



KERNOW
ASSET MANAGEMENT

The Kernow Journal

The Alternative UK Equity Market View

Kernow Contemplations

UK Short-Interest: A Long and Short
Indicator of Security Performance

Seven Lessons from Interviewing
Management

Visual Elegance

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CONTENTS

Note From the Editor	5
Kernow Contemplations	8
The Kernow Valuation Framework	14
Research Spotlight	20
UK Short-Interest: A Long and Short Indicator of Security Performance	
Seven Lessons from Interviewing Management	26
Visual Elegance	28

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A note from THE EDITOR

Welcome to the second edition of the Kernow Journal – the notoriously tricky sequel!

This publication shares some of the fascinating avenues of enquiry through which we travel during our day-to-day work.



Since our first edition, relentless economic turbulence has significantly impacted financial markets. This has caused us to reflect on the nature of being an investor and revisit some of the core tenets of our investment process.

Investors must maintain an informational edge along with liquidity provisions to capitalise on market inefficiency sustainably. Put another way – they must know more and act faster on their knowledge than other market participants. In such times, we benefit considerably from our distance from the ‘noise’ of the City, where calm objectivity can be easily overwhelmed by hype.

By way of introduction, my name is Dr Michael Cook, and my background

differs from a typical analyst within a fundamental investment team. My speciality is using mathematical models and computational methods to tell stories with data.

We aim to differentiate our research process at Kernow by bringing specialists with diverse perspectives, drawing from multiple disciplines. We access rich seams of insight by combining deep fundamental analysis and rigorous quantitative analysis. Incorporating programmatic and analytical skillsets have also allowed us to automate many of our routine tasks, freeing us to focus more on research and development.

I am often asked about the day-to-day activities that take place at Kernow. Whilst it would be imprudent

to disclose the specific details of our processes, and no day is ever the same, we can share particular dogma that we aim to follow. One of these is to never rely on the status quo. We encourage each other to continually question our ideas and processes, sharing successes and failures.

We hope that by combining our diverse skill sets, we can ensure that the whole is significantly greater than the sum of the parts. One common denominator is that we all consider our work a craft – the combination of objective analysis and wise judgement honed over time.

craft

noun (UK /kra:ft/ US /kræft/)

“Skill and experience; a job or activity that needs skill and experience, or something produced using skill and experience.”

In this edition, we continue discussing the relative merits of company culture in our Kernow Contemplations. What does culture mean in the context of business? Is there such a thing as a good and bad culture? What traits should we be looking for in companies? This also has led us to think about cultivating

innovation and how this can lead to the disruptive advancement of companies, products and services.

We elaborate on our use of the Kernow Valuation framework, highlighting interesting ways it can quantify the macroeconomic environment. In our Research Highlight, we focus on using short-interest data within our investable universe – showing how we can exploit this information to understand companies’ prevailing sentiment and build aggregate views about market segments.

As a special feature, we discuss more generally the rationale and approaches we take when in dialogue with company management – we have distilled this into Seven Lessons from Interviewing Management. Finally, we close this edition by discussing an overlooked visualisation that is potentially one of the most ambitious mapping projects ever undertaken.

I hope that you enjoy the sequel!



Dr Michael Cook
Head Of Data And Analytics



Kernow CONTEMPLATIONS

Is recent political and economic turmoil unprecedented, or does it just feel that way? Whilst these events have had significant and widespread implications, it is far too easy to be caught up in hysteria and risk making irrational judgements. Taking a breath and viewing events within their broader historical context allows us to consider whether a series of events are likely to have cyclical or secular effects on specific market properties. This is easier said than done, though!

Cognitive Biases


There are a multitude of cognitive biases that afflict humans, too many to enumerate here. Although behavioural economics originated in the 18th century, it is only relatively recently that the requisite scientific rigour has been applied to enable a robust understanding of the implications. In short, cognitive biases lead people to make decisions that differ from those that a purely rational decision-maker would make based on the information supplied.

In our research, we often consider whether we are being impacted by cognitive bias or whether our investment thesis attempts to capitalise from the collective bias of others. In general, we view these biases as an unavoidable part of investing – recognising these biases allows us to use their effects to our benefit.

By way of example, it is customary to think that recent events are somehow more extreme than those in the more distant past. However, this is rarely the

case. It is not surprising that our perception tends to be hyper-sensitive to recent news, given the prevalence of sensational journalism, our finite attention spans, and the nature of human memory. We may even speculate that this effect explains a certain amount of short-term fluctuations in security prices.

Studies on this form of recency bias have found it loosely related to the over and under-reaction of market participants to the news. Whilst research into the effects of this is

An aerial photograph of a large, powerful wave breaking over a reef. The wave is a massive wall of white water and foam, curling over. Numerous surfers are visible as small dark figures in the water, some waiting for the wave to break. The water is a deep blue-green color. The scene is captured from a high angle, looking down at the wave and the surfers.

**“It is not surprising that
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ongoing, it is an essential mechanism in the dynamics of markets and one which we are particularly focused on managing.

There are several other critical cognitive biases which investors face. *Confirmation bias* is the tendency to seek evidence to support prior beliefs, resulting in suboptimal decisions. *Hindsight bias* is the tendency to perceive events as being predictable

once they have taken place, which can manifest as overconfidence in investment decisions with various repercussions.

Cognitive biases do not just relate to qualitative decision-making but to data collection and processing. *Selection bias* relates to the use of non-randomised data when making statistical decisions. For example, if we asked company management to rank their

decision-making abilities, we would find a result skewed to show them in a more positive light than an objective evaluation would suggest.

Also, we notice significant levels of *response bias* in survey data. For example, when employees are asked to anonymously review their employers on a scale of 1-5, we typically find a distribution with peaks at the extremes. In historical

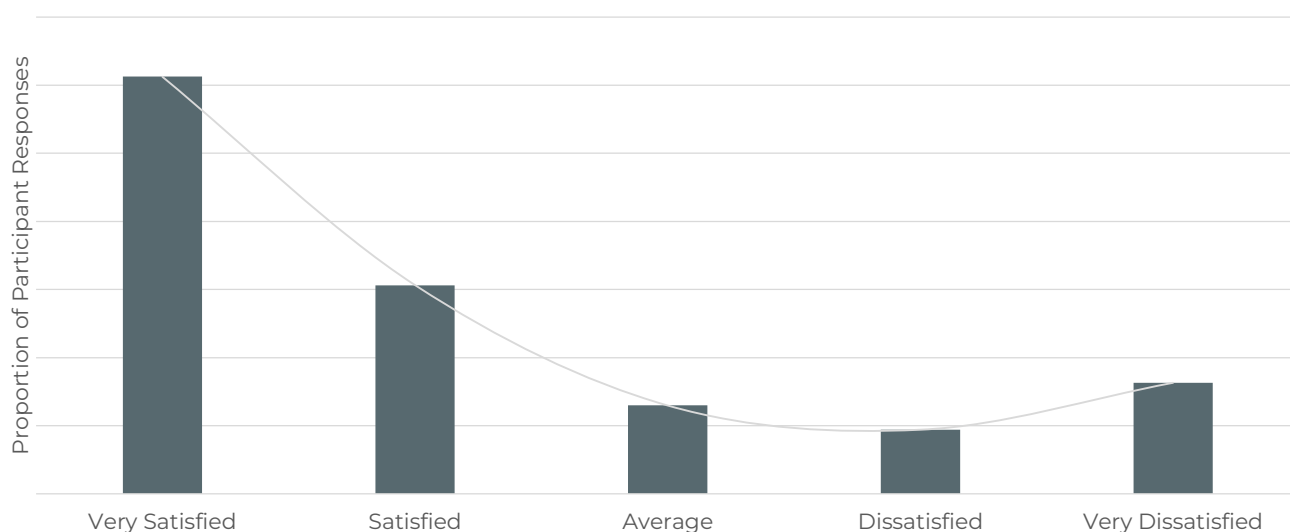


Figure 1: A tally of customer satisfaction scores of live chat data responses from Samsung's customer services department. Exhibiting the classic 'J-shaped' bimodal distribution with disproportionately positive ratings and disproportionately more responses in extreme scores. This is likely the manifestation of several biases and is a common distribution produced by survey results, including product reviews and employee satisfaction surveys. Data supplied from 'Park, Chan & Rhim, 'Positive Bias in Customer Satisfaction Ratings', March 2019.

analysis, *survivorship bias* and *lookahead bias* can plague results, often forming artificially favourable conclusions compared to unbiased ones.

Bias impacts qualitative decision-making as much as quantitative. Managing these biases is paramount and allows us to turn a hindrance into an advantage in several instances.

Company Culture

Another topic that we have animatedly debated recently is that of company culture. Organisational culture encompasses numerous intangible traits that, despite being difficult to measure, are highly impactful. Company leaders often evangelise their 'unique, positive culture' but rarely can pinpoint specific attributes, much less areas for improvement.

Company leaders tend to influence their organisations, establishing a corporate culture that reflects their personalities. As such, these companies often mirror certain

qualities of their senior management. Companies can continually improve their cultural understanding by conducting internal surveys and using several specific indicators (such as employee retention, satisfaction and feeling of worth). We also note that corporate culture is relatively fragile – it appears to take considerable time and discipline for a company to cultivate a strong, positive culture and only a few bad decisions to tarnish it.

In the past years, corporate governance has come under increasing scrutiny, alongside an increasing focus on socially responsible investing. As an investor, evaluating company culture is plagued with issues. Self-disclosure on these issues is often biased, and website employee reviews are prone to considerable manipulation and error (see Glassdoor). There are many competing approaches to quantifying corporate governance and company culture, none of which have yet to achieve market dominance.

We look for authenticity in an organisation on multiple levels – from the underlying business strategy to its senior managers and employees. We feel that a significant amount of work is yet to be undertaken in this area, and the pursuit of distilling culture into a small number of quantitative metrics is likely to be short-sighted. We doubt there will ever be a 'one size fits all' measure of culture, and its intangible nature will be the subject of debate for the foreseeable future. This is no bad thing, however, as it adds considerable dimensionality to evaluating companies and investing opportunities.

Given our strong appreciation of the impact of culture within the companies we invest in, we strive to channel a positive culture within our team. We aim to allow every team member to bring their true personality into our work in an environment that fosters creativity and open thought. We feel this is a crucial competitive advantage, and by remaining independent, we can ensure that we preserve our unique

Kernow CONTEMPLATIONS

qualities. We operate within a knowledge-based industry, and our people are our true edge.

