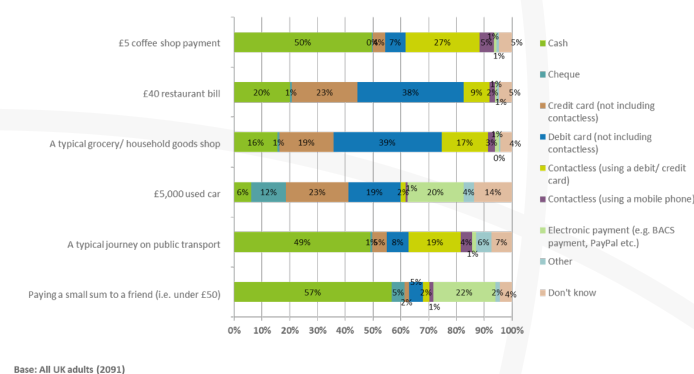
By plotting CAGR value of CIC against CAGR GDP in the period 2008-2012, we can see the change in the rate of growth after the financial crisis. In many countries, the rate of growth of cash in circulation was higher than the rate of growth for GDP in the same period. In 2012-2016 period, the data is much more evenly distributed, suggesting that the rate of growth increased in 2008-2012 and then returned to normal levels in 2012-2016.

For 86% of the countries the value of CIC CAGR is > GDP CAGR 2008-2012



The Payment Landscape

Cashlessness is a popular topic at the moment. But what's the reality? As more payment mechanisms are introduced – and with some of them growing more quickly than cash – is cash still playing a role?



Every decade, the number of different payment options expands. But the extent to which they're used depends on a balance between personal preference and availability. Personal preference is important: some people like the convenience of contactless cards, others might be happy to be an early adopter of digital currencies like Bitcoin, while others prefer to use cash. But availability also dictates whether people can opt for their preferred payment method or not. For example if the card reader isn't working, cash is the only option. Or if an ATM is out of order, people have to pay using card instead.

Attitudes to cash

Every year for the last decade, De La Rue has conducted a survey of over 2,000 UK adults to gauge their attitudes towards cash.

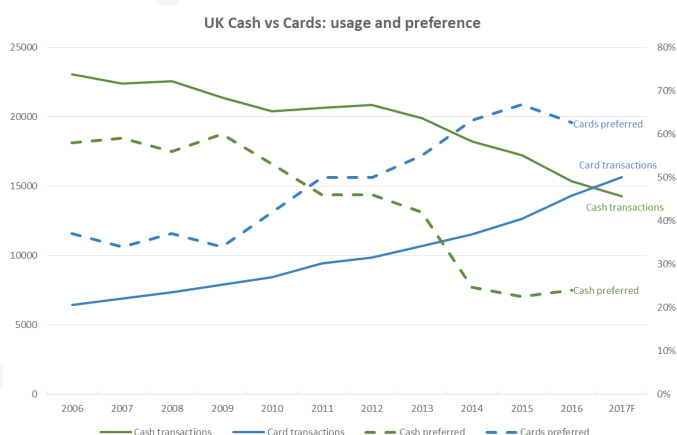
Overall in the UK, contactless card is the preferred payment method, followed by debit card payment and cash.

How people prefer to pay depends on context: when it comes to paying for a £5 coffee, buying a ticket on public transport or paying friends back small amounts, cash is by far the preferred option.

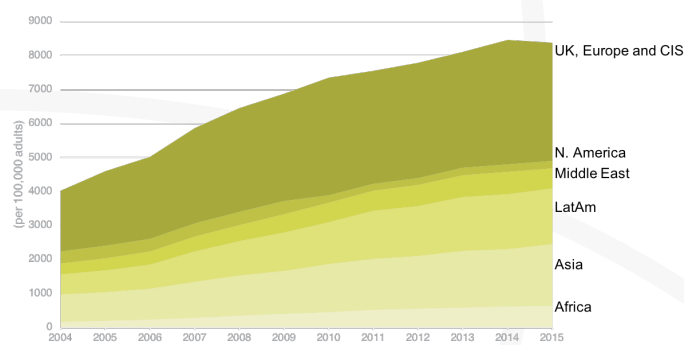
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It takes a little time for actual transactions to fall in line with preferences. In 2011, card overtook cash as the preferred payment option (dotted lines) but the solid lines show that in reality it was 2016 before card transactions overtook cash transactions.

