

Investing for a green or dirty planet

Climate risk and corporate capex

Summary

The Covid-19 pandemic is a wakeup call regarding the interconnectedness of economical, human and economic health, which we believe strengthens the case for action on global heating. The unprecedented levels of pollution in India and last year's bush fires in Australia also show that business as usual is not sustainable: attitudes, behaviours and investments need to change. In this article, we examine climate risk and whether equity markets reflect the risks of transitioning away from fossil fuels.

We use DWS's Climate Transition Risk rating to examine DWS's proprietary CROCI¹¹ data on nearly 900 of the largest global companies. What is presented here uses data before the Covid-19 pandemic, avoiding examination in a period of extreme market stress. While many companies' economic and financial valuations may have altered slightly the distribution of climate risk, we see few signs that the pandemic has brought about a substantial repricing of climate transition risk across equity markets.

The CROCI model seeks to calculate the genuine economic profitability and to identify the real value of each company, in order to enable the comparison of stocks across all regions and sectors. Our findings include:

1) Only 12% of the market capitalization of the largest ~900 companies is from companies with high or excessive climate transition risk. Close to 60% of the universe's earnings by market cap have moderate or low climate risk while, the US and Japan have the lowest earnings' exposure to climate risks¹.

2) Yet companies with high climate risk make up 36% of corporate capex¹, three times the market cap exposure. More capex is required from an energy company to generate earnings compared to a software company.

3) USD650bn annual capex from carbon intensive companies might need to be reoriented to avoid a dangerous climate future. Carbon intensive capex does not appear to be decreasing and has the longest economic life, expecting to earn a return on that capital until 2042.

4) We find no valuation premium for being invested in low or moderate climate risk stocks. This may indicate that at an aggregate level, equity markets are still not pricing in transition risks. We believe that this may be due to a combination of public policies not being strong enough or that some investors ignore or give less weight to climate risks.

5) Companies with high and excessive climate transition risk are less profitable and are destroying shareholder value. A prudent course of action for these high climate transition risk companies may be to reduce fossil fuel capex, redefine their business strategy to improve profitability by accelerating the low-carbon transition or just returning capital to shareholders.

6) Investor engagement is strengthening but some asset managers still vote against many ESG and climate shareholder resolutions. A climate emergency means asset owners being more demanding of asset managers who in turn should be more demanding of companies.

¹ Based on the CROCI universe of 881 of the largest companies combined with ESG Engine data (January 2020)

Sustainable investing is key for the long-term investor

Over the past decades, global economic development has enhanced the quality of life for billions of people. However, imbalances have been created, suggesting that the prevailing way of doing business may not be sustainable. The recent unprecedented levels of smog and pollution in India and the bush fires in Australia are just the latest examples of this. The deferred costs for businesses and their impact on economic growth are becoming increasingly evident, so more attention is turning to sustainable growth.

To be fair, the context surrounding sustainability and ESG investing is still unclear, notwithstanding the significant progresses being made. The 17 UN Sustainable Development Goals (SDGs) offer a brilliant blueprint for ESG investment, but translating them into reality has presented many challenges (measurement of what defines a good company, for example).

The topic of sustainability requires an economic model that is able to estimate costs and benefits, but it is still a new discipline. Economists are talking about transitioning from a 'linear' economy (where resources are not a constraint and where externalities can eventually be absorbed) to a 'circular economy', but at this early stage it is proving difficult to pin down some basic but fundamental issues such as measurement of costs and benefits, and the economic fate of stranded assets.

Attitudes and behaviours also need to change. People are unwilling to embark on major changes when their benefits are deferred (namely, a better world in the future) but the costs are immediate (taking a train rather than a plane, or giving up plastic).

Many corporates are also unwilling to take on additional costs on a voluntary basis for the same reason, that moving to a sustainable model typically brings immediate costs and unquantifiable benefits. It is no surprise that progress has been slow, but there are now some signs of change. The younger generation (generations Z and A) already makes up the majority of the global population and has little to lose, as financial wealth is predominantly in the hands of the older generation.

