



### Summary

- **Core inflation measures continue to move in the right direction, although it is slow progress and most areas of producer and import prices remain very soft.**
- **Wage growth has accelerated further but remains low historically.**
- **Credit and lending numbers remain strong – adding some element of logical support to Fed efforts to move away from zero interest rates.**

### About this document

US Inflation Watch presents 20 charts comprising 23 key inflation indicators grouped into five categories of economic data including consumer/producer price inflation, commodity prices, wage inflation, inflation expectations and broad monetary indicators. All data are sourced from official sources including the Bureau of Labor Statistics, the Federal Reserve, University of Michigan and Commodities Research Bureau. The objective of this report is to provide a comprehensive summary of inflation and future indicators of inflation according to the latest data out of the US.

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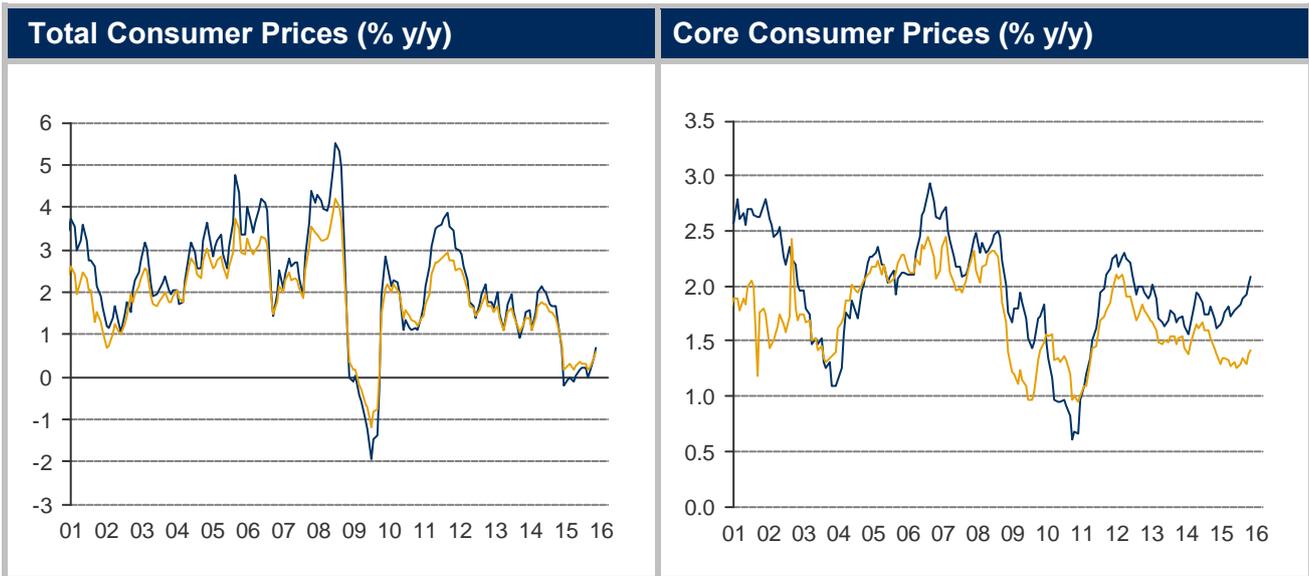
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### The Importance of Inflation

Inflation is the single most important indicator when measuring real wealth as it will determine how much wealth is worth in terms of what it can actually buy i.e. purchasing power. If 'nominal' wealth doubles over 25 years but the level of prices also doubles there is no net gain in 'real' wealth. It only takes annual inflation of 2.8% to cause a doubling in prices over 25 years.

