MARTEN & CO

Annual overview | Investment companies

12 February 2019

Herald Investment Trust

Shifting sentiment

Herald Investment Trust (HRI) is approaching its 25th birthday. HRI's manager, Katie Potts, has been there since launch, delivering considerable outperformance of equity markets. She has seen significant swings in sentiment towards the technology sector over that time.

Growth stocks and the technology sector fell out of favour with investors in the latter part of 2018. HRI held up better than the UK small cap market, but sterling weakness and worries about the UK's future relationship with the EU weighed on returns relative to the US and large-cap dominated technology indices. Katie felt that the negative sentiment toward the sector at the end of 2018 was not reflected in reality and the recovery in stock prices in 2019, to date, suggests that investors are returning.

Small-cap technology, telecommunications and multi-media

HRI's objective is to achieve capital appreciation through investments in smaller quoted companies in the areas of telecommunications, multimedia and technology. Investments may be made across the world, although the portfolio has a strong position in UK stocks.

The business activities of investee companies will include information technology, broadcasting, printing and publishing and the supply of equipment and services to these companies.

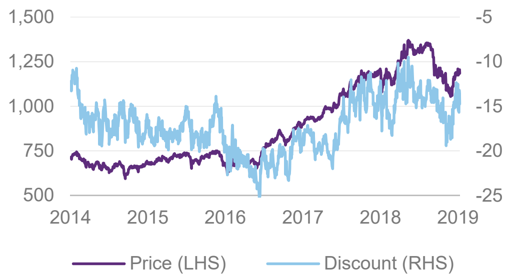
Year ended	Share price total return (%)	NAV total return (%)	Numis ex IC plus AIM (%)	B'berg World Tech TR (%)	MSCI World Index TR (%)
31/01/15	(4.5)	0.6	(6.5)	31.3	17.1
31/01/16	0.0	2.7	3.0	1.2	0.5
31/01/17	31.9	30.5	20.9	43.6	32.0
31/01/18	33.6	24.0	17.3	25.5	11.3
31/01/19	(1.7)	1.8	(9.6)	6.4	1.0

Source: Morningstar, Marten & Co

Sector	Small cap TMT
Ticker	HRI LN
Base currency	GBP
Price	1,185.00p
NAV	1,395.55p
Premium/(discount)	(15.1%)
Yield	Nil

Share price and discount

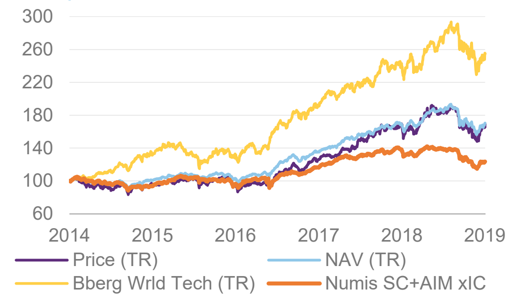
Time period 31/01/2014 to 8/2/2019



Source: Morningstar, Marten & Co

Performance over five years

Time period 31/01/2014 to 31/01/2019



Source: Morningstar, Marten & Co

Domicile	United Kingdom
Inception date	21 February 1994
Manager	Katie Potts
Market cap	810.4m
Shares outstanding	68.4m
Daily vol. (1-yr. avg.)	77.9k shares
Net cash	12.9%

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Contents

Fund profile

More information can be found at the trust's website: www.heralduk.com

HRI invests in small technology, communications and multimedia companies with the aim of achieving capital growth. It is the only listed fund of its type. The trust invests globally, but has a strong bias towards the UK, which further distinguishes it from other global technology funds, which tend to be biased towards the US.

HRI launched in 1994 with £65m, topped that up with a further £30m in 1996 and the proceeds of a warrant exercise in 2003. All of that money and more has been returned to shareholders through share buybacks. Today HRI has net assets of £954m. Investors at launch had made more than 13.7x their money at the end of December 2018 while, over the same period, the MSCI World Index returned just 4.3x.

New investments typically have a market capitalisation of $3bn or less but are generally much smaller when the first investment is made

New investments in the fund will typically have a market capitalisation of $3bn or less but are generally much smaller when the first investment is made. If successful, these can grow to be a multiple of their original valuation. This type of investing is inherently longer-term in nature and so the trust tends to have low turnover. Reflecting the risks inherent in this type of investing, the trust maintains a highly diverse portfolio of investments (typically in excess of 250) to help mitigate this risk.

Same, highly-motivated lead manager since launch in 1994

HRI has had the same lead fund manager since its launch: Katie Potts, who was a highly-regarded technology analyst at SG Warburg (later UBS) prior to launching the fund. Katie owns a substantial stake in the company (447,817 shares at 31 December 2017) and a significant minority stake in the management company. She is therefore clearly motivated to ensure the success of the fund.

HRI's size, focus on smaller companies and the depth of expertise within the management team mean that it plays an important role as a provider of much-needed capital to listed technology companies looking for expansion capital.

HRI offers a liquid subcontract for any investor looking to gain access to this part of the market, and we believe that an investment in HRI complements an investment in one of the large-cap technology funds.

