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Trading Economics

A Guide to Economic Statistics for Practitioners and Students

TREVOR WILLIAMS • VICTORIA TURTON

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A Guide to Economic Statistics for Practitioners and Students

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This edition first published 2014

Registered office
John Wiley & Sons Ltd, The Atrium, Southern Gate, Chichester, West Sussex, PO19 8SQ, United Kingdom

Library of Congress Cataloging-in-Publication Data

Williams, Trevor, 1957–
Trading economics : a guide to economic statistics for practitioners & students / Trevor Williams, Victoria Turton.—1
pages cm.—(The Wiley finance series)
Includes bibliographical references and index.
ISBN 978-1-118-76641-5 (hardback)—ISBN 978-1-118-76631-6 (ebk)—ISBN 978-1-118-76638-5 (ebk)—ISBN 978-1-118-76629-3 (ebk) 1. Finance—Statistics. 2. Money market—Handbooks, manuals, etc. I. Turton, Victoria, 1974– II. Title.
HG176.5.W55 2014
330.01′5195—dc23 2014007150

A catalogue record for this book is available from the British Library.

ISBN 978-1-118-76641-5 (hardback) ISBN 978-1-118-76631-6 (ebk)
ISBN 978-1-118-76638-5 (ebk) ISBN 978-1-118-76629-3 (ebk)

Cover image: Shutterstock.com

Set in 11/13pt Times by Aptara Inc., New Delhi, India
Printed in Great Britain by TJ International Ltd, Padstow, Cornwall, UK

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Acknowledgements

Thank you to all of the people involved in writing and producing *Trading Economics*. Special thanks must go to friends and family. Without your enduring support, this journey would have been far more difficult.

June 2013

Introduction

Today's interconnected world, linked by freer trade, by some of the greatest movements of people through tourism and immigration the world has ever seen, by the movement of goods and services – all underpinned by new methods of open communication that were unimaginable a generation or so ago and involving more countries than ever before – means that an understanding of economics matters more than ever. It is no surprise, therefore, that headlines scream economic news, newspapers are full of stories based on statistics about economic performance within and amongst countries, government officials are constantly discussing the economy and there are pundits, radio and TV shows, some broadcasting 24 hours a day, with 'experts' claiming to know all sorts of things based on economic data. Then there are all the blogs, tweets and internet media channels to add to the mixture. With the cacophony of noise from these media, it is increasingly hard to discern the underlying economic trends from what are often conflicting data.

What has allowed today's world to come into being is a belief that more trade is better than less trade, that producing goods and services where it is cheapest to do so allows for a rise in living standards for all concerned (though not all to the same extent). This outcome is based on one of the fundamental elements of economic rationale – the division of labour and comparative trade advantage. What is economics about, if not the production of goods and services to satisfy human wants and needs? It is the acceptance of this notion across many societies around the world that has given rise to the explosive increase in global wealth that has taken place in the last 50 years and that we see all around us.

This is why an understanding of economic statistics and what they mean is crucial. These statistics are the basis for individual, corporate

and collective or societal decision-making. Governments use economic statistics to plan spending and policy; companies use them to decide when and where to produce goods and services; investors (including pension funds, insurance companies, individuals etc.) use them to decide where to put their wealth; and households use them to decide when to buy or sell goods and services.

These data drive trends in the financial markets. Without the constant drip feed of economic news, markets tend to drift. What they await – what they in fact need – is the next piece of new information to jolt them into action. The experience of recent years has taught us that financial markets do not inhabit a separate realm, detached from the 'real economy'. Far from it – financial markets are fundamentally tethered to the real economy. They have an impact on us all. That is why they matter and why understanding the data that drives the financial markets will support traders and practitioners in reading the markets more comprehensively and framing their own reactions accordingly.

SURPRISE INDICES

The Value of Economic Indicators

A surprise index, as its name suggests, measures the extent to which economic indicators are better or worse than expectations – in other words, they surprise interested observers, the markets.

Economic surprise indices illustrate just how important economic indicators are to financial markets, affecting the decision-making process of the millions of participants whose buying and selling decisions ultimately make them up.

Surprise indices are therefore a cumulative measure of figures released pertaining to the economy that are appreciably different from the average predicted by those who are forecasting them. If the results continue to be better than expected, the index will rise. Of course, if they are worse than expected then it will fall. You would expect positive surprises to be positively correlated with asset price change, including equity prices.

