

## OUTLOOK & OPPORTUNITIES

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## IN BRIEF

- Consumers' and investors' inflation rates will vary depending on their locations and spending patterns.
- Inflation rates are affected by a country's unique structural factors, such as its taxation policies, which may influence the price of goods and consumers' spending patterns.
- Cyclical factors, including the macroeconomic environment and monetary policies, will also affect inflation rates and can generate cross-border differences.
- Cross-border differences in inflation risks should translate into different strategies for investors' inflation-sensitive portfolios.

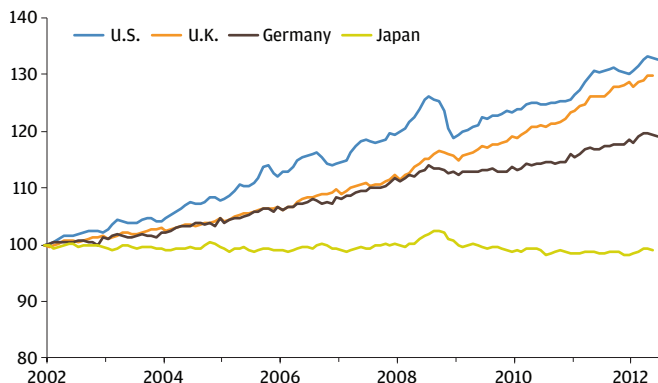
## Introduction

Every consumer and investor is exposed to inflation, but how do you measure and mitigate this risk? As consumers, we think about how inflation affects the prices of goods and services acquired in the course of our everyday lives. As investors, we consider how prices of goods and services impact the macroeconomy and the values of assets in our investment portfolios. The challenge in managing inflation is to select a portfolio whose value rises and falls with the value of future purchases.

A key consideration when making this decision is location. Where you live and spend money is a key determinant of the inflation risks you face and, likewise, the asset allocation strategy you choose to mitigate those risks.

In the following pages, we consider a few reasons why consumers in different parts of the world may experience different rates of inflation (**Exhibit 1, next page**). We approach this question from two perspectives. First, we draw on *structural* differences: idiosyncrasies in national political and social institutions, which influence the makeup of consumer baskets and the prices of individual goods. We then explore differences in the *cyclical* behavior of inflation across countries: unique features of the countries' current macroeconomic environments, particularly the differing monetary policies among their central banks.

Whether structural or cyclical, these cross-border differences in inflation risks should translate into different strategies for investors' inflation-sensitive portfolios, especially in the current environment of heightened macroeconomic uncertainty.

**EXHIBIT 1: HARMONIZED INDICES OF CONSUMER PRICES,<sup>1</sup>  
JANUARY 1, 2002 = 100**

Source: Japanese Statistics Bureau, Eurostat (Statistical Office of the European Communities); U.S. Bureau of Labor Statistics. Data are not seasonally adjusted. Data as of 6.30.12.

## Structural factors and current inflation

### People consume different baskets of goods

Countries around the globe publish consumer price indices (CPIs) to try to quantify the price changes of goods and services in the aggregate spending basket of their citizens. However, consumers, even those residing in the same country, may individually purchase very different baskets of goods. When relative prices vary across individual goods, as they naturally do, consumers who purchase these goods in different proportions will experience different “inflation” rates.

Consider health care.

Factors including age, wealth and geography can drive spending behaviors for this basic necessity. Within the United States, for example, older consumers generally spend nearly three times as much on health care as do younger generations.<sup>2</sup>

Across countries, such differences become even more pronounced depending on the structure of health care spending. While government programs in many European countries

provide much of the health care services at a reduced cost to citizens, consumers in the U.S. pay a greater share of their medical expenses out of pocket.<sup>3</sup> Such differences can account for large disparities in consumer spending baskets across countries.

### Inflation rates differ across spending categories

Even consumers with similar consumption baskets can experience different inflation rates depending on the price behaviors of goods in those baskets, which often vary by location. For example, centralized health care systems, such as those in Europe, are often better at containing cost increases through concentrated buying power. In the United States, a relatively decentralized system, medical expenses are the fastest growing category of the CPI basket.<sup>4</sup> The effect is compounded by the fact that medical expenses also tend to represent a relatively large share of the U.S. consumer basket.