Management arrangements

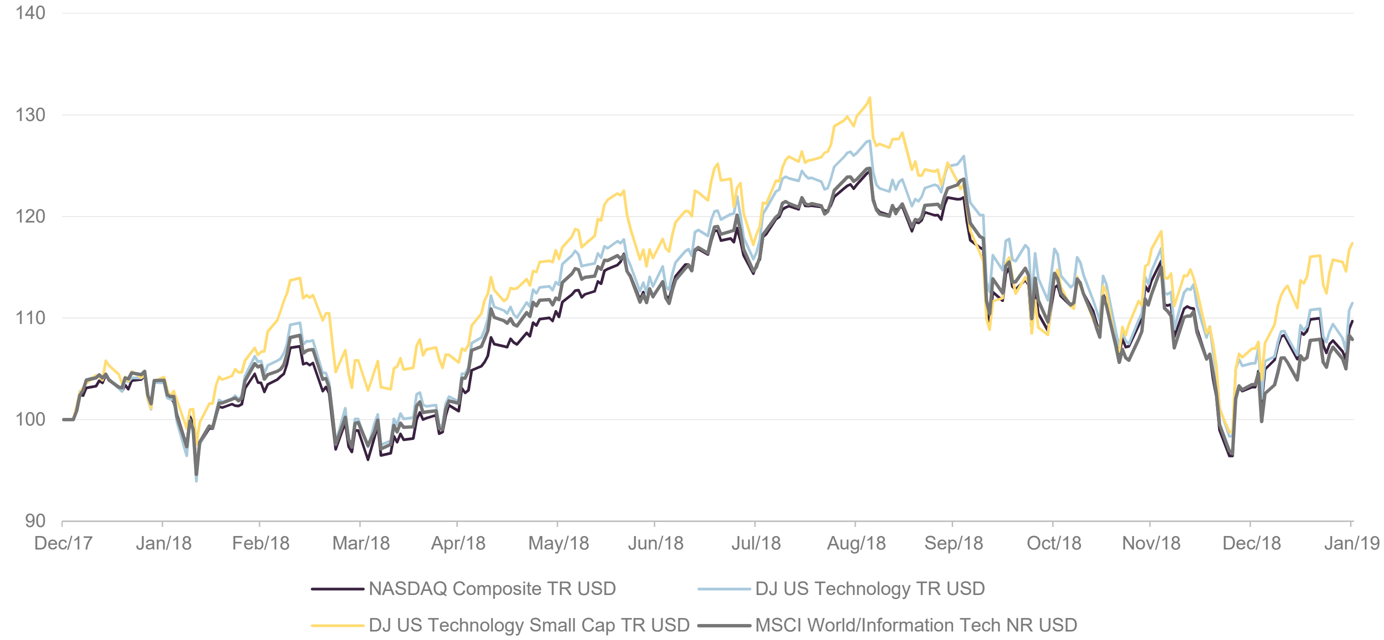
HRI owns a 15.4% stake in its management company, Herald Investment Management Limited (HIML), which was valued at £3.5m at the end of December 2017. HIML also manages an OEIC, The Herald Worldwide Technology Fund, which has more exposure to large-cap companies than the trust, and two venture capital funds which have ceased to make new investments. One of these venture capital funds, Herald Ventures II, is held in HRI's portfolio.

Seven-strong team with a presence in London and New York

Katie leads a team of six analysts, five of whom are based in London and one in New York. US companies do not come to the UK as much as they used to, and HRI feels it necessary to have a US presence to enable frequent contact with companies. The HIML team can also draw on the knowledge of three consultants. We have included some biographical details on the team at the end of this note. Research responsibilities are organised along sector lines but Katie has also delegated responsibility for managing the Asian portfolio to Fraser Elms (the deputy manager) and Hao Luo, and the continental European portfolio to Taymour Ezzat and Peter Jenkin.

Technology sector gave up gains in Q4

Figure 1: Performance of various indices 1 January 2018 to 31 January 2019



Source: Bloomberg, Morningstar, Marten & Co

At the end of September, 2018 was shaping up to be an excellent year for the technology sector and HRI. Investors favoured stocks with revenue/profit momentum and business models with recurring revenues. However, sentiment turned early in October and the ensuing market correction left the sector in negative territory for 2018 as a whole. Investors have been more enthusiastic in January, with the NASDAQ up 17.9% from its low point on 24 December 2018.

The underlying demand drivers behind the technology sector remain undimmed and we discuss some of these below. The sentiment shift was more reflective of excessive valuations being ascribed to a handful of stocks and factors external to the technology sector.

The deterioration in US/China trade relations is a concern

Last year was one of growing political tension as the US/China trade war moved from rhetoric to reality and, in the UK, Brexit negotiations dragged on. Of these two threats, Katie is considerably more concerned about the former. Part of her worry is that there is broad (but often unspoken) support for the actions on trade that President Trump has taken; many Democrats have protectionist views. Barriers to trade restrict growth.

The US actions against China are twofold: on the one hand, there is a desire to repatriate manufacturing jobs; on the other, there is an ambition to rein in China's aim of catching up with and surpassing US technological advances. For example, Chinese firms are starting to mass-produce 3D stacked NAND (tiers of memory capacity stacked on top of each other). A recent FT article also highlighted the advances that China has made in micro-electromechanical systems (accelerometers, gyroscopes and sensors) that are built into chips. Katie thinks that China's capabilities in 3D NAND are perhaps only a year behind those of the US, while China's ambitions may soon be realised in other areas.

Chinese companies, notably Huawei, are being accused of stealing technology and the focus has switched from trade policy to legal action, which may be harder to reverse.

However, there is a silver lining in every cloud. Companies such as Ericsson and Nokia are benefitting from Huawei's problems, winning business that they might otherwise have lost.

Investor sentiment toward the UK has been affected by Brexit but, looking longer-term, the manager is not overly concerned

With respect to Brexit, some global investors have the perception that the UK is best avoided at the moment and this has hurt the share prices of UK companies, especially smaller ones. Katie is relatively sanguine about the potential impact of Brexit on the UK stocks that she follows. She points out that small companies are inherently more adaptable and responsive than large ones. Weaker sterling may have helped some companies expand their margins. The potential disruption could create new opportunities in some sectors, as the UK gears up in preparation for Brexit.

It is also notable that the large technology companies are still investing in London. Facebook announced plans to double the size of its London office last summer; Apple's new Battersea Power Station HQ is under construction; and Google is building a 1m sq ft office in Kings Cross. Katie believes that London will remain a major tech hub post-Brexit, and that the major US tech companies building their businesses in the city will help to train the next generation of entrepreneurs.

Stock-specific drivers more important than economic backdrop

Figure 2: Apple share price

Source: Bloomberg, Marten & Co

Technological change creates both winners and losers and this can result in extreme share price movements. This is one reason why the manager ensures that HRI's portfolio is so diversified (see page 10). In 2018 there were some high-profile losers, notably Apple. Sales of its iPhones have slowed and this has had a knock-on effect on suppliers. Most of these are large companies and therefore outside HRI's remit but it was affected by falls in the share price of compound semiconductor wafer company, IQE, (see page 13) and semiconductor assembly equipment manufacturer, BE Semiconductor Industries NV (Besi).

It is the nature of technology markets that often what was once cutting-edge can become commonplace and lose its pricing power; this is why defensible IP is so important. Commoditisation can be a boon, however. Katie believes that this is the case with the collapse in the cost of data storage and processing. Large incumbents, such as IBM and HP, are losing ground to low-cost players such as Amazon and Microsoft's Azure. These companies have slashed the cost of cloud computing with low-cost or even free introductory deals designed to entice new customers onto their platforms. Once secured, this can be sticky business for these hosting companies.