This is partly about the psychology of price movements in asset markets. If the momentum is linked to a feelgood factor about a trend and the data support it, by coming in better than expected, then optimism is boosted. Sentiment is key to the movements of financial markets, and shifts in asset prices are often linked not just to the absolute outcome of economic and other data that are being released, but also to

whether they are better or worse than people (i.e. investors) thought they would be.

Among the most traded, well understood and liquid of assets, of course, are equity market indices. Naturally, therefore, one would expect to see a very good link, over time, between them and surprise indices, whether up or down. This is what our analysis demonstrates has plenty of validity in different countries over different time periods.

Surprise indices can be created for different countries, regions and any category of economic data that are being released. We look at some, but not all, of this diversity in this analysis.

Impact on Financial Markets

Surprise indices can be based on subsets of economic data issued weekly, monthly or quarterly. The list of subsets includes inflation, growth, industrial activity, retail sales indicators and surveys. Economic surprise indices are available for both countries and economic areas, such as the Eurozone or the BRIC economies (Brazil, Russia, India and China). The aim and the design remain the same. Taking a broad view across these indices demonstrates that this simple explanation of how forecast and actual data correlate holds true.

In an 'efficient' market where 'news' is generally known or anticipated by market participants, there is little market reaction to new information. That 'news' should already be 'priced in', in other words, taken into account in the decisions about what to buy or sell.

It is when there are shocks or volatility that the data surprise effect occurs – where a particular number or set of numbers changes perceptions – and has the greatest impact on financial markets.

Tracking the Markets

Looking at the charts in Figures I.1–I.9, you will see that surprise indices do indeed track the direction of equity markets. This is to be expected, as equity markets are composed of companies whose profits and dividend payments are closely linked to what happens in the economy. However, the links are not always straightforward, as equity markets often lead the economy. In other words, the shares of companies themselves are lead indicators of general trends in the wider economy, often moving before the economy shows a reaction to emerging trends.

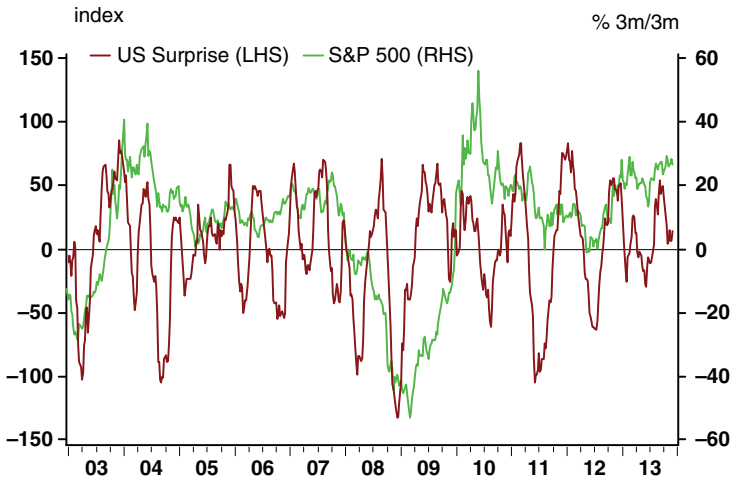

Figure I.1 US data surprise vs US equities.
Source: Haver Analytics.

Insofar as equity markets track the economy, therefore, one might expect surprise indices to be coincident, or at least in line with, the equity markets rather than leading them.

In the case of the US, if we look at Figure I.1, we can see that the surprise index moves closer to its domestic equity market index after the financial crash than before it. Before the crash, the links were not, in fact, that great (and the same trend seems to apply to the other countries we look at in the charts that follow). This seems to suggest that equity markets paid less heed to economic trends during the boom years (as the pace of economic growth negated the need to consider the direction of the economic surprise), in the run-up to the financial crash of 2007/08.

However, after the crash the connection between surprise indices and economic indicators seems to be much stronger. Did the economic data flow start to suggest a slowing economy before the equity market collapse? The answer is broadly in the affirmative. And once the downturn started, the surprise index tracked it very well indeed. This may well have been because market participants started to pay much more attention to the economic news than they did when they were showing nothing but buoyant economic trends.

Japan's economic surprise index seems to be the one that is most distinct from its domestic equity market performance (see Figure I.2).

