

STRATEGY MATTERS

The **HALO** effect: Heavy Assets, Low Obsolescence in the AI era

- **Repricing scarcity:** Higher real yields, geopolitical fragmentation and supply chain rewiring have shifted equity leadership back toward tangible productive assets. Markets are rewarding capacity, networks, infrastructure and engineering complexity—assets that are costly to replicate and less exposed to technological obsolescence.
- **AI delivers an additional dual shock:** The AI revolution questions margins and terminal values in Software and IT Services *while simultaneously* turning some of the most iconic “Capital Light” winners into the largest capital spenders in history.
- **Focus on HALO — Heavy Assets, Low Obsolescence:** HALO businesses pair substantial physical capital (barriers to replication via cost, regulation, time to build or engineering complexity) with long-lived economic relevance. Examples include grids, pipelines, utilities, transport infrastructure, critical machinery and long cycle industrial capacity.
- **Markets are rewarding HALO:** Our *new* Capital Intensive basket (GSSTCAPI) has outperformed Capital Light (GSSTCAPL) by 35% since 2025, as asset intensity becomes a key driver of valuations and returns.
- **Valuation convergence:** The valuation gap between Capital Intensive and Capital Light has narrowed sharply. The two baskets now trade almost in line as investors reprice resilience and the strategic value of real economy assets.
- **Macro tailwinds support HALO:** Fiscal expansion, higher replacement costs, re-regionalisation and a manufacturing rebound all support Capital Intensive sectors. In Europe, the capex-to-sales ratio is at a 10-year high, reversing a decade of under-investment.
- **Flows favour HALO — but positioning remains light:** Strong inflows into Value strategies and a desire to diversify away from crowded US Tech exposures are reinforcing the rotation toward Capital Intensive, yet long-term allocations remain far from stretched.
- **Earnings momentum is turning:** Consensus now expects faster EPS growth and improving ROE for Capital Intensive companies, while Capital Light ROE is forecasted to remain flat—raising questions about the durability of this group’s long-held premium.

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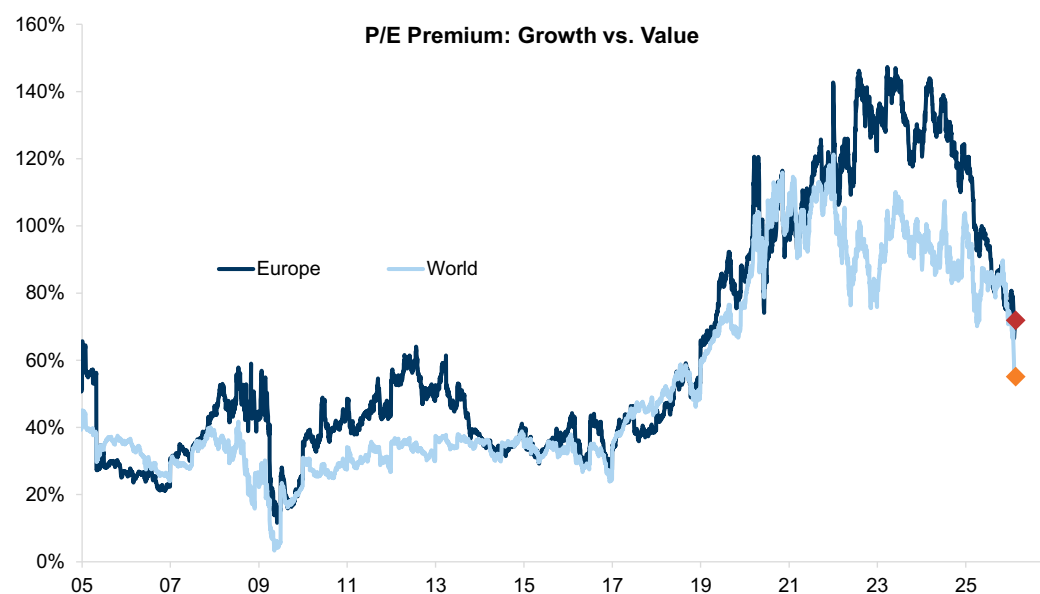
Repricing Scarcity: The Return of Heavy Assets

The decade following the Global Financial Crisis was defined by an extraordinary combination of zero interest rates and abundant liquidity. In that environment, equity leadership shifted toward long-duration *Growth* stocks and business models built on scalability rather than physical capital. Technology companies and other Capital Light industries – which also took advantage of the expansion in the digital economy and smartphone usage – commanded persistent valuation premia.

By the early 2020s, this regime had pushed the MSCI Growth Index to more than twice the valuation of the MSCI Value Index. In Europe, the Growth factor traded at roughly a 150% premium to Value — reflecting a market that viewed many short-duration “old-economy” companies as structural value traps ([Exhibit 1](#)).

Exhibit 1: By the early 2020s, the Europe MSCI Growth Index traded at more than twice the valuation of the MSCI Value Index

MSCI Indexes - 12-month fwd PE discount



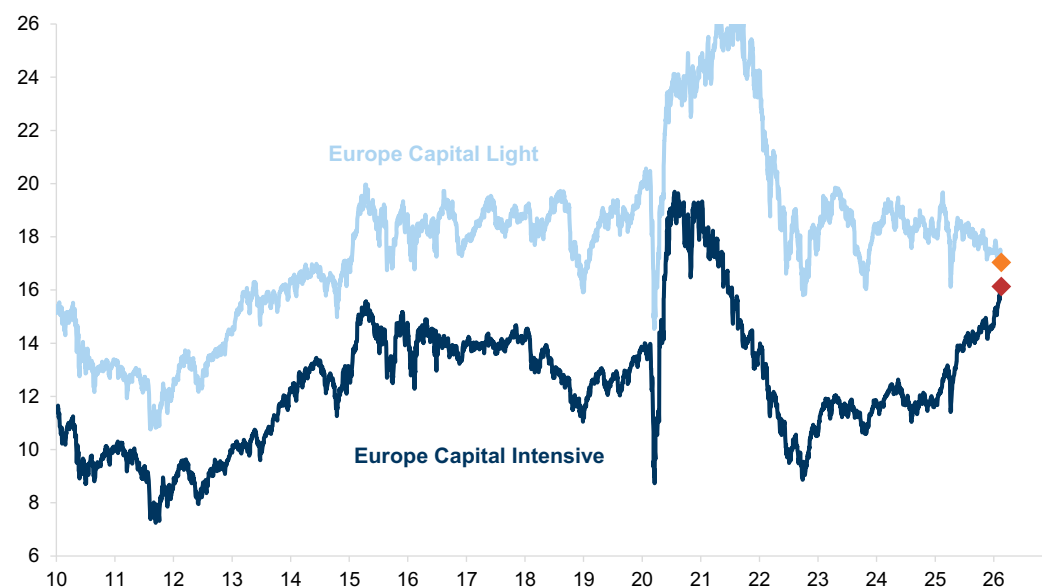
Source: FactSet, Goldman Sachs Global Investment Research

That equilibrium broke with the post-COVID inflation shock. The combination of supply-chain disruption, the invasion of Ukraine, and a structural rethink of globalisation pushed the cost of capital sharply higher and restored the importance of economic resilience. Energy systems, supply chains, infrastructure and national security capabilities are no longer treated as peripheral assets; they have become strategic and scarce, and increasingly priced as such.