The driver of change has historically been governments, but the onus for building financial security in later life has increasingly been transferred to individuals. One net effect is that individual investors are starting to take matters into their own hands, by asking questions about how their money is being invested. Universities, for example, are being interrogated over their pension and endowment funds, and being forced to change their investment approach where it is found wanting. Many sovereign wealth

funds whose fortunes were founded on carbon are now divesting from it.

This transformation will take time and the debate will doubtless rage on for much of the decade, but there is little doubt that the world of investment will look very different at the end of this decade.

Bringing together CROCI and DWS expertise on ESG investing

DWS has long recognized the importance of ESG factors for investors and was among the early signatories of the United Nations-backed Principles for Responsible Investment (PRI) in 2008. Since then DWS has developed a proprietary ESG rating methodology combining the different approaches of leading ESG data providers.

These ratings are central to DWS's commitment of integrating ESG into our investment process. The remainder of this section is focused on one facet of these ratings, namely Climate Transition Risks, which we combine with CROCI data to understand where things stand today and what the direction of travel is.

There are two major elements we consider in incorporating ESG: first, the deferral element (in this case, preventing further climate change) and, second, the legality of various corporate activities. For example, there are health risks associated with smoking tobacco, but selling tobacco is a legal albeit regulated activity. The environmental effects connected to the first element are becoming increasingly evident and so we have chosen to focus here on climate risk.

Measuring climate transition risk

Transition risks relate to the increasing scope of climate change regulation, technological change and shifts in consumer preferences. These have the power to alter significantly the operating model of businesses with the potential of driving revaluation events both to the upside and downside.

At DWS we address the complex issue of defining and assessing climate transition risk by combining four different data providers as shown in [Figure 1](#). The advantage of multiple data providers is that it increases reliability and data coverage.

As the distribution of climate risk scores from different data providers have different methodologies and score distributions, DWS's ESG Engine team devised a proprietary methodology, called the 'relevance adjustment'. The methodology carefully maintains the data providers' directional conclusions regarding if a company is a leader or a laggard.

Figure 1: DWS’s Climate Transition Risk Methodology

MSCI
Measures carbon footprint, accounting for upstream (supply) and downstream (demand) emissions
+
ISS Oekom
Tries to single out the leaders that positively contribute to a change
+
Sustainalytics
Is a qualitative approach that identifies the effects of climate change on companies business models
+
S&P TruCost
Estimates earnings at risk due to current and likely future carbon taxes or emissions trading policies

Source: DWS January 2020

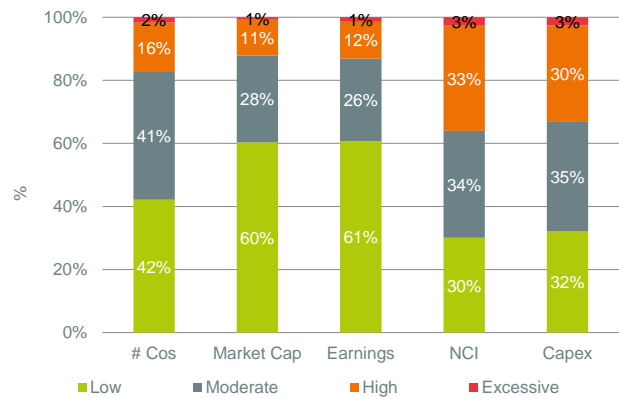
1. A relatively small number of companies face the highest climate transition risks

However, once definitions are addressed, the next step is to calculate the exposures in equity markets to high climate risk companies. We examine climate risk distribution across the global CROCI coverage².