However, for all the economies analysed here, what is most striking is that the G10 economic surprise index, which is a weighted average of

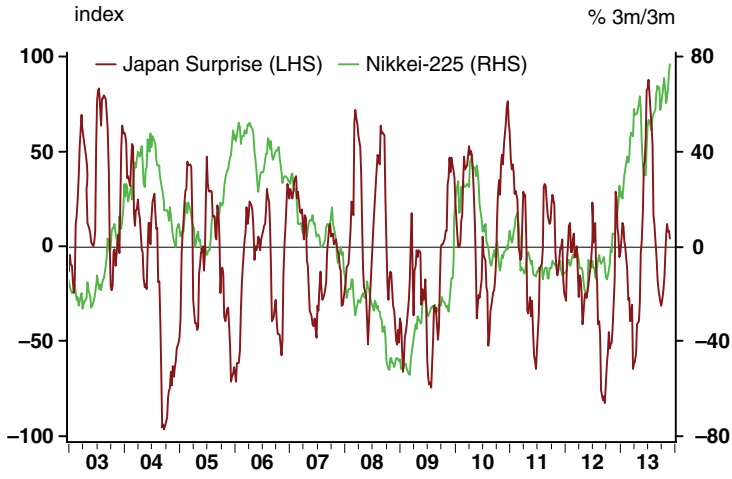

Figure I.2 Japanese data surprise vs Japanese equities.
Source: Haver Analytics.

all the countries in the so-called Group of 10,[1] is actually a better guide to domestic equity market trends than the surprise indices based solely on domestic economic indicators (see Figures I.3–I.5).

This may be a result of the increasingly interlinked nature of these economies and the fact that equity markets, and hence companies, are so global in their operations that it makes more sense to track an amalgam of the G10 economic data surprise, and then track that to domestic equity markets, than to focus on individual country data classes. It is also reflecting the massive shift in cross-national share ownership, which we have seen in the last decade or so. In the UK, for instance, foreigners own a greater share of UK firms than domestic owners, but the latter also own more shares abroad.

What might be surprising is that this is even true of an emerging economy such as China (although perhaps it is not so surprising if we consider how exports to the advanced economies have driven its expansion and the number of G10 firms that are located there). The G10 economic surprise index explains the direction of the Chinese equity markets much better than its own economic surprise index (see Figures I.6 and I.7).

[1] This includes Belgium, Canada, France, Germany, Italy, Japan, Netherlands, Sweden, Switzerland, the UK and the USA.

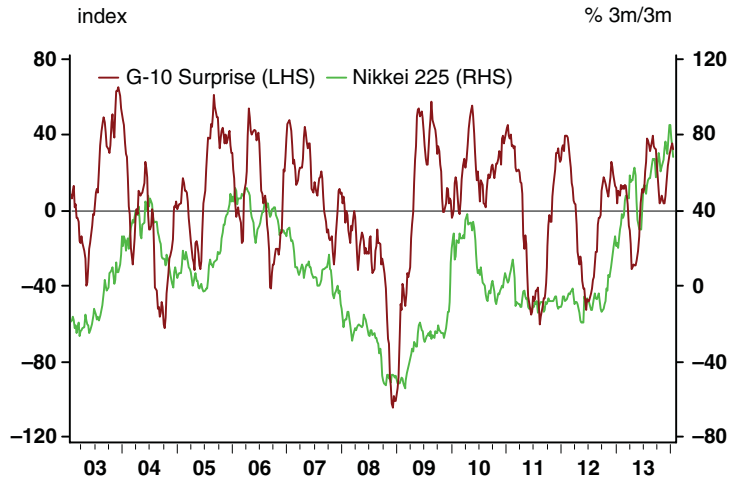

Figure I.3 G10 data surprise vs Japanese equities.
Source: Haver Analytics.

Tracking Inflation

As for the US inflation surprise, the relationship between this and US treasury yields and break-even rates is not entirely convincing, particularly compared with the economic indices we have considered (see

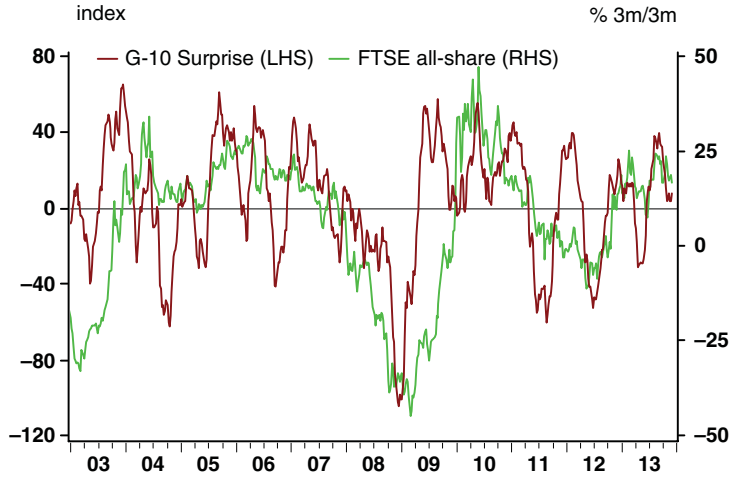

Figure I.4 G10 data surprise vs UK equities.
Source: Haver Analytics.

