Factor behavior and equity market crises

A first comparison of Covid-19 and the Global Financial Crisis

August 2020

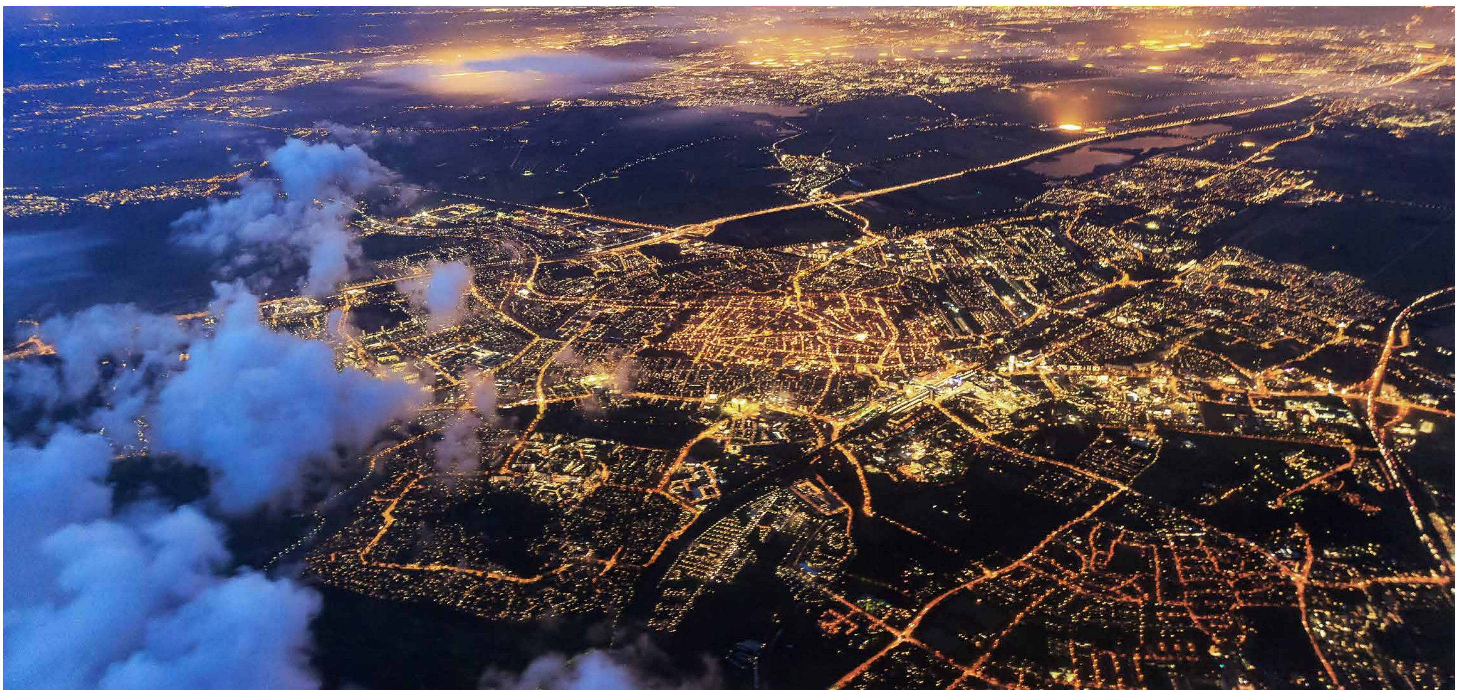
This marketing document is exclusively for use by Professional Clients, Financial Advisers, Qualified Investors and Qualified Clients/ Sophisticated Investors. This is not for consumer use, please do not redistribute.

In brief

- The global spread of the Covid-19 pandemic led to one of quickest market corrections on record and elevated levels of volatility, last seen during the collapse of Lehman Brothers.
- Factors largely behaved as expected during the first sell-off: Defensive factors such as quality and low volatility mitigated the drawdown, while rather cyclical factors, namely value and low size, underperformed. Similar observations were made during the Global Financial Crisis (GFC).
- Quality has again been very reliable in providing positive discrimination during bear markets.
- Momentum is often susceptible to sudden market reversals, however, the factor has performed positively throughout most of the current crisis so far.
- Value usually suffers in downturns but leads the market in recoveries. Yet, the factor has not participated in the latest recovery attempt.

