Marketing Material

The Sector Rotation Story

Sustainable alpha generation through changing sector exposure

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- **A successful sector rotation strategy needs to identify upcoming sector leaders, often a tough challenge.**
- **There is a proven and tested way: sector (and stock) selection based on CROCI's Economic PE.**
- **This strategy is implemented through DWS Invest CROCI Sectors Plus (a strategy live since 2015).**

Companies within a sector may have different characteristics, but they can reasonably be expected to have similar fundamentals at an economic level. The excess returns that active managers seek to produce can be better understood using sector groupings. Brinson, Hood, and Beebower (1986) popularly broke this 'excess return' down into two steps: sector allocation and stock selection.

This paper focuses on the first variable. Through intelligent allocation, investors attempt to exploit sector rotation to create a better risk-adjusted return profile for their portfolios. The **CROCI Sector Plus** strategy provides a good example of an investment strategy led by sector allocation. Since November 2015, more than half of its excess return can be attributed to sector allocation[1].

Sector rotation in its simplest form refers to the shift of funds from sector to sector, based upon the impact of future economic expectations on the business cycle. The sectors that particularly benefit will outperform and their multiples expand, and vice versa, until a change in business cycle prompts another round of sector rotation, *ad infinitum*.

In this report, we focus on using economic valuations to determine sector exposures. Further, we examine the performance of the underlying businesses of different sectors across the business cycles. We reach the following conclusions:

1) an economic value-oriented approach of identifying the three cheapest sectors has generated sustained alpha over the long term

2) a concentrated portfolio owning the three cheapest sectors has exhibited risk characteristics largely similar to the benchmark.

Figure 1 shows the annual excess return over the benchmark generated by the best three sectors and the worst performing sector over the past two decades. All ten sectors appear in the top three sectors at some point during the period; but some sectors appear more frequently (Health Care or HC is top ranked five times). Interestingly, since 2014 (with the exception of 2018), Energy (EN) has either been the best or the worst performer, driven by the cyclicality of its earnings (**Figure 6**). The Financials (FI) sector appears three times in the top three and another three times as the worst sector over the past two decades. It also generated the worst cumulative performance since 2003. On the other hand, Information Technology (IT) generated the best cumulative performance during the same period (underlying sector dynamics covered in **Figure 8**).

Figure 1: Excess Sector Return over MSCI World Index

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Rank 1	IT (15.2%)	UT (13.7%)	EN (19.3%)	UT (15.7%)	MA (24.2%)	HC (19.2%)	MA (31.5%)	CD (12.8%)	HC (15.0%)	FI (13.5%)	CD (12.6%)	HC (13.2%)	HC (7.5%)	EN (19.1%)	IT (15.8%)	HC (11.2%)	IT (19.9%)	IT (27.9%)	EN (18.3%)	EN (64.1%)
Rank 2	MA (11.8%)	EN (13.4%)	MA (9.8%)	C'Ser (11.8%)	EN (20.8%)	CS (17.4%)	IT (22.4%)	IN (11.6%)	CS (14.1%)	CD (8.5%)	HC (9.6%)	IT (11.1%)	CS (7.2%)	MA (14.9%)	MA (6.5%)	UT (10.7%)	IN (0.1%)	CD (20.7%)	IT (8.0%)	UT (13.5%)
Rank 3	FI (5.7%)	IN (4.6%)	UT (3.6%)	MA (8.6%)	UT (12.5%)	UT (11.3%)	CD (9.6%)	MA (9.5%)	C'Ser (6.3%)	HC (1.7%)	IN (5.4%)	UT (10.3%)	CD (6.4%)	IN (5.4%)	IN (2.8%)	IT (6.1%)	C'Ser (-0.3%)	C'Ser (7.1%)	FI (6.1%)	HC (12.7%)
Worst Performer	CS (-16.3%)	IT (-12.2%)	C'Ser (-19.4%)	IT (-10.8%)	FI (-17.3%)	FI (-13.3%)	UT (-23.8%)	UT (-12.8%)	MA (-14.3%)	UT (-14.0%)	MA (-23.2%)	EN (-16.5%)	EN (-21.9%)	HC (-14.3%)	EN (-17.4%)	FI (-8.3%)	EN (-16.2%)	EN (-47.4%)	UT (-12.0%)	C'Ser (-18.8%)

Source: Bloomberg Finance LP, DWS Calculations. The chart represents excess return from the top 3 outperforming sectors and the worst performing sector return over MSCI World Index since 2003. Excluding Real Estate Sector. IT - Information Technology; C'Ser. - Communication Services; CS - Consumer Staples; HC – Health Care; MA – Materials; UT - Utilities; IN - Industrials; EN - Energy; CD - Consumer Discretionary; FI - Financials. Data as of December 30, 2022. The returns are total returns including dividends in USD. Prior to September 2018, Communication Services (C'Ser.) represents the Telecom sector.

[1] DWS Invest CROCI Sectors Plus -> Link Refer Appendix 1.

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Margin of Safety

"Confronted with a challenge to distil the secret of sound investment into three words, we venture the motto, Margin of Safety." Forty-two years after reading that, I still think those are the right three words." – Warren Buffet, Letter to the shareholders (1990).