#### About Altana Wealth

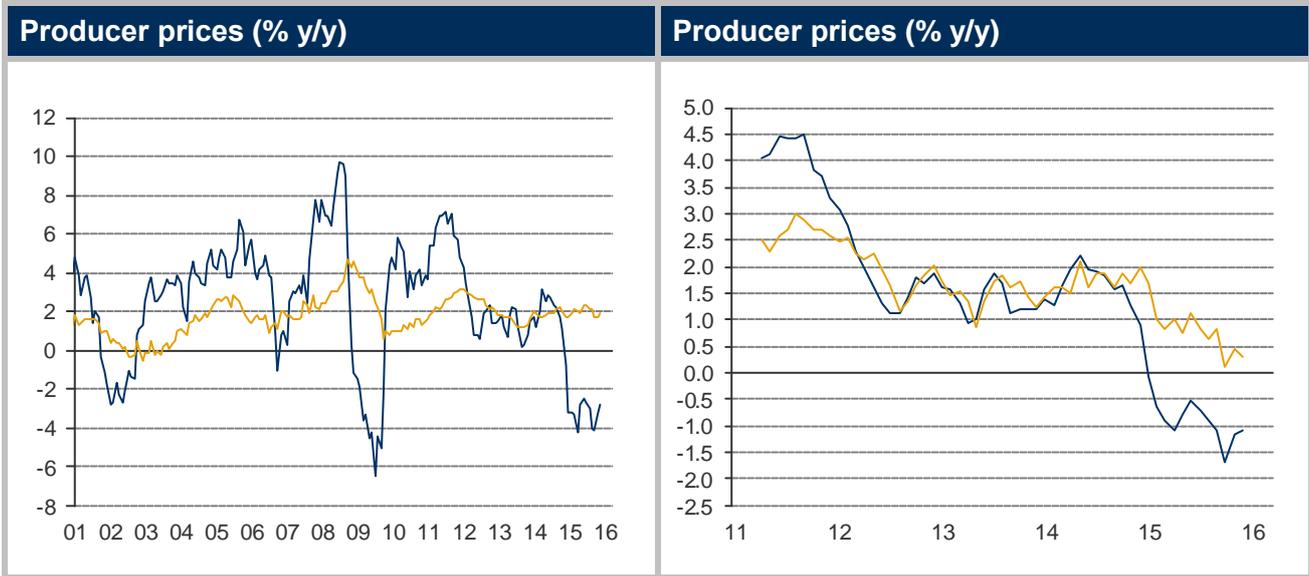
Altana Wealth was created in 2009 by Lee Robinson, one of the co-founders of Trafalgar Asset Managers. Altana Wealth was originally established to manage Lee's personal wealth and aims to offer investors portfolio solutions that address the challenges of the post-financial crisis environment as well as aligned interest with the founder. Altana Corporate Bond Fund (UCITS), Altana Turnaround Stock Fund (UCITS) and Altana Hard Currency Fund (via managed account) are open to outside investors.



<p>— <b>Total CPI</b></p> <p>— <b>Total PCE price index</b></p>	<p>— <b>Core CPI (ex-food and energy)</b></p> <p>— <b>Core PCE price index (ex-food and energy)</b></p>
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**What is this data?** Consumer Price Inflation is ‘end-inflation’ and what ultimately matters for consumers and central banks. There are two types shown here - the Consumer Price Index (CPI) and the PCE (personal consumption expenditure) deflator. The latter forms the basis of the US Federal Reserve’s 2% inflation target.