As a result, the valuation gap between Capital Intensive and Capital Light businesses has narrowed materially ([Exhibit 2](#)). [Exhibit 3](#) shows that the two groups now trade almost in line with one another — and, importantly, this convergence has been driven more by a re-rating of Capital Intensive companies than by a broad de-rating of Capital Light firms. Outside a few pockets of weakness in software and other Capital Light segments directly exposed to AI disruption, it is the Capital Intensive businesses that have re-rated to meet the valuations of their Capital Light peers, not the reverse.

Exhibit 2: Capital Intensive valuations have re-rated

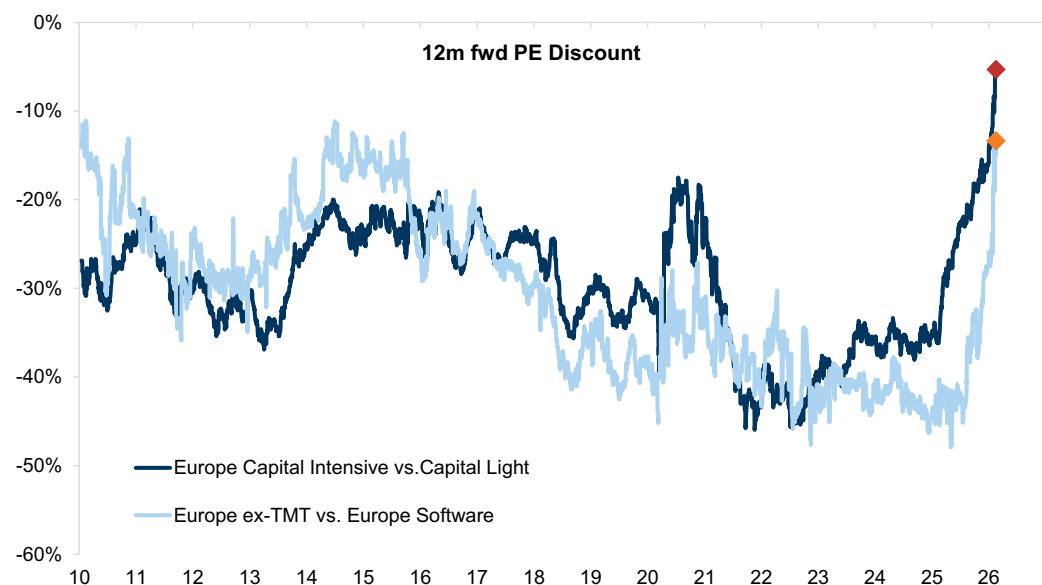
12-month fwd P/E



Source: Datastream, FactSet, Goldman Sachs Global Investment Research

Exhibit 3: Capital Intensive and Capital Light stocks are now trading at broadly the same valuation

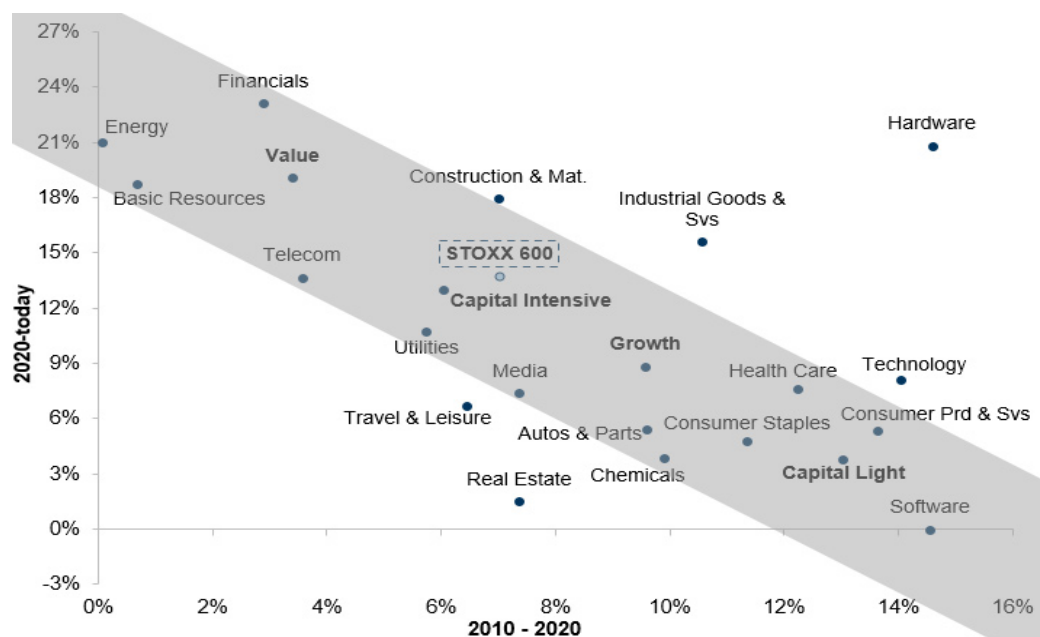
12-month fwd P/E discount



Source: Datastream, FactSet, Goldman Sachs Global Investment Research

The shift is consistent with our broader “Postmodern Cycle” framework: higher structural inflation risk, more active governments, geopolitical fragmentation, the re-regionalisation of supply chains and persistently higher real rates—all reinforcing the value of tangible productive capacity.

Exhibit 4: Reverse Gear - The decade following the Global Financial Crisis saw the dominance of long-duration Growth assets. That equilibrium broke with the post COVID inflation shock.
Total Return performance (annualised) - European sectors and styles



Source: Datastream, Goldman Sachs Global Investment Research

At the same time, the rapid rise of Artificial Intelligence is exerting a powerful dual pressure on equity markets:

- First, AI is disrupting many of the traditional “new-economy” business models that dominated the past decade. Software, IT Services, publishers, gaming companies, logistics platforms and even asset managers are seeing their competitive moats questioned as AI lowers the cost of information processing and compresses differentiation. The sharp de-rating of Software & IT Services in recent months reflects not a collapse in near-term earnings, but a repricing of terminal value and margin durability, as historically elevated profitability is increasingly viewed as vulnerable to competitive erosion.
- Second, AI is simultaneously turning some of the market’s most iconic “Capital Light” winners into “Capital Intensive” industrials. To remain at the frontier of foundational models and compute capacity, the five US hyperscalers have embarked on an unprecedented spending cycle. Since the launch of ChatGPT in 2022, they are set to deploy around \$ 1.5 trillion in capex between 2023 and 2026 — well above the roughly \$ 600 billion they invested in their entire history prior to 2022. In 2026 alone, these hyperscalers’ capex is on track to exceed \$ 650 billion, meaning this single year of spending could surpass their total capex invested pre-AI. This marks one of the fastest and largest capex cycles in technology history, with broad implications for the investment landscape.