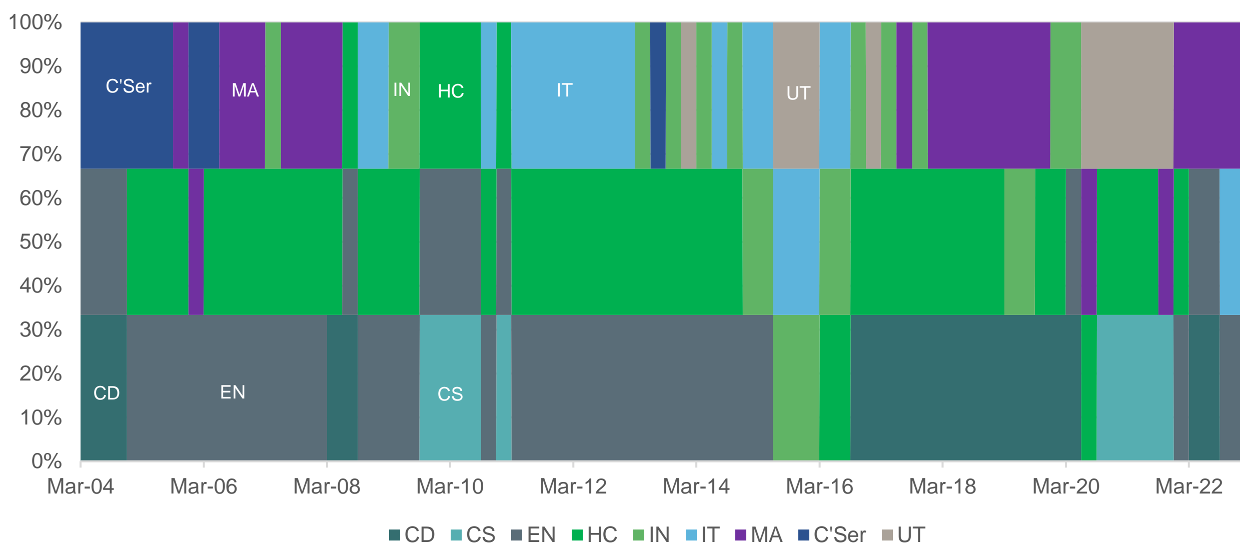
Sector rotations are of course easy to review with the benefit of hindsight, but it is the identification of rotation criteria in advance that is crucial. There are multiple research papers delving into the historical returns of the sectors relative to the benchmark, which in isolation is perhaps more useful for a trader than a fundamental investor. We seek instead to capture the longer-term economic characteristics for the sectors in question.

CROCI Economic PE[2] is the approach we focus on, as it captures both the price and underlying business dynamics. In the following chart, we look at the cheapest three sectors based on bottom-up median Economic PE across CROCI's non-financial coverage universe of over 800 stocks, comprising around three-quarters of the MSCI World Index by market capitalization[3]. We rank these sectors by their median Economic PE on a quarterly basis for almost twenty years and identify the cheapest three sectors across this period.

Two sectors which stand out are Energy and Health Care, both appearing regularly for a full decade, starting from 2004 to 2015. Materials and Information Technology also make frequent appearances and in fact both are amongst the cheapest three sectors at the moment as per the latest data in the chart below. We cover the underlying economic characteristics of some of these sectors below.

On the other hand, Communication Services (and its predecessor, the Telecoms sector) has rarely appeared in the list of cheapest three sectors, driven by 1) prolonged history of the Telecom industry generating negative economic value and 2) sector re-classification resulting in the blending of some large-cap tech stocks within the Communication Services sector, many of which have looked expensive for much of the recent past owing to their underlying growth profile. Notably, the Consumer Staples sector appears in the aftermath of recessions (2008 and 2020), when its defensive characteristics supported its profitability and ultimately its valuation, while many other businesses turned expensive by virtue of their deteriorating economic characteristics during these periods.

Figure 2: Cheapest three non-financial sectors on a trailing twelve-month Economic PE basis (Mar-04 to Mar-23)



Source: CROCI, Quarterly economic PE series between March 2004 to March 2023. IT - Information Technology; C'Ser. - Communication Services; CS - Consumer Staples; HC – Health Care; MA – Materials; UT - Utilities; IN - Industrials; EN - Energy; CD - Consumer Discretionary. Data as of April 21, 2023. Prior to September 2018, Communication Services (C'Ser.) represents the Telecom sector.

[2] Based on a time weighted average between FY1 forecasts and the most recent reported year.