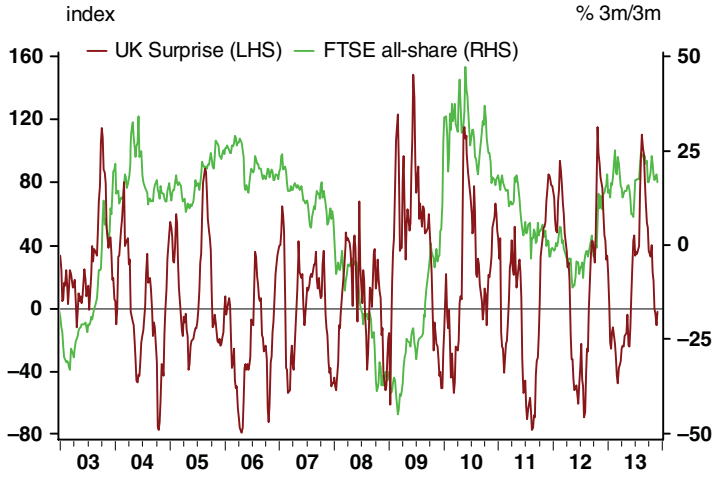

Figure I.5 UK data surprise vs UK equities.
Source: Haver Analytics.

Figures I.8 and I.9). However, it remains a good guide to trends in the US fixed income market (remember that when returns or yield are fixed in nominal terms, a rise in price inflation is reflected immediately in a drop in returns). The index works less well in forward markets for inflation, but still cannot be ignored.

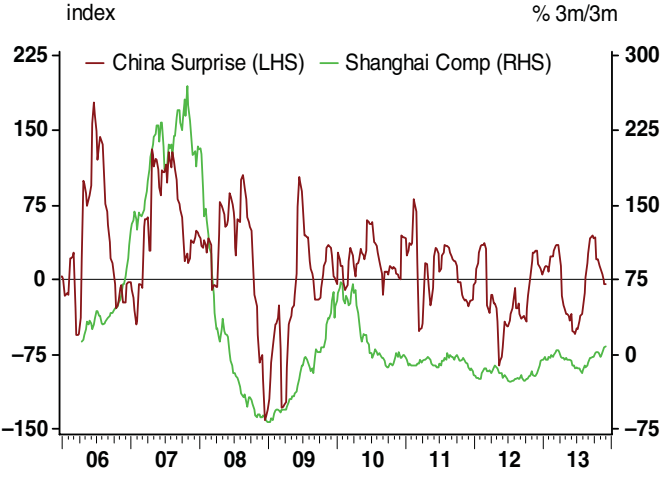

Figure I.6 Chinese data surprise vs Chinese equities.
Source: Haver Analytics.

Figure I.7 G10 data surprise vs Chinese equities.
Source: Haver Analytics.

What the surprise indices do tell us is that economic data matter – and they matter a lot – especially at turning points and when trends are not just pointing in one direction, i.e. upwards, or, in other words, in pretty much the economic conditions we currently face. Understanding trends in economic indicators, what they mean and how they should be

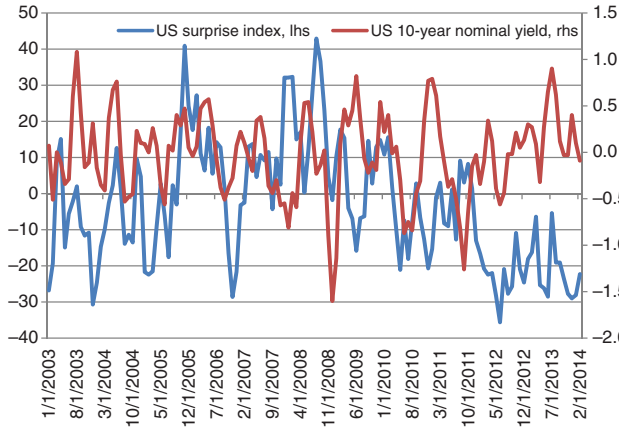

Figure I.8 US inflation surprise vs 10-year nominal yields.
Source: Thomson Datastream.