Innovation & Disruption

As our discussions about company culture have developed, we have also considered the potential for positive company cultures to foster innovation. Another popular theme in many corporate disclosures is self-celebratory announcements of innovation. Cultivating an environment conducive to innovation is notoriously difficult. In recent years, companies have gone to great lengths to establish such settings, for example, by creating more playful workplaces and developing dedicated 'innovation teams', among many other initiatives.

For company management, this is an enticing notion: innovation that leads to developing new products, services or business lines is likely to be highly profitable. Yet innovation is not something which can be easily commoditised.

Companies may create a suitable environment, but the creative 'spark' usually cannot be prescribed. All too often, 'innovation' is a logical development from one idea to the next, often advanced by pre-existing technology.

We have seen that companies that appear to be more innovative (or at least operate in sectors associated with higher levels of innovation) have commanded a premium in recent years. Although this may be justifiable to some, an over-emphasis on this somewhat nebulous concept is dangerous.

The idea of innovation driving economic progress is not new. Joseph Schumpeter popularised the term 'creative destruction' in his 1942 book 'Capitalism, Socialism and Democracy' when describing how innovations in industrial processes drive positive change often by disrupting or destroying the previous status quo and replacing it with a better one. Schumpeter envisaged economic development as a constant cycle of these industrial mutations and

evolutions, much like an economic equivalent of Charles Darwin's survival of the fittest evolutionary concept.

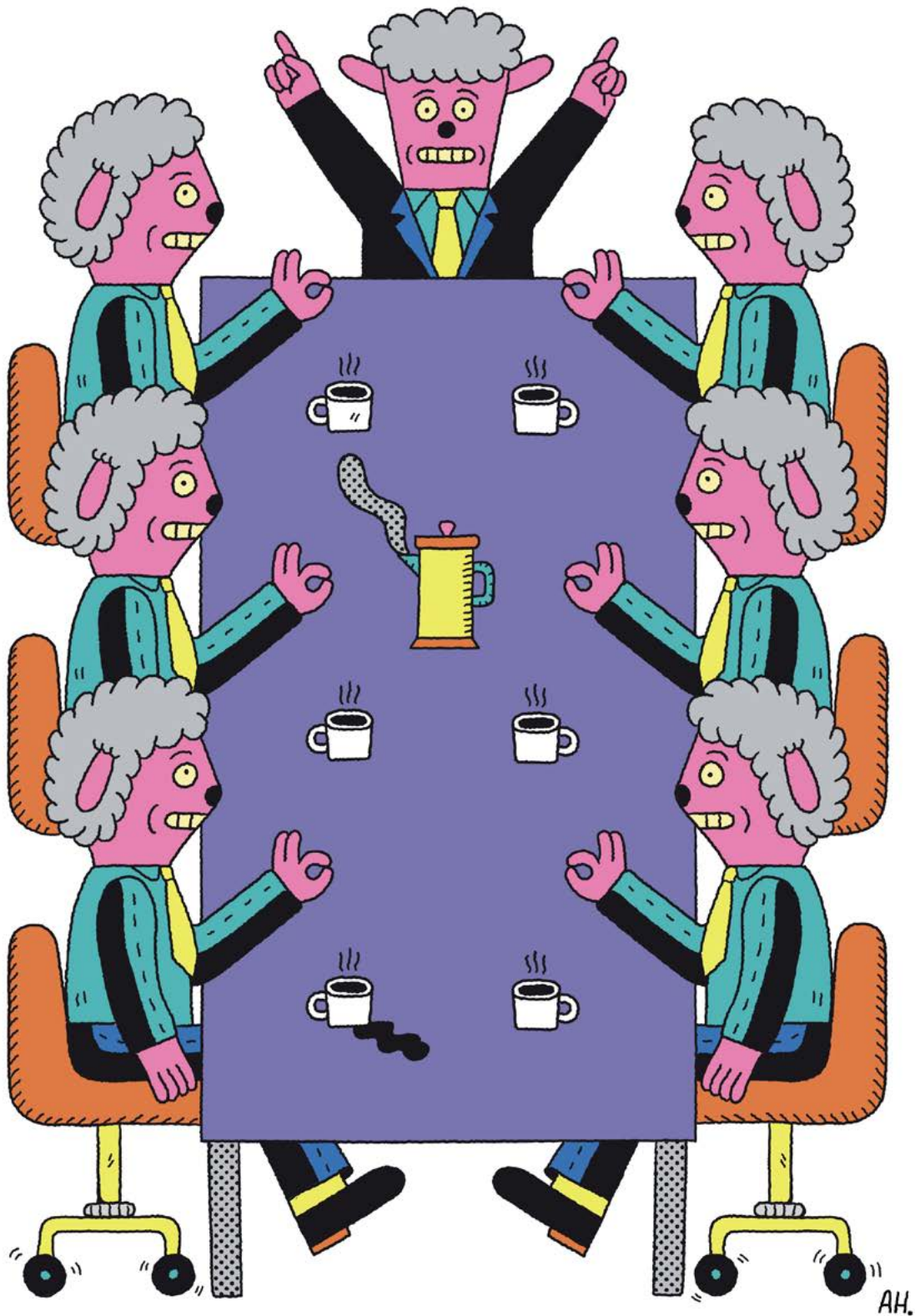
Whilst innovative thought may be revolutionary, it is often a simple evolution or refinement of existing ideas, products and technologies. It is almost impossible to prescribe and is notoriously difficult to achieve in practice. With this in mind, we consider there to be multiple levels of innovation.

"For good ideas and true innovation, you need human interaction, conflict, argument, debate."

Margaret Heffernan

We look for innovative solutions in both the companies we invest in and ways to enhance our internal processes. We often find that the 'spark' comes from unexpected sources and some of our highest conviction investment ideas come from a respectful argument and robust debate.

*'WE MUST INNOVATE, PIONEER,
FORGE A UNIQUE NEW PATH
- JUST LIKE OUR COMPETITORS ARE DOING!'*



The Kernow VALUATION FRAMEWORK

In this section, we continue our discussion of the Kernow Valuation Framework (KVF). We have expanded on our contribution in the previous edition of the journal, which introduced the framework and outlined some properties of the valuation premia within FTSE All Share index constituents. In this edition, we focus more on the time evolution of the index and how this relates to our portfolio.

Time Evolution of FTSE All Share Constituents

A valuable feature of the KVF is that we can calculate the intrinsic company value and, therefore, our expected premia historically. By ensuring that data is chronologically accurate and robust in the computation, we can see both the level and trajectory of valuations for individual companies and higher-level aggregations at a given point in time.

Valuation models often have systematic biases, indicating that particular market segments have structural mispricing. In light of this tendency, we apply a rolling standardisation to improve

our calculations' accuracy. Although this reduces expected premia, we argue that this yields a more realistic output.

In the figure opposite, we show the results of this construct across the FTSE All Share constituents. The top panel shows the distribution of our expected premia through time. Historically, we observe a relatively broad dispersion in expected premia, with modest out-performance expected in aggregate in the pre-Covid period, a jump in expected premia as the markets collapsed during the pandemic and a slow increase in expected premia in more recent months. In addition to the aggregate picture, we notice the spread in premia is relatively

pronounced throughout the whole period; top-decile companies have periods when their premia are well over 100%, whilst the bottom-decile companies always have negative premia.

The bottom two panels show the relative aggregate premia achieved by partitioning the FTSE All Share universe into capitalisation tranches and sectors. For capitalisation, we see that the highest premia presently is expected from the lower capitalisation securities. However, this does vary significantly over time.

There is a mixed picture at the sector level, with relative valuation premia jostling for position. At present, we

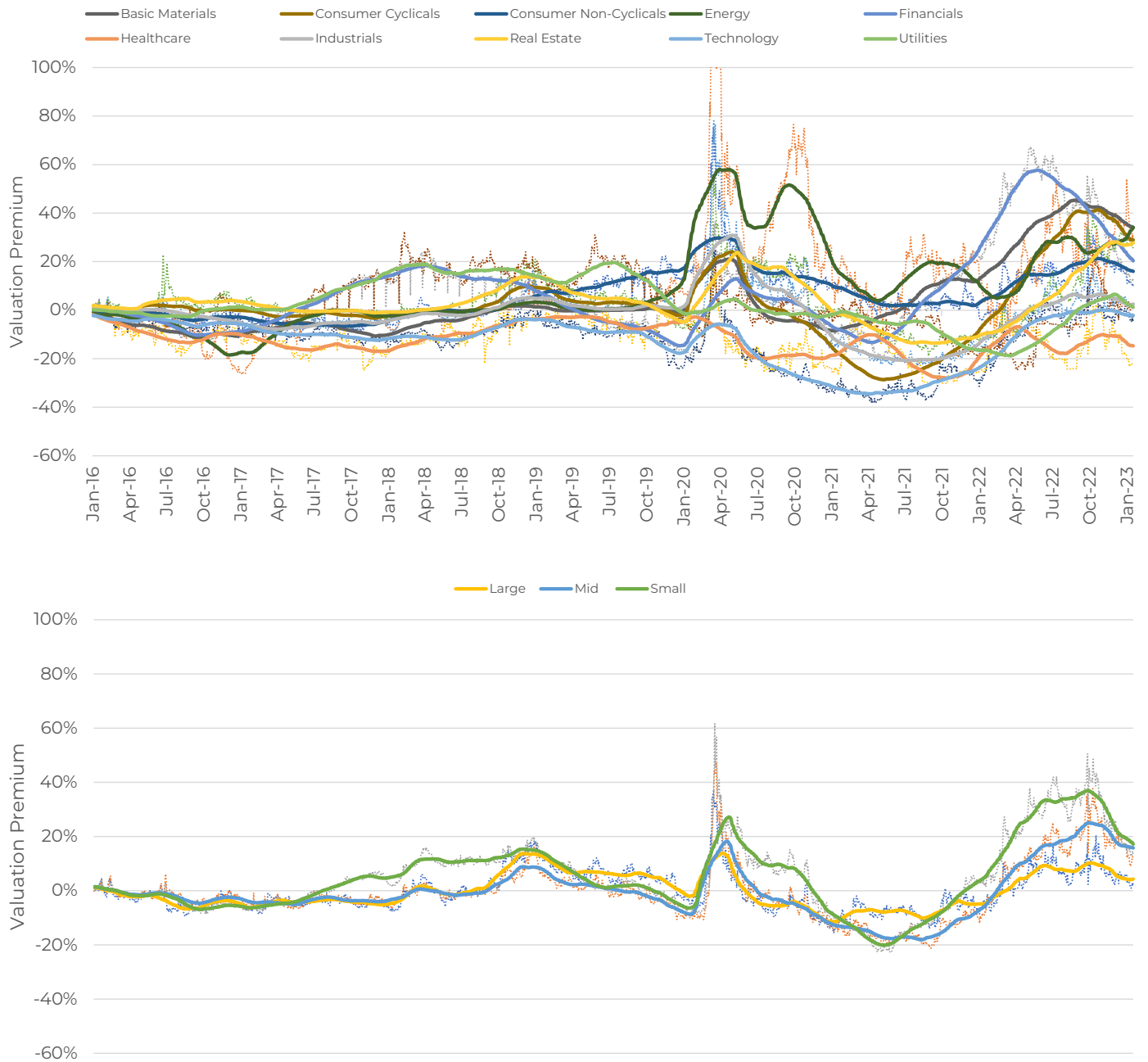


Figure 2: The evolution of the Kernow Valuation Premium. The top panel shows the decile distribution showing the evolution of the premium through recent years for constituents of the FTSE All Share Index. The median valuation premia partitioned by capitalisation (middle panel and sector (bottom panel), showing the relative mispricing of each market segment historically. Notice the significant dislocation during the Covid crisis and the current situation where the market is generally considerably undervalued, presenting a significant opportunity.