[3] Data as of December 30, 2022

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Saving up for a rainy day

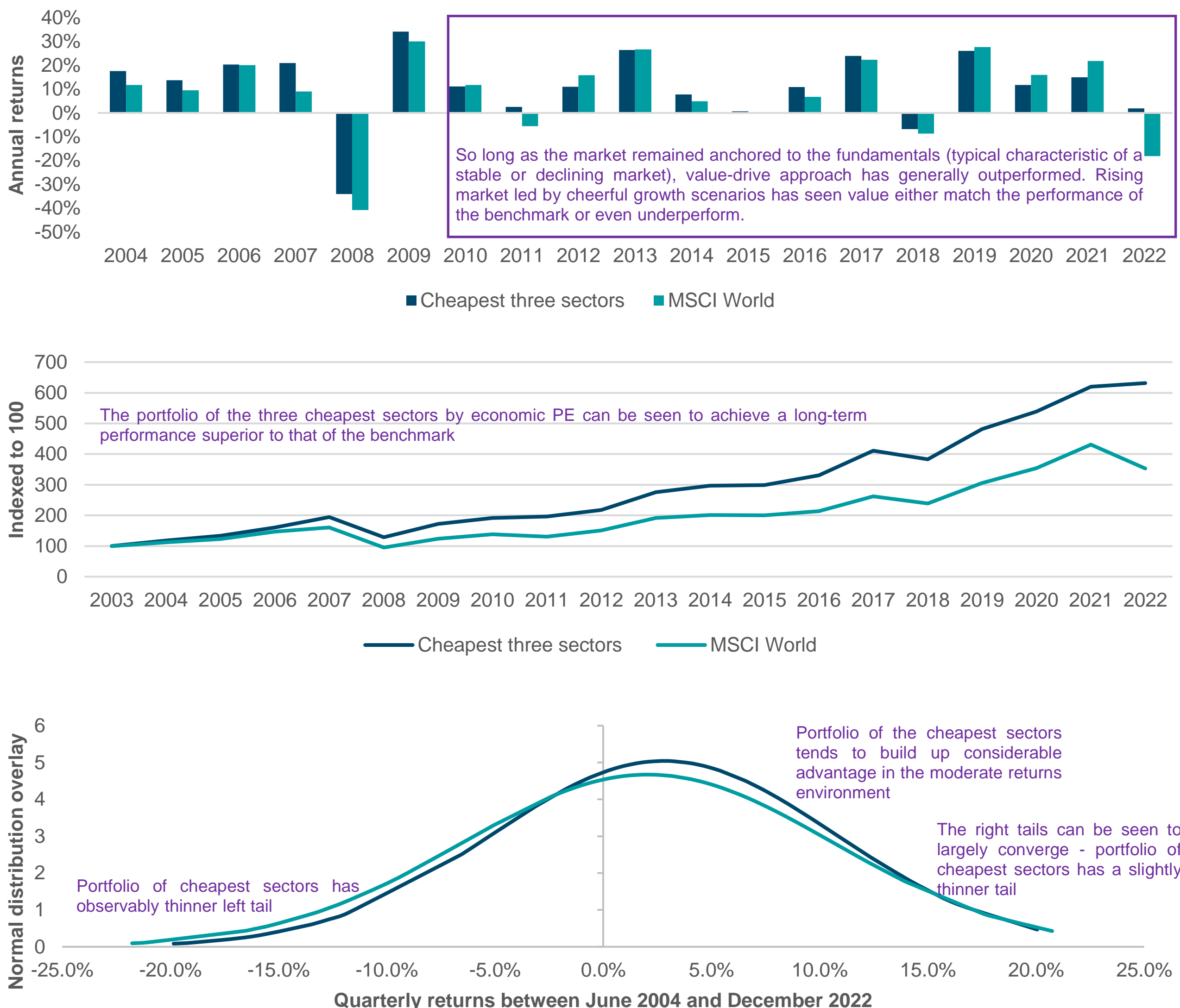
"Any superior record which we might accomplish should not be expected to be evidenced by a relatively constant advantage in performance compared to the average. Rather it is likely that if such an advantage is achieved, it will be through better-than-average performance in stable or declining markets and average, or perhaps even poorer-than-average, performance in rising markets." – Warren Buffet, Letter to the Limited Partners (1960).

In the above section, we have identified the cheapest three sectors over the last two decades. To test the "excess return" or "alpha" generation ability of a sector rotation approach based on valuation, we examine the quarterly returns of a portfolio containing these three cheapest sectors (identified at the beginning of each quarter) and assigning equal weights to them. This ensures that the methodology consistently remains exposed to the three cheapest sectors on economic valuation. This brings in two dimensions: price and the evolving economic returns profile of the sectors (the academic research papers on this topic tend to focus primarily on returns history).

In the following charts, we can see the annualised and quarterly returns of our theoretical portfolio of the three cheapest sectors (with equal weights). Consistent with the approach highlighted by Mr. Buffet, the outperformance is greater on average during stable or declining markets than in rising markets, which have often been driven by exuberance, particularly in recent years.

When market rallies are driven by euphoria, a value-driven approach tends not to materially outperform the broad benchmark. But when the market's focus moves back to fundamentals, the environment is easier for valuation-driven strategies to outperform.

Figure 3: Simulated performance of theoretical cheapest three sectors (with equal weights) versus the benchmark



Source: CROCI, Bloomberg Finance LP, DWS Calculations, the last iteration of the cheapest sectors picked on the economic PE data as of September 30, 2022 and their quarterly returns are updated until December 30, 2022. The returns are total returns in USD. The exhibits are only illustrative in nature, as these reflect the performance of the theoretical portfolio described above versus the performance of MSCI World.