Global equities enjoyed a strong start into 2020, defying mounting concerns over stretched valuation levels and geopolitical saber-rattling. The uptrend lasted until mid-February when markets suddenly sold off sharply after the spreading of the novel coronavirus (Covid-19) outside of China. As sentiment got increasingly worse, markets suffered their quickest correction since the Great Depression. With most of the population in Europe and the US on lockdown, economic activity came to a prompt halt, leading to shocks in global consumer demand and supply at the same time. Despite the unprecedented economic pain, April saw a rebound of equity markets, spurred by pronounced stimulus packages from central banks and governments.

Applying a factor lens on the current market environment may help to understand the extend of the current market dislocations as well as the underlying movements. Moreover, while the roots of the current crisis are clearly unique, many economists expect it to be of comparable severity to the GFC, thus we will try to compare the factor behavior during each of these crises.



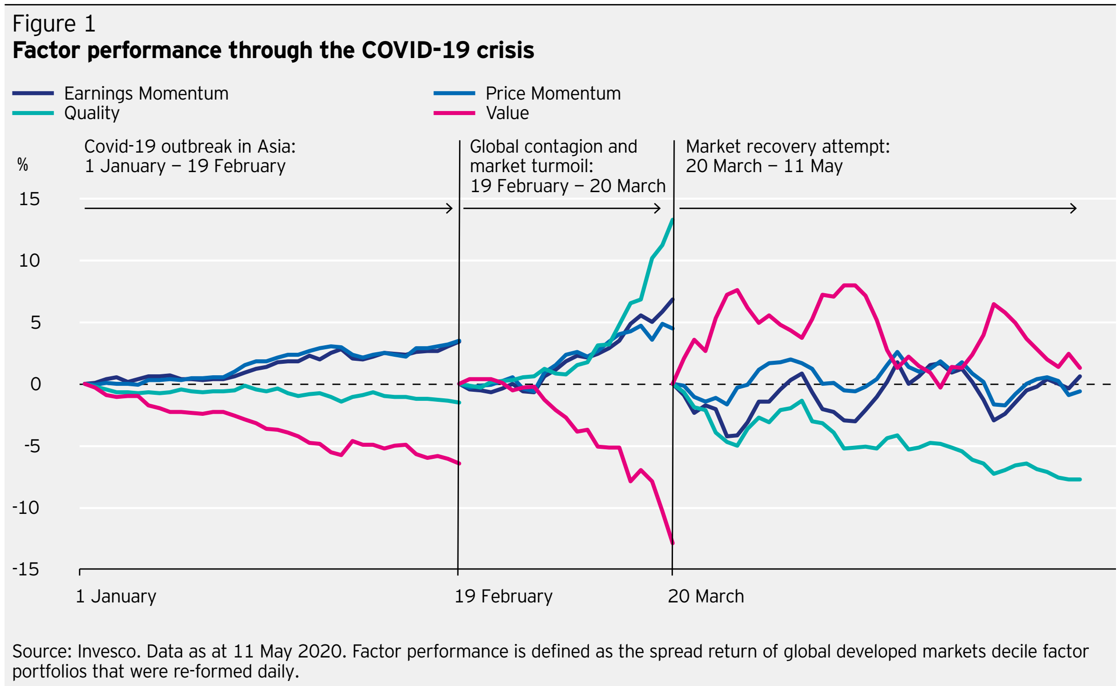


Figure 1
Factor performance through the COVID-19 crisis

Source: Invesco. Data as at 11 May 2020. Factor performance is defined as the spread return of global developed markets decile factor portfolios that were re-formed daily.