Figure 2 shows the breakdown of CROCI’s coverage across the different climate risk categories (number of companies, market cap, earnings, capital invested, capex). The table provides an excellent starting point for long-term investors. Earnings are what equity investors receive to perpetuity, and is also what market cap is supposed to price in theory. The good news for investors is that earnings exposure within our global CROCI coverage universe globally is low.

Close to 60% of the universe’s earnings weighted by market cap have moderate or low climate transition risk and 12% sit in the high or excessive risk categories.

Figure 2: Climate transition risk distribution

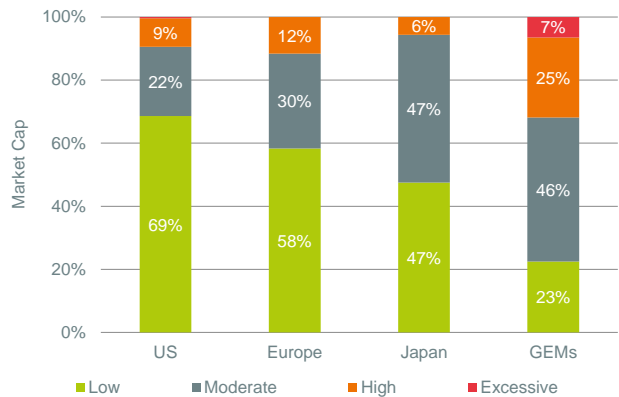


Source: DWS and CROCI. Data as available on 7 January 2020.

2. EM has the largest proportion of companies with high climate risks

At a regional level and by market cap, Figure 3, Japan has the smallest proportion of companies (6%) facing high climate risk. On the other hand, climate risk is a clear concern when investing in Emerging Markets.

Figure 3: Climate risk distribution by market cap

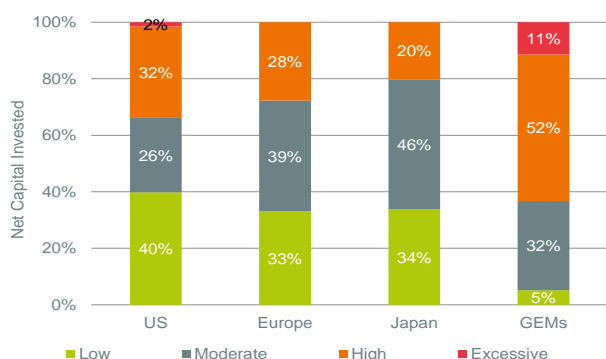


Source: DWS and CROCI. Data as available on 7 January

A similar story of geographic climate risk distribution by net capital invested can be seen in Figure 4.

² Our sample uses 881 companies

Figure 4: Climate Risk by Net Capital Invested



Source: DWS and CROCI. Data as available on 7 January 2020.

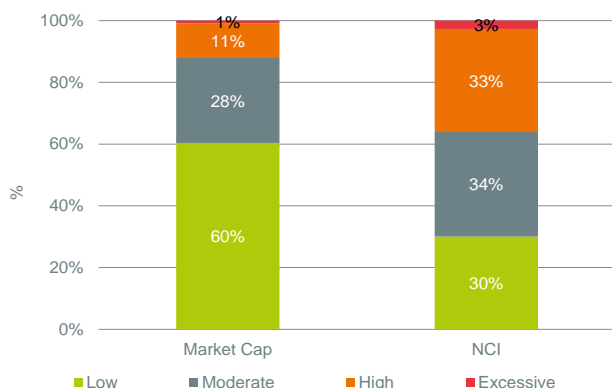
3. More than a third of Net Capital Invested is from companies with high climate risks

Analysing earnings exposure is a useful starting point, but a focus on capital invested instead of earnings gives important insights. The rationale for using capital is straightforward. Different companies in different sectors can have very different levels of profitability. Earnings for the same unit of capital can vary substantially.

But an investor’s equity investment is ultimately funding the capital that a company invests. There will be much more capital invested in an energy company, for example, to generate an equivalent level of earnings as a software company, and it is the functioning of the assets of a company that actually causes any potential environmental damage. So we believe that the best way to measure the genuine climate impact of a company is to focus on its capital.