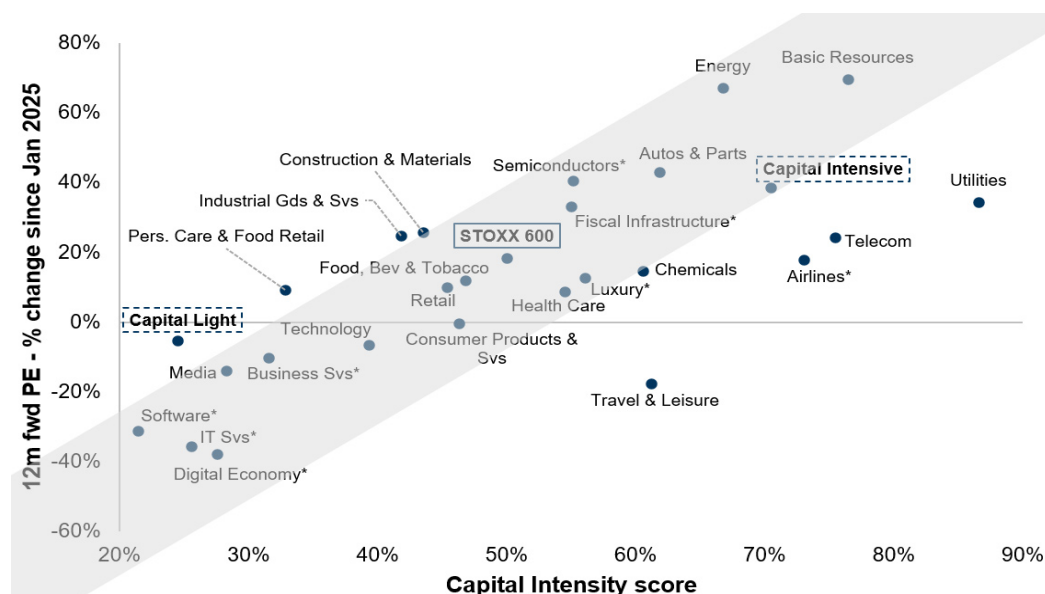
Focus on HALO: Heavy Assets, Low Obsolescence

After more than a decade of under-investment (particularly in Europe), corporates are shifting decisively back toward physical assets. As highlighted in *Europe's Uses of Cash: Returning to Investing*, the capex-to-sales ratio has reached a 10-year high, reflecting renewed investment in capacity, infrastructure and long-cycle assets.

This pivot, combined with rising uncertainty around the terminal value of *Growth* stocks, has repriced scarcity across markets. Equity leadership is increasingly favouring companies built on hard-to-replicate physical assets — capacity, networks, resources and infrastructure — where technological obsolescence is limited. Year to date, physical asset businesses have outperformed sharply, while Software and other Capital Light models have lagged.

Exhibit 5 shows that the level of capital intensity is now a key driver of returns and valuation changes. Most Capital Intensive sectors (right-hand side) have materially re-rated since early 2025, whereas Capital Light sectors (left-hand side) have seen their valuation either de-rate or remain broadly flat.

Exhibit 5: The level of capital intensity is now a key driver of returns and valuation changes
European sectors and styles - weighted average of stocks' Capital Intensity score



*GS Subsector Basket. Business Svs: GSSBBUSC, Luxury: GSSBLUXG, Airlines: GSSBTAA, IT Svs: GSSBITSE, Semiconductors: GSSBSEMI, Software: GSSBSFTW, Digital Economy: GSSBDIGI, Fiscal Infrastructure: GSSTFISC

Source: FactSet, Datastream, Bloomberg, Goldman Sachs Global Investment Research

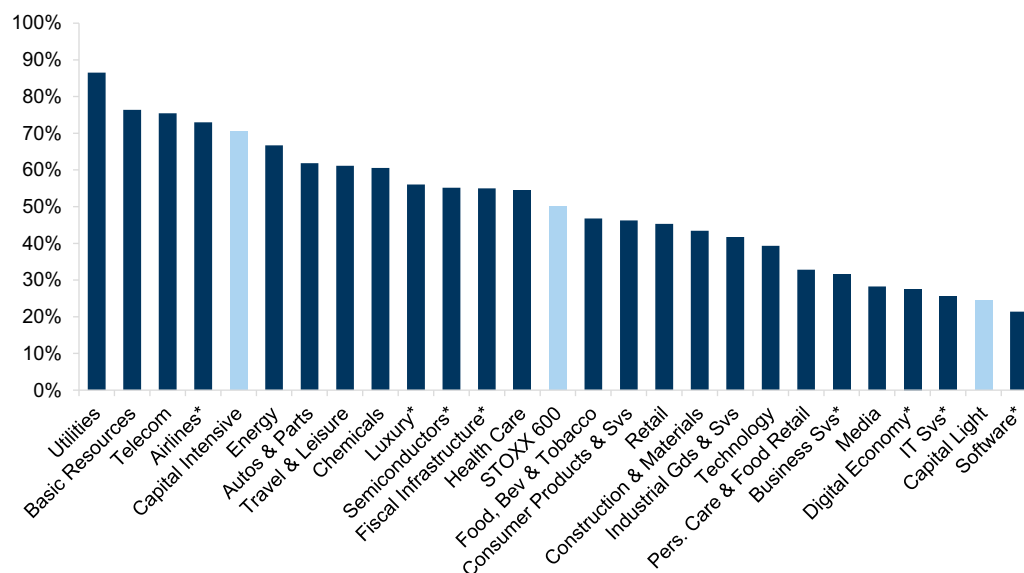
To capture this dynamic, we introduce the HALO framework—Heavy Assets, Low Obsolescence. HALO companies combine two defining characteristics: (1) Heavy Assets: Business models grounded in substantial physical capital with high barriers to replication — cost, regulation, time-to-build, engineering complexity or network integration. (2) Low Obsolescence: Assets whose economic relevance persists across technological cycles. Examples include transmission grids, pipelines, utilities, transport infrastructure, critical equipment, and categories of industrial capacity where replacement cycles are slow relative to digital innovation.