A factor perspective on the Covid-19 sell-off
Broadly speaking, the year-to-date market environment can be split into three periods: First, the beginning of the year with equity markets moving slightly upwards while the pandemic was already spreading in China. Secondly, the market sell-off that started on 20 February and found its lowest point on 18 March. At last, the recovery attempt which began on 19 March. Figure 1 plots the cumulated performance of the key factors in IQS' proprietary factor model in a year-to-date perspective. These cumulated return series were reset to zero whenever markets entered a different stage of the three periods in the Covid-19 crisis.

At the beginning of the year, factors continued the trends that emerged in 2019. Specifically, the market was led by companies with strong price and earnings momentum as well as strong growth perspectives. Value, on the other side, was not favored and continued to underperform. Despite strong quarantine measures and supply-chain disruptions in Asia, investors were not looking for companies with strong balance sheets at this time. As the crisis unfolded across the globe in February, this changed rapidly, and investors rotated quickly into quality stocks. While government bonds and gold also were under pressure during the severe market drawdown in March 2020, Quality was one of the few investable factors that hold up positively in line with expectations. However, the underperformance of value accelerated simultaneously.

The third and last episode consists of the current market recovery attempt. Hopes that central bank interventions and reopening of the economies would lead to a swift economy recovery provided a strong tailwind for risky assets. The rally was primarily led by high beta and growth names. Surprisingly value, usually the go-to factor in a market recovery, traded in a volatile fashion remaining slightly positive compared to the losses incurred beforehand.

The global financial crisis (GFC) can generally also be categorized in three episodes: A pre-Lehman period that was characterized by the meltdown of the global subprime mortgage market. As the second phase of the crisis, we determined the collapse of Lehman Brothers, which intensified the losses in global equity and credit markets. Lastly, the recovery phase that started in early March 2009. Note that the three phases during the GFC lasted longer than the three phases we determined for the current Covid-19 crisis. Nevertheless, we believe a comparison is valid due to the nature of how the crisis enfolded across the globe.

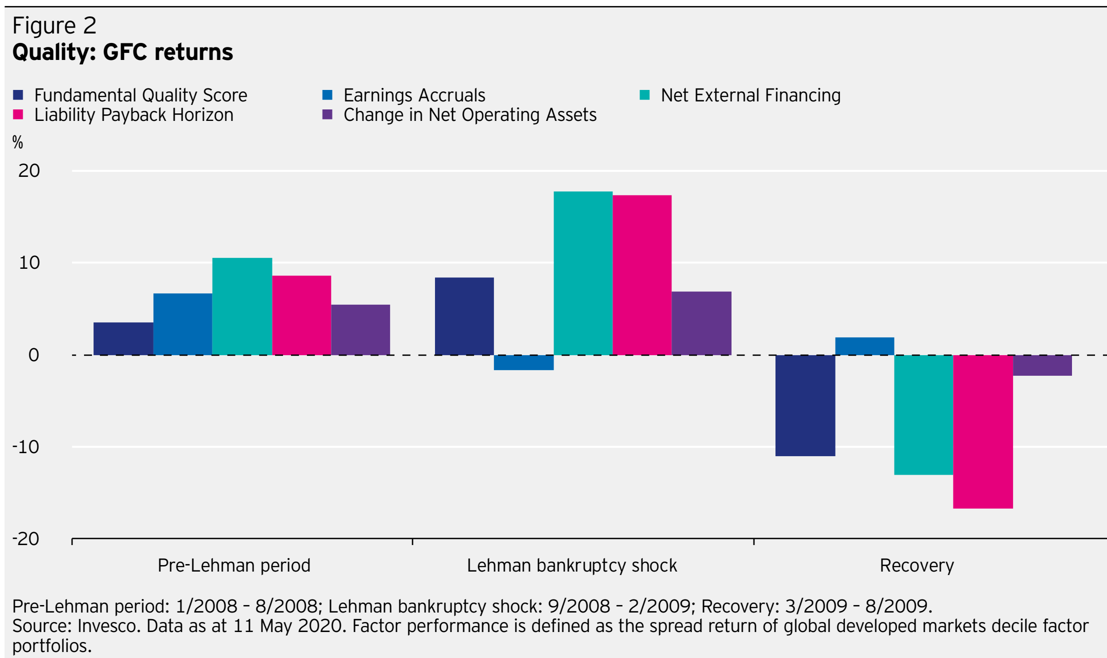
In the following paragraphs, we will examine more closely how each of our factors have behaved in the different episodes of the current crisis and we will further compare these patterns to the GFC.

