

HUMAN CAPITAL MANAGEMENT

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investors and advisers only

Sustainable competitive advantage

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EXECUTIVE SUMMARY

Sustainable Competitive Advantage

Human capital is a critical source of **sustainable and scalable competitive advantage**. The first report in this series – “Margin of Safety” – sought to define the key concepts and set out why they matter to sustainable investors. We move beyond the theory in this paper, with proposals for quantitative measurement metrics and a variety of possible explanations on materiality.



Angus Bauer
Head of Sustainable Investment Research, Schroders

Measurement

The fact that human capital is often described as an intangible asset does not mean that it cannot be measured, or at least proxied, adequately. Our research does not argue that all aspects of human capital management can be adequately quantified with the information available to us today – to do so would be both over-zealous and blinkered at the same time. Nevertheless, **we propose a range of accounting metrics that treat people more like an asset as opposed to a cost, which allows us to refine our understanding of their contribution to returns and productivity accordingly. Our metrics are intended as outcomes-KPIs, aimed at capturing the consequences of strong human capital management, or its inverse.** They do not replace the need for engagement and qualitative assessment of companies. Indeed, we would argue that they are a very good starting point for such discussions. They do, however, allow us to assess the materiality of good human capital management, and begin to monitor its sustainability.

In this piece our focus is primarily on Human Capital Return on Investment (HCROI) in combination with employee economic value added (EEVA). While we present and discuss other human capital metrics in the report, as highlighted in Figure 1 below, these two terms can best **aid investor understanding of the sustainability of company returns within the confines of current corporate disclosure**. This can be achieved by disaggregating the degree to which firm level value creation is being generated (or compensated) by asset productivity, cost structures or employee leverage. It also helps us consider sustainability through a stakeholder lens. For example, is it sustainable if employee stakeholders receive a progressively lower proportional share of value than other stakeholders through time? People, particularly in the current environment, are the asset within an organization that has the highest propensity to move.

Figure 1: Human capital metrics

①	②	③	④
Human Capital Cost Factor (HCCF)	Human Capital Return on Investment (HCROI)	Employee Economic Value Added (EEVA)	Return on People-Adjusted Capital Employed (ROPACE)
Purpose	Purpose	Purpose	Purpose
Provides the cost of human capital, both immediately and over the long run on a fully-loaded basis. This gives us an understanding of the total investment cost of a firm's human capital.	Explains the fully costed return on monies spent investing in people. This represents the leverage on pay and benefits used to identify the benefits of human capital management.	Estimates the value employees derive from working at a given organization, adjusted for approximate corporation tax. Used to compare against economic value added to proxy gain-sharing between labor and capital.	Allows for the adjustment of balance sheet, P&L and cash flows to reflect human capital as an asset. Allows us to see a fully loaded return on all types of human capital cost, including carving out employee 'expense' versus 'investment'.
Calculation*	Calculation**	Calculation	Calculation***
Salaries + benefits + stock comp + contingents + lost days + churn + training	$\frac{\text{Nopat} + \text{HCCF}}{\text{HCCF}}$	$\frac{[(\text{Employee average pay} - \text{market average pay}) \times 0.75] \times \text{total number of employees}}{\text{total number of employees}}$	$\frac{\text{Adj. Nopat}}{\text{Adj. fixed assets} + \text{NWC}}$

Source: Human Capital ROI, Jac Fitz-Entz; O'Byrne and Rajgopal, 2022; Schroders. *It is important to note that the calculation for HCCF may require an estimate for cost of contingent or contract workers if undisclosed. **This fraction is consistent with the revenue-based version used in human resources management. In Figure 6 we show how it fits into ROCE-based value creation. ***While we do not have disclosures on the splits between employee investment and employee costs (akin to growth or maintenance capex on fixed assets, for example), we can apply Pareto or Price's Law to reported numbers or our HCCF assumptions, or as noted below, we can consider stock-based compensation as the proxy for investment in future capabilities.

EXECUTIVE SUMMARY (CONT'D)

We set out how investors might consider the sustainability of returns through the lens of HCROI and EEVA combined – picked up again in more detail in our fifth report in the series, “Investment Applications”. This acknowledges the relationship between human capital returns and absolute levels of pay as well as the pendulum between labor and capital. Bluntly, we are looking to identify gain sharing: the **degree to which growth in capital is distributed to employees versus to owners of capital**. It is also important to consider company level HCROI against a variety of control variables. These include absolute levels of pay, labor intensity and the ratio of gain sharing. The latter is potentially significant when considering the sustainability of company returns. It suggests that companies should aim to be above average investors in people, on an holistic basis.

Materiality

We consider three paths to materiality in our human capital research: empirical evidence, translation mechanisms, and externalities. Simplistically, this involves asking the following questions:

- Is there **adequate historical data** to build empirical evidence suggesting this theme, represented by specific metrics, is material?
- Can we **identify the translation mechanism** through which this issue – given it is not financially denominated – becomes impactful to the company balance sheet, cash flows and P&L?
- Can we identify and **create a sensible process for measuring the outward manifestation of this issue** as an externality, such that we can estimate the net social value associated with it, thus in time being able to consider this as a *potential* future financial opportunity or risk?

The idea behind this approach is to ensure an appropriate level of focus on materiality to all stakeholders while not being held back in the event that there is a lack of empirical

data. In this piece, we present the empirical evidence base that satisfies question one above, and introduce ideas for the remaining two questions, which are subsequently dealt with directly in our second and fourth reports.

Despite some limitations due to data coverage in specific areas and a relatively short sample period (2014–2022), our **empirical results are broadly encouraging**. In particular, our global dataset shows **markets tend to penalize companies with poor HCROI by more than they reward firms with high HCROI. Low leverage on investment in people is punished**. We set out both why we believe this to be the case, and how this might evolve. We also find statistical evidence that **HCROI is positively correlated with forward excess returns over multiple time horizons and across the majority of sectors, even after controlling for the positive correlation between ROCE and HCROI while adjusting for a variety of factors, including momentum, valuation (book to price), size (market cap) and R&D intensity**.

The final question we have asked in the initial empirical research on HCROI metrics refers to persistence. Much of the theory behind sustainable investing is premised on the hypothesis that companies with more sustainable business models should have a higher chance of delivering stability in their fundamental performance. Simply, **companies with higher HCROI create more value through the cycle**. Figure 2 below illustrates that companies which combine top ROCE and top HCROI (blue pluses) show consistently higher excess ROCE than top ROCE firms only (blue solid line). Conversely, those with top ROCE but bottom HCROI show consistently lower excess ROCE over time (blue minuses). There is a similar relationship for bottom ROCE firms. While high HCROI companies have higher ROCE and Net Margins on average and maintain these higher levels even after 5 years, Figure 3 also illustrates **that low HCROI does contribute to faster mean reversion of companies with higher starting net margins**.

EXECUTIVE SUMMARY (CONT'D)

Figure 2: Convergence of ROCE

Blue series represents top ROCE companies. Pluses denote top ROCE and top HCROI. Minuses are top ROCE and bottom HCROI. Green series is bottom ROCE.

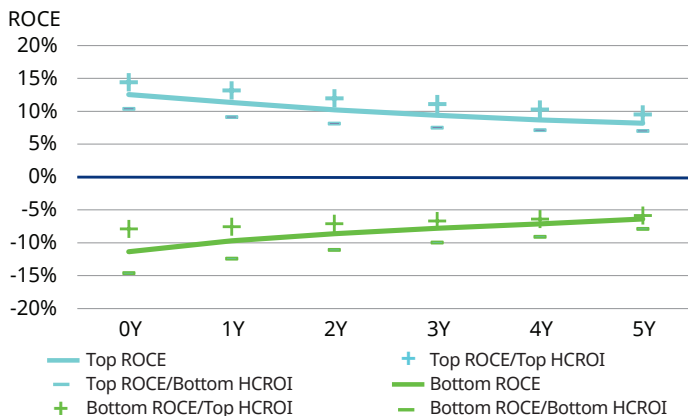
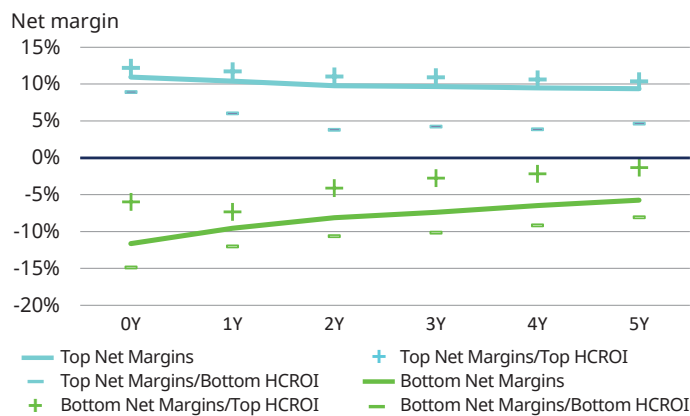


Figure 3: Convergence for net margins

Blue series represents top margin companies. Pluses denote top margins and top HCROI. Minuses represent top margin but bottom HCROI. Green series is bottom margin.



Source: Worldscope, Schroders.

Using the ROCE example, at each date, we compute "relative ROCE" by removing the universe's average ROCE. We split this new ROCE into terciles (top/average/bottom). We then look at the value of forward 1Y/2Y/3Y/4Y/5Y excess ROCE for top (resp. bottom) ROCE tercile. Finally, we add an additional split using HCROI, looking at companies with top (or bottom) ROCE and top (or bottom) HCROI. The blue line at 0% shows the ROCE average level for the universe. Companies in the top tercile for ROCE (light blue line) have a relative ROCE of 14.4% on average at year 0 and progressively converge towards the universe average, ending at 9.5% after 5 years. On the opposite side, bottom tercile ROCE companies (green line) show significantly lower ROCE than the universe -14.6%, reverting to -7.9% after 5 years.

HOW CAN WE MEASURE IT?

The metrics that matter

Quantitative approach is no substitute for qualitative

“Metrics serve to stifle innovation and creativity; they imitate science but resemble faith. When an institution is guided by some specific target, critical judgment is suspended”.¹

The quote above comes from a piece written in relation to inflation targeting by Central Banks. It’s application goes far beyond that, however. We write this research despite believing that it is important not to take the concept of

“what gets measured gets improved” too literally. One can use quantitative metrics to complement qualitative human capital analysis, but not as a substitute.

There are a number of ways to include human capital in financial metrics. Beyond simply considering revenue or profit per person – note that these metrics are already available in CONTEXT* – we have summarized the most meaningful approaches in Figure 4. Our focus in this research is on HCROI and Employee Economic Value Added because these allow us to understand returns on, and value to, human capital. We explain these below and set out why in the long term investors should continue to think about return on people-adjusted capital employed.

Figure 4: Human capital metrics

①	②	③	④
Human Capital Cost Factor (HCCF)	Human Capital Return on Investment (HCROI)	Employee Economic Value Added (EEVA)	Return on People-Adjusted Capital Employed (ROPACE)
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Calculation*	Calculation**	Calculation	Calculation***
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Source: Human Capital ROI, Jac Fitz-Entz; O’Byrne and Rajgopal, 2022; Schroders. *It is important to note that the calculation for HCCF may require an estimate for cost of contingent or contract workers if undisclosed. **This fraction is consistent with the revenue-based version used in human resources management. In Figure 6 we show how it fits into ROCE-based value creation. ***While we do not have disclosures on the splits between employee investment and employee costs (akin to growth or maintenance capex on fixed assets, for example), we can apply Pareto or Price’s Law to reported numbers or our HCCF assumptions, or as noted below, we can consider stock-based compensation as the proxy for investment in future capabilities.

*CONTEXT™ is a proprietary tool used by Schroders to support the analysis of companies’ and issuers’ management of the environmental, social and governance trends, challenges and opportunities that Schroders believes to be most relevant to that company’s or issuer’s industry. It provides access to a wide range of data sources chosen by Schroders. Any views or conclusions integrated into Schroders’ investment-decision making or research by fund managers or analysts through the use of CONTEXT™ will reflect their judgement of the sustainability of one or more aspects of the relevant company’s or issuer’s business model rather than a systematic and data-driven score of the company or issuer in question.