In practice, this means that the amount of capital invested in stocks with high or excessive climate risk makes up 36% of the total, i.e. 3x higher than the corresponding weight by market cap, Figure 5.

Figure 5: Distribution of market cap and invested capital based on the degree of climate transition risk



Source: DWS, CROCI. Data as available on 7 January 2020

Investors may have a 12% market cap weighted exposure to climate transition risk, but this represents 36% of combined tangible and intangible assets that have high climate risk. Investors looking for climate impact might therefore prefer to use capital invested (real rather than nominal) instead of market cap as a factor for analysing climate impact. At 12%, one might believe that these investments are on balance good for the world, whereas their financial impact in fact has 3x economic leverage.

4. Capex investments suggest that climate risks are here to stay

Another consideration for long term investing is the analysis of the flows versus the stocks of companies—in other words, comparing annual movements of cash and capital with the accumulated capital. More and more companies are talking about sustainable investing. Poor disclosure makes these claims difficult to investigate.

Value-focused investors such as our CROCI strategies are sceptical by nature. We feel that there is a significant measurement problem about such sustainability claims. Indeed it seems like we are in the early days of accounting, where profits were an opinion.

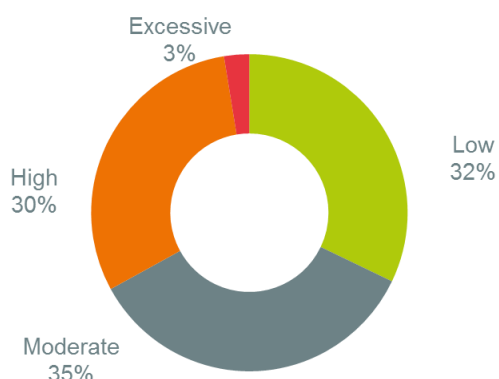
Like for accounting, it would be desirable to have an objective measures being imposed by governmental bodies, rather than leaving it to a market where standards are ambiguous and open to manipulation.

Given the absence of reliable data on the capex mix, we have to rely on the knowledge that the flow of capital should be consistent with the stock of capital. When a company notionally transitions to a lower risk category, we will record this improvement, but until there is greater certainty we will continue to categorise the capex in line with the residual risk category of the existing stock of assets.

Here there are two pieces of bad news for investors. First, only a minority of total capex is from low climate risk (32%), less than the amount that sits in the high risk categories (33%), Figure 1. In absolute terms, capex (USD 650bn out of USD 1,973 bn) is still being invested by high or excessive climate risk companies.

It is worth noting that capex trends for these companies are in line with the wider market - no material decrease is in evidence. This should be of concern to anyone who believes that climate transition risk is already being properly considered, and also to any long-term investor thinking about stranded assets.

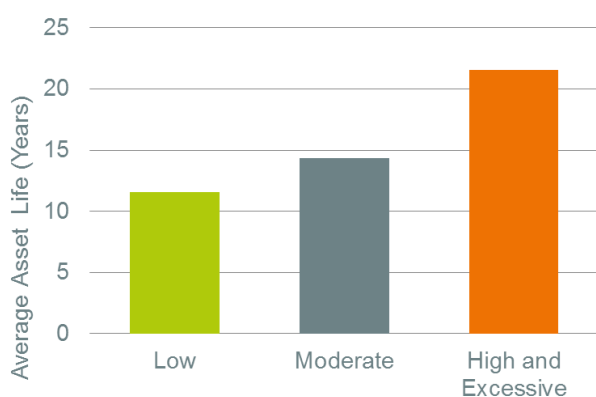
Figure 6: Capex distribution by climate transition risk



Source: DWS, CROCI. Data as available on 7 January 2020

Second, the capex at companies with the highest climate risk category has the longest economic life. Companies investing today will on average expect to earn a return on that capital until 2042, Figure 7.