Our factors in focus
Quality: Positive discrimination when markets enter a free-fall
Our quality factor refers to the idea that well-governed and efficiently operating companies with particularly strong balance sheets and financials outperform their peers of lower quality. Therefore, such equities are expected to provide downside protection during bear markets and diversify other factors in a multi-factor framework.

Looking at the performance of quality signals during the GFC in figure 2 indicates that quality is indeed a counter-cyclical factor that performs particularly well in market downturns. The chart plots the cumulative performance of key quality signals that overall constitute our proprietary quality factor.

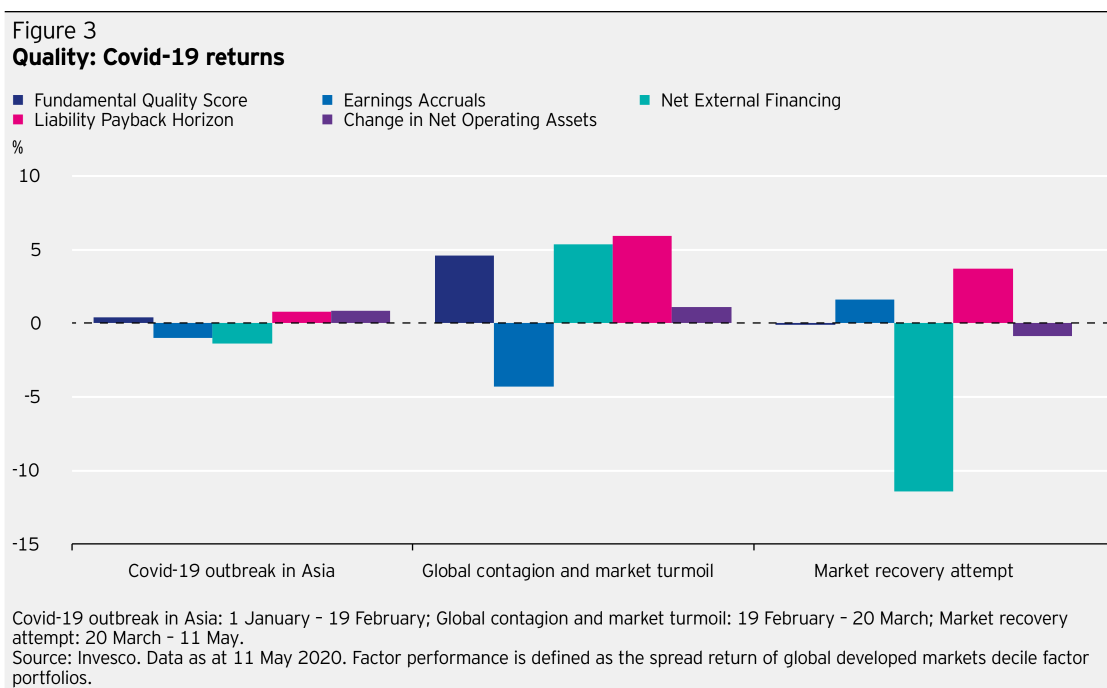
In the current situation, investors have neglected balance sheet quality before the global outbreak of the virus (see left part of figure 3). However, as soon as anxiety gripped the markets in mid-February, the defensive nature of quality factors started to look very appealing to investors and most of them outperformed significantly as displayed in the "Global contagion and market turmoil" phase in figure 3. Other defensive factors such as low volatility performed positively as well. Some of these gains were later given up during April and May in the market rebound as particularly our custom Net External Financing signal, which selects companies that reduce debt and return money to shareholders, appeared to be out of favor. Net External Financing is in fact an interesting case: During the current recovery as well as during the GFC recovery, investors did not focus on companies that return

Figure 2
Quality: GFC returns



Pre-Lehman period: 1/2008 - 8/2008; Lehman bankruptcy shock: 9/2008 - 2/2009; Recovery: 3/2009 - 8/2009.
Source: Invesco. Data as at 11 May 2020. Factor performance is defined as the spread return of global developed markets decile factor portfolios.