We turn next to another mainstay of household expenditure: gasoline.

Any household with a car is familiar with the volatility in oil prices. Oil’s price gyrations can be caused by a range of factors, including geopolitical events, shifting expectations for global growth or movements in exchange rates. Can we quantify the impact that such volatility has on the individual consumer? And does that impact vary by country of residence?

The answer to this question is clearly yes. As illustrated in **Exhibit 2, next page**, the cumulative effect of a change in the price of crude oil on the price of gasoline at the pump is much larger in the U.S. than in other developed countries. Over the course of a year, about 80% of the original oil price shock is passed through to the pump price in the U.S., compared to 40% or less in the U.K., Germany and Japan. These stark differences in pass-through rates are also reflected in the different responsiveness of headline inflation rates to oil price shocks across these countries.

Different energy tax policies account for these very different pass-through rates. Each government must decide how to generate a revenue stream sufficient to support its spending needs. Many legislators view taxation as an instrument to shape their citizens’ behaviors by discouraging consumption of selected goods using special excise taxes. As tax policies vary across borders, so do the magnitudes of price volatility experienced by consumers.

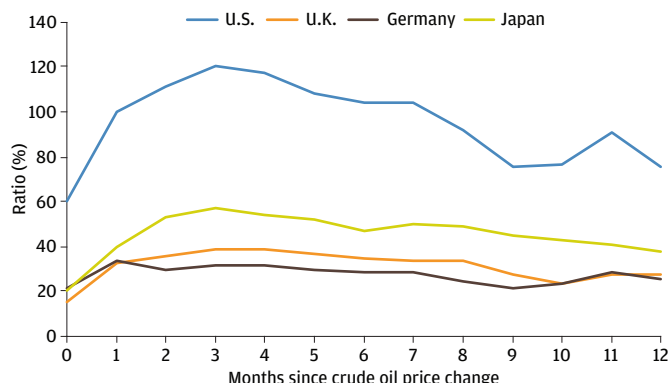
<sup>1</sup> Harmonization calculations are based on U.S. Bureau of Labor Statistics methodologies. Japan index is *CPI: General, Excluding Imputed Rent*; U.K. index is *Harmonized Consumer Price Index*; U.S. index is the experimental *Harmonized Index of Consumer Prices (HICP-T)*. Price level dynamics vary across borders.

<sup>2</sup> Bureau of Labor Statistics relative importance data. Data as of 12.31.11.

<sup>3</sup> Lane, Walter, and Mary Lynn Schmidt. “Comparing U.S. and European Inflation: The CPI and the HICP.” *Monthly Labor Review* 129 (2006): 20-27. Bureau of Labor Statistics, May 2006. Web. <<http://www.bls.gov/opub/mlr/2006/05/art3full.pdf>>.

<sup>4</sup> Bureau of Labor Statistics. Data as of 12.31.10.

**EXHIBIT 2: PASS-THROUGH OF CRUDE OIL-TO-GASOLINE PUMP PRICE, JANUARY 2000 TO MARCH 2012**

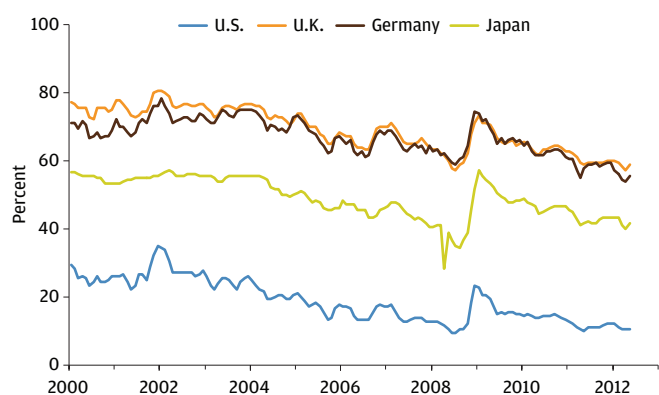


Source: Analysis by J.P. Morgan Asset Management, data from International Energy Administration (IEA). Data as of 7.4.12.