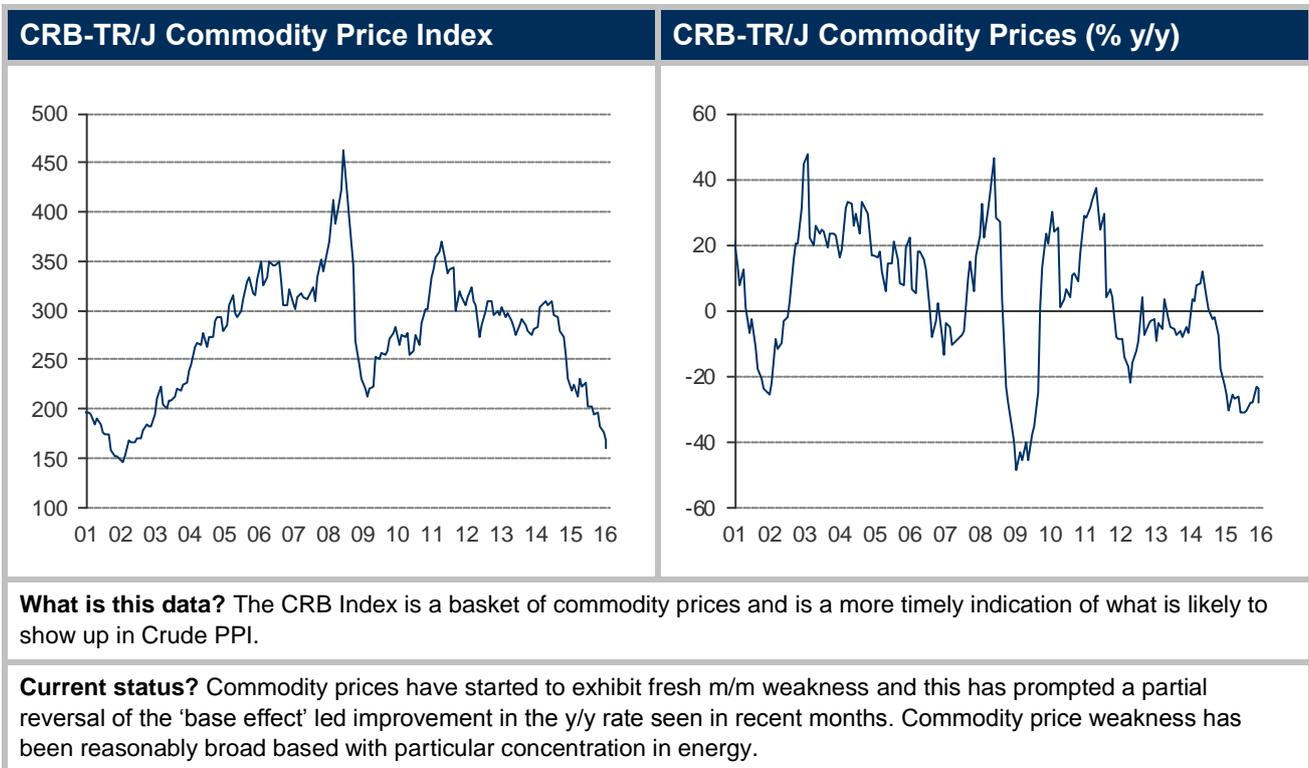
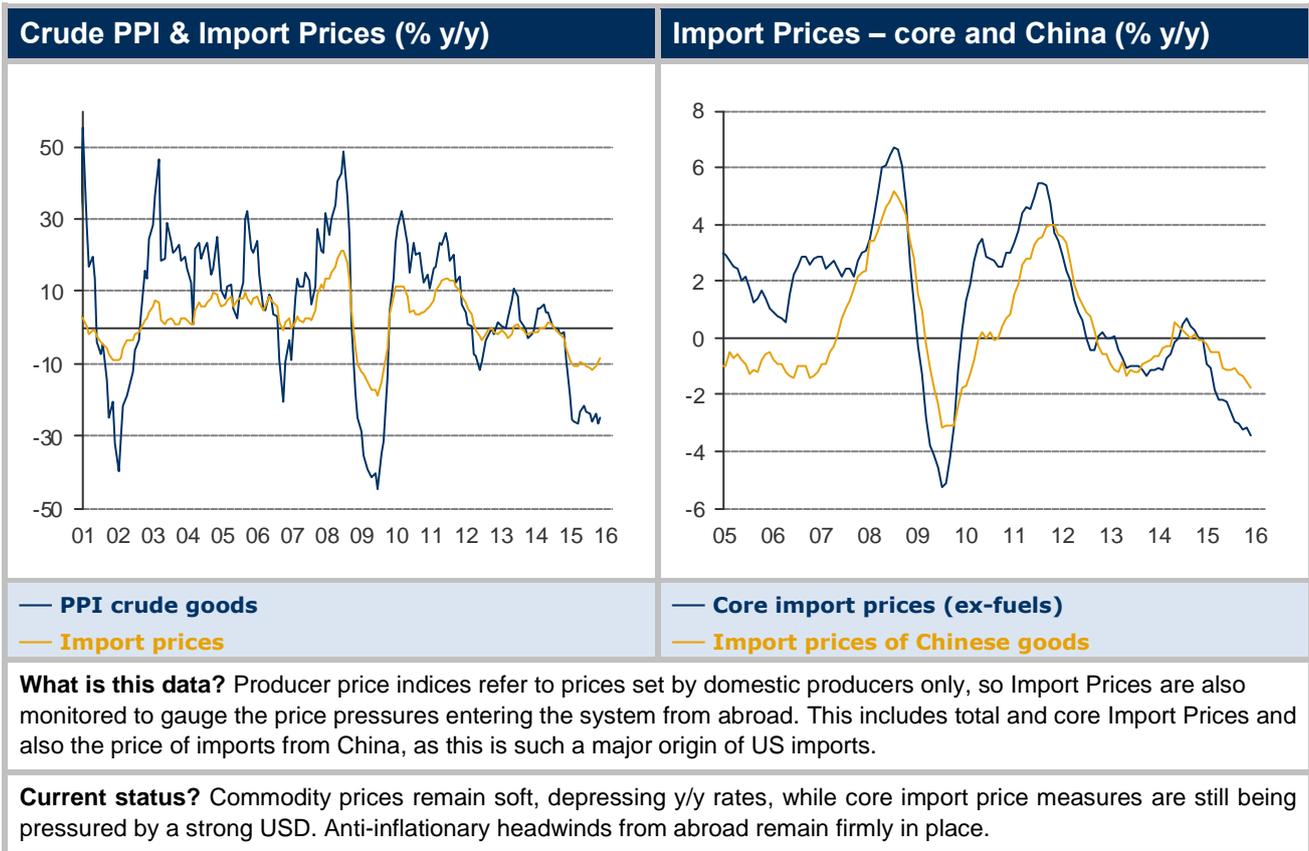
**Current status?** The core CPI y/y rate continues higher helped by core services (related to housing rent & medical care) and even core PCE prices are improving but at a much slower rate given the smaller weight of housing in the latter measure. Goods prices remain generally weak.