Capital Intensive vs. Capital Light — Who's Who?

We construct a Capital Intensity Score blending six metrics to classify companies beyond traditional sectors: (1) Tangible Asset Intensity, (2) Fixed Asset Intensity, (3) Fixed Asset Share, (4) Capital-Labour Ratio, (5) Capex Intensity, and (6) Capex Load (see more details in the Appendix). Taken together, these measures identify companies whose economic value derives from physical assets, as opposed to firms reliant on human or digital capital that AI may increasingly commodify. [Exhibit 6](#) ranks all sectors on this score.

Exhibit 6: Capital Intensity Score

STOXX 600 sectors and baskets - weighted average of stocks' Capital Intensity score



*GS Subsector Basket. Business Svs: GSSBBUSC, Luxury: GSSBLUXG, Airlines: GSSBTAA, IT Svs: GSSBITSE, Semiconductors: GSSBSEMI, Software: GSSBSFTW, Digital Economy: GSSBDIGI, Fiscal Infrastructure: GSSTFISC

Source: FactSet, Datastream, Goldman Sachs Global Investment Research

Some groups are straightforward. Utilities, Basic Resources, Energy and Telecoms stand out as unambiguously Capital Intensive, characterised by regulated infrastructure, high fixed-capital requirements and long-duration assets with low obsolescence. At the opposite end, Software & IT Services, Internet, Media and other digital-content or platform businesses sit firmly in the Capital Light, human-capital-intensive category.

Other areas require more nuance. For example, “Consumer” stocks straddle both regimes. Autos and Airlines are clearly Capital Intensive, and Luxury Goods and Beverages fall into a Low-Obsolescence asset class owing to brand equity, production know-how and long-cycle investment in craftsmanship. By contrast, Consumer Services, Gaming and most Retailers are structurally Capital Light, with economics driven more by labour, marketing and operating leverage than by physical capital.

The Industrial sector is a complex case. It spans everything from very heavy-asset categories such as Trucks to ultra-light sub-segments like Staffing and other Business Services. Moreover, many classic capital-goods manufacturers have deliberately migrated toward service-led, asset-lighter models over the past decade — bundling maintenance and aftermarket contracts into their offering. While we generally find that

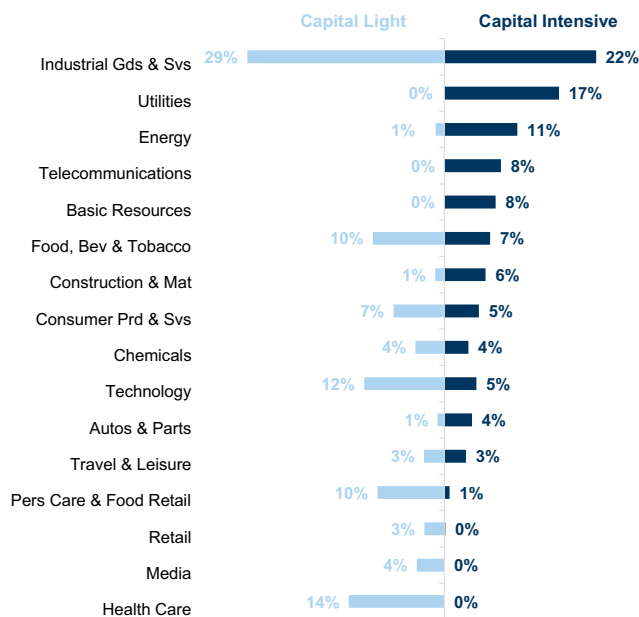
long-cycle industrials tend to be more Capital Intensive than short-cycle industrials, this is not universally true and requires bottom-up inspection.

A similar ambiguity exists in Construction and Materials. Cement producers are unequivocally Capital Intensive; however, most construction and infrastructure-service firms are not. Their revenues are tied to heavy-asset cycles, yet the businesses themselves often do not own the underlying assets—whether buildings, toll-roads, or delivery services.

Because the classification cuts across traditional sectors, we have constructed two baskets: Capital Intensive (GSSTCAPI) and Capital Light (GSSTCAPL) - see methodology in Appendix.

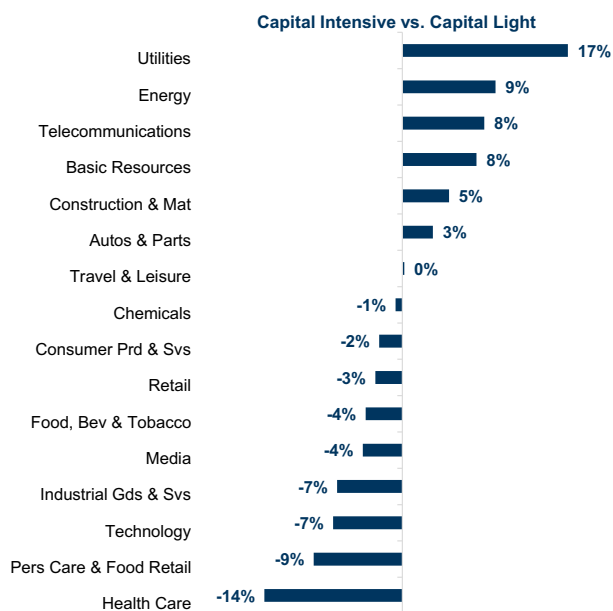
- **The Capital Intensive basket (GSSTCAPI)** includes the expected names from Utilities, Energy, Basic Resources and Industrials, but also a much broader set of firms across Aerospace & Defense, Transport, Long-Cycle Industrials, Luxury and selective Consumer subsectors ([Exhibit 7](#)). Its Capital Intensity Score places it around the 75th percentile of the STOXX 600.
- **The Capital Light basket (GSSTCAPL)** includes the usual candidates from Software, Media, Internet and Business Services, but also a broader set of human-capital or scalability-driven models across Consumer Services, Retail, MedTech ([Exhibit 8](#)). Its Capital Intensity Score sits around the 25th percentile of the STOXX 600.