Figure 3
Quality: Covid-19 returns



Covid-19 outbreak in Asia: 1 January - 19 February; Global contagion and market turmoil: 19 February - 20 March; Market recovery attempt: 20 March - 11 May.
Source: Invesco. Data as at 11 May 2020. Factor performance is defined as the spread return of global developed markets decile factor portfolios.

money to stakeholders. Instead, companies who can successfully raise external capital are being rewarded for it, with the alternative being bankruptcy. Hence, the signal demonstrates a reversed performance pattern during rebound periods that are characterized by capital rescues. On the contrary, other quality signals that focus on the ability to meet future liability payments (Liability Payback Horizon) have continued to perform positively.

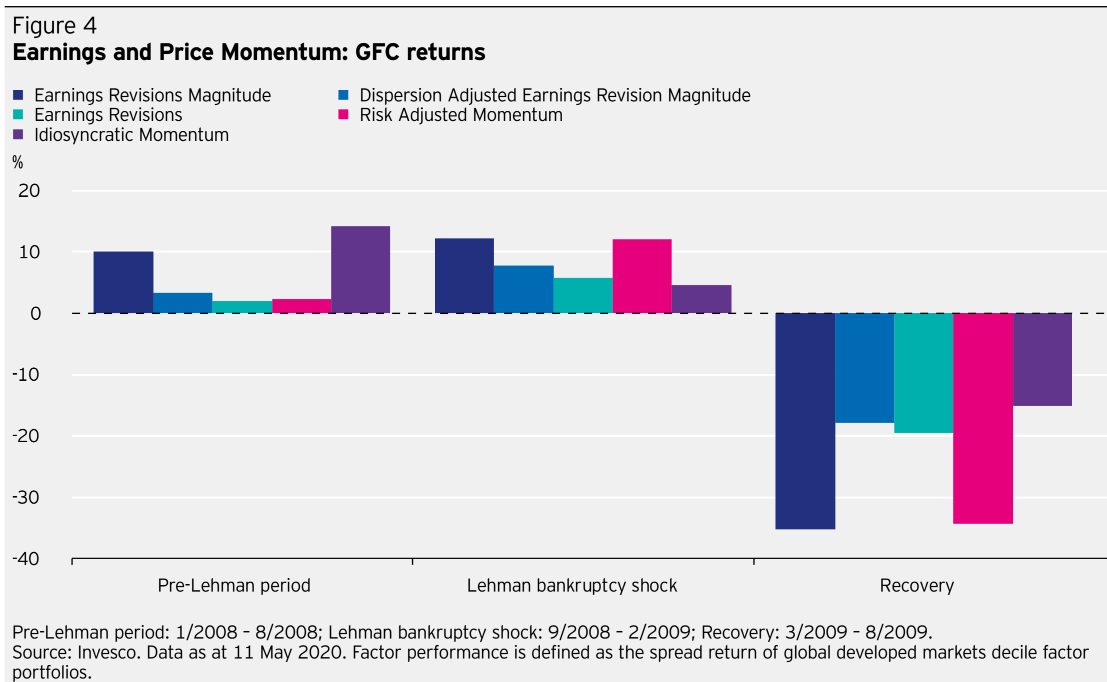
Momentum: usually weak in swift market reversals, but resilient performance throughout the recent market turmoil

A momentum factor relates to the idea that past winners tend to continue to win. It's essentially a factor that buys what most other investors are also buying. Such a trend following strategy may be particularly susceptible to prompt regime shifts in the investment landscape.

During the GFC, returns from momentum signals were generally muted (see figure 4) over the first episodes of the crisis but momentum suffered particularly sharp losses after markets reversed in March 2009. These results can be explained by the fact that early signs of the impending mortgage crisis slowly emerged over the course of 2008, whereas the market turnaround occurred before fundamental economic data and analyst expectations reversed.