The growth in cloud computing and falling cost of data storage and processing is transformational for start-up businesses

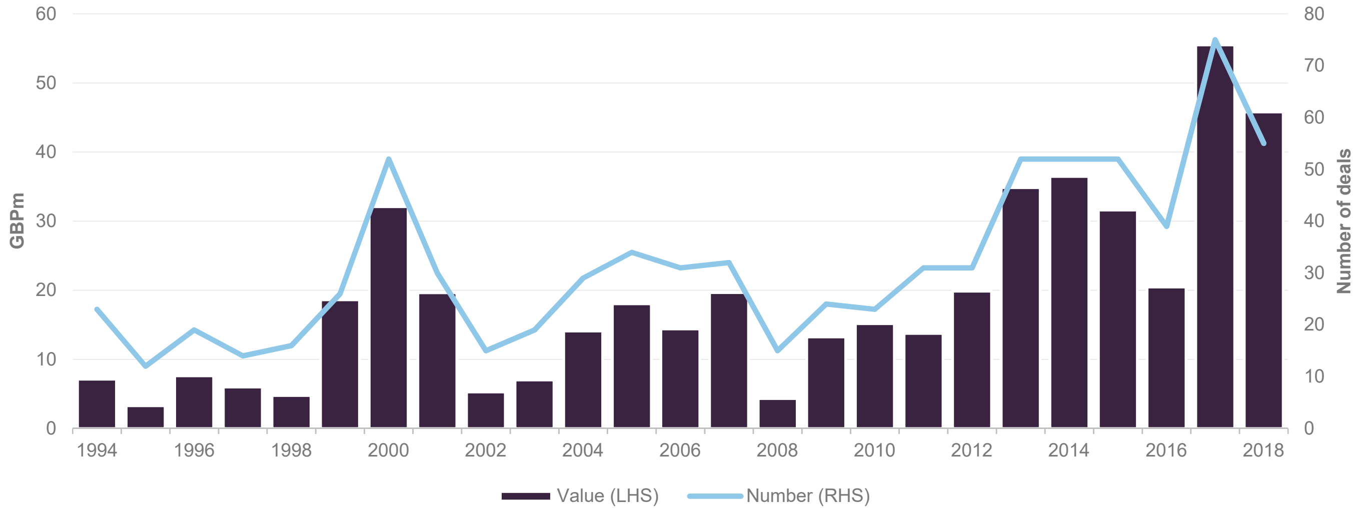
For a start-up technology company, the shift to cloud computing means much lower set-up costs (no more investment in expensive hardware, for example) and a cost base that flexes as the business grows.

After the cost of personnel, data storage and cloud-based services are often the biggest cost for the businesses that Katie looks at. She thinks the dramatic fall in the cost of data processing and storage is as significant to the technology sector as weak oil prices would be for many industrial companies. It is also having a deflationary impact on the wider economy.

Corporate actions abound

HRI is an important source of funding for small technology companies, as is evident in Figure 3. In the US, businesses tend to turn to VCs for funding, but in the UK many companies tend to progress from VCT/EIS funding to AIM. Over the years that Katie has been running HRI she has seen a marked decline in the number of managers and analysts covering the sector. Often HRI ends up as a cornerstone investor and therefore is able to influence pricing.

Figure 3: Herald's participation in primary placings

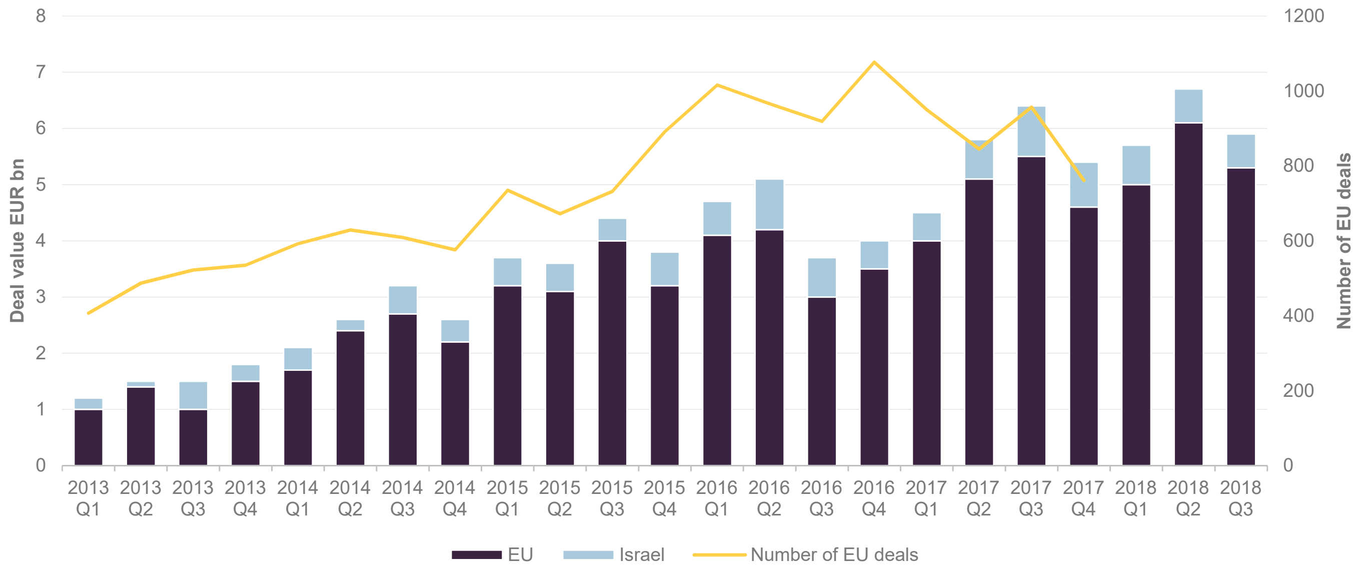


Source: Herald Investment Management

By contrast, the ample VC funding available in the US is enabling companies to come to NASDAQ as introductions, without any accompanying fundraising. Spotify was a prime example of this in 2018. Katie envisages that Uber and AirBnB may be similar stories.

The amount of VC funding for start-up companies in Europe has been increasing.