Figure 7: Average asset life by climate transition risk



Source: DWS and CROCI. Data as available on 7 January 2020.

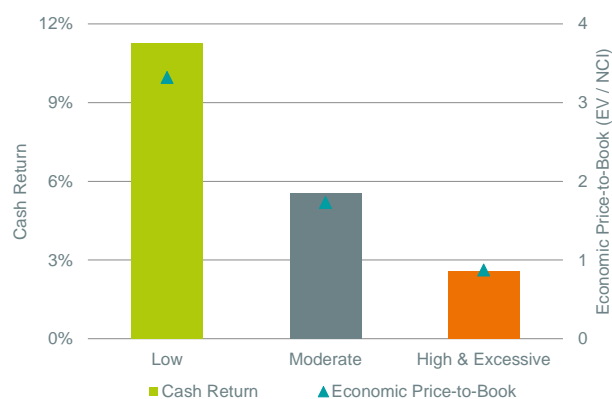
5. Higher climate risk companies are in destroying shareholders' value

The companies with high and excessive climate transition risk are fundamentally challenged with low levels of profitability. Based on CROCI's cash return metric that measures the real profitability of businesses, this group generated a 2.6% return on their capital in 2019, far below those in low and moderate risk categories and investors' cost of capital that has averaged at 5.4% over the long-term, Figure 8. This return has also been on a declining trend, falling by three-fifths from the 6.3% level in 2008. By comparison, the companies with low climate transition risk generated an 11.3% return on their capital last year and that has also improved by a tenth from the 10.1% level in 2008.

The companies in the high and excessive climate transition risk categories are therefore in danger of destroying shareholders' value. That they expose investors to higher climate-related risks is an additional hazard for investors. Looking at their operations, the two groups in aggregate generated USD 11.2 trillion of operating cash flows between 2008 and 2019. More than two-thirds of these cash flows were reinvested into their businesses (capex) while shareholders only received 3.5% of the total cash flows as dividends, net of share issuances, and additional debt.

From a shareholder perspective, the obvious question is why the management of these companies kept on investing in their business with fading returns? Unsurprisingly, this group is at a discount to their economic book value on 0.87x. Theory (James Tobin) goes that companies should prefer investments when the price to book ratio is above 1x (the market value for each unit invested is at a premium), but their capital base should be shrunk when the ratio is below 1x. This group is at 0.87x! A prudent course of action for these companies could be to reduce investments, allowing their profitability to recover and possibly take the time to define a strategy aimed at reducing climate risks.

Figure 8: Cash return and price-to-book by climate transition risk



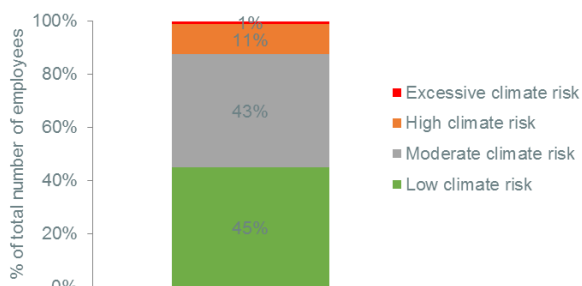
Source: DWS, CROCI. Aggregate data as available on 26 May 2020

6. Employment and emissions

Close attention needs to be paid to the employment risks around the low carbon transition. We find that around 12% of the investment universe workforce is employed in high or excessively high climate risk companies. As an investor, DWS was one of only 24 founding signatories to the Investor Statement on a

Just Transition³, which commits to take action to support the just transition by integrating the workforce and social dimension in a signatory’s climate practices.