Exhibit 7: Capital Intensive basket vs. Capital Light basket
Weight distribution by sector



Source: FactSet, Datastream, Goldman Sachs Global Investment Research

Exhibit 8: Capital Intensive basket vs. Capital Light basket
Weight distribution by sector



Source: FactSet, Datastream, Goldman Sachs Global Investment Research

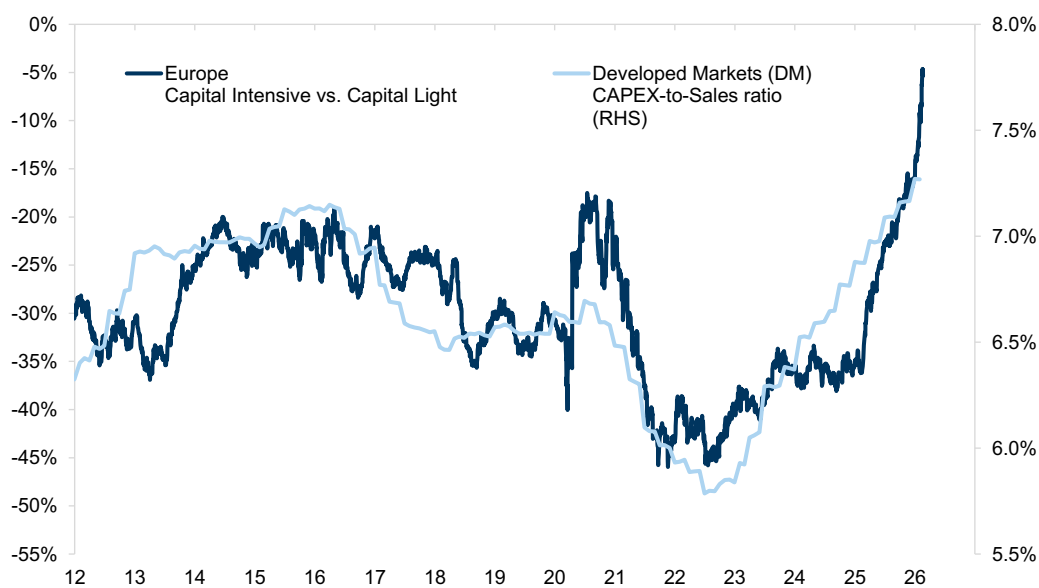
What drives Capital Intensive vs. Capital Light stocks ?

Several forces shape the relative performance of Capital Intensive and Capital Light equities:

- **Structural shifts.** The global environment has turned decisively more supportive for Capital Intensive sectors. A new capex cycle — driven by greater fiscal intervention, higher structural inflation, geopolitical fragmentation, supply-chain re-regionalisation and the AI-driven surge in physical compute infrastructure — is lifting demand for tangible assets ([Exhibit 9](#)). These factors simultaneously support Capital Intensive businesses and challenge Capital Light models, particularly where AI compresses differentiation or margin durability.

Exhibit 9: A new capex cycle is more supportive for Capital Intensive sectors

Capital Intensive vs. Capital Light 12-month fwd PE discount; Developed Markets CAPEX-to-Sales ratio (RHS)

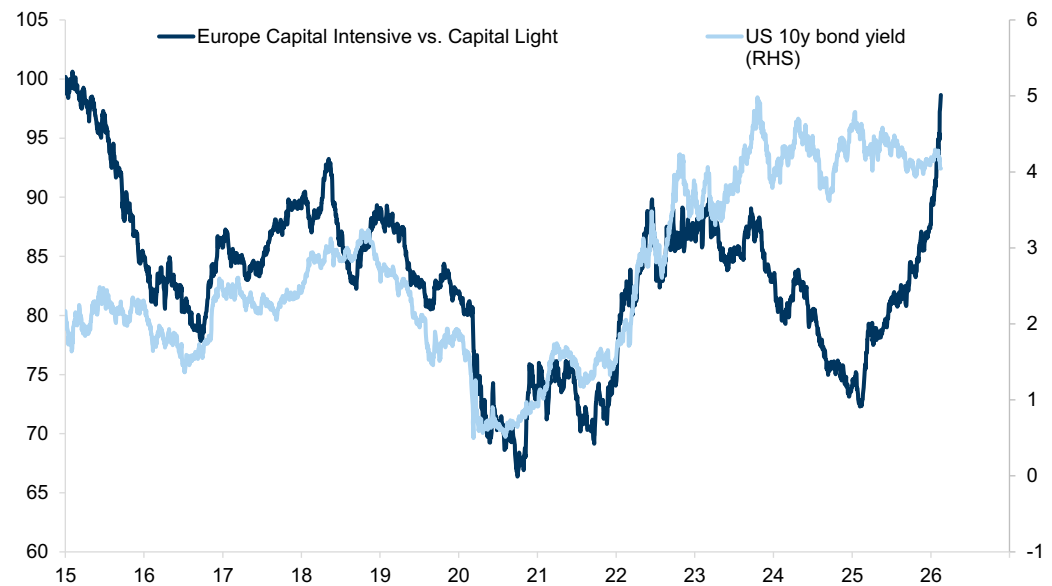


Source: Datastream, FactSet, Goldman Sachs Global Investment Research

- **Interest rates.** Capital Intensive stocks tend to outperform in periods of higher interest rates because elevated yields compress the valuations of long-duration, Capital Light growth models, while sectors tied to tangible capacity benefit from stronger nominal activity and fiscal spending ([Exhibit 10](#)). Today's policy mix reinforces this: governments are directing capital towards physical assets, creating a structural tailwind for Capital Intensive firms (despite higher rates). Still, the effect is not uniform. Our US colleagues highlight that some Capital Intensive companies rely heavily on affordable financing, and therefore perform best when the cost of capital is low or falling — something partly cushioned today by tight credit spreads.