Figure 4: EU and Israel VC funding



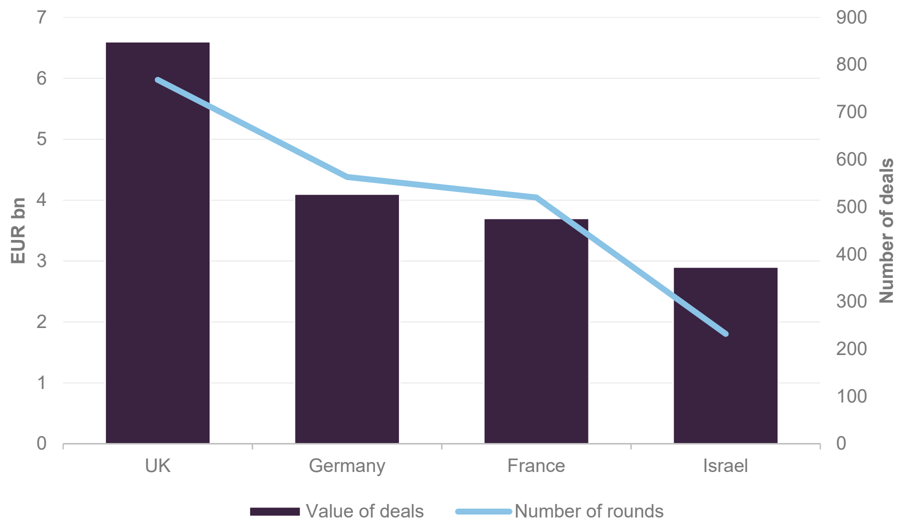
Source: Dealroom.co, Herald investment Management, Marten & Co

It was also a good year for companies looking to fundraise. In 2018, HIML was invited to participate in over 110 placings, over 70 of which were for UK companies. Inevitably, when sentiment turned in Q4, the pace of deals declined and a few secondary offerings and primary deals failed to achieve their targets, including a handful that the HRI team had liked the look of.

VCs are investing in the UK

The UK remains the leading destination for VC funding in Europe, according to Dealroom.co. Figure 5 shows the amount invested over the 11 months to the end of November 2018.

Figure 5: Value and number of VC funding rounds in 2018 (to end November)



Source: Dealroom.co, excludes buyouts, secondary transactions, debt, ICOs, lending capital, grant

Over the past six years, HRI has benefitted from takeovers for 80 holdings in deals totalling £347m and there were quite a few deals in 2018, including a bid for Fidessa (see page 13).

Katie says that private equity firms have been targeting technology-related companies with positive cash flows. Examples of this phenomenon in 2018 include the DBAY Advisors bid for recruitment company, Harvey Nash, and the Siris Capital Group LLC bid for web.com (both of which were held by HRI).

Sector under-researched and liquidity an issue

MiFID 2 has reduced the availability of research. Private investors are becoming more important but they are not always investing rationally

A healthy period of corporate activity in the first nine months of 2018 has helped cushion brokers from the effect of MiFID 2 rules around payment for the receipt of investment research distribution. There is evidence that coverage of small-cap stocks, in particular, is shrinking. Analysts are leaving the industry, many to investor relations jobs. Katie sees this as a serious threat. As skilled market participants are exiting the sector, there is a risk that liquidity deteriorates further, especially now, as the marginal buyers for many stocks have been private investors, often trading on rumour and speculation (in the absence of research). In 2018, some private investors piled into a handful of small-cap names and drove valuations to excessive levels. Katie often found herself selling to these buyers. When sentiment turned, liquidity became very thin at the year-end and this contributed to market volatility.

Katie also reiterates the distortive effect of using stock options to reward staff. This practice originated with VC-backed firms in Silicon Valley, but has become more widespread, especially in the US. She always factors the possibility of future dilution into her assessment of potential investments.

Valuations are not stretched and there are reasons to be optimistic

Katie is still upbeat, however. As she points out, there is always some new challenge to be addressed; technology is not discretionary spending for most businesses, and companies need to invest in innovative technologies just to stand still. She does not think that valuations look stretched and sees absolutely no parallel with 2000, despite some journalists making contrary statements, usually just in reference to the extremely high valuations placed by venture capital investors on unlisted businesses.

To Katie's mind, the negative sentiment surrounding the sector at the end of 2018 was not reflected in reality, and the recovery in stock prices in 2019, to date, suggests that investors are being drawn back to the sector.

Investment process

Extensive fundamental research

Bottom-up stock selection based on fundamental analysis. HRI's universe is vast with over 5,000 listed companies

HIML's investment process is driven by bottom-up stock selection, based on extensive fundamental research of the universe of smaller companies that make up the telecommunications, multimedia, and technology sectors. The listed universe within this space includes more than 5,000 quoted companies but, in their respective markets, these companies also compete against many more unquoted companies and the HIML team believes it important to get to know as many of these as possible. This is not just because unquoted companies may eventually list, but because the information gleaned by the HIML team from competitors, customers and suppliers can be a useful source of ideas, valuable in evaluating how sustainable a company's competitive position is and assessing the risks within a business, as well as providing a useful means of cross-referencing the information provided by another company's management.

Idea-generation

In terms of idea-generation, HIML benefits from being a major player in the UK and companies will routinely make the effort to present to the team. The US is a very important market, however, and as small-cap US technology companies are visiting London less frequently, HIML established a satellite office in New York. In addition, Katie visits the US for around five weeks a year to meet companies and the wider HIML team also travels extensively.

Searching for companies with sustainable advantages

The team is looking for stocks that can achieve high returns on capital and/or will trade on single-digit P/Es within an acceptable timeframe

At heart, the members of HIML's team are value investors. Rather than just looking to identify companies with the capacity to grow, they are looking for companies that are capable of making decent returns on capital or those with earnings growth which will propel them to a single-digit P/E within a reasonable period of time. This requires an analysis of a company's products, markets and competitive position. In this regard, the HIML team is looking for companies where it can see clear markets for its products and where it has advantages over the competition that mean it is more likely to succeed. These come in a range of forms, but could include superior technology, network effects or barriers to entry such as specific intellectual property, patents and the like.

Reflecting the benefits that can be accrued from making early-stage investments in technology companies, loss-making companies are considered for the portfolio. However, the team needs to be able to see both a significant market opportunity and a clear path to profitability. The team tends to be wary of companies that are trading on large multiples of sales, and prefers not to own stocks trading on what it describes as 'concept valuations'.

HIML says that it does not attempt to model companies' cash flows in any great detail and that, for the types of companies in which it is investing, there is usually far too much uncertainty to make this a useful exercise. However, it does spend considerable time analysing companies' accounts to gain an understanding of how a business works and the robustness or otherwise of its earnings.

The importance of diversification

A high degree of stock-specific risk necessitates that HRI's portfolio is diversified

The nature of smaller technology, multimedia and telecommunications (TMT) companies is that they are often dependent on a single product or service and, whilst success can propel share prices many times higher, failure can mean bankruptcy. New technologies can create value very quickly but they can also severely disrupt existing business models and product life-cycles can be quite short. The high degree of stock-specific risk that this entails is countered by having a high degree of diversification within the portfolio.