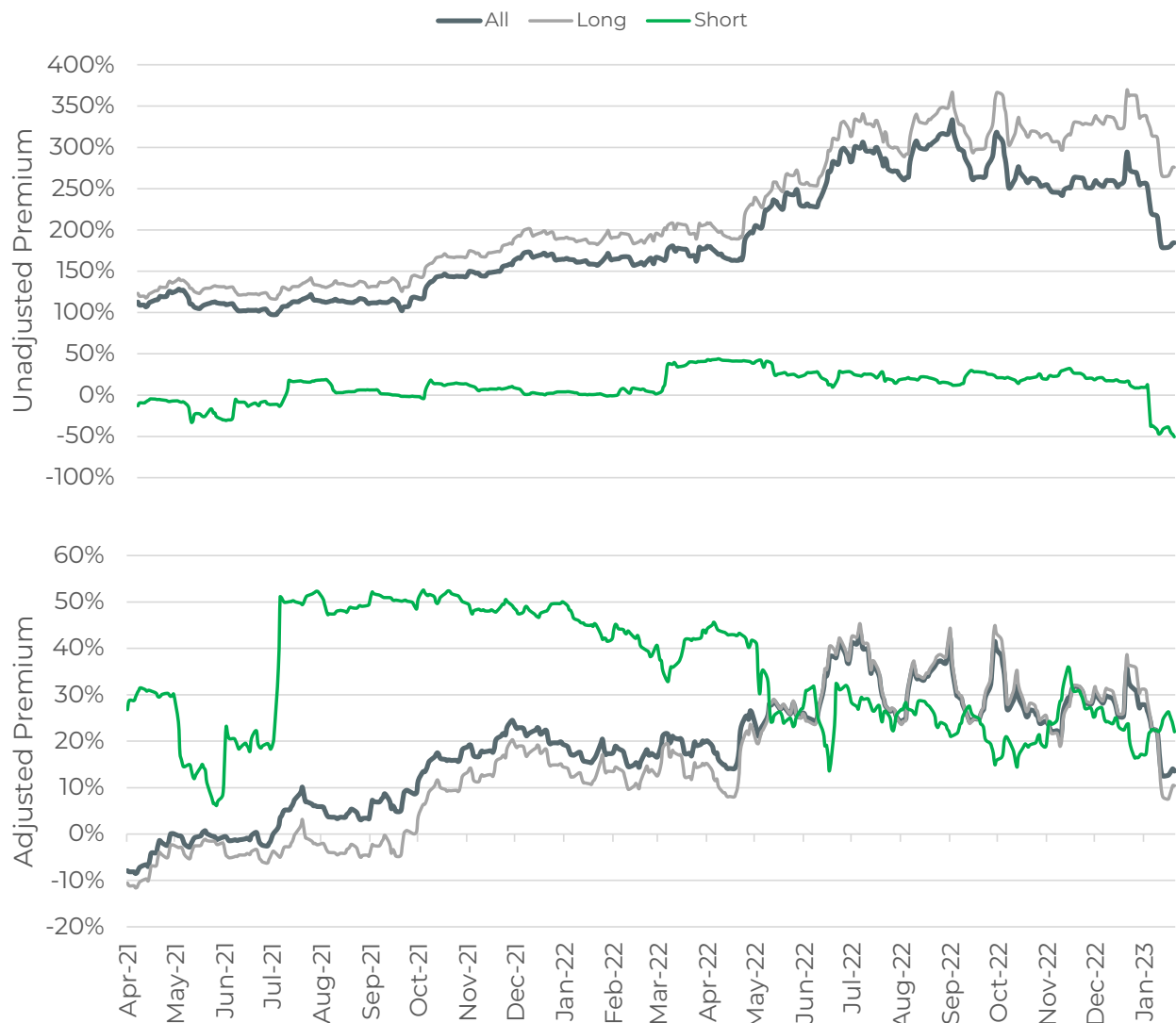


Figure 3: The average premium of portfolio holdings, partitioned by long and short positions, the faint lines indicating the simple average and the bold lines showing the allocation-weighted average. The top panel shows the original premia, and the bottom panel shows the adjusted premia.

find that almost all sectors have a positive average premium, except for utilities and technology companies. These aggregate views are often valuable to complement our bottom-up investment process by showing higher-order effects that are likely to yield tail and headwinds.

Finally, we note that our valuation model is intentionally scaled to remove biases and as such, goes some way to mitigating value traps. However, we should note that the valuation model is often the starting point for us to delve deeper into potential investments. We

build further conviction by ensuring each position has a suitable narrative script and a catalyst that we monitor throughout the trade.

Portfolio Premia

Another important use case for our valuation framework is to evaluate the potential

The Kernow VALUATION FRAMEWORK

Instrument Code	Sector	Market Cap (£m)	Portfolio Weight	Premium	Adjusted Premium
KI_92703	Financials	211	9.7%	543%	158%
KI_11025	Financials	218	9.4%	375%	109%
KI_13756	Financials	760	7.1%	35%	10%
KI_71001	Financials	3,893	7.0%	35%	10%
KI_14455	Financials	677	6.8%	105%	30%
KI_43392	Energy	567	6.5%	40%	7%
KI_4291	Consumer Cyclicals	3,653	5.7%	123%	41%
KI_77513	Industrials	177	5.7%	340%	146%
KI_84555	Energy	719	4.6%	642%	110%
KI_44023	Basic Materials	1,337	4.3%	212%	64%
KI_16694	Consumer Cyclicals	4,527	4.0%	179%	59%
KI_6552	Consumer Non-Cyclicals	69,793	3.9%	309%	75%
KI_37930	Basic Materials	1,023	3.9%	576%	174%
KI_91649	Consumer Non-Cyclicals	252	3.4%	68%	16%
KI_27164	Financials	12,327	3.3%	303%	88%
KI_15947	Energy	2,629	2.8%	763%	130%
KI_85643	Energy	719	2.4%	366%	62%
KI_65108	Consumer Cyclicals	195	1.8%	40%	13%
KI_20619	Basic Materials	164	1.7%	392%	118%
KI_88133	Financials	139	0.5%	101%	46%
KI_33180	Technology	5,406	-0.5%	-9%	-5%
KI_96809	Technology	723	-0.6%	29%	17%
KI_86193	Consumer Cyclicals	2,282	-0.7%	18%	6%
KI_65111	Consumer Cyclicals	1,798	-0.8%	-100%	-49%
KI_46014	Technology	694	-0.9%	-99%	-58%
KI_69793	Consumer Cyclicals	1,260	-0.9%	36%	12%
KI_18153	Consumer Cyclicals	587	-1.3%	-100%	-64%
KI_62722	Energy	151	-1.4%	-96%	-16%
KI_72296	Industrials	534	-1.6%	-93%	-40%
KI_3441	Healthcare	413	-2.0%	-96%	-66%
KI_77401	Technology	430	-2.0%	-100%	-61%
KI_16298	Industrials	885	-2.3%	-100%	-51%
KI_27892	Basic Materials	401	-2.3%	-3%	-1%
KI_53813	Industrials	1,491	-2.7%	50%	21%
KI_36969	Industrials	2,394	-2.9%	-25%	0%
KI_64882	Healthcare	2,056	-2.9%	-95%	-65%
KI_49239	Consumer Cyclicals	1,462	-3.5%	-61%	-20%
KI_18041	Healthcare	5,032	-3.5%	31.0%	21.3%
KI_11087	Consumer Cyclicals	5,846	-3.5%	-64.6%	-21.4%

Figure 4: The breakdown of current premia by security holdings, showing the adjusted and unadjusted premia. The table is ordered by portfolio weight descending and highlights the overall spread of expected valuation premia within the current portfolio.

upside across our current holdings and, in aggregate, for our portfolio. We can see how our expected premium evolves through time by computing a sum-product of the security level premia and the portfolio weights. For illustration, the figure below shows the average premium associated with the long, short and overall portfolio.

The top panel shows the unadjusted premium – we take the raw output from our valuation model and compute the allocation-weighted average of the security premia. With this, the resulting premium evolves due to changes in portfolio composition, changes in the market that impact the security capitalisation, and changes in the output of the intrinsic valuation model.

We show the simple (equal-weighted) average as faint lines for comparison purposes. We notice that the average premium using the allocation-weighted approach is marginally higher than using equal weights for the portfolio (blue line), indicating that our allocation framework prefers the securities with a higher premium.

In general, we find that across the recent 18-month period, the expected premium has been steadily increasing. This has been driven significantly by the market drawdown, which naturally yields increased premia as companies become cheaper (price down, yield up). We see that the premium on the short side remains somewhat muted. This is because our short-selection process does not explicitly use valuation premia but a greater focus on accounting inaccuracies, corporate red flags or challenged business models and a story that has an ending.

The bottom panel in the figure shows the adjusted model, which yields a different picture. We see positive premia expectations on both the long and short sides of the portfolio, although this is more pronounced on the short side.