Figure 9: Employment by climate risk category

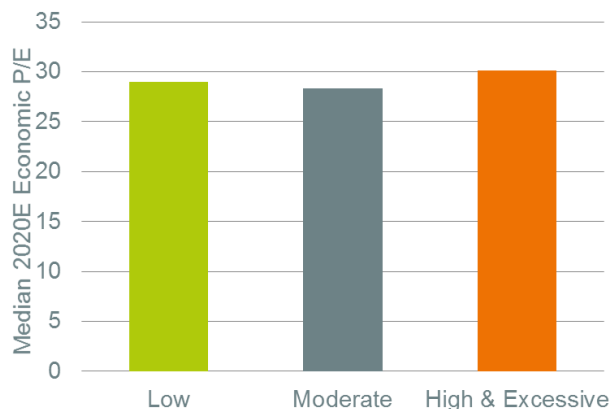


Source: DWS and CROCI. Data as available on 7 January 2020. Missing data on 50 companies, primarily banks

7. Climate risk is not in the price

No analysis can be complete without valuation and what is of interest is that there is no valuation premium for being invested in low climate risk stocks. Something worth considering for long term investors!

Figure 10: Median economic P/E by climate risk



Source: DWS, CROCI. The chart shows expected median 2020 Economic P/E of CROCI’s universe by Climate Transition Risk Ratings. Data as of 16 December 2019

8. Divesting high climate risk companies does not lead to emission reductions

Tilting a portfolio away from companies with high carbon emissions, may reduce risk for a pension fund if those companies’ profitability falls due to regulations and faster expansion of renewable technologies.

However, shifting stock ownership and/or divestment does not affect carbon emissions or alter the way other important ESG factors such as companies’ treatment of workers or diversity and equality, Figure 11. This is why we place significant emphasis on engagement to affect change in listed markets.

Figure 11: Different investor strategies have different likelihoods of real world emission reduction

Strategy	Works if...	Certainty of real world change
Exclusion or Divestment	Policy is made public leading to societal shift	Low
Best-in-Class	Investment increases credibility of the fund/index	Low
Engagement	Pursues realistic change with the correct targets	High
Impact and thematic investments	Focused where additional capital makes a difference	High

Source: DWS analysis January 2020 based on Preventable Surprises, June 2018

9. Engagement

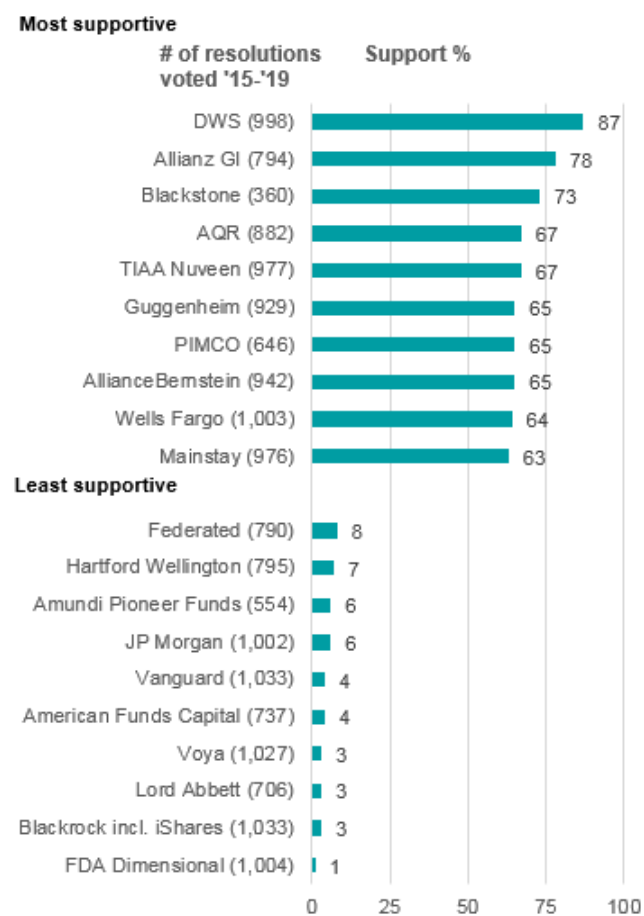
Investor engagement is strengthening but some asset managers still vote against many ESG and climate shareholder resolutions. Thankfully, more transparency in this area is emerging. According to a recent study by Morningstar, DWS has the strongest track-record in voting in favour of ESG-related Annual General Meeting shareholder resolutions in the US⁴.