Liquidity considerations also play a part. In general, HRI holds less than 5% of the share capital of the companies in its portfolio. These small-cap positions tend to be less liquid and, from a risk management perspective, this inherently places a limit on the size of each position, as larger positions are harder to buy and sell and are more likely to move the market. The handful of companies HRI holds with a larger percentage of ownership are often those that needed to raise cash but found insufficient other large investors willing or able to invest. Stocks that are held in large size by other investors can make HIML nervous, in case these shareholders ever become forced sellers.

At the end of December 2018, HRI had 285 holdings. The HIML team is conscious that, in some investors' eyes, this is a large number of companies to follow, but it counters that the small companies in which it is investing have far simpler business models than most large-cap companies, and that this makes them much easier to follow in detail. Cross referencing between suppliers, customers and competitors is an important part of the investment process.

An alternative strategy could be to move up the market-cap scale to find greater liquidity, which would allow the team to increase the average position size and, in the manager's view, necessitate a migration to a much heavier US weighting. However, the team believes that it is crucial that HRI maintains exposure to micro caps. Katie says that this is where HRI's best returns have originated, with many stocks rising by more than 10 times. Katie also believes that smaller-cap stocks are generally better value as these companies are not well covered by analysts. MiFID II has contributed to a reduction in the amount and quality of research available.

Portfolio construction

Portfolio construction is driven by stock selection

HIML's investment process is driven entirely by stock selection and without reference to any benchmark index. The portfolio has long had a bias to the UK. This reflects Katie's belief that the UK technology sector is more vibrant than Europe's; UK stocks are, generally, more reasonably valued than US ones; and Asian stocks generally have inferior business models (frequently they are providing outsourced manufacturing services to larger tech companies and often have little pricing power).

Liquidity is an important driver of position size

Long-term winners tend to form the core of the portfolio (the top 10 holdings were 17.0% of the fund at the end of December 2018). HRI's larger positions usually started as much smaller positions and then grew as they outperformed their brethren.

HRI has some minor exposure to unquoted companies, including its stake in HIML. This is not an area that the trust is focused on and no more unquoted investments are currently planned. The HIML team believes that it is useful that HRI retains the flexibility to hold unquoted investments, however, as this gives it the opportunity to retain attractive companies that choose to delist.

Sell discipline

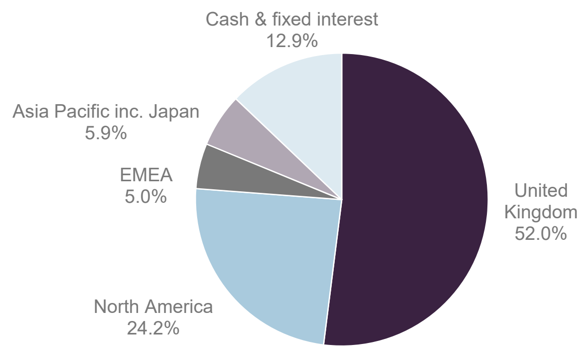
Sell discipline is driven by valuation and the viability/maturity of the business model

Stocks are sold when valuations no longer reflect the growth prospects of the company, their margins start to normalise relative to the wider market (an indication that the company's intellectual property is no longer capable of supporting superior returns) or when there is a clear deterioration in the business model. Companies that have grown larger are typically top-sliced to fund new investments and provide further capital to the earlier-stage smaller companies.

Asset Allocation

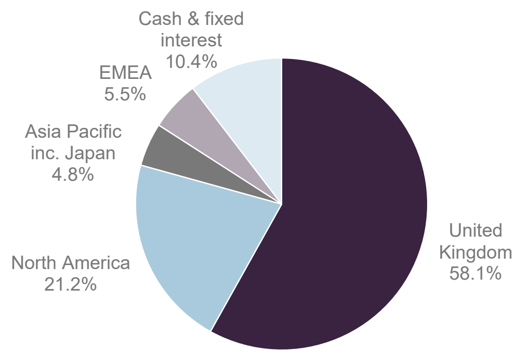
There were 285 holdings in HRI's portfolio at the end of December 2018.

Figure 6: Geographic allocation as at 31 December 2018*



Source: Herald Investment Management *Note: as a proportion of gross assets

Figure 7: Geographic allocation as at 30 April 2018*



Source: Herald Investment Management *Note: as a proportion of gross assets

Figure 8: Top 10 holdings as at 31 December 2018

Holding	Sector	Country	Allocation 31 December 2018 (%)	Allocation 30 April 2018 (%)	Percentage point change
GB Group	Software & computer services	UK	2.6	2.9	(0.3)
Diploma	Support services	UK	2.3	2.3	0.0
Next Fifteen Communication	Media	UK	2.0	1.9	0.1
Attunity	Software & computer services	US	1.7	0.6	1.1
Craneware	Software & computer services	UK	1.6	1.2	0.4
Mellanox Technologies	Technology hardware & equip.	US	1.4	1.0	0.4
Radware	Technology hardware & equip.	US	1.4	1.2	0.2
Pegasystems	Software & computer services	US	1.3	1.4	(0.1)
Future	Media	UK	1.3	0.8	0.5
M&C Saatchi	Media	UK	1.3	1.5	(0.2)
Total of top 10 holdings			17.0	17.1	(0.1)

Source: Herald Investment Management, Marten & Co.

Figure 7 shows the geographic distribution of the portfolio at the time that our last note was published, and Figure 6 shows the position at the end of 2018. It is notable that the UK proportion has declined in favour of cash (as Katie has raised cash from successful investments) and the US (as sterling weakness and Brexit worries have combined to depress the valuations of UK companies relative to overseas ones).

The cash position at the end of December 2018 was a record level for HRI. There have been a few changes to the make-up of the top 10 holdings. Some profits have been taken on the position in GB Group.

Figure 9: Attunity share price

Source: Bloomberg, Marten & Co

Attunity

HRI was a cornerstone investor in a fundraise carried out by Attunity in 2017, providing $4.75m of a total $23m. Attunity is an Israeli business with a stock market listing in the US. Its software integrates applications and data sources through industry-standard interfaces. Attunity's solutions are designed to allow its customers to access and manipulate data in real time. It also makes it easier for companies to migrate data from legacy systems.

Attunity (**attunity.com**) recently reported full-year 2018 license revenue growth of 61% year-over-year and total revenue growth of 39% year-over-year.

Figure 10: Craneware share price

Source: Bloomberg, Marten & Co

Craneware

Craneware (**craneware.com**) provides technology to US hospital groups, aimed at optimising their profitability. It has a good track record of improving its revenue and profits and, for a UK-based investor, its dollar earnings have been flattered by sterling weakness. The company claims to have around a quarter of US hospitals as customers and is broadening the range of services it provides to them.