This effect comes from the de-biasing transformation (which generally involves downward adjustments of intrinsic valuations), so short positions are likely to see an uptick in their expected premia and vice-versa on the long holdings. As with

the unadjusted valuations, we notice a steady increase in the overall portfolio level premium, but as discussed previously, this is more muted than the raw model output.

Combined with our ongoing monitoring of catalysts, we expect that the valuation premia represented in the underlying holdings of our portfolio should be realised over time. Using this framework, we can evaluate the general expectations of our portfolio as the economic environment evolves. It is, therefore, a powerful tool for us to monitor & target exposures and manage risk.

Finally, we also monitor the evolution of the individual securities within our portfolio. Figure 4 shows a recent snapshot, which shows the premium, adjusted and unadjusted, for each security in the portfolio. Monitoring this, along with our levels of conviction through our catalyst tracking process, allows us to apply our investment process continually.

UK Short-Interest: A Long and Short Indicator of Security Performance

The Kernow team have some hard-won conventional wisdom views concerning shorting. We decided to find out about one of the main aspects statistically. Namely, what impact does short-interest have on security performance, if any?

Short-selling is a trading strategy commonly used by experienced traders who use information to buy and sell shares, hoping the price will depreciate at a later date. Shorting involves borrowing shares and selling them on the open market. Investors then purchase the same shares later and pay off the loan for the original purchase, keeping the profits for themselves.

A significant amount of shorting activity is attributed to banks and insurance companies looking to hedge specific risks. More sophisticated investors also look to hold


short positions as part of their strategy to capitalise on both upward and downward price action in securities. Historically, analysing potential short-candidates has exposed significant frauds, limiting their eventual impact on the broader investment community.

Background

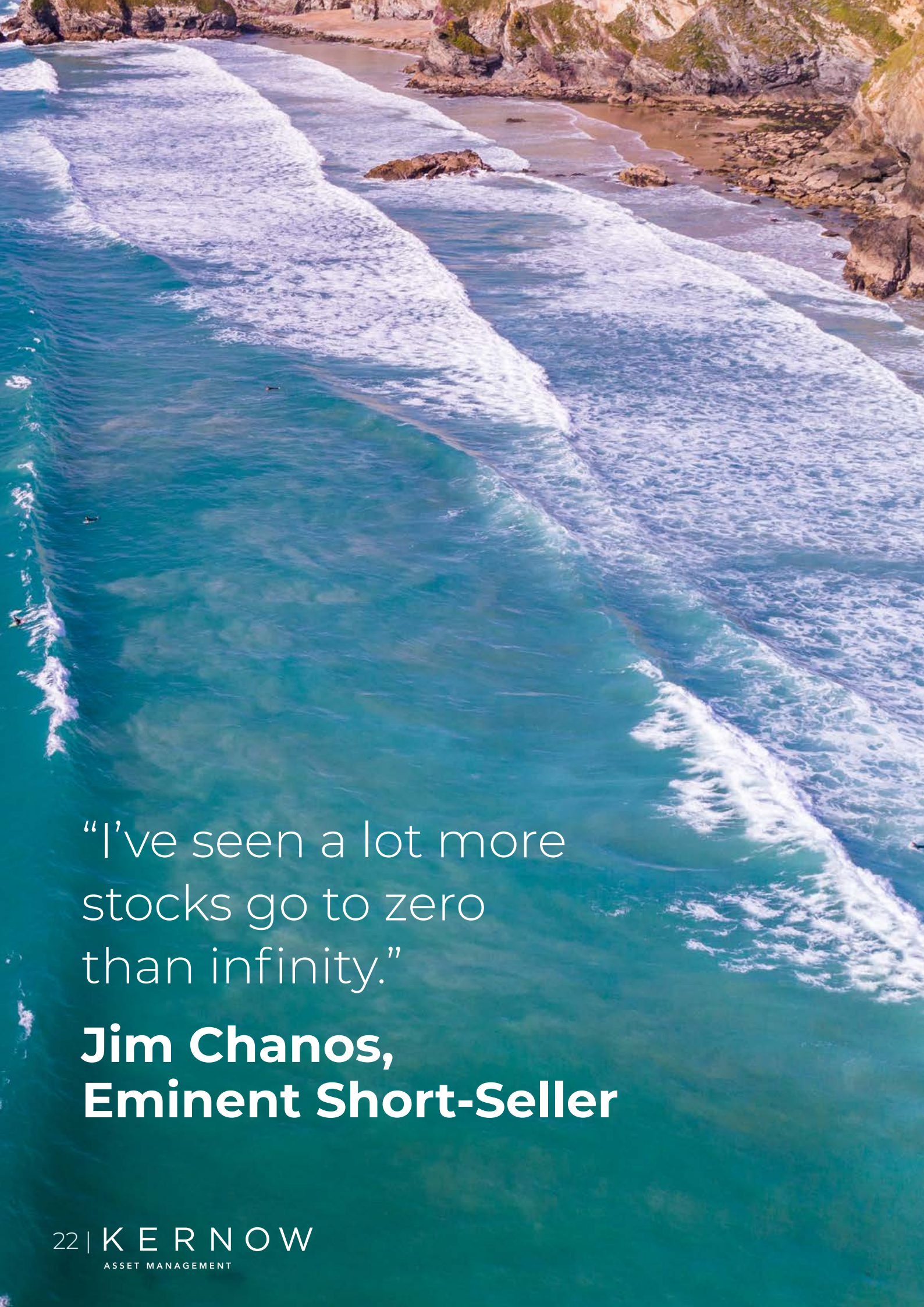
For UK stocks, regulatory requirements mean that shorting activity that meets specific criteria must be publicly reported. The EU Short Selling Regulation introduced a private and public notification regime

for investors who hold net short positions in certain financial instruments. Short-interest data is published daily on the Financial Conduct Authority website and can be readily used to gain an impression of current and historical shorting activity. This transparency has allowed market participants to access this information to help inform their investment decisions.

Given the nature of shorting activity, it is clear that there is valuable information within short-interest data¹. Consider that investors who hold short positions are trying to speculate on the

An aerial photograph of a harbor. A large, rectangular stone wall encloses a basin where numerous small boats are moored. The water is a deep teal color. To the left of the basin, there is a rocky, moss-covered shore. The bottom of the image shows a sandy beach and a small boat on the water.

“Given the nature of shorting activity, it is clear that there is valuable information within short-interest data.”



“I’ve seen a lot more
stocks go to zero
than infinity.”

**Jim Chanos,
Eminent Short-Seller**

valuation of the underlying company depreciating. Therefore, they have the conviction that this will be the case, or they are using short exposures to hedge or insure against other exposures in their portfolios, either through market-exposure-reducing approaches or more direct pair-trading approaches. It has been noted that short-selling activity is important in aiding the efficiency of markets^{2, 9, 14}, with restrictions to short-selling generating artificially inflated prices.

Typically, although not always, holding short positions is the domain of more sophisticated investors. A high degree of conviction is required to comfortably hold a position where there are funding headwinds, potentially limited availability and a return profile with limited upside and compounding downside risks. One may therefore consider that gaining information on the levels of shorting of stocks can provide a variety of useful quantities^{3, 12}.

Over the past two decades, numerous academic studies have explored several use cases of short-interest data^{4, 5, 6, 7, 8, 10, 12}. It is relatively clear that higher levels of short-interest, as defined

by dividing the number of shares shorted by the total shares outstanding, can be used as a gauge of investor sentiment on a particular stock.

All else equal, higher short-interest typically leads to relative under-performance on medium time horizons, but several refinements can be made to enhance the basic metric. These include adjusting the market capitalisation in the equation denominator to reflect the number of shares available for shorting and considering aggregate borrowing costs acting as a conditioning factor¹⁷.

Following short-interest sentiment is an approach some investors use to guide their investments. This can be considered a way of 'following the crowd', which is not a terrible thing to do in many instances. However, in its basic form, this consensus move only yields modest positive performance.

An opposing perspective is to consider that high levels of short-interest in a stock can lead to significant investor crowding¹¹, which is potentially dangerous. In such a scenario, if the company's stock increases materially, holders of short positions will likely cut

losses and rush to buy back the stock. This feedback loop can increase the stock price further and accelerate losses for the remaining short-holders – the dreaded short-squeeze^{15, 18}.

A metric related to short-interest is the 'days to cover' metric, which divides the shorted quantity by the trading volume. The resulting metric equates to the number of days it would take, at current levels of liquidity, to close out all short positions completely. As a rule of thumb, it is considered that anything less than 3 is relatively under-shortened, whilst anything greater than ten is at significant risk of a squeeze¹⁶.

Less attention has been paid to the granular links between short-holders and securities. Most metrics are derived by aggregating over the short-holders without considering their demographic. In recent years, some studies have shown that the distribution of short holders can reveal important information. Indeed, considering the holder-issuer pairings, it is possible to perform various network analyses to gain better insight into the crowding and contagion effects that may impact short-sellers and their

Research SPOTLIGHT

associated securities. Whilst under-explored attempts to exploit short-interest data for economically related companies have shown significant promise¹³.

The opposing forces of short-interest sentiment, squeezing and crowding and interconnectedness can all provide important information to an investment process. Accordingly, short-interest data is a deceptively rich data source with numerous potential uses. For us, an increase in short-interest constitutes a challenge to the thesis behind our long ideas and indicates the potential for elevated crowding risks on our short ideas.

The Data

We extract short-interest data submitted to the Financial Conduct Authority through UK regulatory obligations. The data relates short-interest between a holder and a share issuer at a given time. Using this data, we can gain insight

into the typical shorting behaviour across UK-listed securities. We can therefore see the demographic, makeup, and overall net short-interest in a company.

We are forced to make several assumptions when processing this data, however.

- The disclosed short positions represent the 'actual' level of short-interest in the company.
- The reporting latency is not sufficiently long - so we can assume that the date the dataset is updated does not lag the position date beyond a few days.
- As short-holders are unlikely to have holding periods on their short positions for over a year, we consider any position older than a year (from a given effective date) to be stale, and we disregard them.
- In the absence of short availability and borrow-cost data, we assume these are constant across each security. Clearly, this is a limiting assumption, but for this public

exercise, it will suffice to approximate without giving more away. In practice, these quantities vary significantly.