Their analysis revealed that between 2015 and 2019, 1,033 shareholder-initiated ESG resolutions were voted at US company AGMs, or an average of 207 per year, DWS voted in favour 87% of the time, compared with less than 10% for other asset managers, Figure 12.

³ Investor statement on a just transition, December 2018

⁴ Morningstar (February 2020). How fund families support ESG-related shareholder proposals

Figure 12: DWS has a strong track record in supporting ESG-related shareholder resolutions in US



Source: Morningstar (February 2020). How fund families support ESG-related shareholder proposals

10. Conclusion

Our analysis shows that 12% of the market capitalisation of the largest 900 companies in the CROCI universe exhibit high or excessive levels of climate transition risk. However, when measured by capital expenditure, this figure rises to 36%. A reflection of the fact that more capex is required from an energy company to generate earnings compared to a software company.

We believe capital allocation has to change dramatically and investments need to be targeted to companies with the best climate-orientated strategies⁵. We estimate that US\$650 billion of annual capex from carbon intensive companies must be redirected to avert a more disruptive climate future.

In addition, companies with high and excessive climate transition risk are fundamentally challenged with low levels of profitability. A prudent course of action for this group of companies would be to reduce investments to boost profitability.

The role of asset managers is therefore important and we expect increasing scrutiny on our industry when it comes to stewardship, including active engagement and proxy voting track record with regards to ESG- and specifically climate-related shareholder resolutions.

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⁵ DWS Investment Insights (May 2020). Taking climate stewardship to the next level

Appendix

About CROCI

CROCI stands for Cash Return on Capital Invested and is a proprietary investment process based on a valuation technique. A DWS trademark, CROCI has aimed to assess the Real Value of companies, sectors and markets since 1996. There are over 850 companies & 64 professionals.

CROCI originated in 1996 as a valuation technique in DB Equities Research. Today the team resides in DWS delivering clients global and regional investment strategies and products.

The CROCI process seeks to make company financial data more consistent, comparable and economically meaningful through a series of reviews and adjustments. This contrasts with more conventional definitions of "Value" that tend to be based on accounting measures such as equity or profits.

Real Value

Definition: Economic value as calculated by the CROCI process via the adjustments to and normalizations of reported financial statements, conducted by CROCI's team of company analysts.

The principal indicator of Real Value is CROCI's Economic P/E. An attractive Economic P/E ratio suggests that the market is undervaluing the cash flow being produced by the operating assets, all other things being equal.

The term Real Value can therefore be used attributively to refer to companies with the lowest CROCI Economic P/E.

* Real value does not reflect the market value of an investment. Real value and market value will differ.

CROCI Economic P/E	Calculated as $(EV/NCI)/CROCI$, Economic P/E is a measure of valuation, calculated according to CROCI methodology, that seeks to allow a fair comparison of the market valuation of companies regardless of industry or sector.
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CROCI EV/NCI	Used as the economic version of an asset multiple, e.g. Price-to-Book Value. Over time, this ratio should converge to 1x, according to economic theory (Tobin) <ul style="list-style-type: none"> – CROCI Enterprise Value (EV) A measure of the market value of the firm, which includes not only financial liabilities (e.g. debt) but also operational liabilities (e.g. warranties, pension funding, specific provisions, etc.) – CROCI Net Capital Invested (NCI) An approximation of the replacement value (at current costs) of net assets
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CROCI	Cash Return On Capital Invested, the economic version of Return on Equity. A measure of cash earnings yield, standardized for all companies, regardless of their business or location. Also described as the Cash IRR
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