1 The Price of Time, Edward Chancellor.

HOW CAN WE MEASURE IT? (CONT'D)

Deriving HCROI

We have not invented the metrics above; nor are we the originators of the argument that human capital is material or that companies that have strong culture can outperform. The phrase credited to Peter Drucker – “*culture eats strategy for breakfast*” – has become common parlance. A rich stream of literature has demonstrated links between culture as measured by employee reviews, for example, and shareholder returns. We have therefore approached this research from the perspective of seeking to understand two areas:

1. **how human capital contributes to sustainable – and sustained – value creation, and;**
2. **how human capital management can be optimized to ensure the best possible combination of (re)investment in people and distribution to other owners of capital such that value creation is sustained.**

For the purposes of answering the first question, it is important to frame the analysis in language and metrics that are relevant to practitioners. Professionals in the Human Resources (HR) industry have been scrutinizing human capital returns for some time, typically with the following formula described in Figure 5:

Figure 5: HR metric for measuring return on investment in people

$$\text{Return on Investment} = \frac{\text{Revenue} - \text{non-employee related costs}}{\text{employee related costs}}$$

Source: Human Capital ROI (Jac Fitz-Entz), Schroders.

This calculation provides an understanding of leverage on pay and investment. Employee related costs are both direct and indirect. They can include costs of pay and other benefits, as well as opportunity costs felt by the business from employee time off for sick leave or attrition due to departures. The latter two are important when thinking about productivity. Sick days sap firm-level productivity because of lower output and lower fixed cost absorption. Seldom does the fixed cost associated with an employee cease when he or she is on sick leave. But equally often, purpose-driven teams conspire to take up some of the burden or share the load when there are protracted periods of absence. It follows, therefore, that

reducing periods of absence can have a meaningful effect on company returns, courtesy of both better absorption and higher output.

Case study: Online Retail

While it is rare to find many businesses where this issue – of absenteeism or lost days – in isolation could be undermining competitive advantage, it does happen. One well-known online retailer could, for example, have a meaningful margin opportunity or growth gap buried within its lost days that have been consistently in the high single digit percent range in recent history (including pre-Covid). For this particular business, in the decade prior to the pandemic, salaries represented approximately 11% of sales. Absence rates and lost days had been trending up somewhat at group level over the 6 years for which there is disclosure, peaking in the pandemic year (2020). Looking just at the group wage bill, we estimate circa 5.5% of that absolute cost, or 60bps of revenues is effectively monies paid for lost days. Consensus EBIT margins in this case are for circa 4% by 2025. With that sort of margin profile, when the corollary of reduced lost days is higher utilization, and lower cost waste, there is considerable need for improved human capital management. Lost days will never disappear, but moving the numbers into line with peers would, all else equal, yield positive consequences for productivity. One of the avenues we will seek to explore more in future work is the trade-off between different types of employee related cost.

Integrating people into returns

We can build on the approach taken in the HR industry by integrating employees and employee costs into an equation for ROCE, such that we can begin to understand the importance of people to company returns on capital. The logic of doing so is referenced at the very start of this paper: people are an extraordinary asset for most companies because their value and productive capabilities appreciate over time, if they are invested in appropriately. The steps we have taken to integrate people into the definition of company return on capital employed are summarized in Figure 6.

HOW CAN WE MEASURE IT? (CONT'D)

Figure 6: Understanding how people contribute to financial returns

$$\text{Return on capital employed} = \frac{\text{NOPAT}}{\text{Fixed Assets} + \text{Net Working Capital}}$$

$$\text{ROCE} = \frac{\# \text{Employees}}{\text{Fixed Assets} + \text{Net Working Capital}} \times \frac{\text{NOPAT}}{\# \text{Employees}}$$

$$\text{ROCE} = \frac{\# \text{Employees}}{\text{Capital Employed}} \times \left(\frac{\text{NOPAT} + \text{HCCF}}{\# \text{Employees}} - \frac{\text{HCCF}}{\# \text{Employees}} \right)$$

$$\text{ROCE} = \frac{\# \text{Employees}}{\text{Capital Employed}} \times \frac{\text{HCCF}}{\# \text{Employees}} \times \left(\frac{\text{NOPAT} + \text{HCCF}}{\text{HCCF}} - 1 \right)$$

ROCE = Business Model × Cost Structure × Human Capital ROI

Source: Schroders.

This alternative derivation of company return on capital employed allows us to understand the generation of value as being the product of three components: business model, cost structure, and return on human capital. We consider the latter to be a proxy to the idiosyncratic return on culture, as will be explained in the subsequent chapter – “Performance Levers”. It is of course valid that the HCROI calculations above can be algebraically simplified. However, the return on human capital metric that we include here is synonymous with the metric used by HR practitioners described in Fig 5 above, except for the fact it is derived from NOPAT, rather than revenue. Considering the composition of ROCE in this way allows us to understand the potential drivers of firm level value creation, isolating the benefits of human capital management in ways that have – to our knowledge – not been widely adopted to date in the investment industry.

As we go on to discuss, EEVA is an important addition to HCROI analysis. In so far as it offers a view on the value created for people by their employer – linking back to the points made in our first paper “Margin of Safety” about ‘labor rent’ – it provides an additional lens through which to consider the sustainability of a firm’s human capital. We are exploring the possibility that EEVA thresholds exist to affect improvements in HCROI. Simplistically, one can boost human capital returns either through cost or output. EEVA can help us understand the breaking point of cost driven improvement, because – unless compensated by something else – underpaid employees leave as their opportunity cost of working at the incumbent organization rises. Equally, a firm may drive rising productivity through output – perhaps a consequence of employees working more effectively as a team behind a common purpose. In this instance, it is quite conceivable that the culture or trust surplus behind people’s desire to work harder, smarter or faster also allows the company to lean-up its costs – or pay – somewhat. In this instance, strong culture or potentially any other human capital system would subsidize pay, preventing the latter from causing turnover.

Return on People-Adjusted Capital Employed – ROPACE

We also believe that ROPACE presents an intriguing opportunity to assess the full fat returns profile of different organizations. It not discussed in depth here, because the

limitations on our analysis due to poor disclosure mean it is difficult to assess a representative sample. In time, we plan to evolve this framework, specifically focusing on capital light industries. However, for the sake of completeness, the paths to calculating this are:

- Capitalize wage expenses to create a new asset. Current thinking would be to use the inverse of the average employee turnover rate in each sector – as a proxy for the ‘useable life’ of companies’ HC assets – so that historical wage and benefit investments can be capitalized and depreciated in the same way as fixed assets.
- Then add that value to reported assets to create a new, larger People-Adjusted asset base value which includes human capital.
- Add back employee investments to reported operating income, and subtract the yearly depreciation of the newly capitalized HC asset. This yields a People-Adjusted Operating Income value. Because wage expenses are almost always higher than HC depreciation, this adjusted earnings number would typically be higher than reported earnings.
- Divide the latter by the former to generate a ROPACE value which can be compared to the unadjusted equivalent.

The idea behind this approach would be to have a fully loaded comparison of the productivity of a company’s asset base, such that investors may be able to see whether human, or more traditional forms of capital are over or under earning. In the long term, this holds promise if disclosures trend in a way to build clarity on the divisions of employee investment – growth or maintenance. However, while the data driven limitations to this are clear in the near term, we also note two more fundamental challenges to this approach which we have yet to reconcile. First, human capital management is predicated on the theory that employees are appreciating assets, thus depreciating them at a given rate – whether or not it might be representative of the inverse of churn – risks misinterpreting the value potential of a more mature workforce. Second, there are two types of turnover – regretted and unregretted – meaning the use of an industry average for scaling the human capital asset could likely be too blunt.

HOW CAN WE MEASURE IT? (CONT'D)

Three people centric components

We believe the challenges noted above can be largely circumvented by looking at HCROI and the two other components that, with it, comprise ROCE. They require fewer assumptions and can thus help us back out the truly intangible value creating elements of human capital management more clearly. The relationship between employees and capital employed is unarguably objective. We would think about this as a strategic intensity metric: how many people are employed per million dollars of capital employed? Capital intensity and balance sheet productivity tend to be the characteristics that are reached for by people when confronted with the idea of HCROI. It is understandable that a discussion of returns on human capital would lead one to think about companies that have traditionally high returns on capital to begin with. However, in our decomposition of ROCE, the first component – Business Model – is what deals with this topic, allowing us to think about leverage, or culture, or human capital returns in a way that is somewhat decoupled from the confines of the ‘quality’ debate.

Per Figure 4, HCCF represents the fully loaded investment cost of human capital. While the Working Group on Human Capital Accounting disclosure in the USA is proposing companies split disclosure on human capital in ways similar to capex – i.e., maintenance and growth capex – we have not sought to disaggregate the HCCF and HCROI calculations in this way yet, because quite simply there is insufficient data². Nevertheless, the fully loaded costs per employee are a sensible place to start when seeking to unpack the opacity of company human capital. HCCF can be simplified to relate to only employee salaries and benefits, or it can be substituted – as we will come to – by stock-based compensation.

The materiality of this component is naturally going to be defined by the proportionate scale of employee costs in a given company's income statement. This means any focus on the Cost Structure component in isolation needs to be industry- or sector relative or the consideration of this component needs to be taken in combination with the other two. If one chooses to consider a fully loaded HCCF, we would flag the importance of using industry relevant benchmarks for the costs of turnover, or absenteeism for example. Depending on the nature of the industry, it can cost between three and 18 months' salary, to replace a churned employee. This includes recruitment cost, training cost and temporary productivity shortfall³.

The final component – HCROI – is where we seek to isolate the leverage factor. This is comprised of objective accounting components as well as ‘soft’ features. It helps us understand the outcomes of something altogether more complex than the first two components; namely the degree to which employees are motivated to put in discretionary effort. If base levels of pay guarantee base levels of effort and output – one does just enough to keep one's job - the extent to which an individual or their collective team outperforms can be subsequently affected by a variety of issues over and above base pay. Variable compensation matters but can be wrapped up ex-post in the reflection of human capital cost factor. The leverage holds the key: what does a dollar invested in human capital generate in terms of value creation to the firm?

As noted above, part of HCROI is explained by objective, dollar denominated factors. **The residual, which we should seek to isolate in our understanding of the strength of a firm's human capital management, relates to the ‘soft’ features and the human systems that are often labeled intangible.** Per the definitions we set out in our first report – “Margin of Safety” – these systems include: workforce strategy, culture & inclusion, performance management, talent and innovation.

The nuance behind what the HCROI ratio can tell us is dictated somewhat by the build-up of HCCF. However, this is also where we can get creative when it comes to navigating poor disclosure. We recommend using salaries in lieu of HCCF in both the cost structure and HCROI components. By doing so we may not be able to isolate or estimate exactly how much a company's absentee rate or employee turnover are undermining productivity individually, but in so far as these issues have tangible economic consequences – lower output and lower cost absorption – they are still caught in a simplified HCROI calculation. Streamlining the calculation in this way allowed us to increase the universe of companies for our empirical analysis considerably.

One might also choose to substitute HCCF or salaries for Stock-Based-Compensation (SBC) in isolation. Figures 7 and 8 highlight the importance of SBC to the US large cap tech industry. Disclosure on salaries for large cap tech firms has been non-existent historically, notably behind this disclosure from global technology peers. Understanding returns on SBC is therefore potentially telling in sectors such as this, where people are the primary value creating asset and competition for talent is fierce. This is not to say that moats or brand equity are not important, but people are the catalyst that sustains value creation.

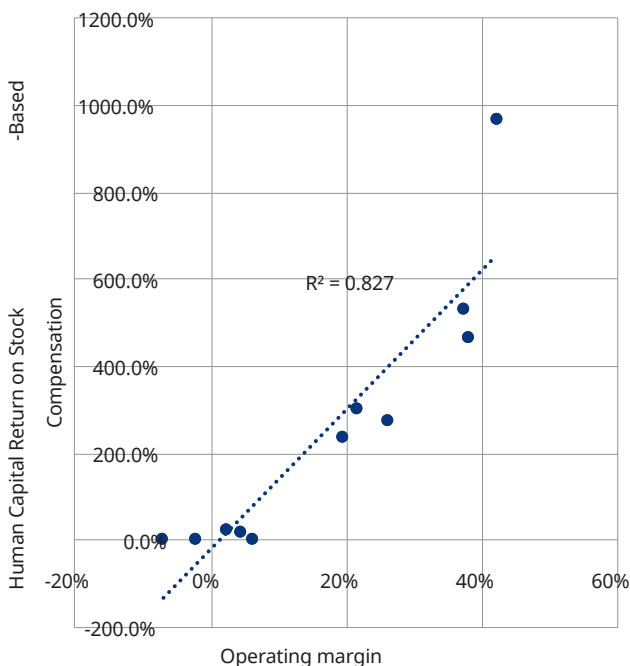
² While there are multiple engagement opportunities that emerge from this research process, perhaps the most obvious is the need for engaging with US corporations on their disclosure of core human capital data.