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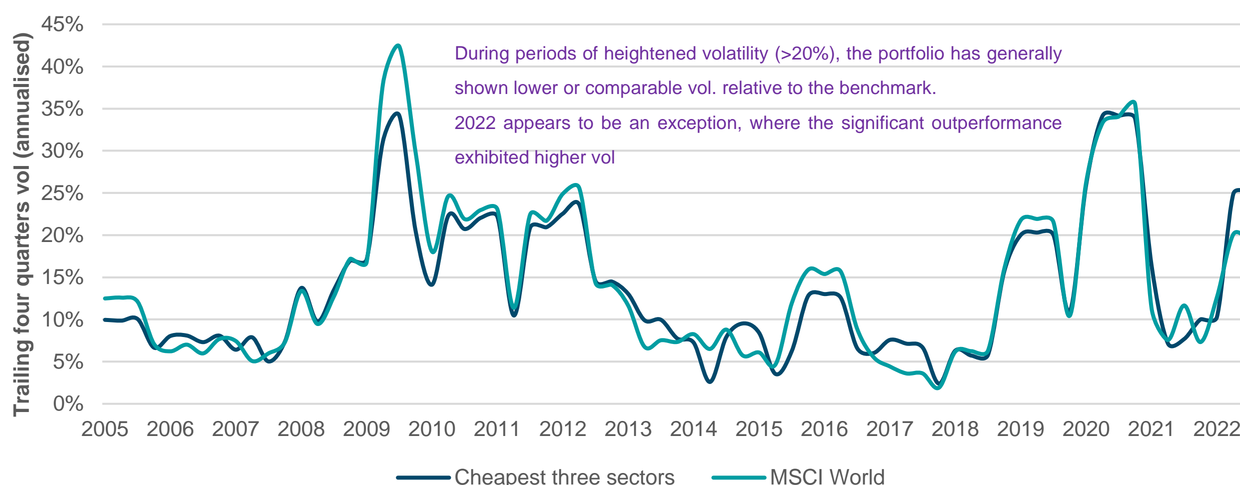
Concentration of portfolio – not necessarily risky

It is a core precept in finance that investors should diversify. The nature and extent of diversification is a function of what one thinks about the efficiency of markets. Believers in efficient markets might be more inclined to spread their investments across global index funds. But for those who believe that markets systematically misprice classes of securities a concentrated portfolio has greater appeal (focusing on cheap stocks, beaten-up stocks etc.).

The economic value-based methodology we discuss above is fully benchmark agnostic. Conventional wisdom suggests that such a strategy should have significantly higher volatility than the benchmark. However, the chart below shows that the volatility of this approach is similar to the broader market. There are times when volatility rises relative to the benchmark (including the past year or two when it was associated with strong outperformance), but in the long term the risk (at an absolute level) tracks the broader market.

However, investors interested in such a concentrated sector rotation approach should bear in mind that the relative risk (i.e. tracking error to the broader market) can be significant – there can be material deviations in quarterly returns, and therefore such an approach is likely to be unsuitable for tactical investments – instead, it requires patience and a sufficiently long investment horizon (of ideally at least 3 years or more). The simulated strategy investing in the three cheapest MSCI World sectors each quarter whose returns are shown in **Figure 3** above has generated over 3% p.a. excess return vs MSCI World, but it would have underperformed the broader market in 1 of every 3 quarters (and by more than 2 percentage points in 11 quarters over the analysis period). In summary, trying to identify the likely best performing sectors based on valuations would have generated long-term alpha (without significantly higher volatility), but there is timing risk involved in investing in such an approach – suggesting that staggering the initial investment may be beneficial.

Figure 4: Trailing four quarters volatility comparison (annualised)



Source: CROCI, Bloomberg Finance LP, DWS Calculations, Data as of December 30, 2022. The exhibit is only illustrative in nature, as it reflects the volatility of the theoretical portfolio described on page 3 versus the volatility of MSCI World.

Conclusion

- A successful sector rotation strategy needs to identify upcoming sector leaders, which has often proved tough depending on which indicators are used.
- There is a proven and tested way: sector (and stock) selection simply using bottom-up company valuation, based on CROCI's Economic PE.
- CROCI has been running sector rotation strategies using this approach since 2005. Currently, the strategy mentioned above is implemented through DWS Invest CROCI Sectors Plus (live since 2015).
- This approach has similar absolute risk to the market (measured using volatility), but has relatively high tracking error owing to its concentrated exposure to three sectors.

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Sector examples

In the next section we show the CROCI charts for Global Equities and for the Energy, Health Care and IT sectors. These standard-format six CROCI charts help tell a clear story about a company, sector or region's equity returns and valuation. They show returns relative to market-implied cost of capital, the growth trajectory of capital and earnings, historical margins and capital productivity as well as overall valuations and what they imply.