The relationship between crude oil and gasoline prices varies across countries. This chart examines the extent to which a percentage increase in the local price of imported crude oil passes through, over time, to some percentage increase in the price of gasoline consumers ultimately pay at the pump.

A large tax on gasoline volume can ensure that most of the price at the pump is *fixed*, naturally muting the volatility consumers might otherwise experience. As shown in **Exhibit 3**, U.S. gasoline tax rates are below 20% of the purchase price—less than half that of the U.K., Germany or Japan—so U.S. gasoline prices respond more readily to oil price changes and are consequently more volatile than prices in countries with higher gasoline tax rates.

**EXHIBIT 3: GASOLINE TAX AS PERCENT OF END-USE PRICE**



Source: International Energy Administration (IEA). Data as of 7.4.12.

<sup>5</sup> Sarah Mongourdin-Denoix and Felix Wolf, *Wage indexation in the European Union*, Eurofound background paper, 2010.

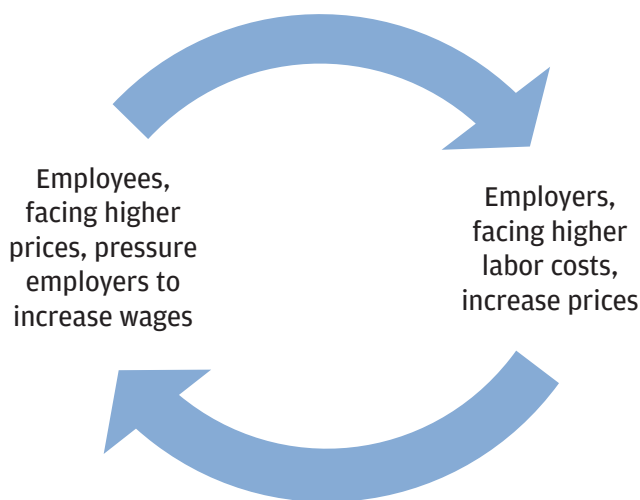
These distinct pass-through patterns highlight the fact that even changes in the price of the same commodity can have very different effects on a country's aggregate price level depending on tax policy. Of course, this example is just one of many structural differences in inflation's behavior across countries.

### Other structural factors

While we do not intend to recite a laundry list of factors affecting inflation, a few more are worth highlighting.

Whether due to societal norms or legal factors, such as unionization, the ability of labor to pressure employers to raise wages in response to price increases varies widely across countries, resulting in differing susceptibilities to an inflationary wage/price spiral illustrated in **Exhibit 4**. While this dynamic weakened with declines in unionization,<sup>5</sup> it remains a greater concern in some European countries where wages are more often indexed, formally or informally, to price or earnings levels. In the U.K., for example, corporate retirement benefits are often indexed directly to the Retail Price Index (RPI) or Consumer Price Index (CPI).

**EXHIBIT 4: THE WAGE/PRICE SPIRAL**



Source: J.P. Morgan Asset Management.

The degree of competition in a country's product markets also affects its inflation dynamics. For example, if the costs of hardwood timber increase, a furniture manufacturer may wish to pass its increased raw material costs onto consumers. In a more competitive market, however, the firm might act slowly, lest they lose customers to competitors willing to absorb the higher cost of materials. Greater competitiveness, then, may dampen the price increases ultimately experienced by consumers.

## Current cyclical environment and inflation outlook

### Growth and inflation

In addition to long-term structural differences in the behavior of inflation across countries, we should also consider differences related to the business cycle and the current macroeconomic environment.

Consider, for example, the relationship between growth and inflation. **Exhibit 5** illustrates that countries with stronger growth tend to experience higher inflation. Part of this trend simply reflects the countries' stages of development. Faster-growing, less-developed countries often see heightened inflation rates as aggregate demand rapidly increases with rising prosperity.