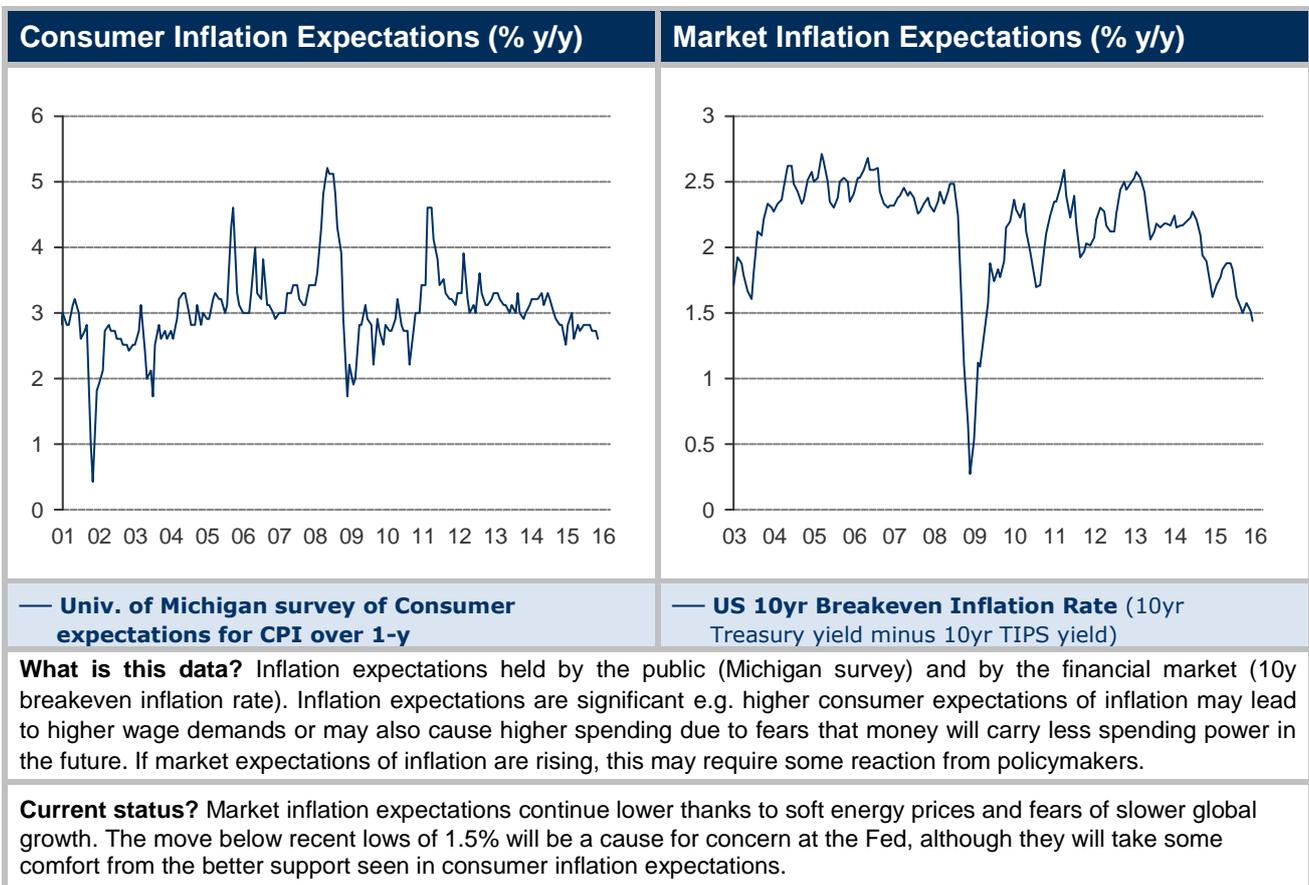