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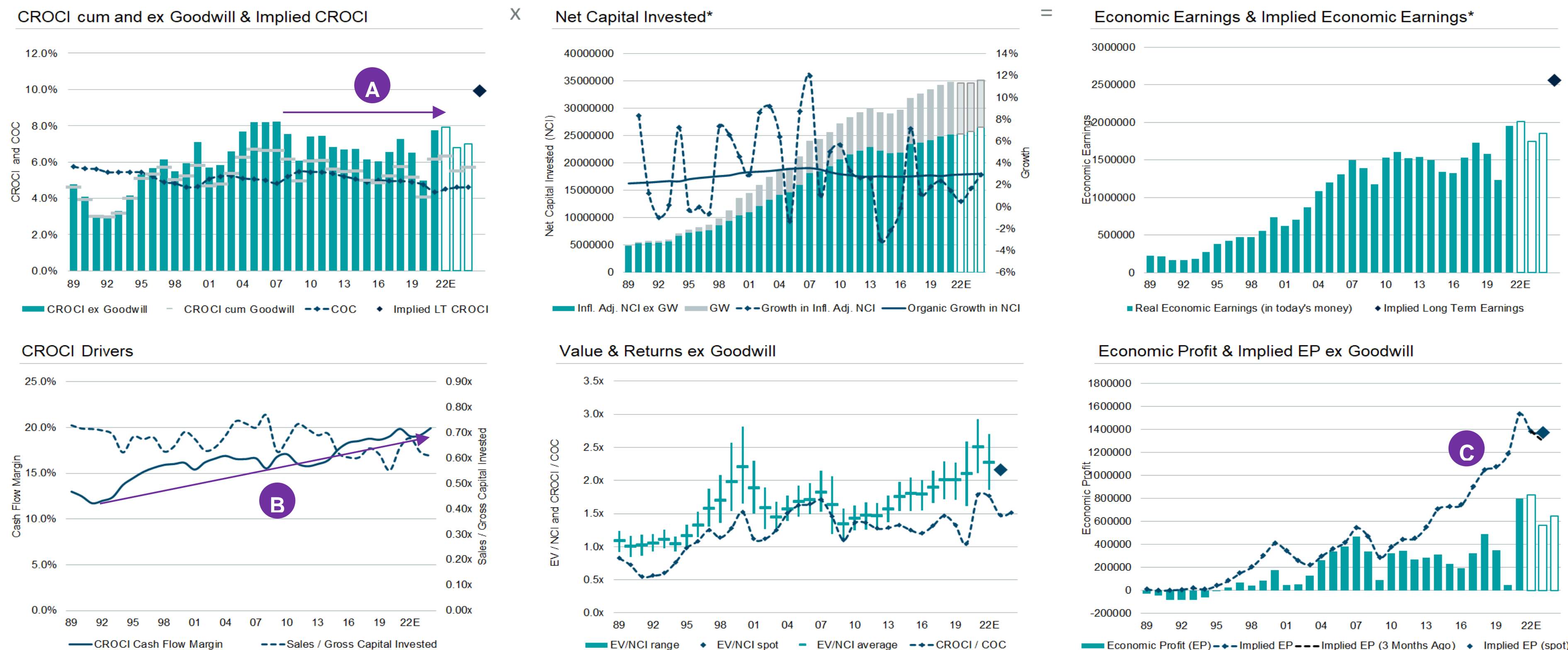
Figure 5: Global Equities



A.	For our global equity coverage, 2022 cash returns (in real terms) were near historic highs. However, in 2023e and 2024e, consensus estimates imply a decline in cash returns.
B.	At the aggregate level, companies have nearly doubled their cash flow margins. This is attributable to three factors (i) operationally: companies have become more profitable; (ii) corporate taxes have declined over this period; and (iii) large tech companies are generally more profitable and enjoy better margins
C.	Markets can remain exuberant for a fairly long period in anticipation of higher growth. The beauty of this valuation model is that it always gives an indication of overvaluation if the growth does not materialize.