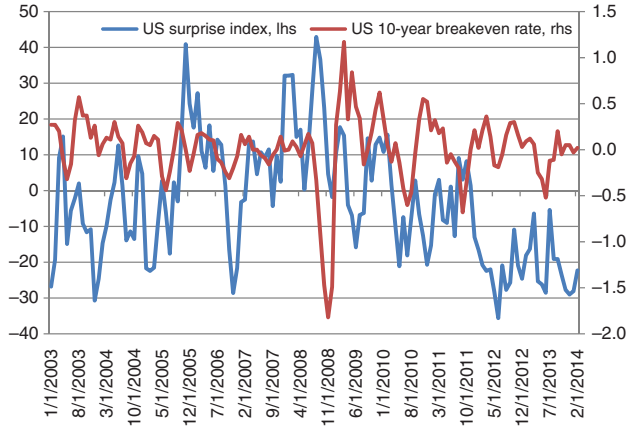

Figure I.9 US inflation surprise vs 10-year break-even rate.
Source: Thomson Datastream.

interpreted, can add value to trading and investment decisions, especially when economies are at a turning point.

MAPPING A NEW LANDSCAPE

Economists still find themselves experiencing the after-effects of an unprecedented financial crisis of a magnitude that has not been seen for almost a century. Following 16 years of uninterrupted growth, the UK faltered abruptly in the second quarter of 2008 (Q2 2008) and has since witnessed a recession. The 'great recession' saw the US encounter one of its biggest ever recessions; the Eurozone had long, deep bailouts with social unrest and remains in very difficult long-term decline, and Japan has suffered a recession and a worsening fiscal problem as its population ages.

The shocks felt by the world's economic giants have provided fresh opportunities for emergent economies, which have continued to expand despite the fractured economic landscape faced by the advanced economies. We are seeing the rise of alternative financial centres as the economic balance of power shifts from west to east.

These 'big picture' or longer-term macro trends are leading to rapid and unprecedented change. As new technology shrinks the world and real-time information becomes ever more the expected norm, financial markets are becoming increasingly transparent but also potentially more

volatile. Investment decisions are instantly reflected in market trends and the outcome is intense market risk.

With many of these investment decisions made on a data-driven, statistics-led basis, as well as economic and market data reflecting unfolding news to a far greater extent than was the case even just 10 years ago, there is an urgent need to understand what is happening and the opportunities afforded by it – and not just to understand them in isolation, but to be able to view what different interpretations can mean for returns from investable assets.

In the face of this volatility, increasing globalisation and transparency, this guide will support readers through the economic and market storms, arming you with the knowledge and ability to understand how financial statistics work in this new economic landscape and how you, your business or your client can profit from them.

In the following chapters we will be analysing a whole range of economic data, including surveys, inflation, labour markets, monetary statistics, fiscal indicators and global trade trends. Our comments will be mostly about the UK economy and markets. However, financial markets and economies are global and so the comments will span that bridge where necessary, illustrating general points about the economic impact of economic indicators on financial markets, and show that, wherever you are in this globalised world, you cannot avoid them but you can take advantage of them.

In addition, we will be considering the significance of the modern economy in terms of how it works to meet human needs and wants in society.

1

Surveys

> . . . our decisions to do something positive . . . can only be taken as a result of animal spirits – a spontaneous urge to action rather than inaction, and not as the outcome of a weighted average of quantitative benefits multiplied by quantitative probabilities.
>
> John Maynard Keynes[1]

What Keynes encapsulates in his phrase 'animal spirits' is the essence of motivation driving human action. Although a basic tenet of neo-classical economic theory is that human beings are rational and that they evaluate options in a logical and self-interested manner, studies of behavioural economics have since emerged to demonstrate that, in fact, human beings can be very irrational for a very long time under certain circumstances.[2] We can be perverse.

Surveys help to capture the idiosyncrasies of our behavioural traits that lead to outcomes you would not necessarily expect under 'normal' circumstances. They provide us with a timely snapshot of sentiment and opinion, and the perception is that this sentiment and opinion lead to real world events. They are related to the concept that the 'animal spirits' of humans drive financial markets.

Let us take an example: human beings often behave essentially like herd animals. This can be likened to the so-called 'network effect', where you moderate your actions and responses according to those of your neighbour or someone whom you respect, admire and listen to (i.e. act as they act and, to a certain extent, do as they do). This, then, has an influence on actions that lead to real outcomes. In other words, the actions of people can be linked to human instinct and so have an impact. If we believe that something is going to happen, it makes it more likely to happen. It's the classic self-fulfilling prophecy, or 'placebo' effect. There is even evidence that the latter has 'real' effects.