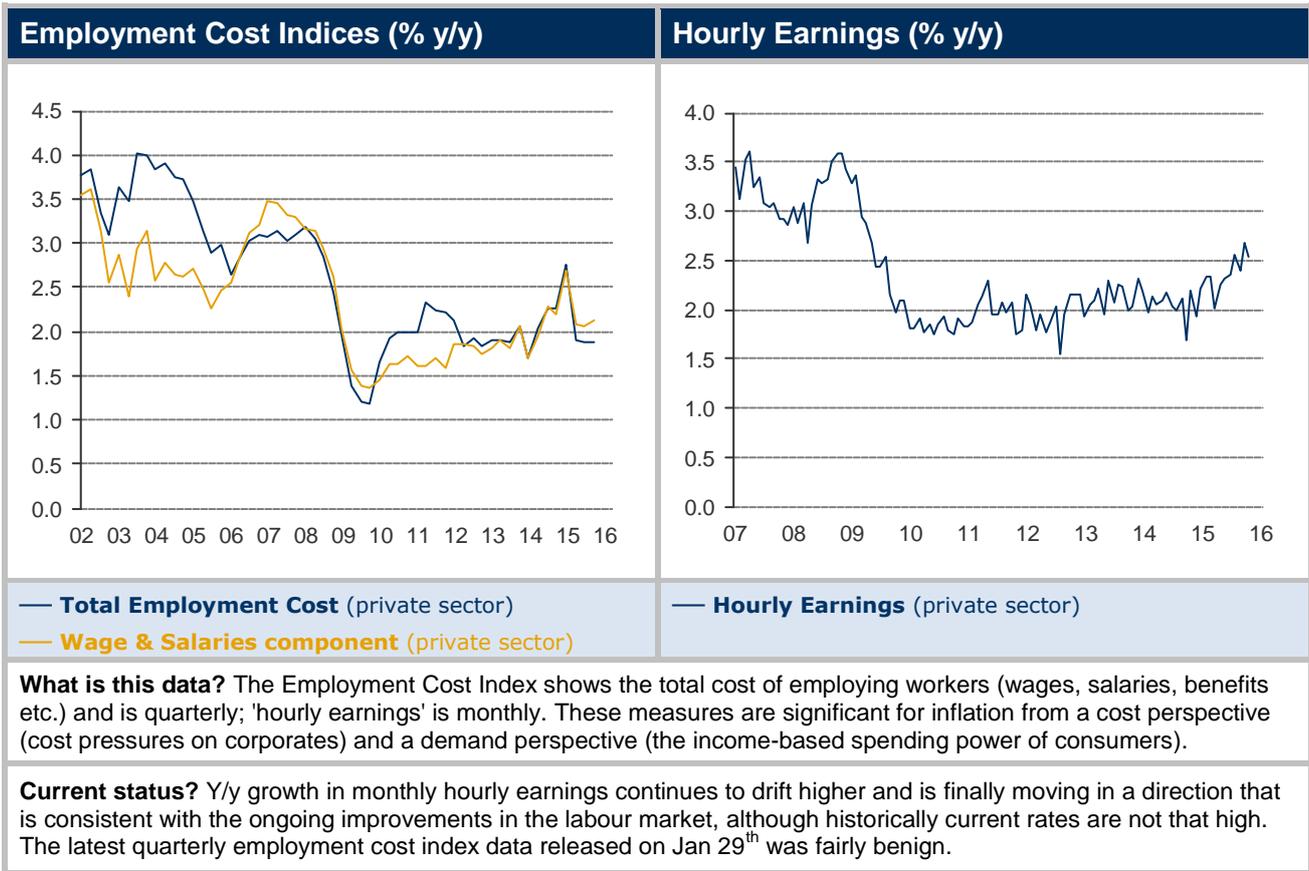