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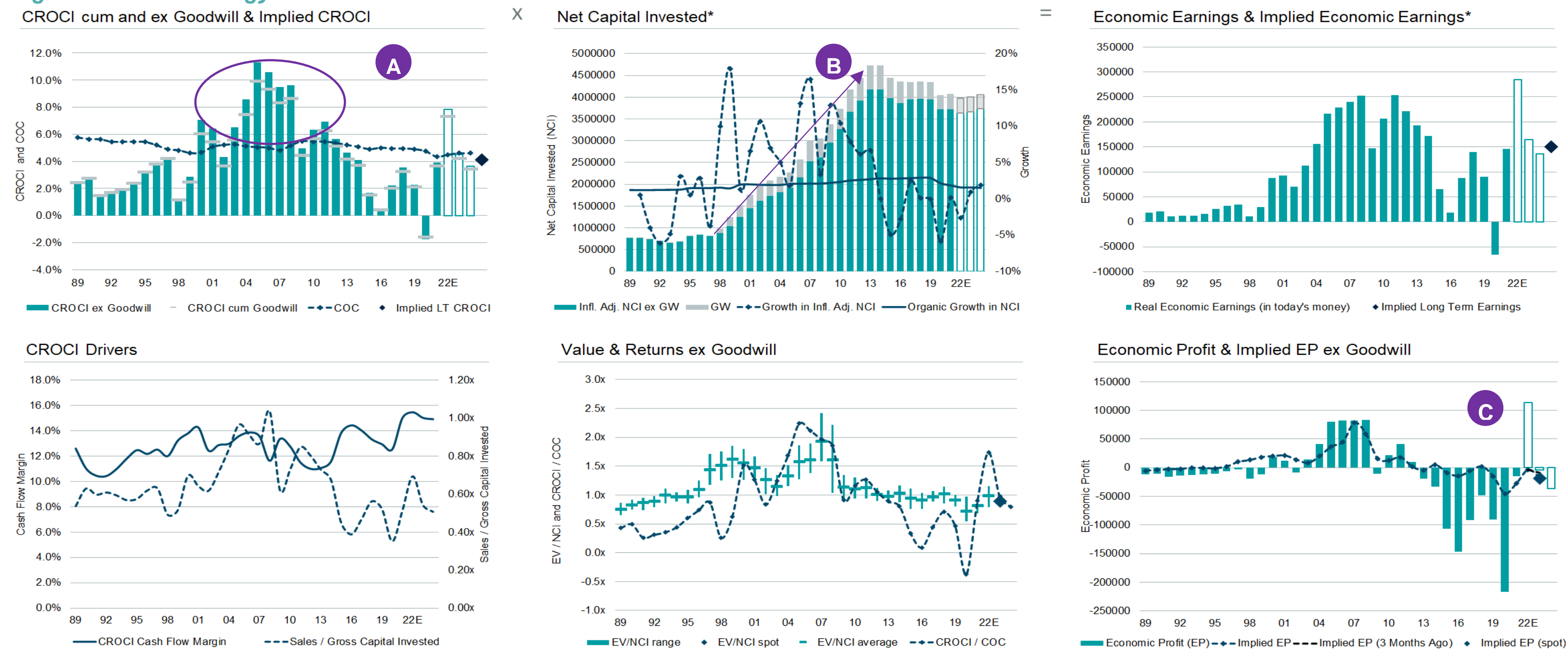
Source: Company reports, Bloomberg Finance L.P., DWS and CROCI. The table shows aggregate data of companies in CROCI's global coverage. Data in USD as on May 15, 2023. Forecasts are based on assumptions, estimates, views and or analyses, which might prove inaccurate or incorrect. "E" after a year indicates that the numbers are based on consensus forecasts. *Displayed in today's money.

Figure 6: Global Energy



A. Most years of economic value generation are clustered between 2001 and 2011, when energy supply was not able to match strong demand. After a hiatus of almost a decade, somewhat similar demand/supply dynamics mean that the sector is again generating cash returns higher than the hurdle rate.

B. Thanks to capex driven by high energy prices, the capital base increased many times over between 1997 and its peak year in 2014. During the recent cycle, energy companies have been more cautious with their capex, instead reducing leverage and returning cash to shareholders.

C. Despite the recovery in cash returns, the market continues to remain cautious about the sustainability of value creation. The energy sector is a great example of cyclicality in earnings and market pricing. Between 2003 and 2008, markets took their time to price the significant excess return that the sector was able to produce. For almost the whole of the next decade as capital productivity fell, the sector was priced on an economic price-to-book of 1.0x until the sharp correction during the pandemic. Then during 2021 and 2022, the energy sector became the best performing economic sector.

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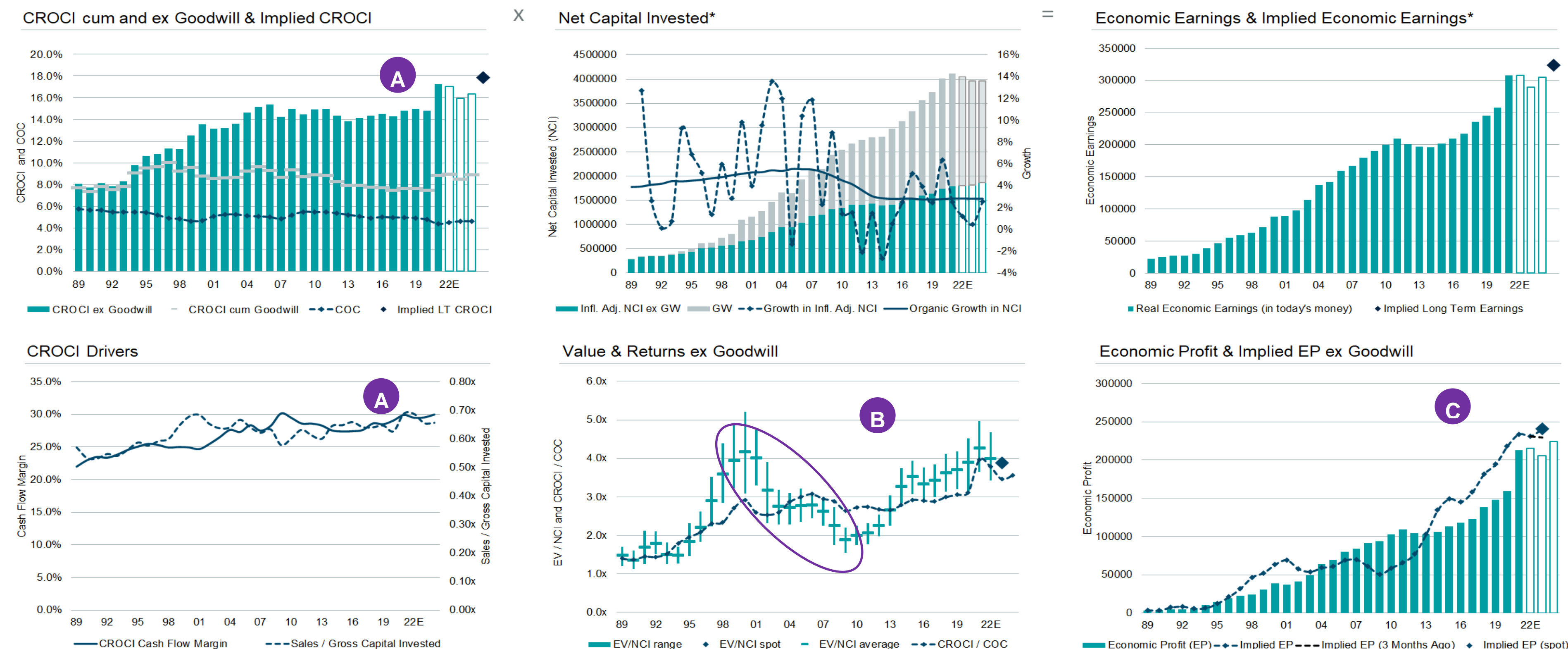
Figure 7: Global Health Care