Our dataset comprises approximately 76,800 entries, with 2,556 recorded position dates, spanning from 13st-Oct-2012 to the present. The entries relate to 758 securities and 515 short-holders. For this published analysis, we have deliberately focused on 'easy-to-get' publicly available short-interest data. We have not included short-interest data from our proprietary collection or from any third-party vendors.

Analysis

Whilst the aggregate level of short-interest has been studied within North America³, and across multiple geographies, intriguingly, a UK-focused public short-interest study has not explicitly been undertaken that we can find. The underlying level of short-interest in a

market can be used as an indicator of general market sentiment and economic conditions.

The figure below sets out the decile distribution of short-interest for securities within the FTSE All Share index. It shows that the overall level of short-interest is relatively low, equating to only a few percentage points of capitalisation. This is to be expected. As a rule of thumb, many consider 5% to be a high level of short-interest.

Interestingly, we see that short-interest was relatively stable from 2013-2020 but fell significantly throughout 2020 and into 2021; it has only recently begun to recover towards long-term averages. The distribution is generally well-behaved, showing a log-normal type distribution to higher short-interest levels. Moreover, the short-interest level can vary systemically across different market segments. The figure below shows the time-averaged short-interest for the UK market, partitioned by sector (in the

left panel) and capitalisation (in the right panel).

Firstly, the sector short-interest (left panel) shows that consumer and energy stocks tend to have higher short-interest, whereas healthcare and financial stocks have lower levels. Whilst we find significant modulation of the levels through time, we find that healthcare has generally been consistently lower than the average, whilst energy has declined more recently but remains higher than other sectors. This appears to be a UK-specific configuration.

Secondly, we find higher consistency in short-interest partitioned by market capitalisation (right panel). We find that the highest short-interest levels are in mid-cap securities, with short-interest levels diminishing for larger and smaller stocks. This distribution is relatively stable through time, and likely represents the balance between the ability and availability of shorting and the overall level of capitalisation. We generally find this feature across most geographies, not just the UK.

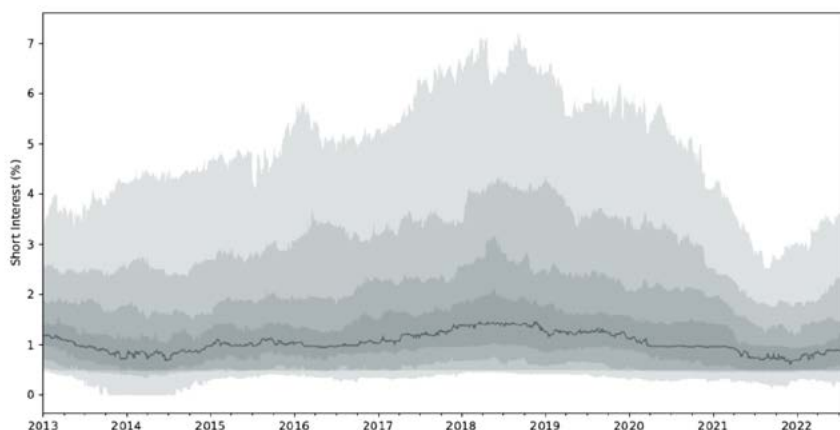


Figure 5: The decile distribution of short-interest since 2013 for the FTSE All Share index constituents.

Research SPOTLIGHT

Event Studies

We can treat each short-interest trade as an event to investigate the market response to shorting activity. Given the way the data is recorded, we define an event as the first

instance of a company registering its short position for a particular security. Accordingly, we have 4,955 events corresponding to 497 short-holders and 714 companies. For each event, defined as having a unique holder/security/date, we compute the market-

relative performance of the security from 50 business days before the event to 260 business days after the event. We cumulate the daily returns of the security through this period and zero this at the event date.

Using this approach, we can see the trajectory before and after the event. Whilst there is a high degree of noise on individual events, by aggregating across a significant number of events (and potentially stratifying across events by some characteristic), we can see the price behaviour associated with particular types of events. This information is often helpful to view as it shows whether the event offers some contrarian or consensus of the general direction of the trade and any dislocations around the event (potentially indicating information leakage). To better understand the sensitivity of market responses to events with certain characteristics, in the figure below, we partition our event set by various characteristics and investigate their relative price responses.

We focus on the security properties sector and capitalisation in the top row. We find a broad

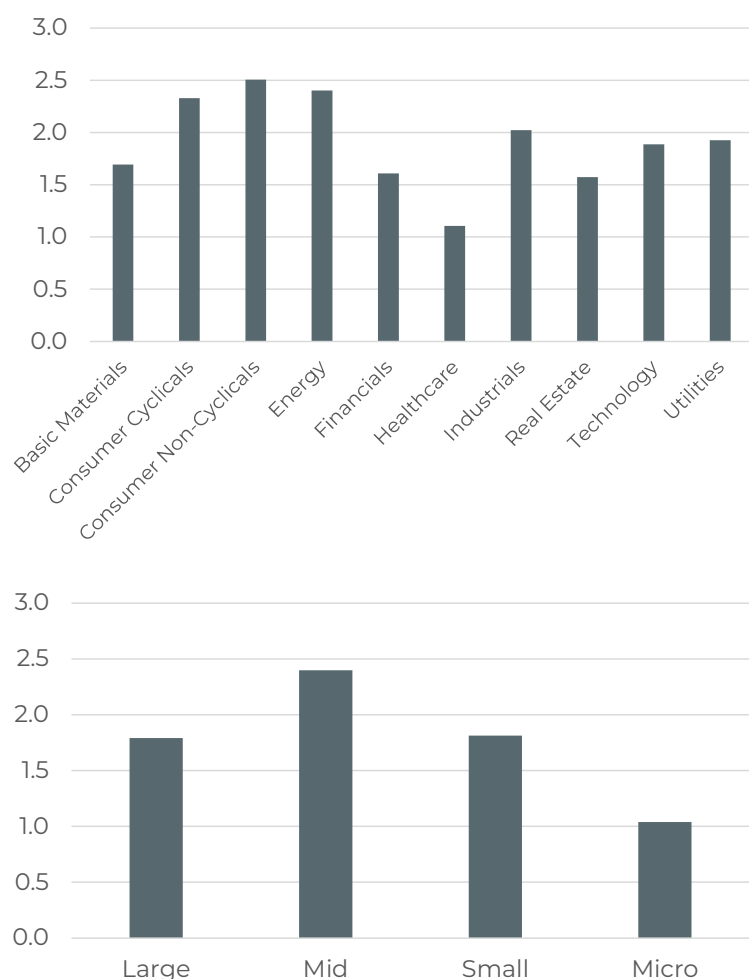


Figure 6: The time-averaged short-interest for FTSE All Share index constituents since 2013. The top panel shows partitioning by TRBC Business Sectors, and the bottom panel shows partitioning by market capitalisation tranches.

dispersion of event return differences at the sector level. Interestingly, energy and healthcare stocks show the strongest under-performance, as healthcare has systemically low short-interest relative to other sectors. On the other hand, utilities offer positive out-performance in aggregate.

Other sectors tend to be more muted in their price response.

The remaining subplots partition the universe into equally numerous quintiles based on the event characteristics. Firstly, by partitioning on the short-interest quintile, we find

that the highest levels of short-interest produce the strongest under-performance and vice versa. However, the effect is somewhat subtle, and there is no pronounced monotonicity in the quintiles, indicating a weak relationship.

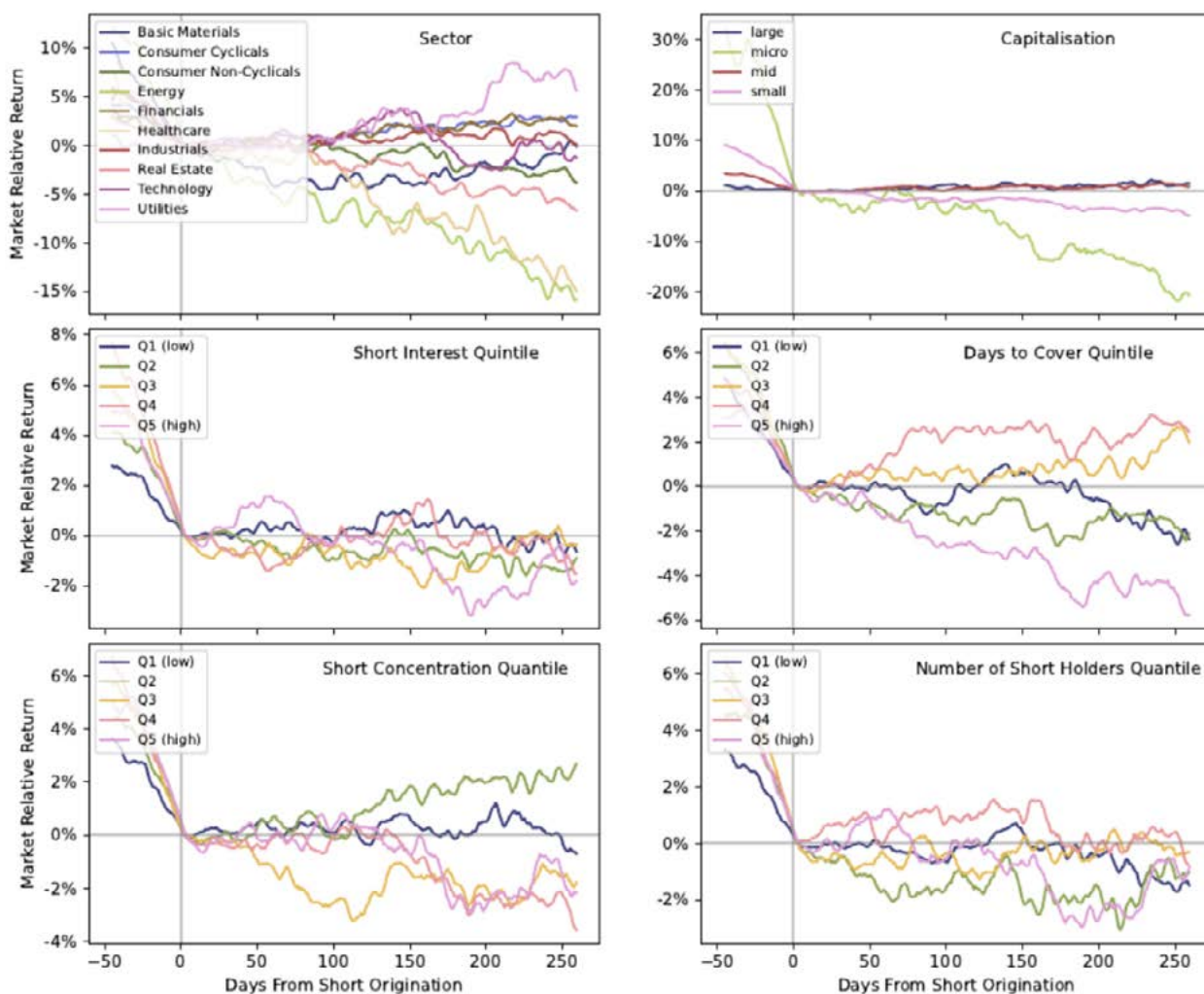


Figure 7: Event Study – partitioning by particular event attributes, Calculated using market-relative returns.