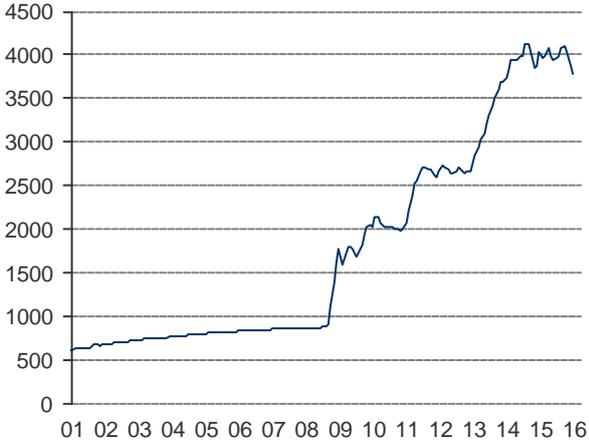
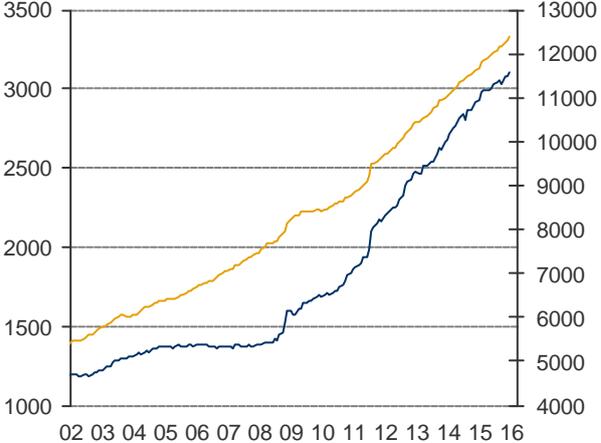
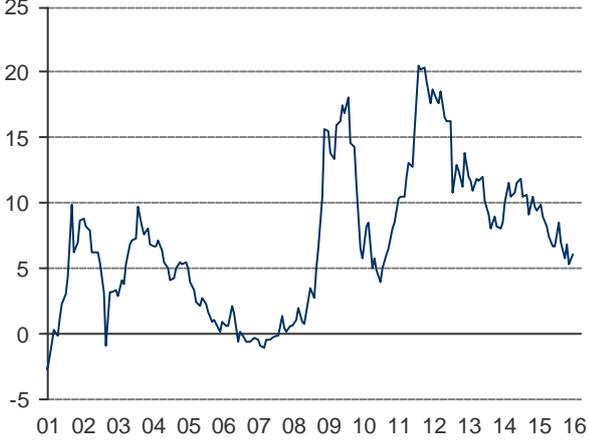
<p>— <b>PPI finished goods (old measure)</b></p> <p>— <b>Core PPI finished goods (old measure)</b></p>	<p>— <b>PPI final demand</b></p> <p>— <b>Core PPI final demand (ex-food and energy)</b></p>
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**What is this data?** Producer Price Indices show pipeline price pressures that influence future CPI & PCE. The data methodology was revised in early 2014 – the new PPI final demand measure broadening coverage to include services, construction & government sectors as well as manufacturing. The old version (goods only) is also shown for historical information as the new data only has a short data-set.