A. Health Care has had a history of generating consistently high and stable cash returns, supported by expansion in both the cash flow margins and asset productivity.

B. Markets often get nervous about the sustainability of cash returns, however. In the 1990s, it was because of concerns about of patent cliff & expansion of generics, R&D effectiveness (none of which ultimately hurt returns). Political risk is also a perennial issue. The valuation of the sector therefore suffered a prolonged derating during the first decade of the current century. Since the financial crisis, the sector has been one of only two that have consistently grown real economic earnings. Therefore, the sector has looked attractive for most of the post-financial crisis period.

C. **Figure 2** showed that the sector featured regularly amongst the cheapest sectors. On comparing the actual profits with implied economic profits (which reflect the market's valuation of the sector and ultimately its total returns), we can see that the sector's stock-market performance has largely moved in lockstep with achieved profitability, despite its consistent and steady earnings growth – in other words, the market has priced little or no growth premium for the sector.

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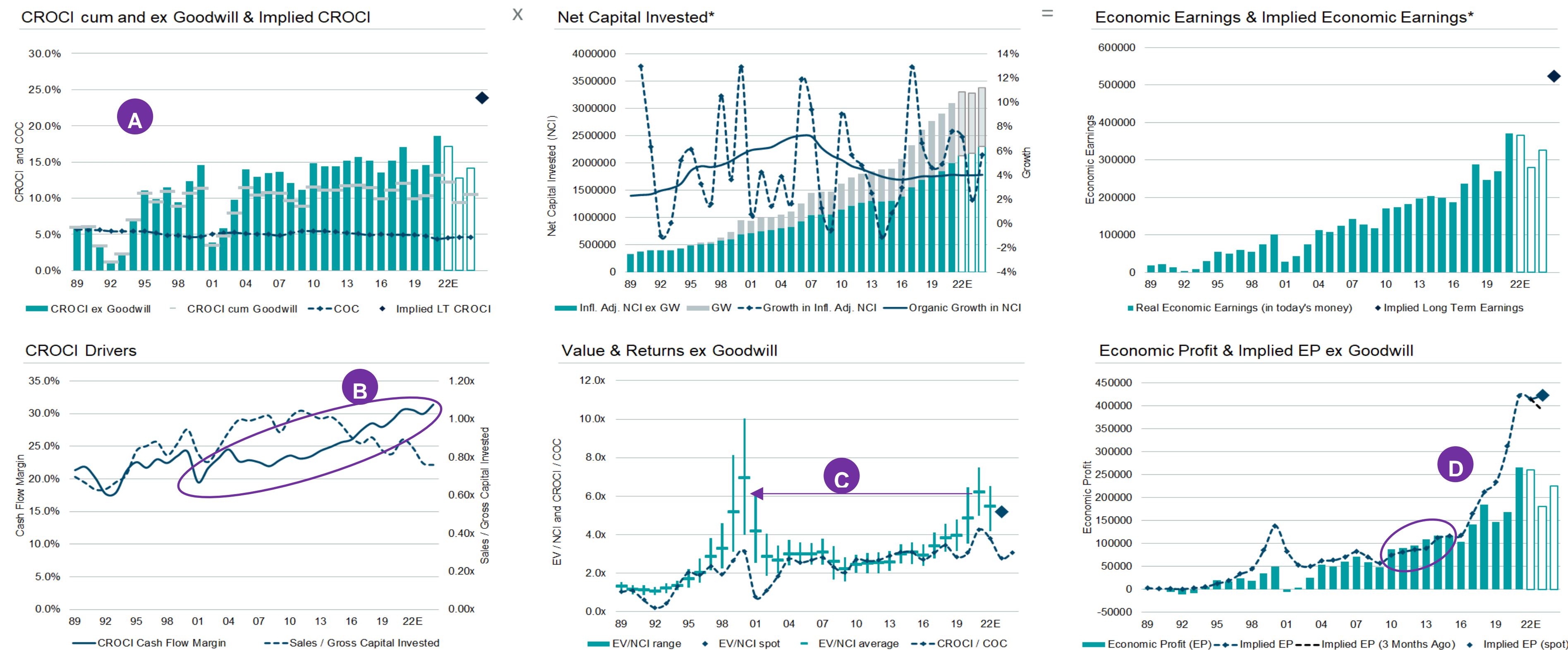
Figure 8: Global Information Technology