³ See: Human Capital ROI, Jac Fitz-Entz.

HOW CAN WE MEASURE IT? (CONT'D)

Figure 7: HCROI vs EBIT margins (large cap US tech)

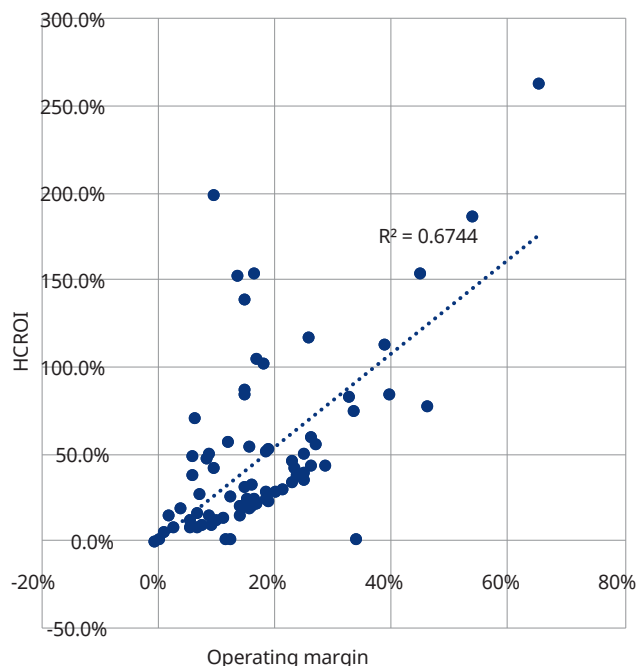
This calculation of HCROI uses SBC only.



Source: Refinitiv, Schroders.

Figure 8: HCROI vs margins (global IT industry)

This uses salaries and SBC. It strips out US large cap.



Source: Refinitiv, Schroders.

There are a handful of criteria for using SBC in place of salaries or the HCCF metric when looking at HCROI.

- Companies in certain sector and regions may not yet report salary information in a way that is audited or has a meaningful history of disclosure. SBC has been used and reported for years by many such companies.
- Companies may have a range of employees, whose contribution to value added might vary significantly depending on the nature of the task. The Pareto Principle – commonly known as the 80/20 rule – is an example of this: 80% of consequences come from 20% of causes. A somewhat more aggressive, non-linear alteration is Price’s Law: >50% of output comes from the square root of the number of people.⁴
- Seeking to understand either of these principles in a company context from the outside is fraught with difficulty. It requires too many assumptions. SBC removes the need to make many of these, because its use would be premised on the idea that companies award shares in ways that

are reflective of the value created by the recipients of those shares. ‘Rainmakers’ in investment banking or video game development may have creative output or processes that are difficult to replicate and hence they benefit from significant SBC. At the same time, companies that identify ‘top talent’ may also want to incentivize those people to commit to the business long term by using shares where possible. Finally, companies which suffer severe productivity short falls may seek to offer SBC as mechanism for creating the sense of ownership, or skin in the game, that leads to a change in behavior.

Whatever the rationale, we think measuring the human capital return on SBC is a sensible alternative to the fully loaded, or salaries, version in certain circumstance. Without getting bogged down in the debates on rank and yank approaches⁵ to managing talent, it is important to be clear that not everyone in an organization will perform to the same standard or deliver the same value in absolute terms. The key to human capital management is that the systems conspire to deliver synergy: the whole is greater than the sum of all parts.

⁴ While Price’s Law is often lesser known than the Pareto Principle, we have seen a number of examples recently, where it is acknowledged. Elon Musk was, for example, famously quoted for having admitted he underestimated the value and importance of people when he realized that efforts to automate production lines had gone so far that they were seeing diminishing returns.

⁵ ‘Rank and Yank’ was popularized by Jack Welch at GE, and has been adopted in various guises by multiple organizations over time. While often used with pejorative connotations, at its core it is a differentiation model, albeit one that can at times be a blunt tool.

HOW CAN WE MEASURE IT? (CONT'D)

Case study: Financial services industry

Our conversations with the Head of Talent at a large global financial services firm piqued our interest when working through their talent model highlighted the potential of Price's Law. The financial services industry is reliant on human capital as an important source of value and risk. The process in this particular firm involved bi-annual meetings between the talent team and GMC to establish the core strategic goals for the near, mid and long term, as well as the corresponding roles, people and skills critical to delivering those goals. Next, the teams looked to the people who had been identified as successors to those core roles, and specifically of those successors, the people within those groups that had been identified as high potential and ready to promote. While this is an example of strategic workforce planning (SWP), carried out to ensure that the strategic ambitions of the firm are effectively resourced and planned for ahead of time, it effectively sets out to identify the cohort of systemically-relevant future value creators and identify skills gaps if they occur. We were struck that the group of high potential successors was approximately equivalent to the square of the total number of employees in the firm. We have had similar conversations and findings among other services companies and plan to explore this issue further.

Interdependencies and economic rent

With numerous interdependencies at play in human capital analysis, it is important to take a systems approach. It is useful to split things into macro and micro dependencies. The former are primarily linked to the relationship between the three components of ROCE – business model, cost structure, and HCROI⁶. The latter, are wrapped up within HCROI itself.

The relationship between employees and capital employed can occasionally have more nuance than meets the eye. Investors can all identify inefficient balance sheets or underinvested firms when they see them. But there may be certain instances when the features of human capital allow companies to compensate for the way the business is run

or invested. This may be, for example, through superior customer service and or overall customer proposition. The reason for this is simple: people are malleable. They respond to changes in circumstance and incentive. They have the capacity to work harder, or better, or smarter, in a way that can create slack for management teams viz a vis other fixed costs. One might think of this as economic rent.

Put another way, given that the product of the three components in Figure 6 equates to company return on capital, it is logical that changes in any of the three can have equal impacts on returns. However, that is not to say that each element is equally important in explaining difference in returns as is evidenced through our empirical analysis, presented below.

Case study: nursing homes

In search of contemporary case studies for the example of economic rent, we consider first an uncomfortable, but striking example of economic rent in action: nursing homes. As demonstrated in Fig 9 below, one operator had historically generated higher operating margins than would be implied by its HCROI. While it had managed to hold this HCROI steadier than peers through time, returns on human capital are and have historically been low, reflective of the economics of the human capital value-add in the industry. Healthcare facilities management, and in this case operating nursing homes, is a labor-intensive industry where staff costs tend to be >50% of sales.

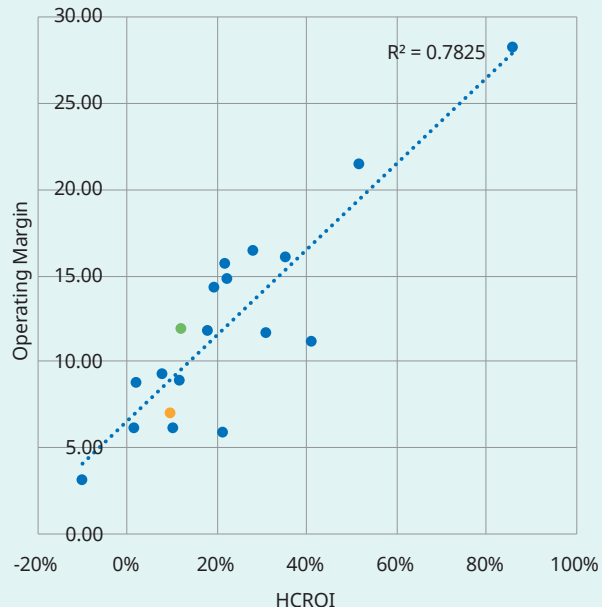
People who work in these institutions undertake immensely demanding work, often for relatively low pay. Care and kindness are prerequisites for the role, and there is an element of vocation involved in healthcare provision. While employees can, at the end of the day, vote with their feet and leave, the data show absentee rates were comparatively stable in the years pre-Covid, despite stagnation in wages (turnover data was first reported in 2020 only).

⁶ We also note that other macro dependencies likely to play a role in the interaction of our components of ROCE include labor protection laws, unionization rates and collective bargaining. We would view these as having the potential to act either as mediators of HCROI if its growth was being pursued through cost action, or amplifiers if it was growth through output.

HOW CAN WE MEASURE IT? (CONT'D)

Figure 9: HCROI and Operating Margins in healthcare facilities

Green dot was the company under scrutiny;
Orange was its closest peer

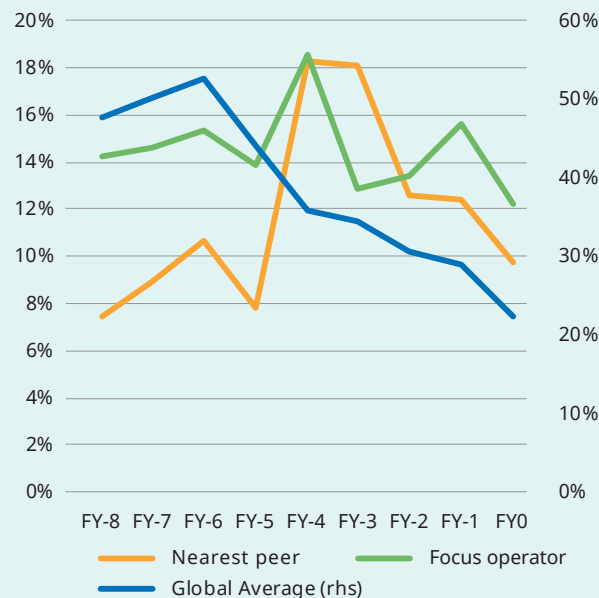


Source: Refinitiv, Schroders. Data for the last reported year.

Generally, high levels of loyalty, synonymous with vocation, afford management the ability to push the envelope. It is conceivable that in this instance this could have manifested through the extraction of economic rent from employees: cutting spending in other parts of the cost basket, expecting staff to compensate where possible. We are not expressing a view on this particular organization, rather using this as an interesting demonstration of the potentially meaningful implications of human capital, particularly when people “go the extra mile”. In this case, it is plausible that the staff could conceivably have felt compelled to make the best of the situation, rather than necessarily feeling stimulated by good human capital management. Indeed, a recent

Figure 10: Historic HCROI for global healthcare facilities operators

Average reflects global GICS sub industry



Source: Refinitiv, Schroders. Data for the last reported year.

inspection report was published concluding that there were insufficient numbers of staff, there was insufficient care equipment and inadequate nutrition for residents.

This case study raises another important point: one should not attribute all changes in company returns or profitability to HCROI. A wide range of exogenous and endogenous factors can influence financial outcomes. Suffice it to say, this case underscores the importance of quantitative and qualitative human capital analysis, as well as pointing to the nuance, and power, of the relationship between human capital and economic rent⁷.

7 See [here](#) for a New Yorker piece identifying a similar set of outcomes, when a Private Equity firm took over a US nursing home.

HOW CAN WE MEASURE IT? (CONT'D)

Case study: consumer goods

Moving to a more somber set of examples to demonstrate the positives associated with ROCE interdependencies, we have compiled the numbers on a selection of consumer goods companies. Fig 11 below highlights the moving parts in the composition of ROCE according to the three people-centric components.

In 2021, Company A and Company B generated 7.6% and 6.5% returns respectively, with the same labor

intensity (salaries/sales was 16%), similar capital turnover (0.63x and 0.6x respectively), but a noticeably different set of moving parts in terms of human capital. Company B operated with 18% fewer people per million of capital employed, and paid on average 17% more per head. While generating 17% higher sales per person, that was eaten away by the time we arrive at NOPAT, because of lower leverage on investment in people - HCROI.

Figure 11: Human capital dependencies in ROCE – illustrative scenarios

Component	Return on capital	Business model	Cost structure	Culture
Metric (2021)	ROCE (post tax)	Employees per million of capital employed (EUR)	Salaries per employee (EUR)	HCROI
Company A	7.6%	2.8	36,200*	75%
Company B	6.5%	2.3	42,400	68%
Company C	12%	1.2	67,380	172%
Company D	15%	3	41,295	121%

Source: Refinitiv, Schroders. *Translated at 2021 average exchange rates, for illustrative purposes.

Company C and Company D are imperfect bedfellows, but they have the same labor intensity as one another with salaries at 12% of sales, and they compete for talent in the same pools. Their HCROI profiles are, however, meaningfully different when side by side, partially reflecting product mix and partially reflecting human capital. Not included in the table above but important for the sake of this comparison are the following: Company C generates circa 50% higher revenue per employee and 130% higher NOPAT per employee than Company D, currency adjusted. Brand equity is critical of course, but as we know from brands

whose competitive advantage erodes over time through underinvestment, or malnourishment of firm culture, maintaining these sorts of premia requires ongoing human capital strength.