**Current status?** Core PPI remains soft due to weakness in both services as well as goods related to the external sector, although finished goods for the domestic market are holding solid (e.g. core finished consumer goods +2.5% y/y).





Monetary Base	M1 & M2
	
<p>— <b>Monetary Base</b> (level outstanding \$bns)</p>	<p>— <b>M1</b> (level outstanding \$bns, left hand scale) — <b>M2</b> (level outstanding \$bns, right hand scale)</p>
M1 growth (% y/y)	M2 & MZM growth (% y/y)
	
<p>— <b>M1</b></p>	<p>— <b>M2</b> — <b>MZM</b></p>
<p><b>What is this data?</b></p> <p><b>Monetary base</b> = M0 (or notes and coins in circulation) + notes and coins held by banks and the central bank + bank reserves held by the banking system at the central bank. <b>Note:</b> the last two items are <i>not in circulation</i></p> <p><b>M1</b> = M0 + demand deposits and other checkable deposits. <b>Note:</b> bank reserves are not included in M1 – important when looking at how Fed QE affects M1 and M2 etc.</p> <p><b>M2</b> = M1 + savings deposits + time deposits less than \$100k + retail money funds. <b>Note:</b> institutional money market funds are not included in M2.</p> <p><b>MZM</b> (Money with Zero Maturity) = M2 + all money market funds less time deposits <b>Note:</b> MZM is a more recent construction which aims to identify all forms of ‘liquid’ money, so is a hybrid of M2 and M3.</p>	
<p><b>Current status?</b> Bank lending data (for December) was strong across the board (consumers +10.3% y/y, corporates +12.5% y/y), but even though such loans should automatically create deposits somewhere in the system M1 growth is not picking up (in either Dec or Jan).</p>	

### Consumer Credit



— Consumer Credit (6mth MA of m/m \$bn change)

### Consumer Credit (% y/y)



— Consumer Credit

**What is this data?** Covers most short and intermediate-term credit extended to individuals, excluding loans secured by real estate. Consumer credit growth will directly influence money growth and monetary velocity.

**Current status?** Consumer credit remained strong in December. While non-revolving credit was still responsible for the vast bulk of the overall rise, revolving credit (credit cards) continued its recent trend of making higher contributions. For example, the Dec unadjusted rise in revolving credit advanced by banks was the strongest since Dec 2004, suggesting that there is some consumer appetite out there.

### M2 Velocity



### MZM Velocity



**What is this data?** The velocity of money is how much the money stock is actually used for transactions in goods and services and is inversely related to the demand for 'money' as opposed to the demand to 'exchange this money' for goods and services i.e. spending – see Appendix for a more detailed explanation.

**Current status?** Money velocity (which falls as long as any defined measure of money growth exceeds the growth in nominal GDP) eased lower in Q4 helped by a further softening in the performance of nominal GDP. Velocity has been falling for most of the period since the financial crisis, suggesting a desire to hold money rather than exchanging it for goods and services – in other words the demand for money has been high. When velocity rises it would suggest that the higher money supply generated in recent years is finally being put to work.

## Appendix A – Monetary Indicators

The monetary backdrop is somewhat profound in terms of its potential influence on inflation and has over the years been the subject of considerable debate. Below is a simple monetary framework that helps to explain the role of Money in the economy and how it can affect inflation.

### A Monetary Framework

The amount of money circulating in the economy will have implications for inflation in the medium-long term. This is best expressed via the **Quantity Theory Identity**

$$M.V \equiv P.Y$$

Where M is the amount of money in the economy, V is the velocity of money (how many times the amount of money is used), P is prices and Y is real output (GDP). Together, P.Y is money or nominal GDP.

As a basic statement this is not controversial. If M (\$500) is used 5 times (V) then \$2500 will have been spent and will be equal to the value of all goods sold in the economy - e.g. 2,500 items of real output (Y) at \$1 each (P) or 1,000 of (Y) at \$2.50 each (P) etc.

Where the identity becomes more interesting is in the assumptions that various schools of thought make about its components. For example, traditional Monetarists contend that V is fairly stable and predictable and Y is constrained by the capacity of the economy. So, under the Monetarist argument if M is rising faster than Y and V is stable, it follows that P will also rise. In other words, money growth creates inflation.