However, we see differences across the developed world as well. In the near term, we face the potential for a downshift in the previously booming Chinese economy and an ongoing European debt crisis. In the aggregate, these factors will likely reduce the pace of global growth and consequently subdue inflation pressures. But the effects will not be homogenous. As countries emerge from the current global slowdown at their own paces, the cyclical impacts on inflation will naturally vary.

A country's level of debt can also affect growth. Many of the nations with the weakest growth have accumulated the highest government debt burdens; the necessary deleveraging will be a drag on growth for years to come. The April 2012 International Monetary Fund's World Economic Outlook (WEO) survey<sup>6</sup> projects that government spending throughout the

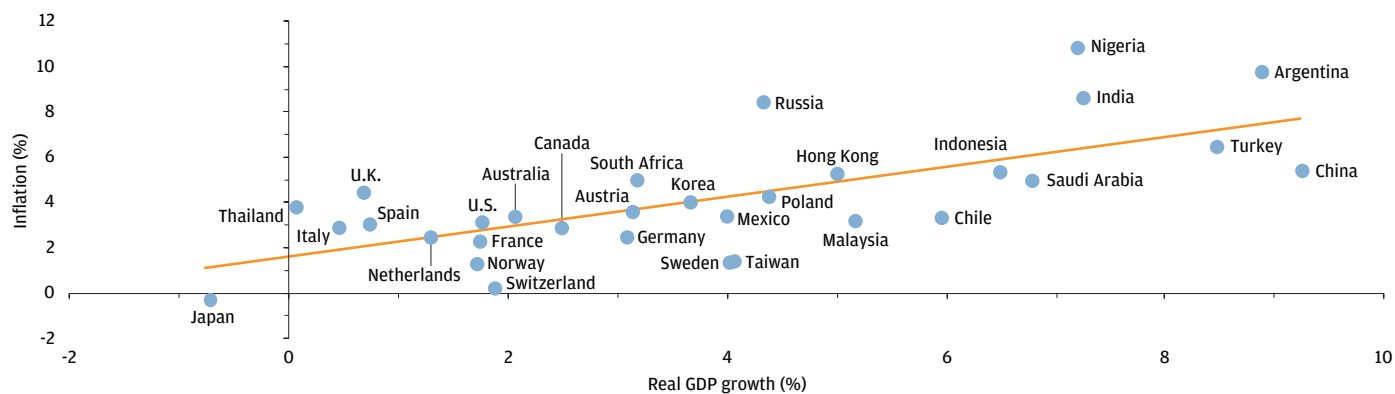
developed world will fall over the next few years, keeping economic growth at or below trend. But the impact varies substantially across these countries, with projected output growth in peripheral European countries lagging far behind that of the U.S., for example. The extent to which this output shortfall may produce deflationary pressures is at the forefront of investors' minds.

There are cases, however, where the relationship between growth and inflation is not as straightforward. In the second quarter of 2012, consumer prices in Japan were roughly unchanged year-over-year, a continuation of a unique historical trend we noted in the introduction to this paper. At the same time, Japan's unemployment rate remains well below levels prevailing in the United States and Europe and, in recent quarters, its economy has actually seen a step-up in growth reflecting post-tsunami rebuilding activity. Low unemployment and accelerating growth might normally imply a heightened inflation rate; the country's stable prices, therefore, may reflect embedded deflationary expectations more than anything else.

### Money and inflation

Also consider the extraordinary measures taken by central banks in recent years to reignite economic growth. The Bank of Japan has maintained short-term interest rates near zero since the mid-1990s, and many other central banks followed suit during and after the global financial crisis. With policy rates at close to zero for the last three years, central banks have resorted to less orthodox methods to stimulate economic growth. As **Exhibit 6, next page**, shows, the U.S. Federal Reserve, Bank of England, Bank of Japan and European Central