Exhibit 10: Interest rates lead performance of Capital Intensive stocks

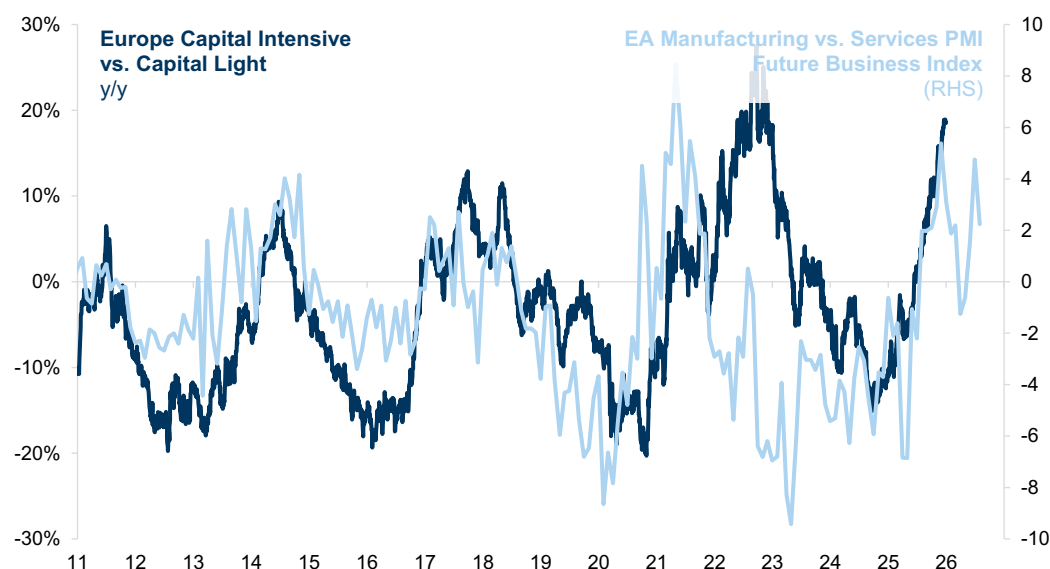
Relative price performance



Source: Datastream, FactSet, Goldman Sachs Global Investment Research

• **Manufacturing vs. Services.** Capital Intensive stocks outperform when Manufacturing PMI exceeds Services PMI, particularly when the Future Business Expectations component turns higher. Because Capital Intensive sectors are geared to industrial production, capex cycles and physical output, they respond more positively to an improving manufacturing outlook. With Manufacturing PMIs recently moving back above Services (at least the Future Business Expectations component), the macro backdrop has shifted in favour of Capital Intensive industries once again ([Exhibit 11](#)).

Exhibit 11: Capital Intensive stocks outperform when Manufacturing PMI exceeds Services PMI

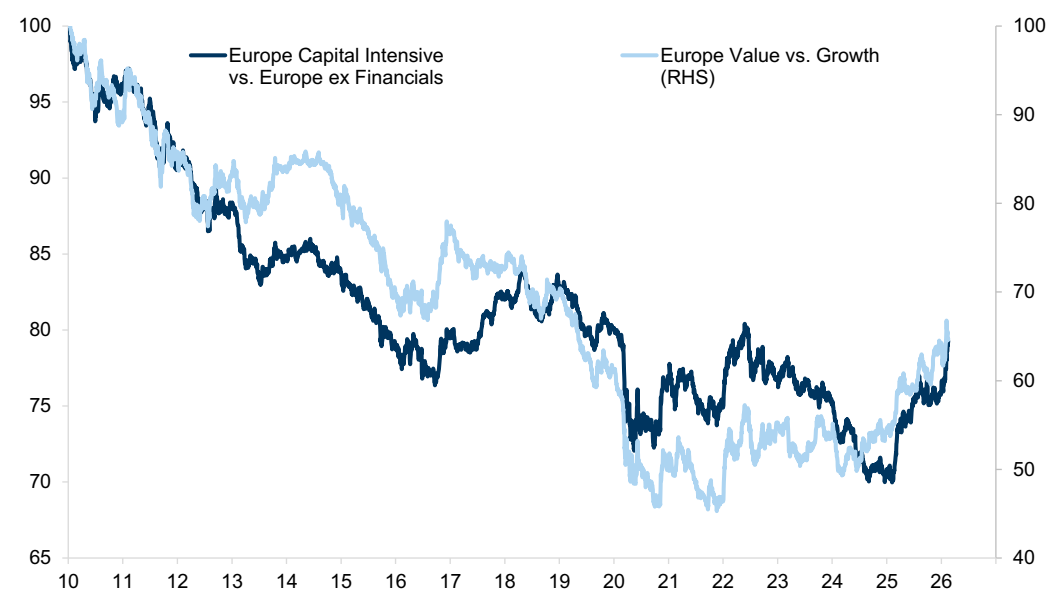


PMI with a 6m lag, i.e. the PMI lead the market by 6m

Source: Haver Analytics, FactSet, Datastream, Goldman Sachs Global Investment Research

• **Value vs. Growth.** The Capital Intensive vs. Capital Light dynamic closely tracks the Value vs. Growth rotation (Exhibit 12). Recently, Capital Intensive sectors such as Energy, Materials and Utilities have re-rated as investors rediscover the scarcity value of physical assets. This convergence has been driven far more by Value outperformance than by a collapse in Growth multiples, signalling a genuine change in leadership rather than a simple de-rating of Growth.

Exhibit 12: The Capital Intensive vs. Capital Light dynamic closely tracks the Value vs. Growth rotation

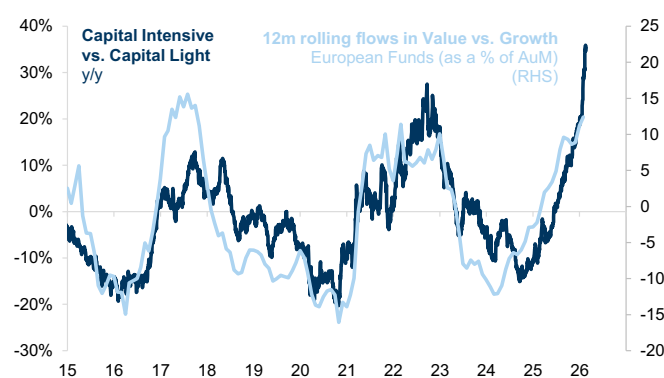


Source: FactSet, Datastream, Goldman Sachs Global Investment Research

The rotation has also coincided with a broader search for diversification away from crowded, expensive US/Tech positions. [Exhibit 13](#) shows a strong correlation between the outperformance of Asset Heavy stocks and inflows into Value strategies. Over the past 12 months, Value funds have seen +3% AuM inflows, while Growth funds have experienced 9% outflows, according to EPFR — likely an understatement of the full trend given that many “Blend” funds have also shifted towards Value.

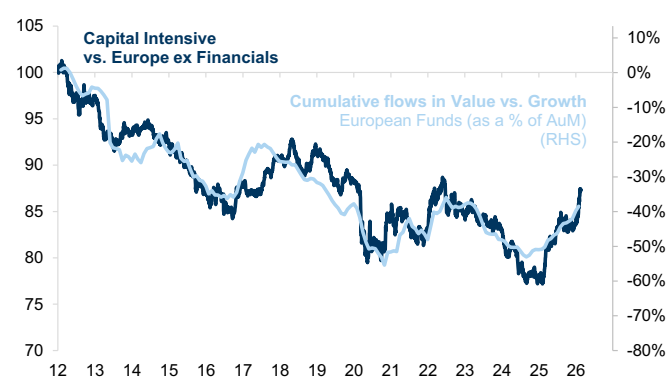
Is the move overdone? Near term, the rotation has been sharp. But longer-term positioning suggests further room: cumulative flows into European Value vs. Growth funds remain around -40% (as a percentage of AuM), meaning investors are still heavily under-allocated to Value ([Exhibit 14](#)). On that basis, the structural case for Capital Intensive over Capital Light remains firmly intact.