A trading statement released on 21 December 2018 said that the company "expects to report increases in both revenue and adjusted EBITDA in the range of 15% to 20% for the six-month period ending 31 December 2018."

Figure 11: Mellanox Technologies share price

Source: Bloomberg, Marten & Co

Mellanox Technologies

Mellanox Technologies (**mellanox.com**) supplies semiconductor-based interconnect products that improve connection speeds and reliability. For example, increasing the efficiency of data centres. It is, like Attunity, an Israeli company with a US stock market listing. Katie thinks that, because their Israeli domicile meant that they were excluded from index benchmarks, both of these stocks have been neglected by many investors.

Mellanox Technologies broke through $1bn in revenue for the first time in 2018, with a 26% growth in revenue. It is predicting revenue of about $300m in Q1 2019 and gross margins of about 68%.

Figure 12: Radware share price

Source: Bloomberg, Marten & Co

Radware

Radware (**radware.com**) is a networking and cybersecurity company. Its systems protect against DDoS attacks. Its revenues are on a rising trend again, having experienced a more difficult period over 2015/17, when it repositioned its business model with a greater emphasis on regular subscription revenue. It has a target to expand its operating margin beyond 15% by 2020 (from a low of 2% in 2017).

Future

Figure 13: Future share price

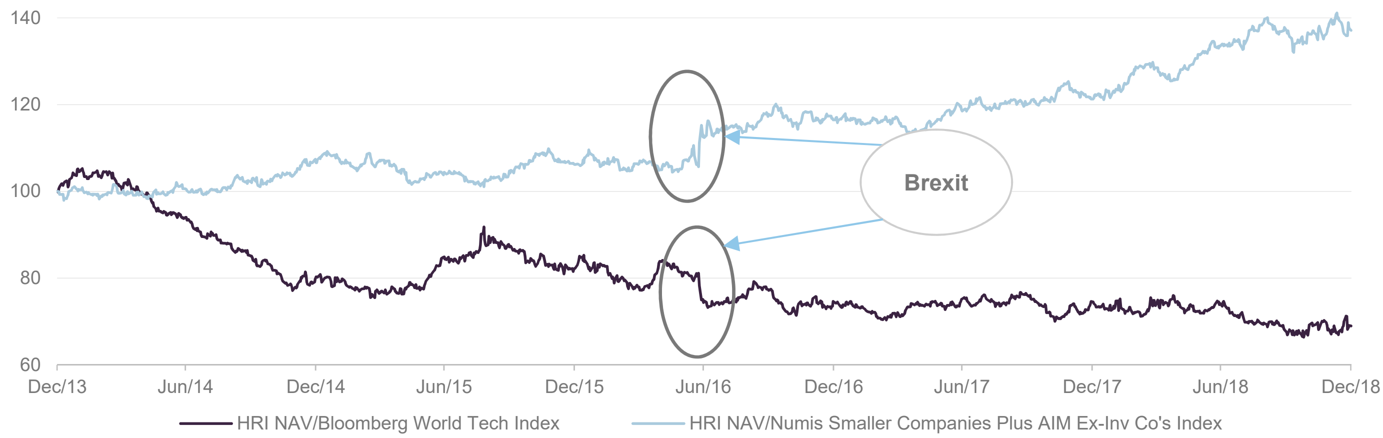
Source: Bloomberg, Marten & Co

Future (futureplc.com) publishes a range of special interest consumer magazines and websites across Tech, Gaming & Entertainment, Music, Creative & Photography, Home Interest, Education, and Television. Brands include the PlayStation and XBOX official magazines, Music Week and Digital Camera.

It has been growing, both organically (like-for-like revenue growth was 11% over the year to the end of June 2018) and by acquisition. In July 2018, Future announced a rights issue to fund the acquisition of the business to consumer businesses of Purch, a US consumer online technology media publisher. HRI supported the rights issue.

Performance

Figure 14: HRI's NAV relative to Bloomberg World Tech Index and Numis Smaller Companies Plus AIM ex Investment Companies Index over five years to 31 December 2018



Source: Bloomberg, Morningstar, Marten & Co

Figure 15: Cumulative total return performance to 31 January 2019

	1 month (%)	3 months (%)	6 months (%)	1 year (%)	3 years (%)	5 years (%)	10 years (%)
HRI NAV	6.4	1.8	(7.7)	0.5	64.8	70.4	469.8
HRI share price	9.8	0.9	(10.3)	(2.5)	73.3	65.5	544.8
Numis Smaller Cos. plus AIM ex IC	5.4	(1.3)	(11.2)	(10.6)	28.3	23.6	271.9
Bloomberg World Tech	4.9	(1.0)	(4.8)	4.9	91.7	154.8	483.8
MSCI World	4.4	0.4	(4.8)	(1.0)	48.5	74.7	225.8

Source: Morningstar, Bloomberg, Marten & Co

Up-to-date information on HRI is available on the QuotedData website

As is evident from Figures 14 and 15, HRI has maintained its record of strong outperformance of the UK small-cap market (as represented by the Numis index). UK stocks have lagged most overseas markets, on average, dragged down by weak sterling and Brexit-related uncertainty. The trust's exposure to US Treasuries (held as a proxy for cash) proved beneficial in Q4 2018. The short-term performance figures in Figure 15 show the impact of the Q4 sell-off in growth stocks, leading to underperformance of the MSCI World Index.

An unusually bifurcated year

Katie describes 2018 as an unusually bifurcated year. In the summer, HRI was sitting on impressive gains in many positions. The managers tell us that HRI's US portfolio was up over 30% at one point – outperforming the Russell 2000 Index by 5.1% in total return terms. Katie was selling into the rising market and the portfolio was also benefitting from takeover activity. When the market turned, HRI's cash weighting proved beneficial to relative returns and some stocks, such as Attunity, which we discussed on page 11, continued to rise on the strength of their underlying performance.

IQE

Figure 16: IQE share price

Source: Bloomberg, Marten & Co

On the downside, IQE (iqep.com), was a drag on returns. It is a supplier of advanced compound semiconductor wafers and has been supplying the wafers that enable the iPhone's facial recognition technology. IQE was HRI's largest position at the end of December 2017, when HRI had £26.1m invested in the company. The success of the investment up to that point is evident when you consider that the book cost at the time was £6.1m. Katie was taking profits on the position early in 2018 but, when Apple's smartphone sales began to disappoint, IQE's share price came off. The fall was exacerbated as some other investors (hedge funds and the like) were shorting IQE's shares aggressively.