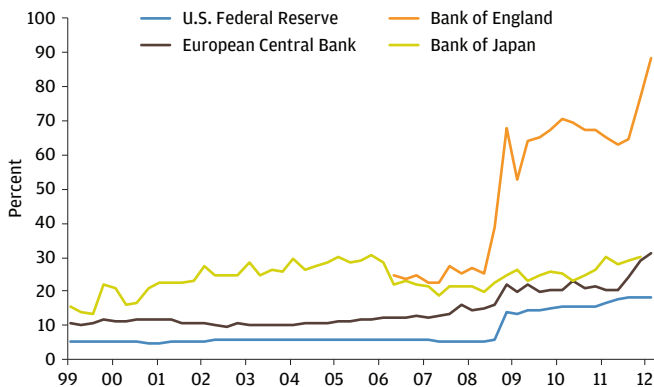
EXHIBIT 5: A STRONG RELATIONSHIP BETWEEN GDP GROWTH AND INFLATION ACROSS COUNTRIES



Source: National Statistical Office, Haver Analytics, Central Bank, CEIC, Global Insights and Nomura database. Data are year-over-year figures for 2011. Data as of 12.31.11.

<sup>6</sup> <http://www.imf.org/external/pubs/ft/weo/2012/01/index.htm>

**EXHIBIT 6: TOTAL BALANCE SHEET AS PERCENTAGE OF GDP (NOMINAL, SA)**



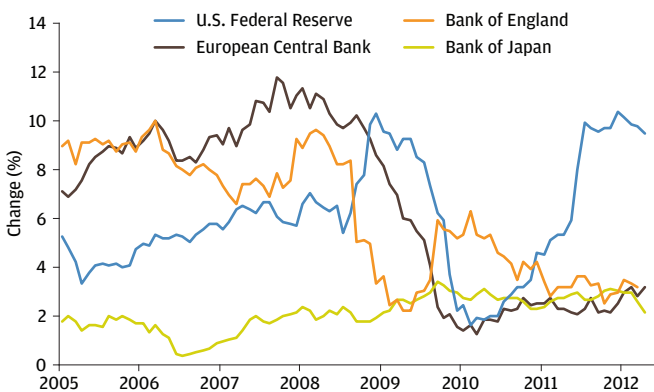
Source: ECB, Eurostat (Statistical Office of the European Communities), Federal Reserve Statistical Release H.4.1, BEA (Bureau of Economic Analysis), ONS (Office for National Statistics), Bank of Japan, ESRI. Data as of 3.31.12.

Bank have all dramatically expanded their balance sheets trying to lower long-term interest rates.

Sadly, this stimulus has been minimally effective since banks remain unwilling to increase lending while facing low growth, tighter regulations and a perceived need to strengthen their capital bases. Indeed, emergency measures to lower long-term rates have been somewhat counterproductive, undermining consumer and business confidence, while reducing the profitability and increasing the riskiness of making long-term loans.

The vast majority of the funds pushed into the banking system by the central banks have been re-deposited in the form of excess reserves. Consequently, bank assets have risen at an annual pace of between 6% and 36% over the past four years,<sup>7</sup> but broad measures of the money supply have only risen by between 3% and 6% over the same period.

**EXHIBIT 7: YEAR-OVER-YEAR GROWTH IN THE MONEY SUPPLY (M2)**



Source: ECB, FRB, ONS (Office for National Statistics), Bank of Japan. Data as of 5.31.12.

Exhibit 7 illustrates the increases in a broad measure of money supply across four major developed economies. However, the increase in circulated money overstates the monetary “kick” from these unconventional measures since the velocity of money has declined in all of these currency blocks, with consumers and businesses alike hoarding cash. And nominal GDP growth has still been anemic despite this huge increase in the monetary base.

Although monetary stimulus has been like “pushing on a string” in reviving growth among developed economies, it has raised the question of longer-term inflationary risk. With or without the help of monetary and fiscal policy, developed nations will eventually recover with unemployment rates drifting down to full employment levels. At that time, as banks feel more confident about lending and consumers and businesses feel more confident about borrowing, money supplies in these nations should begin to rise more rapidly as banks begin taking advantage of their huge excess reserves.