Others contend that V is not stable and also that Y can occasionally deviate substantially away from full capacity, so the relationship between M and P is less obvious. For example, in the current context of the US the Federal Reserve has made great efforts to increase the supply of money (M) over the past few years, but this has not led to proportionate increases in P.Y. This is likely due to two things. First, a reduction in velocity - any extra money balances are merely accumulating in the system (higher demand for money) rather than being spent and second, a lower money-multiplier. The money-multiplier represents the rate at which central bank created money (the monetary base) generates additional increases in the total money stock, including that money which is created by commercial banks – more on money creation below.

In sum, this basic Quantity Theory Identity is a useful framework for analysing the potential interaction between the monetary and real sectors of the economy and the monetary data we follow in this document will seek to shed light on what is happening to both M and V in this identity.

### What is Money?

Another issue is how we define 'money' or M. There are many definitions and what we will seek to do here is to explain the differences between them and *why they are significant*, especially in the current context where the US Federal Reserve is aggressively flooding the banks with cash.

The definitions of money include M0, MB (the Monetary Base), M1, M2, M3 and MZM (maturity zero money) and the basic difference between them is related to the narrowness of the definition of 'money' (see below). The further we move along the spectrum towards M3 the less liquid 'money' becomes. For example, a large time deposit cannot be spent immediately whereas a checking deposit can.

### Definitions

**M0** = notes and coins *in circulation* with the non-bank public

**Monetary base** = M0 + notes and coins held by banks and the central bank + bank reserves held by the banking system at the central bank (bank reserves) **Note:** the last two items are *not in circulation*

**M1** = M0 + demand deposits and other checkable deposits. **Note:** bank reserves are not included in M1 – important when looking at how Fed QE affects M1 and M2 etc.

**M2** = M1 + savings deposits + time deposits less than \$100k + retail money funds. **Note:** institutional money market funds are not included in M2.

**M3** = M2 + large time deposits + institutional money market funds + short-term repos and other large liquid assets

**MZM** (Money Zero Maturity) = M2 + all money market funds less time deposits **Note:** MZM is a more recent construction which aims to identify all forms of 'liquid' money, so is a hybrid of M2 and M3.

### Who creates Money?

A useful way to think about money – again relevant when considering Fed QE – is who creates it? The short answer is that both the central bank and the commercial banking system create money.

The Monetary Base is created and influenced by the Central Bank and is so-called because it is the base from which all other forms of money (non-M0, M1, M2 etc) are created by the commercial banking system.

For example, let us use QE as an example. The Fed buys T-Bonds from a bank and credits that bank's account at the Fed with the proceeds. These funds are now reserves. At this point, no money has entered circulation, so no other measure of money apart from the Monetary Base has been affected.

As the Monetary Base has increased, commercial banks are more *able* to create other money by issuing new loans and if they were to do this it would lead to a corresponding rise in deposits. This is because a loan, when advanced to the borrower, will be deposited in an account from which the borrower can spend it from i.e. an immediate rise in deposits (higher M1). Or, if the money is spent via a credit card, the borrowers account will not be affected, but the recipient of the credit card spending will deposit the revenue in their own account, so deposits somewhere in the system will have increased because of the 'loan' – higher M1.

In sum, boosting the Monetary Base (via e.g. Fed QE) increases the ability of banks to create other money such as M1. But the rate at which this happens (the money-multiplier referred to earlier) will come down to a commercial judgement by the banks as to whether or not they would like to advance extra loans.

### So what should we look out for in the data?

There are two things and they relate to both M and V. In the current circumstances where the Fed has been pumping up the Monetary Base we need to be aware of this translating into a much faster pace of money in circulation if commercial banks use the higher reserves (monetary base) to create new money by extending loans etc – a higher money multiplier. For example, since the Fed embarked on QE and expanded the Monetary Base M1 has risen quite sizeably, although the broader indicators have risen by much less. Any evidence of a ramping up of M2 or MZM would be a sign that monetary expansion is starting to become more threatening.

The second issue is velocity. Velocity has been falling in recent years, meaning that the increases in broad money have merely been accumulating in the system rather than being put to work in the form of spending etc. Any sign of a turn in V would suggest that the transmission mechanism from M to P.Y (nominal GDP) has been re-established and would suggest greater significance of M growth for the inflation outlook. If both M and V rise at the same time, the inflation alarm bells would truly start to ring.

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