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Partitioning by the days-to-cover quintile perhaps shows the most significant sensitivity. The bottom quintile (highest days-to-cover) shows underperformance of approximately 6% annually, whilst the top quintile (lowest days-to-cover) shows only modest underperformance. Again, we do not find a monotonic relationship between the performance of each quintile, which indicates a relatively weak relationship.

Finally, partitioning by short concentration and the number of short-holders, we investigate the potential for short squeezes. We find a weak but measurable increase in under-performance for increased short concentration and no significant relationship with the number of short-holders. We may expect the highest quintile of short concentration to yield particularly volatile results.

Short Squeeze Analysis

As we noted in the introduction to this section, with exceptionally concentrated levels of shorting activity, there is an inherent risk of short

investors being squeezed by rising stock prices and the upward price pressure of a race to exit short positions. We investigate this in the following tables. These show the averaged high-level risk statistics for events by partitioning over quintiles of various short-interest quantities.

Focusing firstly on the short-interest metric, we find that the security risk tends to increase with short-interest. This comes similarly from higher upside and downside risks in the top two quintiles. It is also broadly consistent with the best and worst period analysis which shows more extreme events (both winning and losing), which monotonically increase for increasing levels of short-interest.

Secondly, we focus on the days-to-cover metric, which we expect to show stronger sensitivity to short-squeezes due to its relation to liquidity. However, the total risk remains relatively independent of the metric level, with muted dependency on upside and downside risk.

Finally, we show the risk properties by partitioning on short concentration for

completeness. Here we find that risk increases with increasing concentration (measured using the Herfindahl index of short-ownership). The overall increase in volatility appears to come from both upside and downside moves. We conclude that higher concentrations lead to riskier investments, but in a seemingly symmetric way.

Short-Interest Back-tests

To complement the previous event study analysis, we present a back-test analysis of the various metrics using the FTSE All Share universe from Jan 2013 to July 2022. This corresponds to 2,511 trading days spanning ten years. Given that we are producing this information in an explanatory (rather than predictive) capacity, we retain the full-sample period for our analysis.

We perform the following calculation to provide robust analysis to produce our back-test.

- Calculate the given metric (short-interest, days-to-cover or short-concentration) for all securities active within the FTSE All Share index





		Q1 (low)	Q2	Q3	Q4	Q5 (high)
Short Interest	Risk	43.23	42.58	45.58	50.10	54.70
	Downside Risk	31.03	29.24	32.76	35.12	38.21
	Upside Risk	32.96	32.81	33.70	38.61	43.09
	Best Period	12.64	12.97	13.41	15.81	17.49
	Worst Period	-12.46	-12.36	-14.76	-14.45	-15.59
Days to Cover	Risk	50.28	48.11	45.46	44.27	48.16
	Downside Risk	35.34	33.40	32.33	31.41	34.61
	Upside Risk	39.57	37.47	34.22	33.53	36.40
	Best Period	15.18	15.06	13.90	13.71	14.49
	Worst Period	-14.17	-13.99	-13.46	-12.94	-14.08
Short Concentration	Risk	42.44	43.94	45.99	48.77	55.26
	Downside Risk	29.77	30.51	32.95	34.11	39.84
	Upside Risk	32.14	33.68	34.19	38.05	43.34
	Best Period	12.88	13.30	13.70	15.79	16.72
	Worst Period	-12.17	-12.64	-13.36	-14.22	-16.29

Figure 8-10

Top Panel: Average risk properties of Events (after a 1yr horizon), partitioned by the short-interest quintile

Middle Panel: Average risk properties of events (after a 1yr horizon), partitioned by the days-to-cover

Bottom Panel: Average risk properties of events (after a 1yr horizon), partitioned by the short-concentration

using the latest data available on a given date.

- Partition the securities on each date into quintiles, depending on the value of their metric, with the bottom quintile (Q1) corresponding to the lowest value of the metric and the top quintile (Q5) being the highest value of the metric.
- Calculate the average market-relative return of securities within each quintile on each date.
- Define the quintile spread as the difference in return of the top

(Q5) and bottom (Q1) quintiles on each date.

The quintile spread is a robust measure of the raw efficacy of the underlying metric. We consider this equivalent to the gross returns of a long-short cash-neutral portfolio with equally weighted and equally-numerous long and short positions and gross leverage of 2.

Given the nature of the metrics, for which we expect positive out-performance to be inversely related to short-interest, we define

the quintile spread as the top (Q5) quintile minus the bottom (Q1) quintile. In figure 8-10, we show the resulting cumulative quintile spread returns, corresponding to the gross returns of a cash-neutral portfolio of the top-bottom equally weighted securities. As indicated in the event studies section and previous quintile analysis, we find that the days-to-cover factor has the most robust back-tested performance, corresponding to approximately 12% annualised gross performance.

The short-interest metric only showed modest negative performance in 2013 and 2016, and the days-to-cover metric only showed negative performance in 2018. The performance history is strikingly consistent for such a basic measure; however, we must caveat that these computations do not consider trading or financing costs.

We summarise the historical back-tested performance in the table below. By comparing various performance and risk metrics, we generally see positive, consistent performance from each of these measures. We see a correlation of 0.75 between the short-interest and short-concentration measures,

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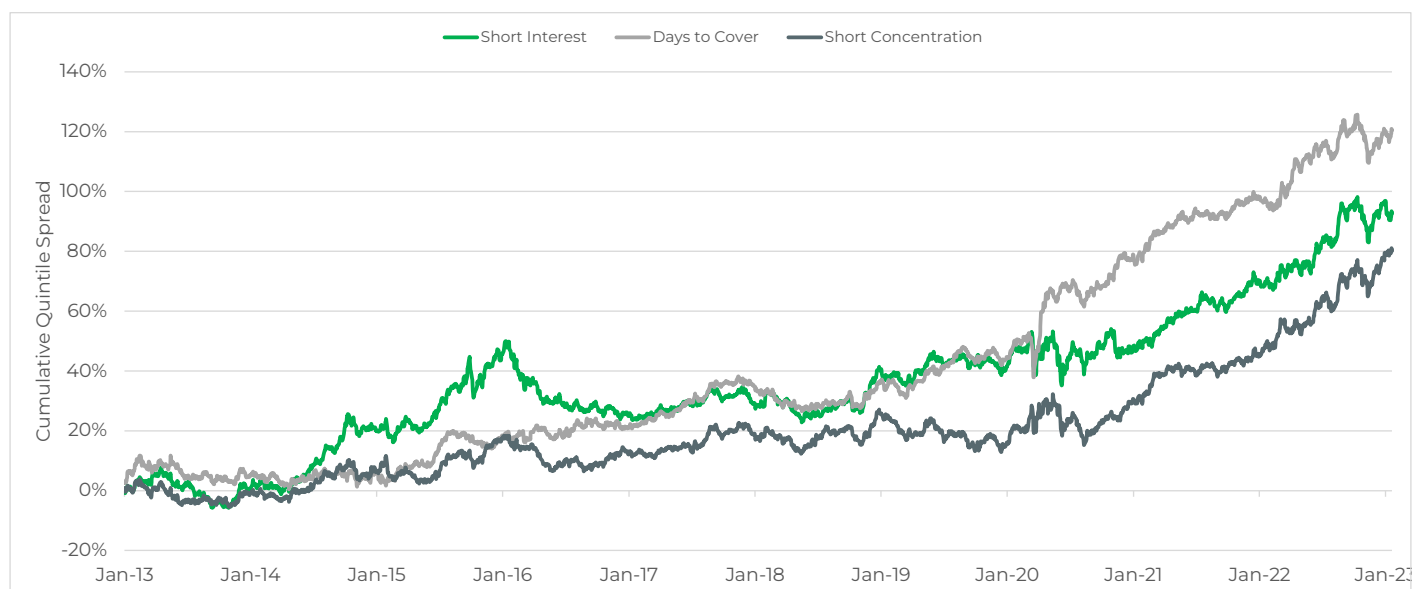


Figure 11: The (inverted) cumulative quintile spreads (Q1-Q5) for the three short-interest metric variants computed across all FTSE All Share constituents.

as expected from their construction, with a more modest 0.52 correlation between short-interest and days-to-cover, indicating related but complementary properties.

As shown in the chart, the best-performing metric is the days-to-cover, both on an absolute and risk-adjusted basis. The modest negative skew perhaps indicates the propensity of short squeezes to impact returns abruptly. However, maintaining a sufficiently diversified portfolio minimises this issue.

Whilst the short-interest factor shows a significant drawdown from its peak in 2016, the days-to-cover factor suffers only a 13.55% maximum drawdown over the back-test, which is remarkably consistent. More impressively, since the downside risk is considerably lower than the upside risk, the Sortino ratio of the metric is particularly favourable.

Short-Interest Networks

As an example of alternative

uses of the short-interest data, we find it fascinating to associate holder entities and securities through time. It is widely known that securities do not exist in isolation but evolve in a dynamic ecosystem, with several agents creating an interconnected network, influencing numerous aspects of the company and its associated securities. We can infer how securities are likely to behave by investigating these economic linkages. A convenient way to model the relationship between securities, and

indeed the short holders themselves, is using network analysis. Formally, networks of this type are termed bipartite graphs - the bipartite feature indicates two distinct sets of nodes that are disjoint and independent. For our purposes, this constitutes a network where the two sets of network nodes correspond to holders and securities, respectively. Network edges link securities and holders with weights corresponding to their relative short-interest levels.

Using this framework, we can project the bipartite graph onto each node set. In the below figure, we show the force-directed

network visualisation of the security-security projection, where the location of nodes relative to others and the network as a whole represents the degree of connectivity, similarity and centrality of particular companies.