Exhibit 13: The outperformance of Capital Intensive stocks has been strongly correlated with inflows into Value strategies



Source: EPFR, FactSet, Datastream, Goldman Sachs Global Investment Research

Exhibit 14: Investors are still heavily under-allocated to Value, suggesting further room for Capital Intensive outperformance



Source: EPFR, FactSet, Datastream, Goldman Sachs Global Investment Research

• **Earnings Momentum.** Over the past cycle, the earnings of Capital Light businesses have consistently outpaced those of Capital Intensive sectors, explaining much of their long-term relative performance. [Exhibit 15](#) shows the relative earnings of our European Capital Intensive vs. Capital Light baskets. Since January 2025, Capital Intensive earnings have again underperformed, but this appears almost entirely tariff-related: the downgrades came immediately after Liberation Day, reflecting the fact that Capital Intensive sectors tend to be more cyclical, more export-oriented, and — as goods producers — more exposed to tariffs than services, which are rarely taxed at the border.

Stripping out this short-term tariff effect, the picture is becoming more constructive for Capital Intensive. Earnings momentum for Capital Intensive companies has recently turned positive, with consensus upgrades coming through, while Capital Light earnings have been revised down. Looking ahead, consensus expects the divergence to widen: our Capital Intensive basket is forecast to deliver a 14% EPS CAGR over the next few years, compared with around 10% for Capital Light ([Exhibit 16](#)).

Exhibit 15: Negative revisions of Capital Intensive earnings have been driven by tariffs in the short term...

Relative EPS revisions of our European Capital Intensive vs. Capital Light baskets

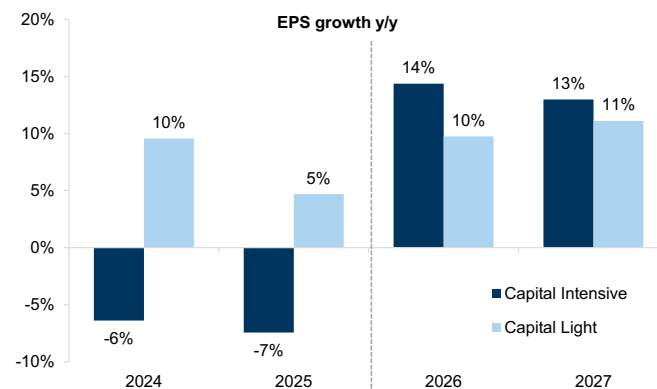


*24m fwd EPS estimates

Source: Datastream, FactSet, Goldman Sachs Global Investment Research

Exhibit 16: ... while the longer-term picture is becoming more constructive for Capital Intensive earnings

EPS growth y/y



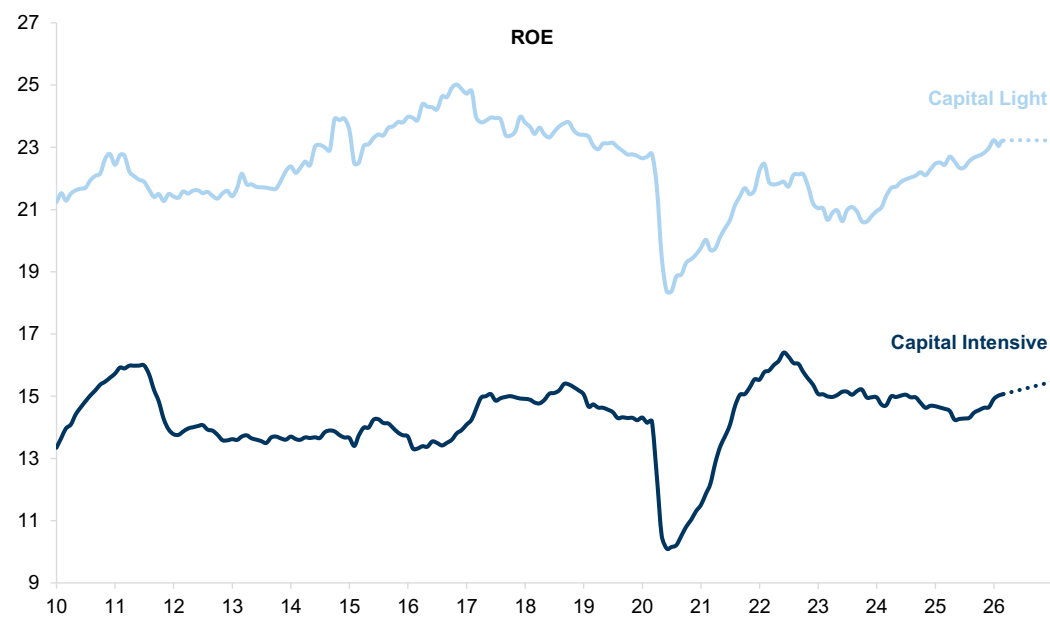
Source: Datastream, FactSet, Goldman Sachs Global Investment Research

The valuation premium long enjoyed by Capital Light businesses has historically been supported by superior margins and higher returns on equity — much as the US market has traded at a premium to the rest of the world. But the structural changes now underway have increased uncertainty around the durability of these advantages. Markets are increasingly questioning whether the elevated profitability of Capital Light models can be sustained. The ROE gap between Capital Light and Capital Intensive remains wide, but consensus forecasts now expect flat ROE for Capital Light companies, while Capital Intensive ROE is projected to improve ([Exhibit 17](#)).

The outlook for both groups remains inherently uncertain. What is clear is that the landscape is reshaping the balance between physical assets and human or digital capital models. Whether this marks a lasting change in market leadership or simply a re-balancing within a still evolving cycle remains open, but for now, the forces supporting Capital Intensive businesses are strengthening.

Exhibit 17: Capital Intensive ROE is projected to improve

ROE of Capital Intensive and Capital Light



Trimmed mean

Source: FactSet, Datastream, Goldman Sachs Global Investment Research

We would like to thank Elena Porfidia for her contributions to this report.

Appendix

Our Capital Intensity Score uses six metrics that capture how dependent a company is on physical capital rather than human or intangible inputs:

- **Tangible Asset Intensity** = $(\text{Assets} - \text{Cash} - \text{Intangibles}) / \text{Sales}$.

It measures the level of net physical operating assets required to generate each dollar of revenue. Higher values indicate business models dependent on substantial physical asset bases; lower values indicate scalable, Capital Light operations.

- **Fixed Asset Intensity** = $\text{PPE} / \text{Sales}$.

It measures the amount of Property, Plant & Equipment needed to support current revenue generation. High ratios reflect “brick-and-mortar”-heavy models, while low ratios suggest limited reliance on fixed infrastructure.

- **Fixed Asset Share** = $\text{PPE} / \text{Assets}$.

It measures the share of a company’s balance sheet accounted for by long-term physical assets. A large proportion of assets tied up in PPE indicates a structurally Capital Intensive footprint; a smaller share implies operational flexibility and a lighter economic base.

- **Capital-Labour Ratio** = $\text{Tangible Assets} / \text{Employee}$.