There are plenty of nuances to both comparisons above. But as we will come onto in the section on gain sharing below, when businesses are competing for talent, it is useful to think about the opportunity cost for employees working at one firm over another. People, after all, can leave.

Considering gain sharing

HCROI and the sustainability of returns

HCROI can help us understand how productive a company's culture and other human systems are, given its labor intensity, cost structure and business model. As acknowledged with the cases above, it is not the be all and end all. But as an objective and calculable metric that is widely used by HR practitioners, it can help a) identify where there are companies at either end of the performance spectrum, with all that entails for engagement, and b) triangulate to

the instances where there is something beneath that does not relate solely to pay – which is represented in one of the three components – and instead company human capital management.

Year over year changes in HCROI and wages set against changes in company ROCE can also help us think about the degree to which growth over time is, or is not, sustainable; as suppressing growth in returns to employee stakeholders cannot be continued ad infinitum.

HOW CAN WE MEASURE IT? (CONT'D)

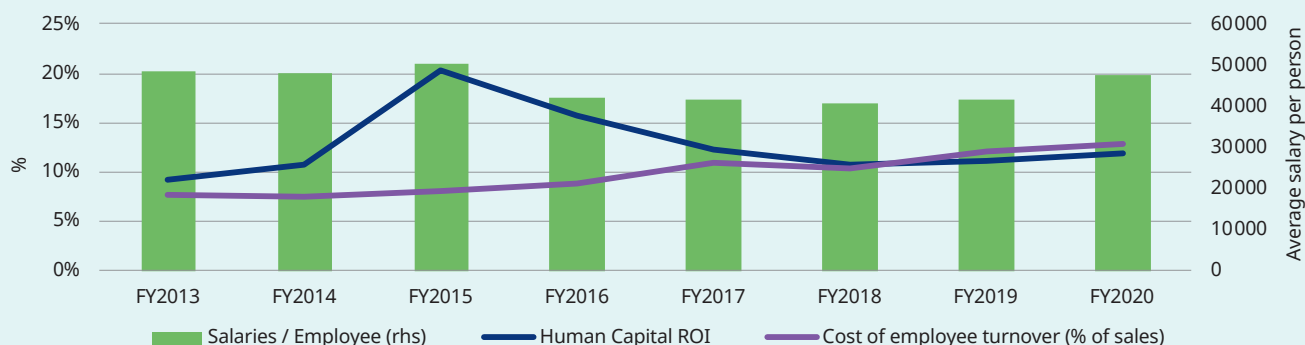
Case study: IT services

Figure 12 below tells the story of a well-known IT Services firm, where the distribution of growth in returns to employee stakeholders did not appear to live up to the growth in returns on human capital in 2013-2016. IT Services firms, like other software and consultancy

business models, are reliant on people. In this instance, meaningful growth in returns over a four year period was consistent with wages and capital employed stagnating. In essence, this was a case of sweating the human capital asset. Churn steadily rose.

Figure 12: IT Services company capital metrics – time series

Chart shows the evolution of human capital metrics, rebased to 100 in 2014



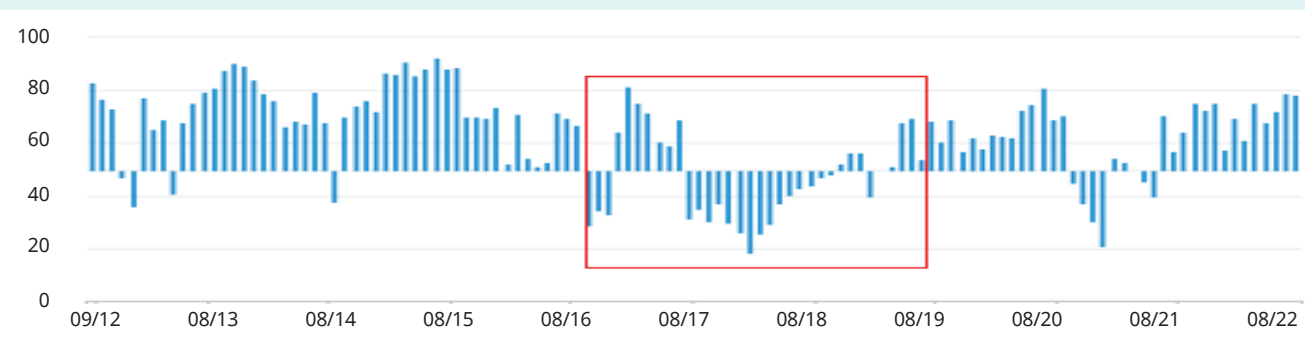
Source: Refinitiv, Schroders.

Per Figure 13, analyst expectations suffered for two years from 2017 as commercial challenges, and a sales slowdown in core growth markets, had meaningful

impact on the P&L. Only by 2019, a year on from the nadir in wages and two years of growth in headcount (capacity), did returns trough, trailed by analyst forecasts.

Figure 13: IT Services company consensus estimates momentum

Chart shows the momentum of change in analyst forecasts for this IT services company, relative to the global market. The market is represented by the midpoint on the y-axis (50). Bars below the midpoint tell us the change in analyst forecast EPS and the momentum of that change was worse than the market. In other words, analysts were becoming incrementally more cautious on this company than the market as a whole.



Source: Redburn.

HOW CAN WE MEASURE IT? (CONT'D)

The point here is not to argue that companies can only grow sustainably if ever larger portions of the profit pool get redistributed to employees. Instead we argue that, as firms *grow the pie*⁸, they are well served by nourishing the engine room of growth. Enter: gain sharing.

Employee economic value added

As became abundantly clear during the 'great resignation', people are the asset that is free to move. There are numerous moving parts behind people's desire to look for new work:

salaries, culture, relationships with the team or boss, purpose and personal circumstance are all factors that were regularly quoted in surveys as the great resignation evolved. Figure 14 below highlights the most common issues on worker minds over that period. Compensation is no longer the leading driver of departures. Burnout, flexibility, purpose, career opportunities are all factors linked to the strength, or weakness of human capital management, as we address in the third report in this series, "Performance Levers".

Figure 14: Why workers in the USA were quitting their jobs (% of respondents referencing these issues)

Topic	November 2021	May 2022	Change
Compensation	33.5%	26.5%	-7%
Feeling burned out	31.6%	29.5%	-2.1%
Need flexibility	25.6%	26.9%	1.3%
Lack of opportunity	21.9%	22.6%	0.8%
Working conditions	19.5%	20.1%	0.6%
Health concerns	19.1%	22.2%	3.2%
Looking for sense of purpose	18.1%	21.8%	3.7%
Working hours	16.3%	23.1%	6.8%
Location	15.8%	18.8%	3.0%

Source: Jefferies research.

But while HCROI and its growth relative to growth in wages can give us a sense of how the profit pool is evolving within a given company, it does not give the complete picture of what this represents in terms of value created for employee stakeholders. We thus also need to consider EEVA and the ratio between this and company economic value added. This describes gain sharing.

While economic profit has been a staple in investment practice for years, EEVA is premised on the notion of interpreting how much value a company generates for its employees by reference to its opportunity cost. This is defined as the increment of average company pay per employee versus average pay in the industry, adjusted for 25% corporation tax, multiplied by total number of employees:

Figure 15: Employee economic value added definitions

$$EEVA = Total \# \text{ employees} \times Average \text{ pay increment} \times 0.75$$

$$Average \text{ pay increment} = employee \text{ average pay at company} - average \text{ industry pay}$$

Source: O'Byrne, Rajgopal, 2022.

8 See: Grow the Pie, Alex Edmans, for excellent data on how companies can deliver stakeholder value.

HOW CAN WE MEASURE IT? (CONT'D)

Case study: Pharmaceuticals

We look here to the pharmaceutical industry as an example. Average pay for our Pharma Co in 2020 was circa \$125k per head. The equivalent average of industry peers at the time was \$109k approx. Our average Pharma Co employee was therefore earning \$16k better than the market. The company employed over 110,000 people in the 2020 year. In other words, our Pharma Co employees were benefiting from meaningful additional economic value (the EEVA line shaded below) relative to the street.

Shareholders and workers might have had cause for celebration. The group had improved HCROI and wages since 2015 at a Compound Annual Growth Rate (CAGR) of circa 3%, while employee numbers had fallen and ROCE has grown at a clip of circa 6.6% annually. However, while economic profit had grown even faster (8% CAGR) over that time frame, EEVA lagged, falling at a clip that was more than twice the compound annual decline the size of workforce (-2%). Employees were being rewarded to reflect the improvements in their productivity, but capital continued accruing proportionately more to the owners of capital and less to the workers, as shown in Figure 16 below, while pay across the market advanced materially.

Figure 16: Pharmaceutical company gain sharing breakdown

	2015	2016	2017	2018	2019	2020	CAGR
Wages / Employee (\$)	110,111	111,241	94,965	124,651	127,261	125,503	2.7%
HCROI (%)	64%	57%	64%	66%	65%	72%	2.6%
ROCE (%)	11.5%	10.4%	9.7%	11.3%	14.4%	15.8%	6.6%
Economic Profit (\$, bn)	3.7	2.7	2.6	2.4	4.8	5.4	7.8%
Employee economic value added (\$, bn)	4.3	4.3	1.8	3.7	3.7	3.4	-4.4%
Number of employees	122,966	122,985	126,457	108,422	108,776	110,738	-2%

Source: Refinitiv, Schroders.

The opportunity cost of employees staying where they are can rise and fall over time, and be subsidized, compensated or undermined by the softer elements of human capital management. Investors wishing to take human capital into account, should thus consider gain sharing in addition to HCROI. It is not as simple as saying that companies must pay more than the market average. In certain circumstances, firms that pay above market rates can see high attrition courtesy of poor culture, for example. And vice versa, companies with inclusive or strong cultures may have lower turnover, despite perhaps not paying above market. Nevertheless, we believe that considering gain sharing

alongside HCROI should help investors build the more complete picture.

Introducing these metrics and considering human capital in a firm's ROCE decomposition as described above signals an important shift in the treatment of people related costs; treating what is largely still considered an operating expense akin to an investment, reflecting the view that human capital is a long term asset, with earnings power, and potential for appreciation or depreciation linked to the organization's management capabilities.

IS IT REALLY MATERIAL?

Empirical analysis of HCROI

Having set out the importance of measuring human capital returns in our first report – “Margin of Safety” – as well as articulating a theoretical framework supporting HCROI and EEVA, we now turn to assess the materiality of HCROI from an empirical perspective.

Signal coverage

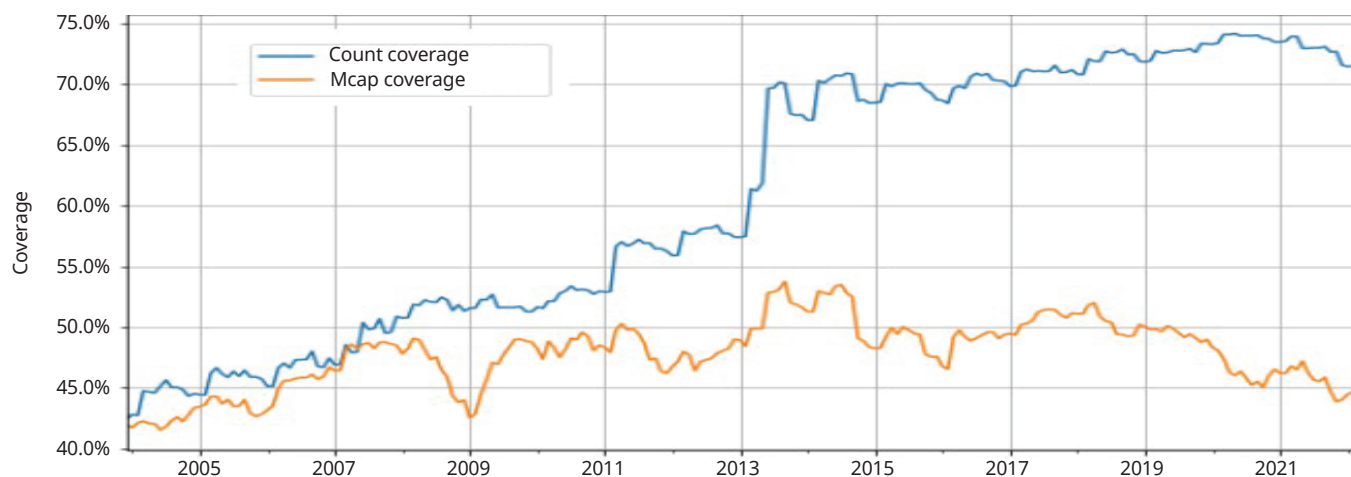
The analysis is hindered somewhat by poor disclosure. In particular, Social data, and specifically the core human capital data such as salaries, are not widely published in the USA. As a result, our initial research has been necessarily confined to Europe, the UK and those US companies where the information is available. This covers just over 1,000 stocks in total.