Fidessa

Figure 17: Fidessa share price

Source: Bloomberg, Marten & Co

On the plus side, one of the most significant bids for a company held by HRI in 2018 was that for Fidessa. Fidessa provides trading systems, information and support systems for professional investors. HRI had £6m invested in the company at the end of December and Fidessa's share price was more than 50% higher following the announcement of a bid early in the year from a Swiss company, Temenos. That bid was topped in April by a £1.5bn bid from Ion Investment Group

Dividend

HRI is focused primarily on generating capital growth, and dividend income makes up only a small part of returns. The consequence of this is that HRI only declares a dividend where this is necessary to retain investment trust status, and in practice, no dividend has been declared since 2012.

The revenue per share for the year ended 31 December 2017 was 0.68p (2016: 0.58p).

Discount

HRI's discount has widened in recent months, coincident with a sell-off in the technology sector

Over the past year, the discount has moved within a range of 9.5% to 19.4% with an average of 14.4%. As at 8 February 2019, the discount was 15.1%. Figure 18 shows that, after two years of discount narrowing, HRI's discount been widening in recent months. This coincides with a wider sell-off in the technology sector.

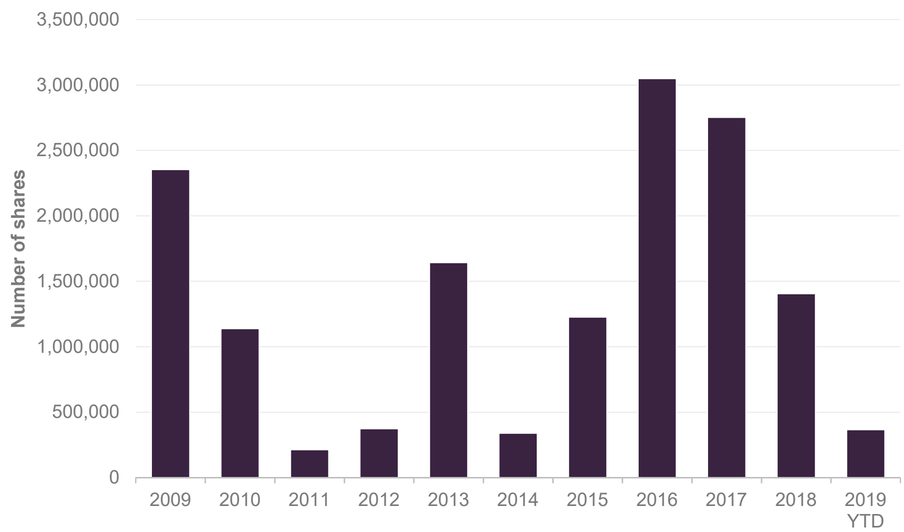
HRI has benefitted from strong cash inflows from portfolio realisations and some of these proceeds have been used to repurchase shares.

Figure 18: Premium/(discount) over five years to 31 January 2019

Source: Morningstar, Marten & Co

HRI's board has not set a formal discount target but it has authorised the use of share buybacks with the aim of helping to provide some liquidity. The board takes powers each year to repurchase up to 14.99% of the then-issued share capital and, as is clear from Figure 19 it is prepared to use them. Any shares repurchased are cancelled.

Figure 19: HRI share repurchases over the past 10 calendar years



Source: Herald Investment Trust

Fees and costs

1% annual management fee, no performance fee

HIML is entitled to an annual management fee of 1% of net assets (excluding HRI's holding in Herald Ventures II LP). The NAV is calculated monthly using mid-market prices, which is somewhat unusual, as most NAVs are calculated at bid prices. However, given that many of HRI's underlying holdings trade on wide spreads, the mid-market valuation gives a better indication of the true value of the portfolio. There is no performance fee. The management fee also covers the cost of company secretarial services, which HIML has delegated to Law Debenture Corporate Services.

In the year to the end of December 2017, HRI's ongoing charges ratio was 1.08%, down from 1.09% for the year before. The asset management contract is subject to 12 months' notice.

Capital structure and life

Simple structure

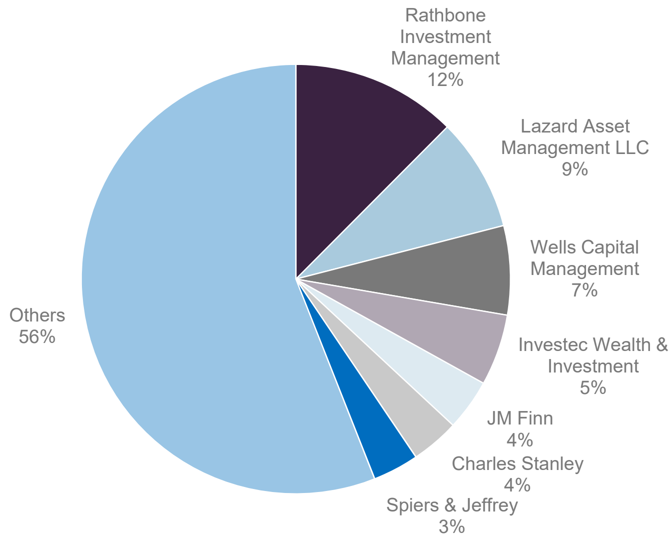
HRI has 68,391,977 ordinary shares in issue and no other classes of share capital.

The company has a £25m multi-currency revolving loan facility maturing 31 December 2019 which is provided by RBS. Currently, the facility is undrawn. HRI had net cash of 12.9% at 31 December 2018.

HRI does not have a fixed life, but a continuation vote is scheduled for the AGM in 2019 and every third year thereafter. The company's year-end is 31 December and AGMs are normally held in April.

Major shareholders

Figure 20: HRI's largest shareholders



Source: Bloomberg, Herald Investment Management, Marten & Co

Board

HRI's compact board helps to keep its ongoing charges low.

HRI's board normally comprises four non-executive independent directors and so is a relatively compact board, for a company of its size, helping to keep the ongoing charges ratio down. However, two new directors, Ian Russel and Stephanie Eastman, have recently joined HRI's board. Further details of the new board members are provided overleaf.

Total fees for the directors are capped at £200,000. Figure 21 shows the current composition of the board and provides some information on members' length of service and shareholdings in the company. It is board policy that all serving directors retire and offer themselves for re-election annually.

As illustrated in Figure 21, with the exception of Stephanie Eastman who has only recently joined the board, all of the directors have made significant personal investments in HRI's ordinary shares.