The force-directed graph drawing positions nodes (securities or short-holders) so that all edges are as close to their optimal length (given by their edge weighting), and the number of edge-crossings are minimised. Thus, the topology of such networks indicates the direct and indirect relationships between nodes. Finally, given the connectivity of short-holders

and securities, we can create feature vectors for each security, where the vector coefficients correspond to the holder short-interest fractions per security. Naturally, these form relatively sparse vectors but can be used to compute the cosine similarity between securities. This measure indicates the level of overlap, or similarity, between each security pair.

By aggregating over sectors, we can construct the sector-similarity matrix, as shown in the below figure. This evolves through time and indicates transient themes that occur in the market as a whole. We find that heavy shorting of utilities has made securities within

	Short Interest	Days to Cover	Short Concentration
Annual Return	8.70	11.80	6.37
Risk	12.78	10.62	10.82
Sharpe Ratio	0.68	1.11	0.59
Kurtosis	2.98	4.32	1.85
Skew	-0.42	0.00	-0.15
Maximum Drawdown	25.79	13.55	16.48
Downside Risk	9.20	6.89	7.25
Upside Risk	7.96	7.46	6.90
Sortino Ratio	0.95	1.71	0.88
Hit Rate	0.53	0.52	0.51
Payoff Ratio	1.01	1.12	1.04

Figure 12: The full-period summary statistics for the three short-interest metric variants

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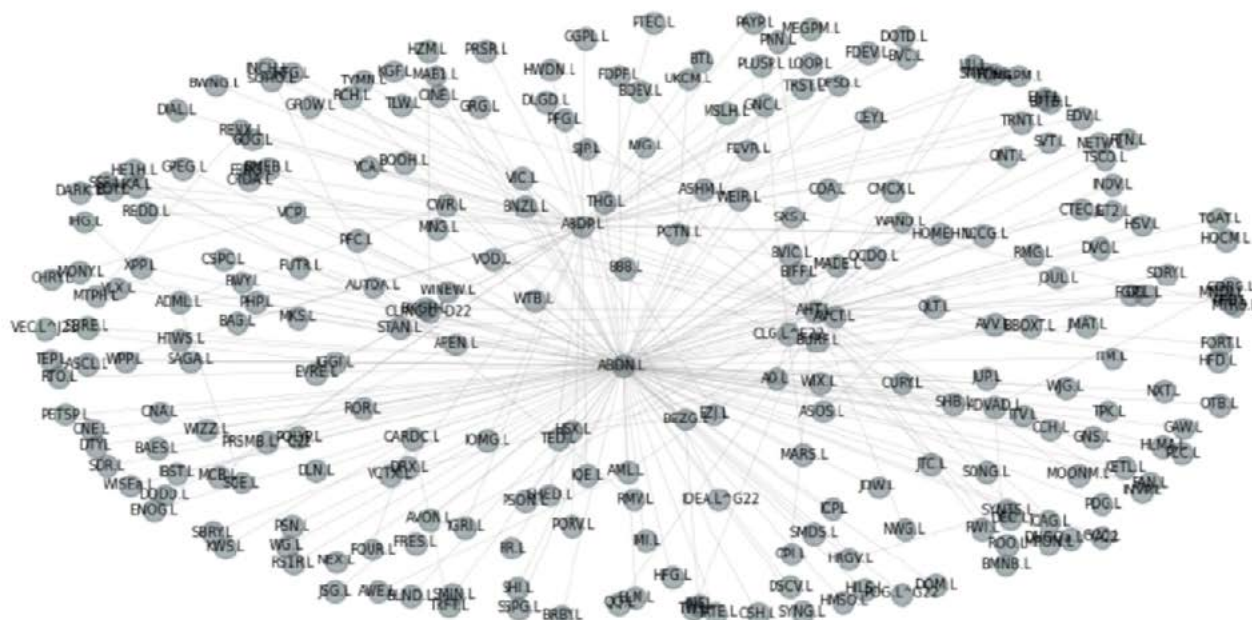


Figure 13: The bipartite network projection onto the security node set using a force-directed node drawing framework.

this sector self-similar. Still, we also notice pockets of similarity amongst consumer securities and between utilities and consumer non-cyclicals.

Conclusions

In our exploration of UK short-interest, we have confirmed several results that have previously been

studied in other markets. Namely, we find that short-interest tends to convey the underlying sentiment in the market – times of elevated short-interest tend to correspond to periods of poor market performance. In contrast to other studies, we find that the structural differences in short-interest levels across sectors appear uniquely related to the UK economy, which differs

significantly from other geographies.

By complementing the short-interest metric with the days-to-cover and short-concentration metrics, we perform a series of event studies highlighting the typical price-action of securities around the trading of short-interest events. We find that securities with some short-

	Basic Materials	Consumer Cyclical	Consumer Non-Cyclical	Energy	Financial
Basic Materials	0.14	0.15	0.15	0.11	0.13
Consumer Cyclical	0.15	0.15	0.16	0.12	0.13
Consumer Non-Cyclical	0.15	0.16	0.17	0.11	0.15
Energy	0.11	0.12	0.11	0.14	0.11
Financial	0.13	0.13	0.15	0.11	0.12
Healthcare	0.05	0.09	0.10	0.07	0.08
Industrials	0.15	0.16	0.17	0.14	0.15
Real Estate	0.08	0.10	0.11	0.06	0.10
Technology	0.13	0.14	0.12	0.10	0.11
Utilities	0.20	0.17	0.16	0.12	0.11

Figure 14: The average cosine similarity between securities, partitioned by their sector.

interest exposure tend to underperform modestly.

Moreover, partitioning by sectors and capitalisations, we find that specific market segments are more sensitive to short-interest pressures than others. We generally find that partitioning by the level of shorting activity (as quantified by our metrics) has a positive relationship – more shorting tends to result in

greater underperformance. Importantly, whilst we find some evidence of short squeezes impacting the most heavily shorted companies, the effect is muted when considering a basket of shorted companies.

We compare the performance characteristics of the three short-interest variants by conducting a series of back-tests and defining a robust quintile-

spread measure of raw factor performance. We find positive performance for each metric, with the days-to-cover metric showing the highest efficacy.

Performance is characterised by consistent returns, relatively modest drawdowns and a slight negative skew in the return distribution – potentially reflecting the impact of short squeezes. Each metric shows complementary behaviour, and a composite of these will likely yield further improvements in risk-adjusted performance.

Finally, by analysing the connections between securities and short-holders, we use a network model to expose relationships between securities and market segments. It is clear that short-interest data is an extremely valuable information source, and it can be used in several ways to provide further clarity on a variety of investment decisions.

Seven Lessons from INTERVIEWING MANAGEMENT

Meeting the leadership teams of listed companies is an enjoyable part of our job. We appreciate the challenging and sometimes lonely work that CEOs and the wider management team do. We value the time that they choose to spend with us.

We set out in the following pages seven lessons that we have learned from interviewing company management. Having face-to-face meetings with company management forms an integral part of our investment research.

It allows us to identify further areas of study, understand context and motivations, and form impressions of companies through direct contact with company leadership.

Aside from revealing softer aspects of company management – such as their mannerisms, body language, communication style and ability to engage with questions – these meetings complement the analysis we have already undertaken.

Of course, building a positive relationship with management is also important. Each year, we host a CEO dinner for companies within our portfolio, allowing them to interact with their esteemed peers.

1 Ask specific questions that indirect sources cannot easily answer

The goal of management meetings should be to acquire a rounded impression of some of the more nuanced aspects of a particular company. There is limited utility in asking generic questions that could be answered by email or external pre-recorded sources.

We focus on specific questions that we have pre-prepared relating to particular aspects of the business; for example, questioning the rationale of strategic decisions taken by management or discussing their perspectives on future developments. We don't need to see the pre-prepared pitch again. We want another jigsaw piece.

2 Do not stick to the playbook

We expect that company management is well-versed in meeting with investment analysts and is likely to have a mental and physical playbook of responses to questions. Whilst it is challenging to prescribe ways to avoid this, over time, experience provides intuition as to whether the remarks were truly candid and unscripted.

This distinction is vital in our experience. Accessing the unadulterated views of company management provides considerably more valuable insight and builds trust both ways.

3 Do not alienate company management

Irrespective of our views on the strategic decisions of company management, we intend to work collaboratively and respectfully. We have seen certain analyst meetings resulting in 'heated' discussions, but we feel this is unnecessary. We are not the company's auditors or responsible for managing the business we are analysing.

On the contrary, positive rapport, trust, and open dialogue enable constructive debate. We often provide our companies with free-of-charge corporate finance and market perception reports.



4 Be present

It is easy to become distracted by taking notes or flipping through the slide deck in an attempt to record as much information during the meeting as possible. This is often a false economy.

We find that it is critical to remain present in the dialogue of the meeting, to engage and not to allow the meeting to become a monologue from company management. We always stress that gaining an overall impression in a meeting (including context, tone, body language and many other cues) is as important as recording the details of the discussion.

5 Evaluate harder and softer company aspects

It is tempting to focus on the numbers when discussing company financials. Whilst the quantitative analysis of a company's financial health is a critical aspect of its evaluation, company management meetings can provide a strong intuition about its situation.

It is a natural human bias to prefer objective information when comparing and evaluating data. However, focusing on these statistics at the expense of assessing the softer company aspects of personal agendas and motivations is short-sighted. We deliberately focus on specific elements that are difficult to quantify, as this is where our experience and perspectives can add significant colour to a company evaluation.

6 Have an open mind

Preconceptions about a company are inevitable, as we have often done extensive research and analysis before a meeting. Whilst we naturally draw on the impressions we have built up during our analysis of the company, it is essential not to let these perspectives lead the discussion.

For example, anchoring biases can manifest as being overly resistant to updating our views on certain aspects of a company, whilst confirmation biases can potentially relate to us steering the discussion onto topics which merely confirm our prior beliefs.

This is a delicate balancing act, but we must be aware of these potential pitfalls and do our best to remain open-minded. If we think the risk is too high, we play devil's advocate on short-candidate companies.

7

Remain objective

It is important to acknowledge that it is relatively easy to be charmed by company management, particularly on the short-side from seasoned story salespeople. Given their intention to paint their companies and colleagues in a positive light, they often gloss over the challenges and steer the conversation towards favourable issues.