We have also excluded the Energy, Real Estate, Utilities and Financials sectors from the analysis. Our current alignment to ROCE does not lend itself easily to real estate or certain areas of the insurance industry, although we plan to address financials separately in time. With regard to the energy and utilities sectors, there are meaningful exogenous moving parts that complicate the analysis due to the nature of their business models. We also intend to address these issues in time, particularly in the case of utilities where the regulated asset base and regulated returns structure means there is limited scope for companies to outperform, potentially placing additional emphasis on the strength and resourcefulness of their human capital.

Finally, we have had to limit the complexity of our HCROI metric for our analysis, once again due to disclosure challenges. More specifically, we have used salaries & benefits as a proxy for the human capital cost factor (HCCF). While idiosyncratic company analysis is aided by acknowledging the development of individual items within HCCF – such as sick days or employee turnover – these issues have a financial consequence that is still captured in the simplified calculation.

The data coverage of our refined universe is however sufficient for an indicative test in terms of company count as illustrated in Figure 17 as it incorporates 70% of the total number of public companies since 2017 within our designated universe. Note that for reasons of robustness and to take into account potential implementation restrictions, smaller companies are excluded from the analysis (i.e. those stocks with a market capitalization below \$1bn). Nevertheless, the percentage coverage by market capitalization is closer to 45%-50%. This is primarily driven by the absence of mega cap US firms not disclosing pay data with the top 20 names accounting for nearly 20% of the uncovered market cap. Unfortunately, the trend has been against greater disclosure which may be related to GAAP (US accounting standards) not requiring companies to disclose staff costs separately and rolling them up into operating expenses. Clearly, there is a need to engage these firms on the importance of human capital disclosures.

Figure 17: HCROI signal coverage (global stocks)



Source: Worldscope, Schroders. Note: given the large step up in coverage count in 2013, we have run our backtesting and regression analyses from 2014.

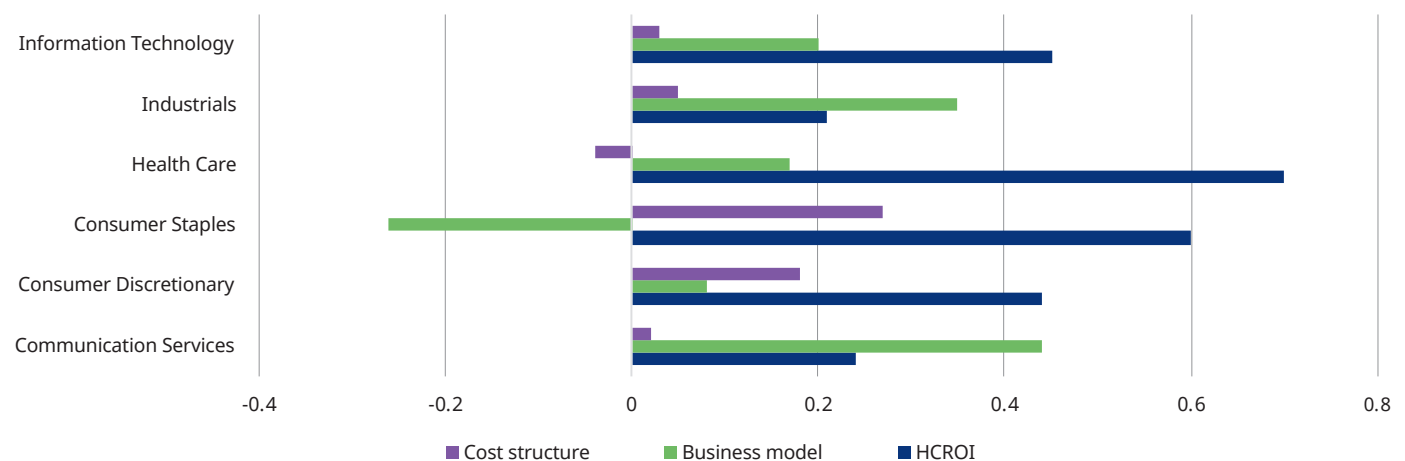
IS IT REALLY MATERIAL? (CONT'D)

Exploratory data analysis

We would naturally expect to observe a positive relationship between HCROI and company profitability over time. Humans are an intrinsic driver of returns, both by virtue of the costs imposed on the P&L and their capacity to activate other forms of capital. This is indeed the case as the rank correlation coefficient between HCROI and ROCE for our sample of stocks over the period 2014-2022 is 0.49, which is elevated but not to the extent that they are perfect substitutes.

Conducting correlation analysis between the components of ROCE by sector also has the benefit of helping to distinguish between different company structures. Among the three people-centric pillars of ROCE outlined earlier in the paper, namely: business model, cost structure and HCROI – see Figure 6 above – the latter is the dominant driver of company returns for the majority of sectors. Figure 18 below highlights that HCROI is particularly important in the Consumer Discretionary, Staples, Healthcare and IT sectors.

Figure 18: Spearman correlation of people-centric metrics vs ROCE



Source: Worldscope, Schroders. The chart plots the Spearman rank correlation between ROCE and its 3 components (HCROI, Business Model and Average Costs). For each sector, the correlation is calculated cross-sectionally by date and then averaged through time (2014-2022) using data in Europe, the UK and the USA where the information is available. The Energy, Real Estate, Utilities and Financials sectors are excluded from the analysis. Please note that the restricted scope of the analysis implies some low stock counts for certain sectors.

Backtesting the signal performance

Our empirical testing has been guided by both our own intuition on the potential importance of HCROI and the views and opinions of key stakeholders with whom we engaged as this framework has evolved. As such, we have paid particular attention to adjusting for valuation (market to book value), ROCE, labor intensity (salaries/sales), average wages (the cost structure component in our ROCE derivation) and business model (as captured by our quasi capital intensity metric – employees relative to capital employed).

There are numerous reasons for testing HCROI specifically against these control variables. Value and ROCE (i.e. a key pillar of company quality) are chosen because of the high relevance of these styles in markets and because of any potential pushback on the importance of human capital return on investment that it is already captured by other measures of business quality.

The introduction of labor intensity as a control variable is important. As highlighted in Figure 11 on interdependencies, one of the most practical applications of the human capital framework is to interrogate companies that, for a given level of labor intensity, are underperforming on HCROI. What is it preventing them from extracting higher leverage on pay and benefits, particularly in comparison to peers who have comparable product suites, and salaries / sales?

We can think about this in a similar way by addressing average wages – the cost structure component. This is particularly relevant when considering gain sharing. If a firm is paying average wages that are in line with market, the opportunity costs for employees working at that company are low. However, if that one firm is generating significantly worse HCROI than its peers, despite having the same levels of labor intensity and average costs, the human capital management systems that we are seeking to isolate by considering HCROI come into view. In this instance, could we argue objectively that poor culture, for example, is undermining leverage on investment in people?

IS IT REALLY MATERIAL? (CONT'D)

Figure 19 below highlights the long-short performance of HCROI, derived as the top tercile (high) HCROI minus the worst tercile (low) HCROI median annualized performance, measured for each tercile of variable noted on the left hand side (i.e. book value, ROCE etc) of the table.

Figure 19: Long-short performance of HCROI

		HCROI Median Performance (Annualized) (%)
	Tercile	Long-short
Book Value Rank	T1 (Best)	7.27
	T2	7.08
	T3 (Worst)	6.53
ROCE	T1 (Best)	1.39
	T2	2.56
	T3 (Worst)	10.69
Labor Intensity	T1 (High)	11.07
	T2	4.77
	T3 (Low)	5.25
Business model	T1 (Employee intensive)	2.85
	T2	1.82
	T3	11.79
Average Cost	T1 (High)	10.21
	T2	3.75
	T3 (Low)	4.37

Source: Worldscope, Schroders. Labor intensity: staff costs over net sales, Business model: number of employee over capital employed, Average cost: staff costs over number of employee. Returns are expressed relative to the mean return of the restricted universe of stocks included in the analysis weighted by market capitalization (with individual stock weights capped at 0.2%) over the period 2014- 2022. Long short performance is derived as the top tercile (high) HCROI minus the worst tercile (low) HCROI Median annualized performances, measured for each tercile of variable noted on the left hand side (i.e. book value, ROCE etc). Average number of stocks per long short portfolio is 228 per month.

IS IT REALLY MATERIAL? (CONT'D)

Despite the limitations of the data coverage and relatively short sample period, the results are encouraging. We have found markets tend to penalize companies with poor HCROI by more than they reward firms with high HCROI. This is particularly true in instances where poor HCROI is combined with high salaries per person (average costs in the table), high labor intensity and high capital intensity (i.e. low numbers of employees compared to capital employed). ROCE is used as a proxy to the Quality factor and while it seems that HCROI can be additive to ROCE, the long-short performance looks to be lower than for other less correlated cuts as we would expect.

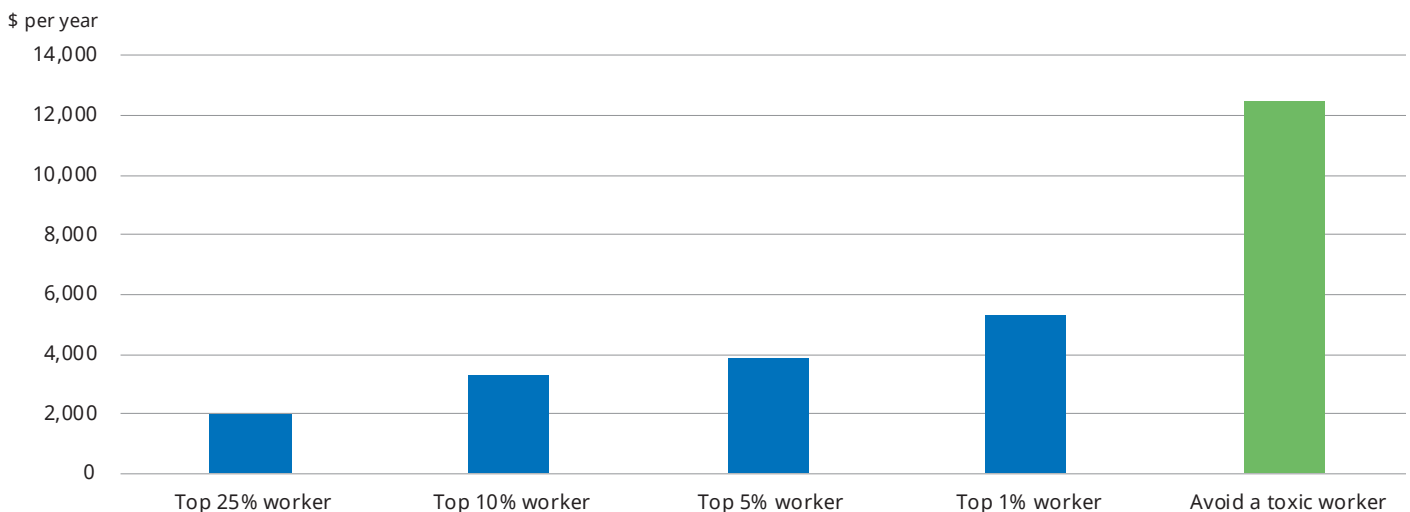
Firms that have very high pay packages for employees or as a proportion of the P&L as a whole are potentially sacrificing value creation if the ability to achieve a return on investment is undermined by poor culture, lack of trust and weak leadership. These aspects can take a long time to repair. One might describe these situations where employees become 'fat and happy'; not stimulated by the culture of the company enough to deliver incrementally. Our conversations with experts have been informative on this issue. In accordance with the definition of culture we offered in the first paper – "Margin of Safety" – it became very clear through our consultations that culture is viewed by practitioners as much as a lever for attitude or behavior and hence productivity, as

it is for employee retention. This manifests especially clearly when we acknowledge that around half of senior leaders hired from outside fail within a year⁹.