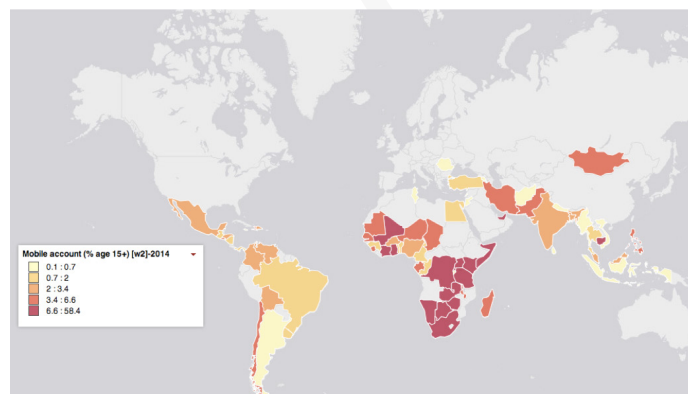


Often, these mobile banking systems continue to rely heavily on cash. You might transfer money via mobile phone, but the payee can then go to a mobile money agent who will give them physical cash back. When M-PESA launched in Kenya, we might have expected cash use to go down as people turned to mobile payments, but in fact cash use increased, supported by the new mobile payments system and mobile money agents.



Access to payment mechanisms

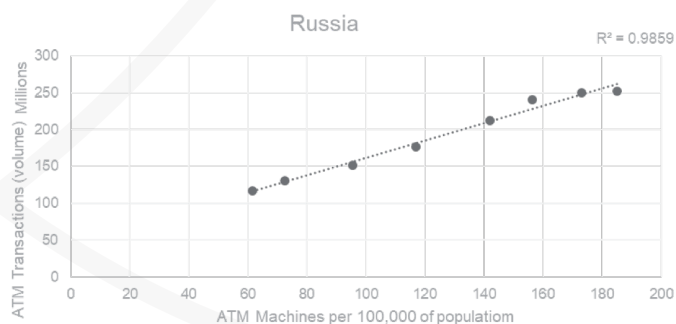
This map, produced using data from The World Bank, shows the number of people who don't have any access to a financial institution or have a lot of difficulty accessing one. In the developed world, the majority of people have access to a financial institution. By contrast, in the developing world, many people are using mobile accounts for financial transactions. Due to a lack of existing financial infrastructure, these countries have leapfrogged traditional banking systems to embrace mobile banking.



Volume of ATMs and value of CIC

The volume of ATMs per 100,000 adults has been growing steadily across the world and is just starting to plateau in Europe and the CIS. While there is a correlation between volume of ATMs and the value of CIC, it's likely that both of these are a result of economic growth rather than there being a causal link between the two.

Do people use cash more as the number of ATMs in a country increases? This example below from Russia shows that cash use can increase as more ATMs are provided. This happens in the vast majority of countries. But other examples, such as Brazil, tell us that this isn't always the case. It seems that there's a saturation point for people's desire to use cash and once this is reached, more ATMs will not increase cash use.



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Conclusions

- Economic factors and population correlate most strongly with CIC.
- ATMs are growing in the majority of counties (but some show signs of slowing).
- The choice of payment options is growing exponentially but cash remains resilient.

For more information (or if you would like the supporting data) please email DLRAnalytics@delarue.com

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De La Rue International Limited De La Rue House, Jays Close, Viables, Basingstoke, Hampshire, RG22 4BS

www.delarue.com



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