It measures the tangible asset base deployed per employee. Higher levels imply machine- or asset-driven production processes; lower levels emphasize labour-driven, people-centric business models.

- **CAPEX Intensity** = $\text{CAPEX} / \text{Sales}$.

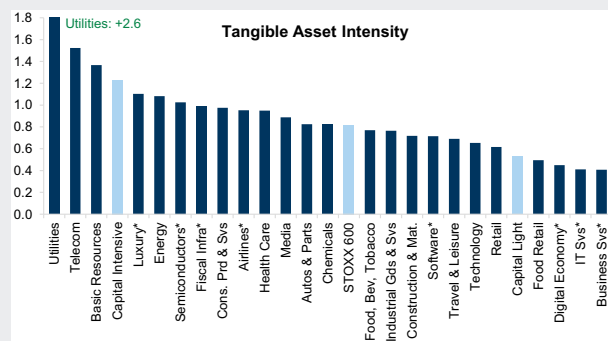
It measures the proportion of revenue that must be reinvested annually to maintain or expand the company. High reinvestment needs reflect heavy asset maintenance and expansion burdens; low requirements indicate businesses that scale with modest incremental capital.

- **CAPEX Load** = $\text{CAPEX} / \text{EBITDA}$.

It measures the share of operating cash profits consumed by capital expenditure. A high ratio shows cash flows are absorbed by asset upkeep or growth, characteristic of Capital Intensive sectors; a low ratio signals strong cash conversion for shareholders.

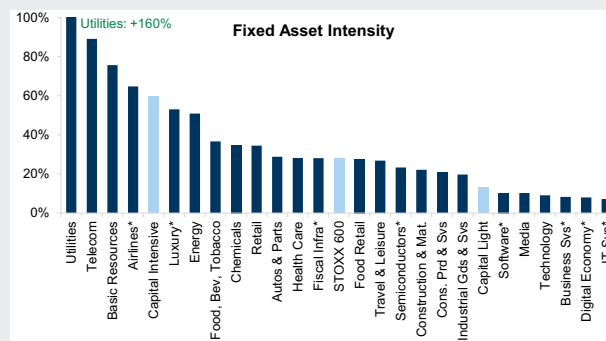
We compute the overall score for each company as the Capital Intensive average percentile rank of these six metrics relative to all the constituents of the main index. The result is a 0–100% scale that identifies how Capital Intensive (100%) or Capital Light (0%) a company is compared with its peers. Taken together, these metrics distinguish firms whose economic value is grounded in physical assets from those reliant on human or intangible capital, the latter being increasingly exposed to AI-driven commodification.

Exhibit 18: Tangible Asset Intensity
STOXX 600 sectors and baskets - median



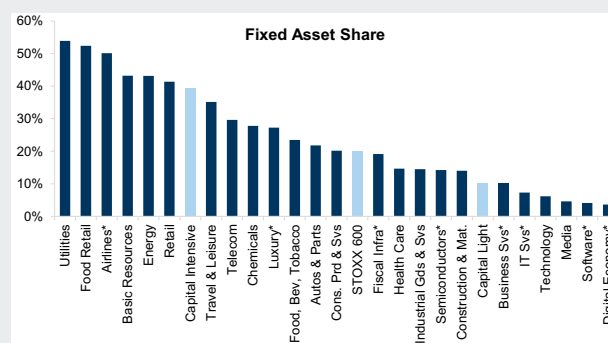
Source: FactSet, Datastream, Goldman Sachs Global Investment Research

Exhibit 19: Fixed Asset Intensity
STOXX 600 sectors and baskets - median



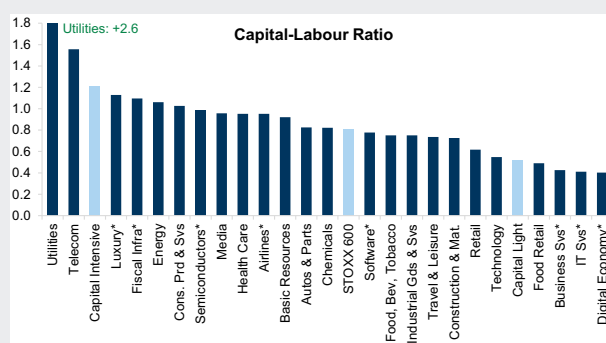
Source: FactSet, Datastream, Goldman Sachs Global Investment Research

Exhibit 20: Fixed Asset Share
STOXX 600 sectors and baskets - median



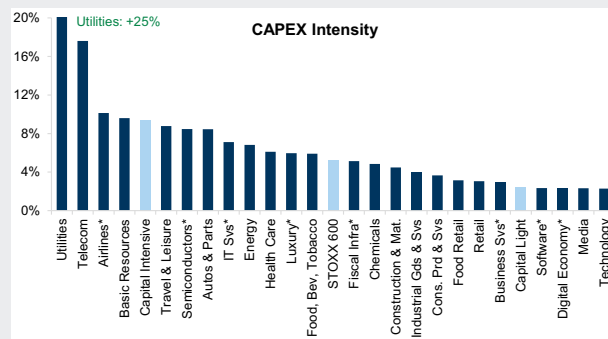
Source: FactSet, Datastream, Goldman Sachs Global Investment Research

Exhibit 21: Capital-Labour Ratio
STOXX 600 sectors and baskets - median



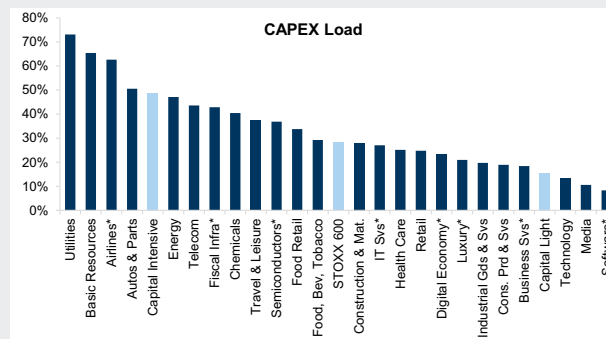
Source: FactSet, Datastream, Goldman Sachs Global Investment Research

Exhibit 22: Capex Intensity
STOXX 600 sectors and baskets - median



Source: FactSet, Datastream, Goldman Sachs Global Investment Research

Exhibit 23: Capex Load
STOXX 600 sectors and baskets - median



Source: FactSet, Datastream, Goldman Sachs Global Investment Research

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Disclosure Appendix

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We, Guillaume Jaisson, Peter Oppenheimer, Sharon Bell and Giovanni Ferrannini, hereby certify that all of the views expressed in this report accurately reflect our personal views, which have not been influenced by considerations of the firm's business or client relationships.

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