Markets offer modest reward for low labor intensity generally but appear discerning when it comes to HCROI. Poor performance in terms of leverage is identified and priced accordingly. We would speculate that markets may have in the past failed to pay up for the cultural strength indicated by HCROI uniformly because it has traditionally been harder to observe objectively. When things go wrong, they often become visible. If, instead, they tick along well, it is harder (and there is less incentive) to seek to unpick the implicit drivers of that performance in order to make them explicit enough to price.

Academic research on the costs of toxic workers supplements this view: companies can extract far larger savings by avoiding hiring toxic employees, than the gains they make by hiring top performers, per Figure 20. The psychology and mathematics of loss is a helpful analogy here. Simply, the knock-on effects of disruption on productivity, teamwork, recruitment costs associated with hiring replacements, possible law suits, and even product quality or reputational issues can become magnified pretty quickly.

Figure 20: Incremental benefit of hiring superstars vs avoiding toxic workers



Source: Housman and Minor, 2015.

⁹ See more on new hire failure rates here. Note that many of the experts we consulted anecdotally corroborated the 50% number.

IS IT REALLY MATERIAL? (CONT'D)

Taking our performance analysis one step further, Figure 21 below illustrates the optimal linear combination of HCROI and ROCE as implied by the historical returns. The sweet

spot lies in the range of a 20%-30% HCROI weighting with a corresponding 70%-80% weight to ROCE.

Figure 21: Historical relative returns for combinations of HCROI and ROCE

The percentages indicate the weightings for HCROI, against ROCE

	0% HCROI 100% ROCE	10% HCROI	20% HCROI	30% HCROI	40% HCROI	50% HCROI	60% HCROI	70% HCROI	80% HCROI	90% HCROI	100% HCROI 0% R OCE
Q1 (best)	0.58	1.1	1.75	1.78	1.35	1.58	1.43	1.54	1.46	1.23	1.1
Q2	2.24	1.73	1.18	1.28	1.68	1.22	1.03	0.31	0.73	0.93	1.17
Q3	0.69	0.42	-0.4	-1.16	-1.74	-0.91	-0.64	0.01	-1.1	-1.76	-2.51
Q4	-2.95	-3.12	-2.48	-1.95	-1.82	-2.18	-2.73	-2.66	-1.6	-0.16	0.79
Q5 (worst)	-4.7	-4.82	-4.51	-4.36	-2.7	-2.89	-2.86	-2.9	-2.81	-3.09	-2.96
Long-Short	5.29	5.92	6.26	6.14	4.06	4.47	4.29	4.44	4.27	4.32	4.06

Source: Worldscope, Schroders. The table shows the average return of the linearly combined HCROI and ROCE (normalized using rank-based inverse normal transformation) with the x-axis indicating the percentage weight attributed to HCROI (e.g. the 0% column would represent 100% weight to ROCE and no weight to HCROI and vice versa for the 100% column). Returns are expressed relative to the restricted universe of stocks included in the analysis weighted by market capitalization (with individual stock weights capped at 0.2%). The analysis covers the period from 2014-2022 for companies in Europe, the UK and the USA where the information is available. As before, we have excluded the Energy, Real Estate, Utilities and Financials sectors from the analysis.

Regression analysis

We now discuss the regression analysis we employed in order to determine the predictive power of HCROI after explicitly taking into account a variety of other potential drivers within a multifactor framework. We use various time horizons of forward excess returns after adjusting for Market Cap, Book To Price and Momentum (as defined by past 12 months total return minus 1 month total return in local currency). The dataset is from 2014 to August 2022 with the universe once again restricted to Industrials, Consumer Discretionary, Health Care, Information Technology, Communication Services and Consumer Staples in Europe, UK and USA where the data is available.

Key insights

Statistically speaking, ROCE has predictive power of forward returns for all horizons at the universe level with significant t-statistics for all horizons – see Table A below. HCROI is also statistically significant across the universe for all horizons, albeit slightly less so than ROCE, as illustrated by the generally lower betas, per Table B. Please refer to the Appendix for an overview of the methodology that has been applied.

Interestingly HCROI appears to be a weaker signal in the Technology sector when compared to ROCE (e.g. the t-stat for 1M forward return is 1.05 for HCROI vs. 2.39 for ROCE). One possible hypothesis is that stock based compensation plays a significant part of employee costs in the IT sector which are not currently being captured in our Staff Costs term. For the sake of our first round of empirical testing, we sought to maximize the comparability of the sample based on salary and benefits.

In Table C, we explicitly take into account the previously observed positive relationship with ROCE in order to focus on the 'pure' information attributable to HCROI after adjusting for ROCE which we refer to as "Excess HCROI". This term is also statistically significant across the universe for all time horizons.

Furthermore, in Table D we also adjust HCROI for both ROCE and R&D intensity. Pleasingly, this has little impact on the analysis although we do observe a slight drop in excess HCROI t-stats in Health Care and Information Technology, which are the sectors where HCROI t-stats were already lower.

In summary, we find statistical evidence that HCROI is positively correlated with forward excess returns over multiple time horizons and across the majority of sectors, even after controlling for the positive correlation between ROCE and HCROI while adjusting for momentum, valuation (book to price), size (market cap) and R&D intensity.

IS IT REALLY MATERIAL? (CONT'D)

Table A: Regression with ROCE only

	ROCE only							
	1M forward returns		3M forward returns		6M forward returns		12M forward returns	
	Beta	T-stats	Beta	T-stats	Beta	T-stats	Beta	T-stats
Universe	0.24	3.46**	0.7	3.29**	1.43	3.31**	2.63	3.61**
Communication Services	0.13	1.33	0.38	1.44	0.76	1.32	1.4	1.01
Consumer Discretionary	0.27	2.74**	0.85	3.14**	1.38	2.60**	3.29	3.17**
Consumer Staples	0.4	3.22**	1.32	3.41**	2.39	2.67**	4.19	2.94**
Health Care	0.4	3.12**	0.92	2.03*	2.26	3.02**	4.12	3.36**
Industrials	0.13	1.34	0.38	1.27	0.41	0.66	0.66	0.53
Information Technology	0.26	2.39**	1.01	2.76**	2.53	3.66**	5.19	4.74**

* For significant T-stats at 95% and ** for significant at 99%.

Table B: Regression with HCROI only

	HCROI only							
	1M forward returns		3M forward returns		6M forward returns		12M forward returns	
	Beta	T-stats	Beta	T-stats	Beta	T-stats	Beta	T-stats
Universe	0.23	3.30**	0.61	3.00**	1.19	3.38**	2	2.71**
Communication Services	0.13	1.27	0.41	1.35	0.82	1.21	0.35	0.28
Consumer Discretionary	0.27	2.41**	0.72	2.63**	1.45	3.45**	3.13	3.04**
Consumer Staples	0.42	3.38**	1.33	2.97**	2.33	2.62**	3.87	3.91**
Health Care	0.38	2.56**	0.85	1.56	2.1	2.40*	4.43	2.88**
Industrials	0.18	2.23*	0.59	2.47**	0.75	1.57	1.48	1.98*
Information Technology	0.12	1.05	0.45	1.28	1.02	1.59	1.67	1.23

* For significant T-stats at 95% and ** for significant at 99%.

IS IT REALLY MATERIAL? (CONT'D)

Table C: Regression with ROCE and excess HCROI (orthogonal to ROCE)

	1M forward returns				3M forward returns			
	ROCE		Excess HCROI		ROCE		Excess HCROI	
	Beta	T-stats	Beta	T-stats	Beta	T-stats	Beta	T-stats
Universe	0.26	3.58**	0.18	3.78**	0.74	3.45**	0.48	3.63**
Communication Services	0.12	1.31	0.13	1.05	0.35	1.32	0.37	0.98
Consumer Discretionary	0.28	2.73**	0.20	1.63	0.85	3.11**	0.46	1.48
Consumer Staples	0.45	3.40**	0.31	2.23*	1.41	3.34**	0.96	1.90
Health Care	0.41	3.00**	0.10	0.64	0.94	1.89	0.18	0.32
Industrials	0.15	1.48	0.15	2.20*	0.43	1.43	0.49	2.68**
Information Technology	0.25	2.30*	-0.08	0.59	1.02	2.79**	-0.28	0.61

	6M forward returns				12M forward returns			
	ROCE		Excess HCROI		ROCE		Excess HCROI	
	Beta	T-stats	Beta	T-stats	Beta	T-stats	Beta	T-stats
Universe	0.83	3.53**	1.25	3.41**	2.75	3.92**	1.47	2.85**
Communication Services	0.47	1.35	1.28	0.67	1.33	0.96	-0.63	0.46
Consumer Discretionary	1.08	2.82**	0.98	1.65	3.38	3.28**	2.39	1.43
Consumer Staples	1.59	2.71**	1.86	1.85	4.37	3.09**	2.44	2.44**
Health Care	0.75	2.79**	1.47	0.87	4.18	3.18**	2.47	0.97
Industrials	0.67	0.76	0.80	1.94	0.82	0.67	1.36	1.83
Information Technology	-0.77	3.48**	-0.44	0.92	4.94	4.77**	-1.37	0.81

* For significant T-stats at 95% and ** for significant at 99%.

Table D: Regression with ROCE, R&D intensity and excess HCROI (orthogonal to ROCE and R&D Intensity)

	1M forward returns						3M forward returns					
	ROCE		R&D Intensity		Excess HCROI		ROCE		R&D Intensity		Excess HCROI	
	Beta	T-stats	Beta	T-stats	Beta	T-stats	Beta	T-stats	Beta	T-stats	Beta	T-stats
Universe	0.26	3.64**	0.02	0.26	0.18	3.77**	0.75	3.51**	0.10	0.41	0.48	3.66**
Communication Services	0.11	1.15	0.01	0.10	0.13	1.07	0.33	1.26	0.10	0.23	0.38	1.02
Consumer Discretionary	0.29	2.78**	-0.11	0.96	0.20	1.62	0.86	3.10**	-0.47	1.38	0.47	1.47
Consumer Staples	0.45	3.43**	0.09	0.91	0.33	2.37*	1.46	3.46**	0.38	1.02	1.06	2.07*
Health Care	0.36	2.83**	-0.11	0.87	0.10	0.60	0.84	1.75	-0.20	0.45	0.15	0.28
Industrials	0.14	1.45	0.11	1.40	0.14	2.13*	0.42	1.38	0.10	0.35	0.48	2.58**
Information Technology	0.26	2.41*	0.23	1.26	-0.05	0.37	1.06	2.77**	0.86	1.87	-0.20	0.42

	6M forward returns						12M forward returns					
	ROCE		R&D Intensity		Excess HCROI		ROCE		R&D Intensity		Excess HCROI	
	Beta	T-stats	Beta	T-stats	Beta	T-stats	Beta	T-stats	Beta	T-stats	Beta	T-stats
Universe	1.52	3.58**	0.22	0.72	0.84	3.51**	2.85	4.03**	1.12	1.19	1.51	3.10**
Communication Services	0.83	1.41	-0.27	0.32	0.43	0.63	1.46	1.08	-2.00	1.03	-0.62	0.47
Consumer Discretionary	1.48	2.88**	-0.85	1.42	1.07	1.62	3.54	3.29**	-0.99	0.67	2.30	1.39
Consumer Staples	2.71	2.70**	1.06	1.28	1.85	2.08*	4.63	3.34**	2.68	1.77	3.58	2.31**
Health Care	2.19	2.56*	-0.05	0.07	0.66	0.74	4.06	2.35**	-0.27	0.13	2.33	0.86
Industrials	0.49	0.78	-0.09	0.16	0.65	1.87	0.94	0.80	1.50	1.20	1.37	1.85
Information Technology	2.59	3.69**	1.97	2.40**	-0.62	0.70	5.10	5.15**	5.03	2.62**	-0.99	0.56

* For significant T-stats at 95% and ** for significant at 99%.