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[1] Keynes, John Maynard, *The General Theory of Employment, Interest and Money* (1936).

[2] Frey, Bruno S. and Benz, Matthias, *From Imperialism to Inspiration: A Survey of Economics and Psychology* (May 2002). Zurich IEER Working Paper No. 118. Available at SSRN: http://ssrn.com/abstract=316681 or http://dx.doi.org/10.2139/ssrn.316681.

However, it is important to remember that surveys don't measure activity directly; theirs is an indirect role. They may, of course, have a link to an activity, but they are not as representative as the activity itself. That means they are not as powerful in measuring actions and outcomes as actual activity indices. Instead, what they are most useful for is alerting us to how activities are likely to change.

A study carried out by the Bank of England demonstrated this.[3] It stated that, although surveys are very important, they are actually not important in or of themselves. Surveys don't move markets – it is what they may say about a forthcoming economic indicator that does that. They can tell us about sentiment surrounding forthcoming indicators, but, in themselves, they don't embody the impact. Ultimately, therefore, it is the indicators they are trying to predict that have the real effect.

Having said that, surveys still have a valuable role in understanding and interpreting economic data. By capturing perceptions, they have an intrinsic value and they achieve this across a variety of agents that operate in an economy: consumers, households and businesses. They can also be complementary, giving a sense of the direction of travel of data or of their turning points.

SURVEYS AND BEHAVIOURAL ECONOMICS

Where surveys are particularly important is in the role they play in the growing area of behavioural economics. Here, for example, the limitations of traditional 'logical' or 'rational' economics are tested and the so-called 'bounded rationality' concept of human behaviour emerges.

This school of thought shows that there are anomalies in the traditional account of human need for goods and services to satisfy their demand. These anomalies take the form of:

- Adhering to social norms
- The importance of maintaining self-image
- The availability or desirability of goods
- Altruism
- Making us happy.

What this means is that, according to neo-classical general economic theory, if the price of a particular good increases, demand for that good falls. Where the anomalies come into play, of course, is when, despite

[3] Cunningham, Alistair, *Quantifying Survey Data* (Bank of England, 1997).

the price of a particular good increasing, humans will still purchase it, because it is important to their self-image, because there is pressure from someone else within their social group (i.e. the children demand it) or simply because it makes them 'happy' or feel good. There will at some point be a time when the price rise may become wholly prohibitive, but until that time is reached, demand for that good will be maintained.

These may appear, at first glance, rather trivial observations, but these are the motivations that drive human behaviour and that are the essence of economic activity.

TYPES OF SURVEY

There is a plethora of surveys available:

- Consumer surveys – demonstrating what people are intending to spend money on, decisions about where to shop and when.
- Household surveys – showing employment prospects, inflation or interest rate fears.
- Business surveys – indicating investment or spending intentions, decisions that drive output or employment, supply side information.
- Market surveys – focusing on market sentiment that can be broken down across industry or sector.
- Government surveys – which look at the intentions of government and the impact of their activity.

In this chapter, we will focus on those surveys considered to drive markets and to have a discernible economic impact across business and consumers. We will look at what these surveys tell us and what they don't tell us, how they can be interpreted and how you can extract value from them to support your trading decisions.

BUSINESS SURVEYS

Purchasing Managers' Index (PMI)

This is a monthly economic indicator based on surveys of private companies in sectors such as manufacturing, services and construction.

How It Works

The survey encompasses private companies that purchase inputs which lead to a respective output.

What Does It Include?

The survey includes various components:

- Pricing
- Outputs
- Exports
- Domestic orders
- Production.

What Does It Tell Us?

The surveys tell us a number of things based on the demand for goods or services. These include elements such as the amount of production that is exported, how domestic orders are moving and the impact of price changes. This can tell us if the balance of trade is going to improve, if the economy is going to grow and if price inflation is going to accelerate or decelerate. Because the PMI has a services, production and construction element, together they give a snapshot of the whole economy. The weighting of these three components together tells us whether the economy is weak or strong and whether this is down to construction or manufacturing at the moment. The services PMI is either closer to, or further above, the 2008 peak than the other components.

What Does It Not Tell Us?