The chairman, Julian Cazalet, was managing director – corporate finance at JPMorgan Cazenove until his retirement in December 2007. He is also chairman of Lindsell Train Investment Trust. Tom Black is chairman and co-founder of Thruvision Group Plc (formerly Digital Barriers) and was previously chief executive of Detica Plc. Karl Sternberg was a founding partner of Oxford Investment Partners. He was CIO Europe & Asia Pacific at Deutsche Asset Management. He is a non-executive director of a number of other investment companies. James Will was, until 2014, chairman and senior corporate finance partner of Shepherd & Wedderburn LLP. He is also chairman of Scottish Investment Trust.

Figure 21: Board member - length of service and shareholdings

Director	Position	Appointed	Length of service (years)	Annual director's fee (GBP)	Shareholding
Julian Cazalet	Chairman	18 January 2008	11.1	32,250	150,000*
James Will	Chairman of the audit committee	21 April 2015	3.8	24,000	6,000
Tom Black	Senior Independent Director	1 May 2013	5.8	21,500	6,900
Stephanie Eastman	Director**	8 November 2018	0.3	24,000	-
Ian Russell	Director	1 August 2018	0.5	21,500	7,500
Karl Sternberg	Director	21 April 2015	3.8	21,500	3,578

Source: Herald Investment Trust, Bloomberg, Marten & Co. *Note: Julian Cazalet's holding of 150,000 shares comprises 100,000 shares held beneficially and 50,000 shares held non-beneficially. **Note: Stephanie Eastman is to be appointed chair of the audit committee.

Ian Russel (director)

Ian Russell is a chartered accountant that has held a number of finance roles in industry and banking. He also has considerable experience as an investment trust board member. Ian qualified as a chartered accountant with Thomson McLintock, He then joined Scottish Power plc in 1994, initially as Finance Director. He then became CEO in 2001, a role he held until 2006. Since 2006, Ian has concentrated on non-executive roles. He is currently the chairman of HICL Infrastructure Company Limited, a non-executive director of Aberdeen Diversified Income and Growth Trust Plc and a non-executive director of Mercantile Investment Trust Plc. He is also chairman of the Scottish Futures Trust Limited, an independent company established by the Scottish Government with a responsibility for delivering value for money across public sector infrastructure investment. Ian was previously a non-executive director of British Polyethene Plc and Johnston Press Plc.

Stephanie Eastman (director)

Stephanie Eastman is a chartered accountant and company secretary with over 30 years' experience in the financial services industry. She has considerable experience in the investment trust sector and is a member of the AIC's Technical Committee. Stephanie qualified with KPMG and held various accounting and compliance roles at Wardley and UBS before joining Invesco Asset Management in 1996 as Manager, Investment Trust Accounts. When she left Invesco in July 2018, she was Head of Specialist Funds Company Secretariat and Accounts. Stephanie is a non-executive director and audit chair of Murray Income Trust Plc. She is to be appointed as HRI's audit committee chair at the company's upcoming AGM on 16 April 2019.

Management team

Katie is supported in managing the funds by a team of six other investment professionals and three consultants.

Katie Potts is the managing director and also the lead fund manager for HIML. She established HIML in December 1993 to manage HRI, which was launched in February 1994. Katie read Engineering Science on a GKN Group scholarship at Lady Margaret Hall, University of Oxford. She worked for five years in investment management at Baring Investment Management Limited, before joining S.G. Warburg Securities's UK electronics research team in 1988. The team was consistently voted top team in the Extel survey of analysts in the sector, and she was voted top analyst by finance directors of electronics companies canvassed by *The Treasurer* magazine. In addition, Katie had responsibility within S.G. Warburg's UK research department for commenting on accounting issues.

Fraser Elms joined HIML in May 2000. He is the deputy manager of HRI and has lead responsibility for managing HIML's Asian portfolios. Prior to joining HIML, Fraser was a technology analyst with Dresdner Kleinwort Benson, where he covered the European technology sector. Before this he worked at Prudential for three years as member of a team of three UK unit trust fund managers that managed £5bn in equities, with Fraser having lead responsibility for three funds collectively worth £400m. He graduated from Lancaster University with a degree in Economics and initially joined Prudential as a product manager for their unit trusts, before completing an MSc in Investment Analysis at the University of Stirling and re-joining Prudential in an investment role. Fraser covers the semiconductor sector.

Taymour Ezzat joined HIML in November 2004. He is a portfolio manager on the venture funds, sitting on the venture committee, and taking lead responsibility for a number of the investments in the venture portfolios. He also has analytical responsibility for the media sector across all HIML's quoted and unquoted portfolios. Previously he spent a year appraising a number of venture capital opportunities for E.D. Capital Partners. Prior to that, Taymour spent six years at Northcliffe Newspapers, the regional newspapers division of Daily Mail and General Trust (DMGT), latterly as finance director of its electronics publishing arm. Beforehand, Taymour worked for Reuters in London and Eastern Europe for four years. He qualified as an accountant with Price Waterhouse, and studied Economic History at the London School of Economics and Political Science.

Hao Luo joined HIML in 2004 and works with Fraser Elms on managing the Far East portfolios. He also has analytical responsibility for the manufacturing sector globally. Hao obtained a BA in Economics from Hunan University in China and a Masters degree in Finance from Manchester University. He worked for J&A Securities in Shanghai from 2000-2002. Hao is a CFA charterholder.

Peter Jenkin joined HIML as an analyst in 2015. Peter covers the software sector and contributes to the overall investment selection. Before joining HIML he studied Construction Engineering Management at Loughborough University.

Bob Johnston was recruited to establish a US office. He has more than 20 years' experience in the technology sector on the sell-side, and he has worked with the HIML team for roughly 15 years. Most recently, Bob was with the technology specialist Pacific

Crest. He previously also worked for Hambrecht & Quist and SoundView Technology Group. Bob has taken responsibility for telecommunications, networking and security analysis.

Danny Malach joined HIML in June 2016. At Newcastle University Danny obtained First Class Honours in his undergraduate degree in Accounting and a Merit in (MSc) International Economics and Finance.

Previous publications

Our previous notes are listed in Figure 22 below. You can read the notes by clicking on them in Figure 22 or by visiting our website, www.martenandco.com.

Figure 22: Marten & Co. previously published notes on HRI

Title	Note type	Date
Invest in the future	Initiation	16-Aug-16
Tech bids demonstrate value	Update	20-Dec-16
Backing growing businesses	Update	11-Jul-17
Who wants to be a billionaire?	Annual overview	07-Dec-17
From small acorns….	Update	12 June 18

Source: Marten & Co.

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