It is critical to remain objective, even if this means deliberately creating distance or a play-along agent. When reflecting on meetings, we seek to distinguish between our impressions which originate from 'charm' and those which are intrinsic to the investment proposition presented by the company.

Visual ELEGANCE

We originally conceived the visual elegance section to celebrate the visual representation of data in intuitive and elegant ways. In future editions, we aim to have a financial data focus – but this time, we decided to go really big!

Last year, the James Webb Space Telescope (JWST) was successfully launched into space, travelling approximately 1 million miles to its final location. As the natural successor to the hugely successful Hubble Space Telescope and over three decades in development, the JWST represents a once-in-a-generation advancement in our ability to view the universe.

Once deployed, the ‘first light’ of the satellite revealed images of the cosmos in unprecedented detail, images that are as important scientifically as they are as works-of-art. The capabilities of the JWST will pave the way to help understand almost all aspects of cosmic history, from the earliest light after the big bang to the formation of galaxies, stars,

and planets to the evolution of our solar system. Figure 15 is an ambitious attempt to show the entire known universe in one image. Given that the observable universe is approximately 50 billion light years in diameter, representing structures in an intuitive way has been achieved using a logarithmic distance scale, such that structures further away from us are represented on smaller scales.

The image took shape by combining images and data from NASA and Princeton University and arranging these on an astronomical logarithmic chart.

Logarithms help make sense of huge numbers, and in this case, huge distances. Rather than showing all parts of the universe on a

linear scale, each chunk of the circle represents a field of view several orders of magnitude larger than the one before it.

Given the progressive reduction in scale, it is possible to see both the more local structures and the ‘grand’ structures of the universe in one visualisation. Moreover, given the expansionary nature of the universe, and the finite speed of light, observing distant objects sees them as they were in the past. This means that as we move radially outwards in the visualisation, we travel backwards through cosmic history.

Examining the visualisation, we see our sun and solar system in the centre, followed by the outer ring of our Milky Way galaxy. Further out, we see the

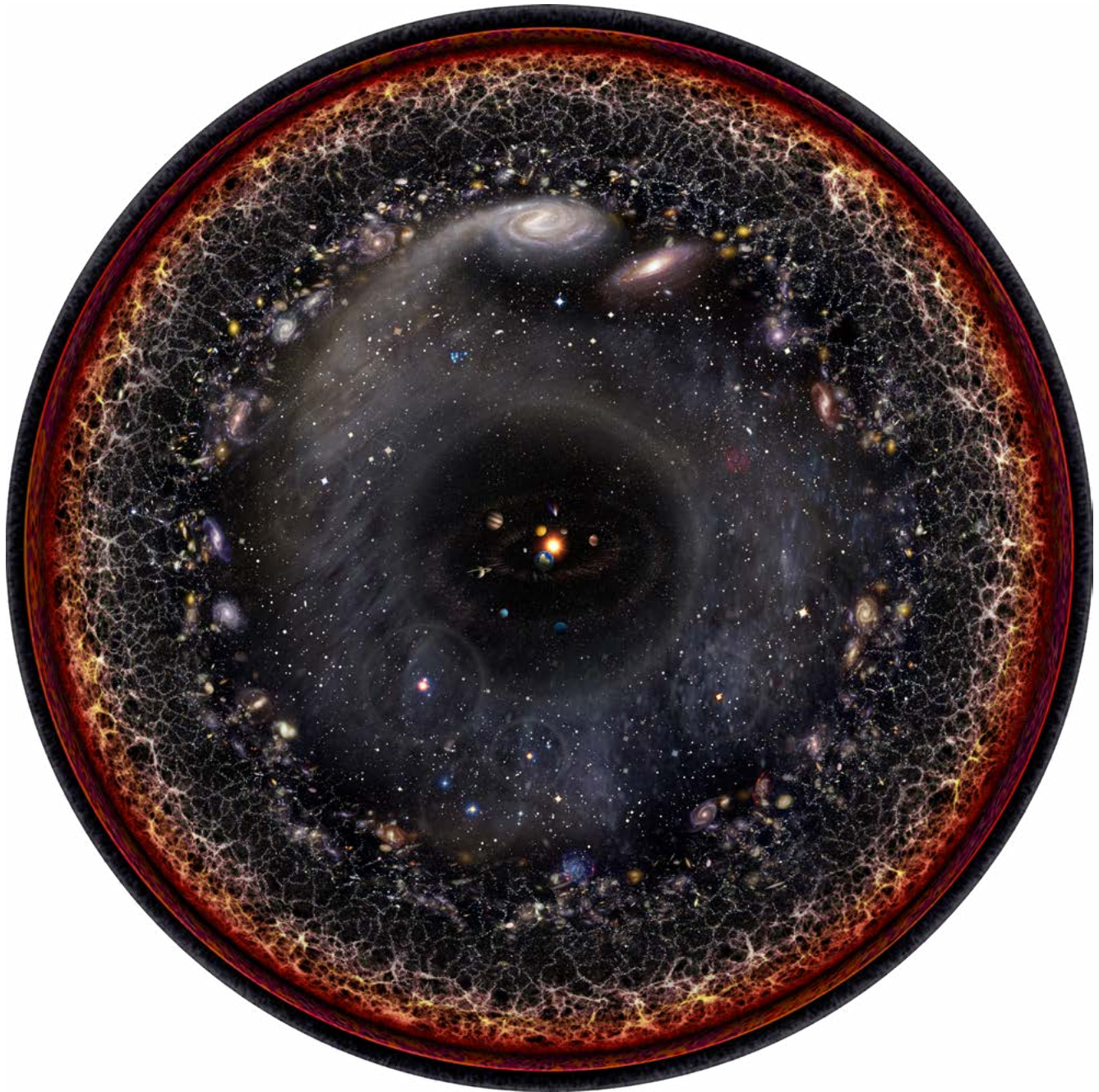


Figure 15: The entire observable universe in one disc, created by combining multiple logarithmic maps of the universe. Data supplied by NASA and Princeton University. Image courtesy of Paolo Budassi

Perseus arm of the Milky Way, followed by a ring of nearby galaxies, including the familiar Andromeda galaxy. On scales beyond this, we see a brief 'dark age', which marks a time before the bulk of galaxies

had formed, before reaching the 'cosmic web' of density fluctuations. In the outer rings, we see cosmic microwave background radiation, some of the earliest light we see in the universe, and finally, a ring

of plasma generated by the big bang.

This visualisation achieves a highly ambitious aim in a way which yields an informative and elegant result.







ENDNOTES

[1] Short-interest: explanations and tests

Brent, A., Morse, D., Stice, E. K., (1990), Journal of Financial and Quantitative Analysis 25, 273-289.
<https://www.cambridge.org/core/journals/journal-of-financial-and-quantitative-analysis/article/abs/short-interest-explanations-and-tests>

[2] Short-sale constraints and stock returns (October 2001)

Jones, Charles M, and Owen A Lamont, Journal of Financial Economics 66, 207-239.
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=285614

[3] An Investigation of the Informational Role of Short-Interest in the Nasdaq Market (June 2002)

Desai, Hemang and Thiagarajan, S. Ramu and Ramesh, K. and Balachandran, Bala, Journal of Finance, Vol. 57, No. 5.
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=232908

[4] Short-Interest, Institutional Ownership, and Stock Returns (December 2004)

Asquith, Paul and Pathak, Parag A. and Ritter, Jay R., Journal of Financial Economics, Vol 78, Issue 2, Pages 243-276
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=525623

[5] Which shorts are informed? (March 2006)

Boehmer, Ekkehart and Charles M. Jones and Xiaoyan Zhang, Journal of Finance 63, 491-527.
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=855044

[6] Daily Short-Interest, Idiosyncratic Risk, and Stock Returns (December 2007)

Doukas, John A. and Au, Andrea S. and Onayev, Zhan M., Journal of Financial Markets, Vol 12, Issue 2, Pages 290-316
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1070932

[7] The Good News in Short-Interest (May 2009)

Boehmer, Ekkehart and Huszar, Zsuzsa R. and Huszar, Zsuzsa R. and Jordan, Bradford D., Journal of Financial Economics, Vol 96, Issue 2, Pages 83-97
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1405511

[8] How are shorts informed? Short sellers, news, and information processing (August 2012)

Engelberg, Joseph and Reed, Adam V. and Ringgenberg, Matthew C., Journal of Financial Economics, Forthcoming
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1535337

[9] Shackling short sellers: The 2008 shorting ban (October 2012)

Boehmer, Ekkehart and Charles M. Jones and Xiaoyan Zhang,
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1412844

[10] Short-Interest, Returns, and Fundamentals (August 2013)

Akbas, Ferhat and Boehmer, Ekkehart and Erturk, Bilal and Sorescu, Sorin M., EDHEC Working Paper
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2216919

[11] Crowded Trades, Short Covering, and Momentum Crashes (November 2013)

Yan, Philip,
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2404272

[12] Short-Interest and Aggregate Stock Returns (August 2014)

Rapach, David and Ringgenberg, Matthew C. and Zhou, Guofu, Journal of Financial Economics (JFE), Forthcoming
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2474930

[13] Peer Stock Short-Interest and Future Returns (February 2015)

Akbas, Ferhat and Boehmer, Ekkehart and Genc, Egemen, University of Kansas Seminar Series
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2495068

[14] Skewness, Short-Interest, and the Efficiency of Stock Prices (January 2016)

Blau, Benjamin M. and Whitby, Ryan, Applied Economics, Vol 50, Issue 20, Pages 2229-2242
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2712530

[15] The Short Squeeze: The 'Invisible' Cost of Short Sales (May 2016)

Xu, Wei and Zheng, Yu, CEA 2015 Shanghai Conference
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2783374

[16] Days to Cover and Stock Returns (August 2016)

Hong, Harrison G. and Li, Frank Weikai and Ni, Sophie Xiaoyan and Scheinkman, José and Yan, Philip, 29th Australasian Finance and Banking Conference 2016
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2568768

[17] Borrowing Fees and Expected Stock Returns (November 2020)

Hendrix, Kaitlin and Crabb, Gavin, Dimensional Fund Advisors Working Paper
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3726227

[18] Short Squeezes (October 2021)

Jiang, Zhiqian and Liu, Baixiao and Schrowang, Andrew and Xu, Wei, Purdue & Peking University Seminar Series
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2019361

[20] Price Efficiency and Short Selling (March 2011)

Pedro A. C. Saffi and Karl Sigurdsson, The Review of Financial Studies
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=949027

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