What the PMI does not tell us is what has actually happened. For that, we need the actual data. We do not 'know' that growth will pick up or that inflation will speed up or slow down. These will only be known after the fact, or *ex post*. That is when we really know what our response should have been, as opposed to what it was. Of course, if the survey was 'right' about the data, then there will be no difference in the reaction – it would simply have been early, because of the survey. In such a case, the release of the actual data might not elicit much financial market reaction, as this would already have occurred with the release of the survey.

How Can We Extract Value from This?

While we may not know, we can still take bets on whether the data are right or wrong, and decide whether they can be ignored if the signal is big enough and the survey has a good historical track record. That in itself is a signal of whether an investor's bet is on the right track. It might indicate a new trend that, if followed, could be lucrative – for

example, if it anticipates a change in data that is important, either to the exchange rate, to fixed income securities or to the equity markets, if it is based on faster economic growth and so, by implication, better corporate earnings. The PMI split between manufacturing, services and construction can allow users who want to weight the prospects for different firms in these sectors, much in the same way as is implied by their relative performance from the PMI indices, to be able to do so. This could help streamline portfolios.

Let us take an example from 2013: the manufacturing PMI for February was released as usual on the first working day of the month. (The services survey is released two working days later.) That was 1 March. The survey came in much weaker than expected and so 'shocked' the market. What does this mean? The consensus of forecasts for the PMI, as collated by Bloomberg, was for a rise to 52.8 (for February 2013) from the then current value of 51.5 (for January 2013), which is indicative of rising manufacturing activity and so, by implication, faster economic growth. Any reading in the index above 50 is taken as expansionary for manufacturing and any reading below 50 is taken as contractionary.

In the event, the figure fell sharply to 47.9. This meant it had moved from expansionary to contractionary – rather than further into expansionary territory – in one very big move. This called into question the economic recovery and raised fears that the UK economy could undergo a 'triple dip' recession, as output had fallen by 0.3 per cent in Q4 2012. That is to say, two consecutive quarters of negative growth for the third time since 2008, including the deep recession of 2009.

As a result, there were sharp declines in prices across a range of financial markets (see Figures 1.1–1.4). It could be argued that, in the context of a tight fiscal stance and the limited room for manoeuvre the government has in the face of rising debt, weaker growth over a longer period of time and the need for a weaker currency to help exports, this equates to the need for a looser policy from the monetary authorities, which would have seen financial markets potentially rising instead of falling.

What was interesting in this example is that the actual data for manufacturing output did turn out to be poor, vindicating those who reacted to the survey evidence. Remember that one of the disadvantages of survey data is that they are an early guide to what may happen but they are not foolproof. The disadvantage is that they could be wrong and expose those who take the straightforward message to a loss position if they take bets on how markets will react to the data, as the truth can clearly turn out to be different from the opinions embodied in the surveys, and markets can also act perversely.

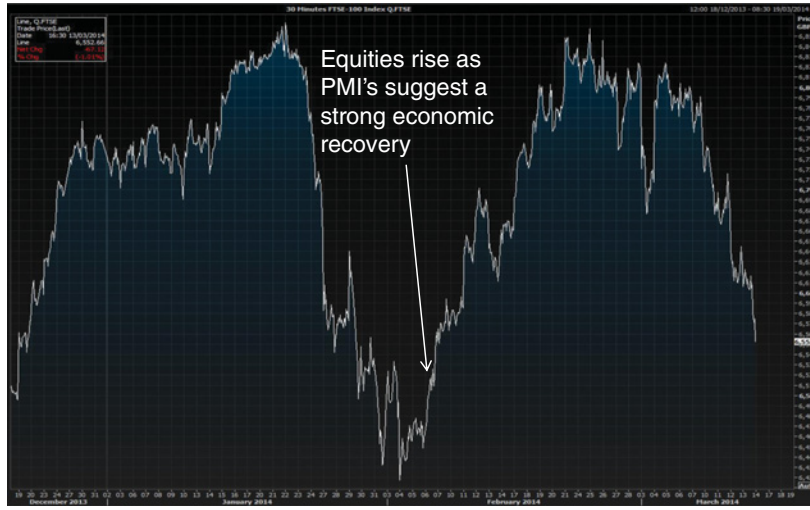

Figure 1.1 UK equity prices rise as PMI's suggest a strong economic recovery is underway.
Source: Thomson Datastream.