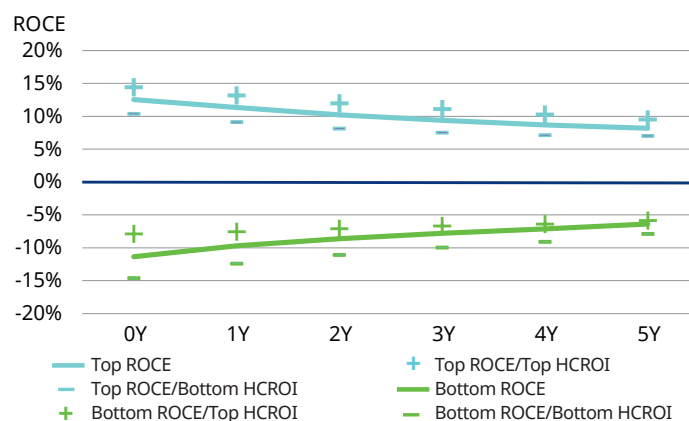
IS IT REALLY MATERIAL? (CONT'D)

Human capital and persistence

The final question we have asked in the initial empirical research on HCROI metrics refers to persistence. Much of the theory behind sustainable investing is premised on the hypothesis that companies with more sustainable business models – creating stakeholder value – should have a higher chance of delivering persistence in their returns. Either this is because negative externalities are minimized over the course of a cycle, reducing both the probability and potential size of an exogenous tax to returns; or because the balance of sustainable characteristics in a given business model results in more opportunities being captured. In human capital terms, the same theory applies, whether in attracting and retaining the best talent, creating the optimal culture for talent to thrive or generating the positive social spill overs that affect license to operate.

Figure 22: Convergence of ROCE

Blue series represents top ROCE companies. Pluses denote top ROCE and top HCROI. Minuses are top ROCE and bottom HCROI. Green series is bottom ROCE.



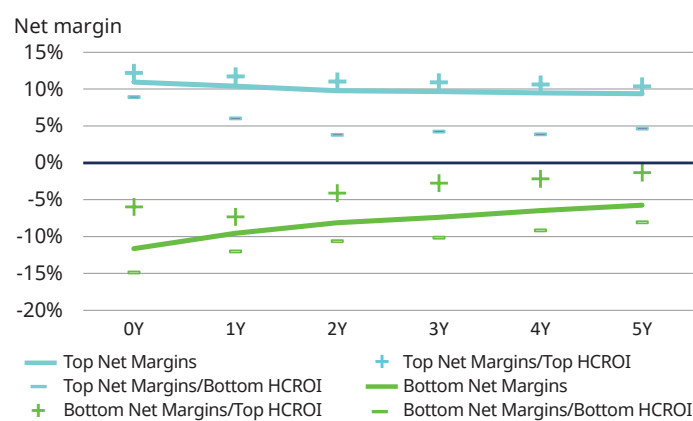
Source: Worldscope, Schroders.

Using the ROCE example, at each date, we compute “relative ROCE” by removing the universe’s average ROCE. We split this new ROCE into terciles (top/average/bottom). We then look at the value of forward 1Y/2Y/3Y/4Y/5Y excess ROCE for top (resp. bottom) ROCE tercile. Finally, we add an additional split using HCROI, looking at companies with top (or bottom) ROCE and top (or bottom) HCROI. The blue line at 0% shows the ROCE average level for the universe. Companies in the top tercile for ROCE (light blue line) have a relative ROCE of 14.4% on average at year 0 and progressively converge towards the universe average, ending at 9.5% after 5 years. On the opposite side, bottom tercile ROCE companies (green line) show significantly lower ROCE than the universe -14.6%, reverting to -7.9% after 5 years.

Figure 22 illustrates that companies which combine top ROCE and top HCROI (blue pluses) show consistently higher excess ROCE than top ROCE firms only (blue solid line). Conversely, those with top ROCE but bottom HCROI show consistently lower excess ROCE over time (blue minuses). There is a similar relationship for bottom ROCE firms. While high HCROI companies have higher ROCE and Net Margins (Figure 23) on average and maintain these higher levels even after 5 years, it is perhaps unsurprising as companies with high HCROI are by definition more profitable. However, the rate of reversion does not seem to be significantly impacted. That said, low HCROI does contribute to faster mean reversion of companies with higher starting net net margins.

Figure 23: Convergence for net margins

Blue series represents top margin companies. Pluses denote top margins and top HCROI. Minuses represent top margin but bottom HCROI. Green series is bottom margin.



IS IT REALLY MATERIAL? (CONT'D)

Summary of empirical analysis

While the empirical analysis presented above is partly restricted due to a lack of company disclosure, particularly in the US, the dataset of more than 1,000 stocks over the period 2014-2022 does nevertheless provide a respectable sample to employ exploratory data analysis. We have determined that HCROI is indeed a driver of company profitability. Standard portfolio backtests suggest that HCROI is recognized by investors in a performance sense, at least over the past eight years. This remains the case even when we control for various factors such as Value, ROCE, Labor Intensity, etc.

Moreover, companies with poor HCROI have historically underperformed to a greater extent, particularly when combined with high salaries per person, potentially indicating that a poor work culture, or failing human capital management more generally, is not sufficient to offset good pay packages. Regression analysis further supported the significance of HCROI while permitting a more structural framework which controls for multiple factors simultaneously. In particular, adjusting HCROI for both ROCE and R&D intensity in a preliminary regression (i.e. "excess HCROI") was also statistically significant in most sectors over multiple time horizons, albeit to a lesser extent than ROCE.

One of our initial priors was that the lack of empirical support for HCROI in a backward looking framework would not necessarily be surprising given that it has only been in the relatively recent past that employee wellbeing has become a more prominent goal of management teams. With this in mind, we were reassured by the evidence linking HCROI to a number of positive performance outcomes, most notably from avoiding companies with low HCROI. Indeed, while there is currently weaker evidence that HCROI leads to greater persistence in corporate profitability and growth, this does not negate the view that it will become increasingly important on a forward looking basis. In summary, the historical evidence is reassuring but as we have argued already in this research series, it should not be regarded as the sole motivation for promoting the importance of human capital management as a key driver of future productivity. At the very least, we can argue that the data certainly does not reject our hypothesis and we would speculate that HCROI will become an increasingly important driver going ahead.

Translation mechanism and externality

When thinking about materiality we also consider two other questions.

- Can we identify the translation mechanism through which this issue – given it is not financially denominated – becomes impactful to the company balance sheet, cash flows and P&L?
- Can we identify and create a sensible process for measuring the outward manifestation of this issue as an externality, such that we can estimate the net social value associated with it, thus in time being able to consider this as a potential future financial opportunity or risk?

Translation mechanism

The paths to human capital management affecting company returns are varied. As highlighted by Figure 4 above, there are numerous people-centric metrics, whose components are already financially calculable, beyond salaries, benefits and stock-based compensation.

For example, the cost of employee turnover manifests through the expense incurred during recruitment for replacements, training, temporary productivity shortfall and, potentially, the cultural impact churn can have on teams and their morale. Depending on the nature of the industry, it can cost between three and 18 months' salary, to replace a lost employee¹⁰ and so we can factor these into a grossed up estimate for the Human Capital Cost Factor (HCCF) if companies disclose turnover data.

Similarly, costs of absenteeism, sickness and injuries are again possible to estimate, with a range of simple assumptions. There are differing rules of thumb depending on the industry but generally speaking for permanent employees, fixed costs do not cease when people are off sick, injured or otherwise not at work. High performing teams may rally to support delivery against certain targets in the absence of individuals, and the sick or injured personnel may then work to 'recover' lost ground once they're back at work. However, there are limitations to this, notably around overtime in blue collar roles, that make it hard to 'catch up'¹¹. This means there is considerable opportunity to capture elevated earnings drop-throughs from lowering absenteeism – whether the result of sickness or injury – as fixed cost absorption increases while the incremental cost of driving this change is often comparatively small¹². Figure 24 below adapts the Framework for Financial Modeling of ESG Impacts on the P&L that is being developed within the Oxford Rethinking Performance initiative¹³ for the purposes of human capital.

10 See: Human Capital ROI, Jac Fitz-Entz.

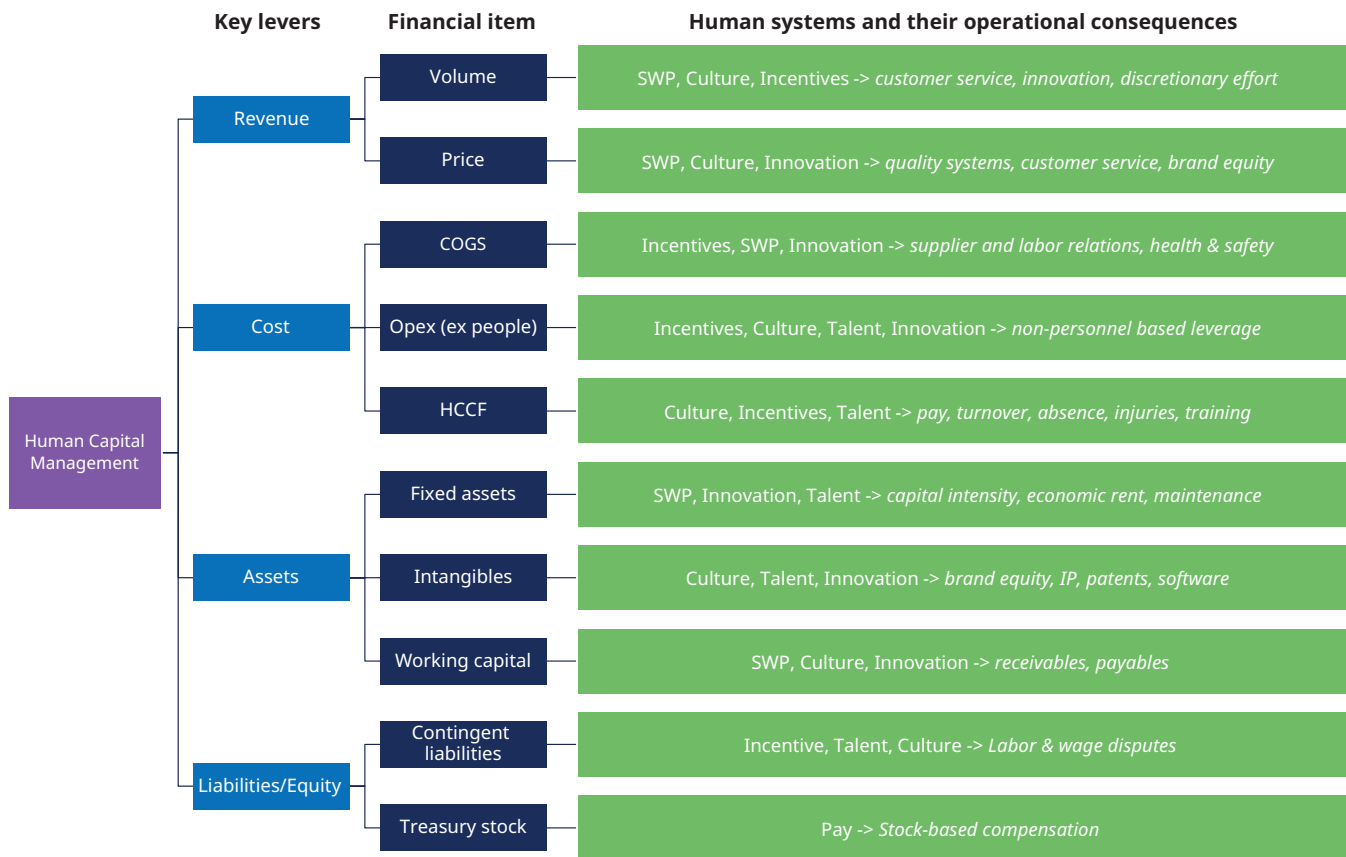
11 Our conversations with textiles industry suppliers based in Bangladesh were particularly informative here. For example, we were told that strict overtime constraints mean it could take over a month to catch up between two and four days of lost production.

12 There is a selection of literature to articulate the links between the degree of employee ownership and worker outcomes. Bryson and Freeman (2014) document findings that workers who buy shares at subsidized prices work harder for longer hours with lower absentee and turnover rates.

13 See more on the ORP [here](#).

IS IT REALLY MATERIAL? (CONT'D)

Figure 24: Translation mechanism – the paths affecting financial returns



Source: ORP, Schroders. Note: SWP refers to Strategic Workforce Planning. Note: HCCF refers to human capital cost factor; SWP refers to strategic workforce planning.