As the velocity of money increases, each central bank will face a new challenge: to remove excess reserves from the banking system by deleveraging their own balance sheets. In *theory*, they can do this, though selling bonds at then higher yields may produce losses along the way. The challenge is that there is simply no modern road map to guide the timing and speed at which they should move. After years of fending off deflation and political pressure not to be *too* tough, there is a very real risk that some central banks will act too slowly, causing widespread outbreaks of inflation.

## Conclusion

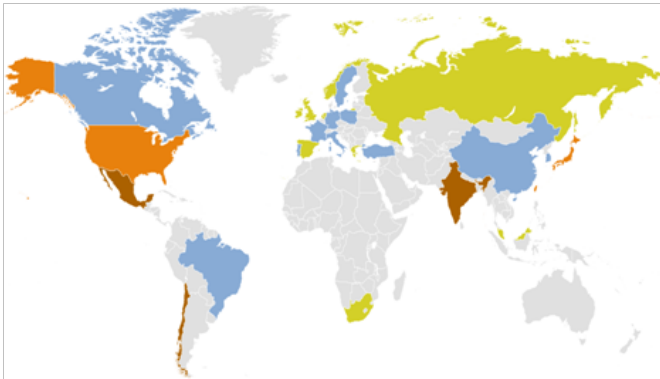
In this paper, we examine how inflation is as much a local phenomenon as a global one. We attribute differences in the behavior of inflation across countries to deep-rooted structural factors, such as taxation and spending patterns, as well as the macroeconomic environment and the nature of monetary policy. These local factors can vary substantially depending on the country and its circumstances.

The differences become even more striking when we broaden our view from the developed markets we have discussed.

**Exhibit 8, next page,** contains an assessment of the inflation and growth environments in countries around the world.

<sup>7</sup> Federal Reserve Bank, Bank of Japan, Bank of England, European Central Bank as of 6.31.12

EXHIBIT 8: THE INVESTMENT MAP



State	Growth	Inflation
■ Disinflationary	Decelerating	Decelerating
■ Stagflationary	Decelerating	Accelerating
■ Reflationary	Accelerating	Decelerating
■ Inflationary	Accelerating	Accelerating

Source: J.P. Morgan Asset Management. Data as of 7.12.12.

We make these assessments based on growth in industrial production and whether inflation is accelerating or decelerating.

Not surprisingly, each country has its own nuances that lead to different growth and inflation behaviors. Whatever the drivers, it stands to reason that consumers and investors who are exposed to the growth and inflation profiles of an individual country should consider their unique exposures rather than looking at averages across all geographies. For consumers in the U.S., U.K., Japan or any other country, the consumer price index benchmark, as well as the strategy used to track it, is naturally distinct. Incorrectly assessing one's inflation exposure can lead to investment strategies that are less effective in protecting one's purchasing power.

As investors, we must strive to understand the risks to which our portfolios are exposed in order to manage around them. For an investor looking to hedge against uncertainty in the prices of future purchases, it is important to ask *where* these purchases will be made. As consumers, we must do the same, seeking to match our portfolios to expected future obligations in local currency. In essence, we must align our assets and liabilities.

## AUTHORS



**David Kelly**  
Managing Director  
Chief Global Strategist  
[david.p.kelly@jpmorgan.com](mailto:david.p.kelly@jpmorgan.com)  
212-648-1115



**Maddi Dessner**  
Executive Director  
Client Portfolio Manager  
[maddi.l.dessner@jpmorgan.com](mailto:maddi.l.dessner@jpmorgan.com)  
212-648-0574



**Rebecca Hellerstein**  
Executive Director  
Global Strategist  
[rebecca.hellerstein@jpmorgan.com](mailto:rebecca.hellerstein@jpmorgan.com)  
212-648-0056



**Patrik Schowitz**  
Vice President  
Global Strategist  
[patrik.h.schowitz@jpmorgan.com](mailto:patrik.h.schowitz@jpmorgan.com)  
+44 207 7424950



**Michael G. Albrecht**  
Research Analyst  
[michael.g.albrecht@jpmorgan.com](mailto:michael.g.albrecht@jpmorgan.com)  
212-648-0110

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