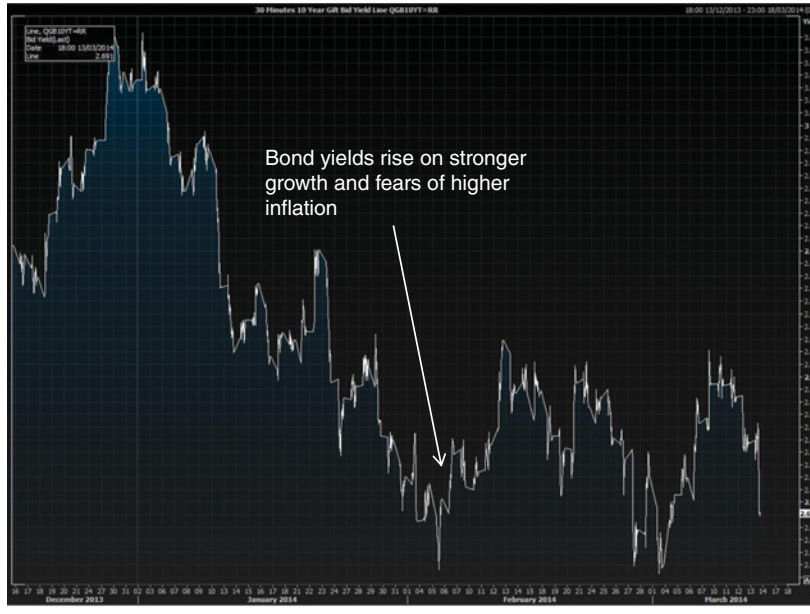

Figure 1.2 Bond yields rise as PMI's suggest a strong economic recovery is underway.
Source: Thomson Datastream.

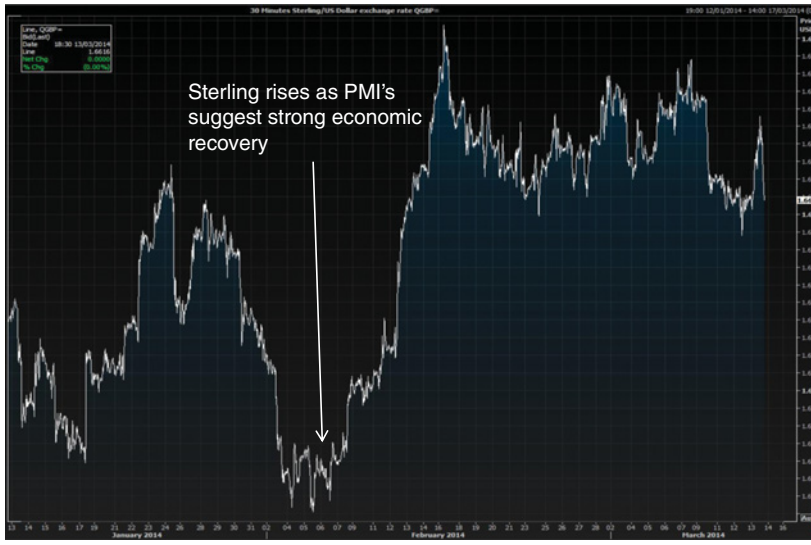

Figure 1.3 Sterling rises vs US$ as PMI's suggest a strong economic recovery is underway.
Source: Thomson Datastream.

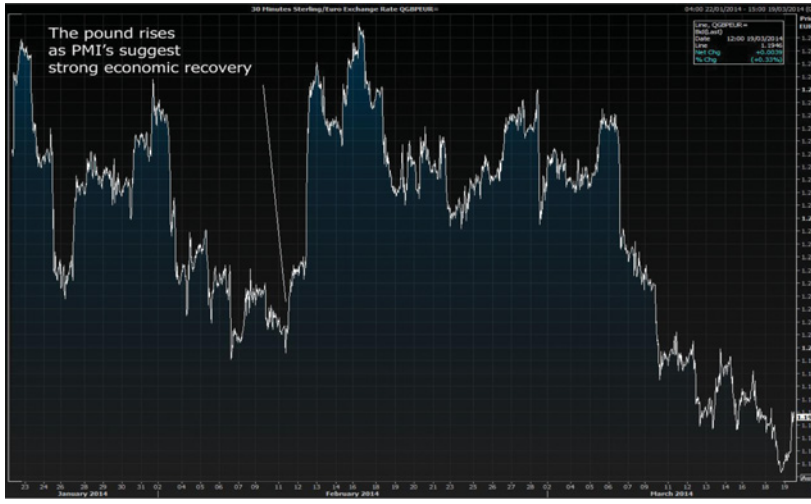

Figure 1.4 Sterling rises vs euro as market thinks interest rates may rise as growth picks up.
Source: Thomson Datastream.