IS IT REALLY MATERIAL? (CONT'D)

Case study: Software Company

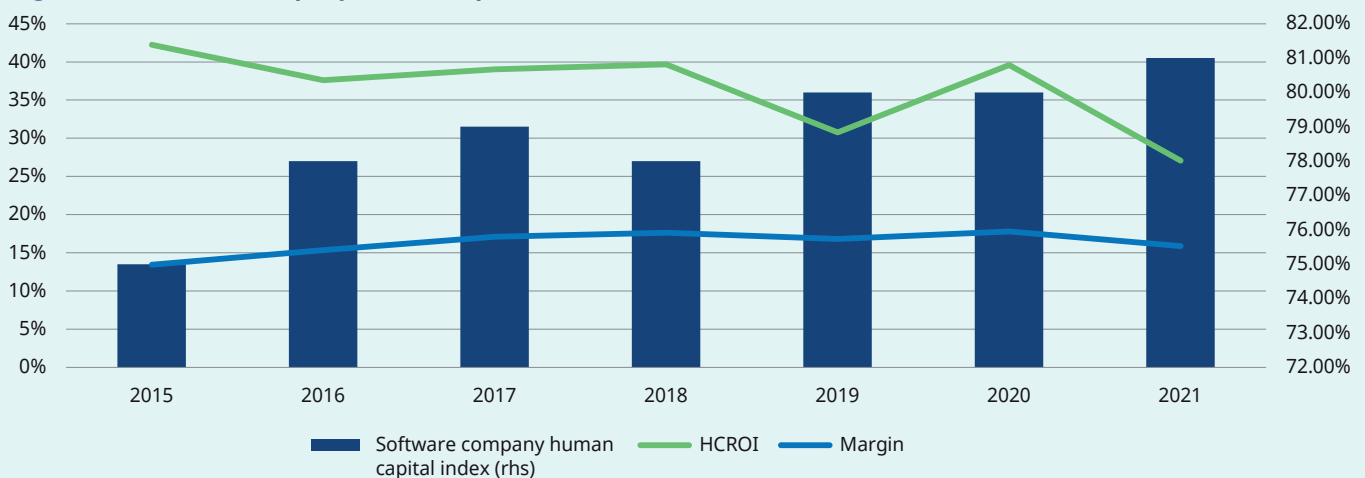
To provide a concrete example of this in practice, we look at a global software company. The company employs more than 84,000 people and regularly scores well on lists of the best technology companies to work for¹⁴. The company culture and employee engagement are closely monitored by the management and this metric is fairly prominent in management's short term incentive.

As compared to peers, its toolkit for measuring its human capital strength is relatively sophisticated. A variety of indices have been tracked to monitor human capital health for a number of years in conjunction with financial indicators – see Figure 25 below. Between 2014 and 2018 the company tested the financial impact of selected non- financial indicators such as this, with significant findings. Every 1% point increase in one of its human capital indicators was consistent with a €90m to €100m increase in operating profit, while 1% point on employee engagement drove a €50m to €60m rise in profit, and 1% point of better employee retention added €55m to €60m of profit.

Subsequently moving a layer deeper to assess how it could drive changes in those non-financial indicators, the company also found improvement opportunities. With one health initiative, for example, the firm reported it was generating strong ROI. Every €1 invested in this healthcare initiative was found to generate circa €3.90 of additional operating profit.

It is important to note here that we need to treat reports such as this from companies as a launchpad from which to ask questions of value creation and human capital management. The practice that is being illustrated by the organization in question – i.e. measurement of the consequences of different employee management initiatives such that one can iterate and improve – is representative of strong human capital management, but while the company in question talks to strong incremental returns on projects such as this, we need also to see that flow into the leverage at group level.

Figure 25: Software company human capital index



Source: Company, Schroders.

In its full fat form, the HCCF offers a gross number for investment in employees – including the opportunity costs of employee turnover and sickness or absenteeism. This means we can calculate a fully loaded returns profile. HCROI is thus the KPI that wraps up the individual elements involved in shaping the materiality of human capital, thus representing the outcomes that matter to financial returns. Within this metric, there are also moving parts that are harder to dollarize.

We tend to think of these as the ‘residual’ features of HCROI, which can be identified once we’ve applied numerical values to things like salary, churn, sickness, benefits, training and so on. In many cases, these represent the ‘warm and fuzzy’ feelings associated with high trust, high performance cultures, making them an important part of the translation mechanism. Our next report – “Performance Levers” – discusses the core principles of incremental change in these ‘soft’ features.

IS IT REALLY MATERIAL? (CONT'D)

Turning back, therefore, to the five human systems we have identified as being part of effective human capital management overall, we would summarize their roles in the overall translation mechanism as follows:

- **Operating model and workforce strategy:** Planning workforce capabilities effectively is critical to the delivery of company strategy, so is fundamental to company returns.
- **Culture and inclusion:** The “invisible hand” as we defined it in our first report – “Margin of Safety” – helps promote higher engagement and productivity, via stronger leverage on investment in people. As concepts like ‘quiet quitting’ emerge and are potentially harder to diagnose in hybrid work environments, the importance of culture as a productivity driver is difficult to discount.
- **Incentive and performance management:** This is about accountability. Both carrot and stick (incentive and performance management systems) carry substantial weight in driving the delivery of underlying operational outcomes, across the income curve. While anecdotal evidence from companies earlier this summer suggested warehouse workers at one retailer would be prepared to switch jobs for as little as a 15pence per hour increment, one CHRO of a global cloud business noted in regards to high ranking leaders: “if you don’t get it right on pay, they won’t stay.”
- **Talent and Learning:** In addition to each of the above, talent systems allow companies to hone their combination of ‘buy vs build’. When 50% of senior-level outside hires are failing within a year in new organizations, the financial importance of getting these right is clear. However, for companies embarking on major transitions, particularly those predicated on technology shift – fossil fuel companies going renewable, or autos transitioning to EVs, for example – talent teams play a significant role in developing the requisite capabilities.
- **Innovation:** Promoting the flow of innovative ideas may result in new products delivering incremental value – per BMW’s Cr8 system, for example¹⁴ – or could yield new processes in terms of operating model, sales, marketing or routes to market, that again help drive value.

Externalities

The majority of this discussion is focused on financial value creation, but if externalities represent market inefficiencies, or temporary dislocations in pricing mechanisms, we should expect them to hit P&L or balance sheet at some stage.

Human capital management has potentially profound consequences on mental health, given the amount of time people spend at work. But it is currently challenging to identify appropriate measures for stress levels by company. However, referring back to work done by the Capitals Coalition, their model of ‘business drivers’¹⁵ provides multiple examples of other relevant externalities, albeit these are again difficult to measure at this stage.

Figure 26 overleaf summarizes the Capital Coalition’s view of how the impacts and dependencies associated with human capital affect different stakeholders. Many of these can be linked to the systems we identify within human capital management.

Firms with effective operating models and workforce strategies strengthen value chains and deliver social value. They do so because strategic workforce planning creates the runway for fair pricing, wages and benefits, while delivering decent work and labor conditions. This is not about long planning or product cycles, but is instead cultivated by having clear workforce strategy to support business ambitions and help suppliers or customers align to those interests. Similarly, firms with inclusive cultures drive employee engagement and loyalty, in turn delivering inclusive products and services to customers, and building trust across stakeholders. Appropriate incentive and performance management systems again support fair wages, prevent discrimination and reduce the social value destruction created when parts of the value chain have pay struck below living wage levels. Talent strategies deliver knowledge sharing to the benefit of organizations themselves, as well as the industries and communities in which they operate¹⁶. And finally, innovation enhances customer and supplier loyalty through improved product or service offerings as well as operating models. We will explore the externalities of human capital management more in time.

14 See more here for how one car company’s innovation program has delivered material incremental earnings. Capitalizing the annual savings associated with these sorts of programs could yield notable ‘value’ locked up in this sort of innovation system.

15 See the Social and Human Capital Protocol here.

16 See details here of the Walmart Academy, as example of talent systems that – per the Harvard Business School case study – have benefited the company, employees, society and even other players in the industry that have subsequently adopted the system.

IS IT REALLY MATERIAL? (CONT'D)

Fig 26: Map of human and social capital's impacts and dependencies against business drivers



Source: Capitals Coalition.



SUMMARIZING THE MATERIALITY

There is a credible body of empirical evidence to support our hypothesis that human capital management is financially material. We also believe there are numerous paths to materiality as can be identified through translation mechanisms and potential externalities.

Stepping back, we would encourage investors to consider strong human capital management systems as being core to the perpetuity of a company's competitive advantage. While individual people within an organization leave, the fabric of every organization is nourished, supplemented or undermined by its core human systems.

By using an outcomes-KPI such as HCROI, we have established that human capital management is financially material. In our next report in the series - "Performance Levers" - we explore what moves the dial, so investors can build a picture of what to target in engagement on these issues.

APPENDIX: METHODOLOGY FOR REGRESSION ANALYSIS

Detailed methodology

The analysis covers the period from 2014-2022 for companies in Europe, the UK and the USA where the information is available. We have excluded the Energy, Real Estate, Utilities and Financials sectors from the analysis.

We select a time horizon of forward relative returns to use as our dependent variable (i.e., 1 month, 3 month, 6 month and 12 months). For each non overlapping date, we run cross sectional regressions within each sector against the forward returns using Market Cap, Book to Price, Momentum and:

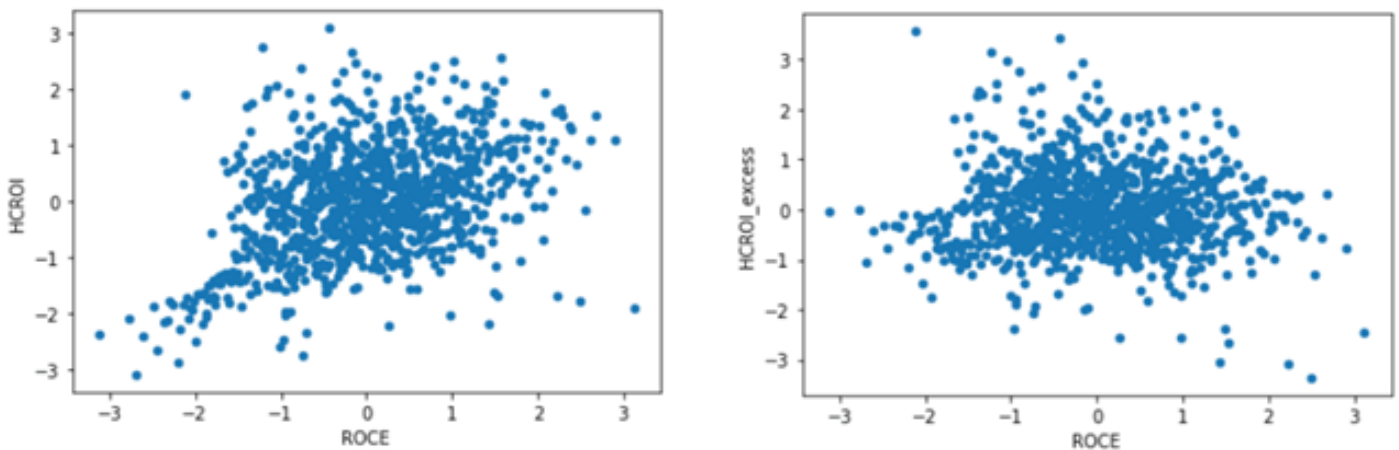
- ROCE only (Table A)
- HCROI only (Table B)
- ROCE with "excess" HCROI (Table C): Given the known high correlation between HCROI and ROCE (e.g. 56%), we created an "excess HCROI" term to strip out the ROCE effect from the HCROI signal to isolate the effect of human capital, e.g. reducing earnings as a driver of HCROI. We have done so by running a preliminary regression of HCROI on ROCE and taken the residual as excess HCROI (i.e. $HCROI = a + b \cdot ROCE + \text{excess HCROI}$). The residual represents the orthogonalized or "pure" information

attributable to HCROI after taking into account the positive correlation with ROCE. To further illustrate this point, the scatterplot in Fig 27 below plots HCROI against ROCE chart (left) highlights the positive correlation whereas excess HCROI plotted against ROCE (right) shows a far more dispersed scatterplot.

- ROCE and R&D Intensity with excess HCROI (table D): Using the same logic as described above, we run a regression of HCROI on ROCE and R&D Intensity (as defined by R&D expenses divided by Net Sales) and using the residual as excess HCROI (i.e. $HCROI = a + b \cdot ROCE + c \cdot R\&D \text{ Intensity} + \text{excess HCROI}$). Where information on R&D expenses is unavailable, we have assumed zero for the purpose of the regression.

Finally, all explanatory factors are normalized to ensure a normal distribution. The resulting regressions produces a time series of cross sectional betas for each time horizon and sector as well as for the full universe. We then average the betas over time and calculate the t-stats of the betas (i.e. average beta divided by standard deviation of beta over the square root of number of observations) to quantify whether the average beta estimates are significantly different from zero.

Figure 27: Correlation of HCROI vs ROCE (left) and "excess" HCROI vs ROCE (right)



Source: Schroders. Scatter shown for August 2022.

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