A. The returns history of the IT sector can be divided into two halves: pre & post dot-cum bubble eras. The pre-bubble era was more cyclical in nature, with periodic instances of negative economic value generation. The post-bubble era saw a decisive shift towards consistent economic value creation.

B. The margin profile of the sector has seen almost a linear improvement over the past two decades. This trend reflects the increasing dominance of large tech companies, which have evolved their business models backed by strong intangible asset growth and improved their profitability.

C. The sector's price-to-book saw a sharp compression in the aftermath of the dot-com bubble. However, the expansion in the recent years has also been quite sharp, peaking not far behind the dot-com heydays.

D. The post GFC period saw market expectations undershooting the realized profitability. **Figure 2** shows that it that IT appeared frequently amongst the cheapest sectors during this period.

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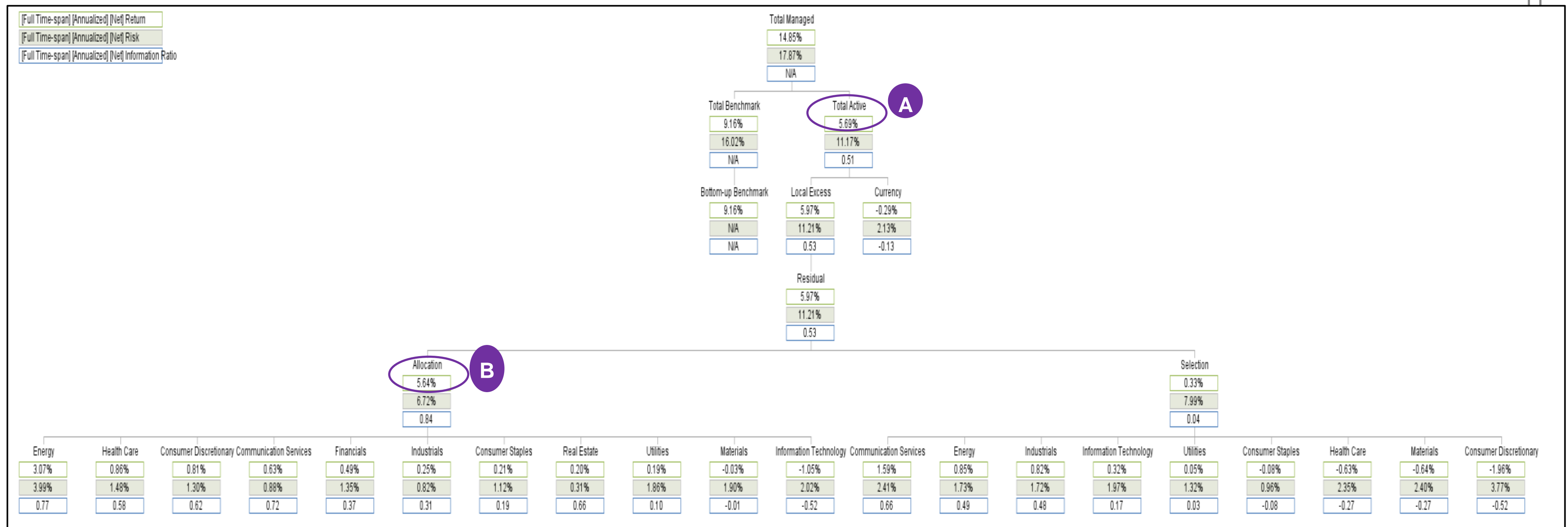
Appendix 1: CROCI Sectors Plus Strategy Attribution Analysis



Source: MSCI Barra, DWS and CROCI. CROCI Sectors Plus Strategy return attribution analysis using Brinson GEMLT model from November 19, 2015 to March 31, 2023.

A. CROCI Sectors Plus Strategy has generated 5.7% excess return on an annualized basis since November 2015. Adjusted for currency, the excess return was 6.0% p.a. The CROCI Sector Plus Strategy selects three cheapest sectors based on CROCI Economic PE, and then the ten cheapest stocks from each of the three sectors to create an equally weighted portfolio of thirty-stocks. The strategy is rebalanced quarterly.

B. More than half of the excess return in the strategy comes from Sector Allocation. Importantly, except IT and Materials, the timing of investing (or not investing) in all other sectors has generated positive excess return. In this paper we have discussed Energy, Health Care and IT from a CROCI valuation standpoint.

C. Stock selection within each sector also contributed positively during the period. However, it was not uniform by sector.

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