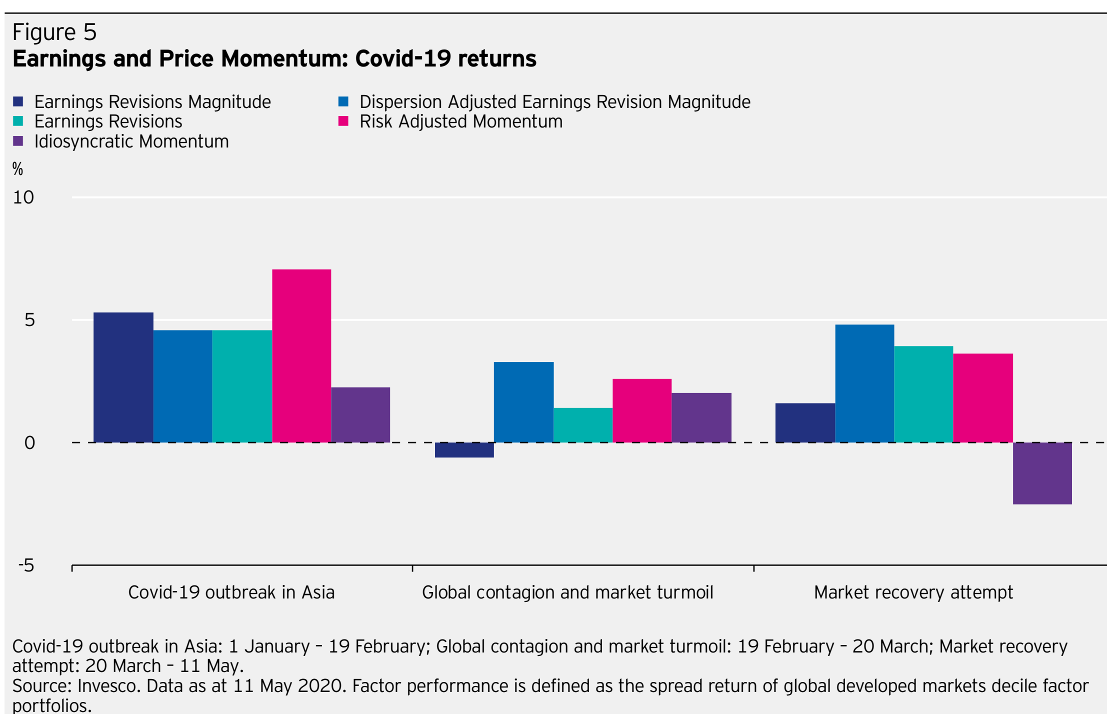
The Covid-19 induced market stress, however, left little time for markets to adjust and, as we stated before, resulted in one of the fastest corrections on record. Still, if we take a look at figure 5 that plots the returns of momentum signals during the crisis, we observe that momentum actually outperformed during all three periods of the 2020 market crisis. This is not as counterintuitive as one may expect amidst the market dynamics of the past months: Over most of 2019, the stocks that were trending upwards were often larger-sized companies with defensive or even bond-like characteristics.

Figure 4
Earnings and Price Momentum: GFC returns



Pre-Lehman period: 1/2008 – 8/2008; Lehman bankruptcy shock: 9/2008 – 2/2009; Recovery: 3/2009 – 8/2009.
Source: Invesco. Data as at 11 May 2020. Factor performance is defined as the spread return of global developed markets decile factor portfolios.

Figure 5
Earnings and Price Momentum: Covid-19 returns



Covid-19 outbreak in Asia: 1 January – 19 February; Global contagion and market turmoil: 19 February – 20 March; Market recovery attempt: 20 March – 11 May.
Source: Invesco. Data as at 11 May 2020. Factor performance is defined as the spread return of global developed markets decile factor portfolios.

Consequently, the momentum factor had become quite defensive before the crisis.

Hence, apart from quality, investors were seeking shelter in those stocks that had already performed strongly before the outbreak of Covid-19, which is why momentum managed to perform positively throughout the market turmoil.

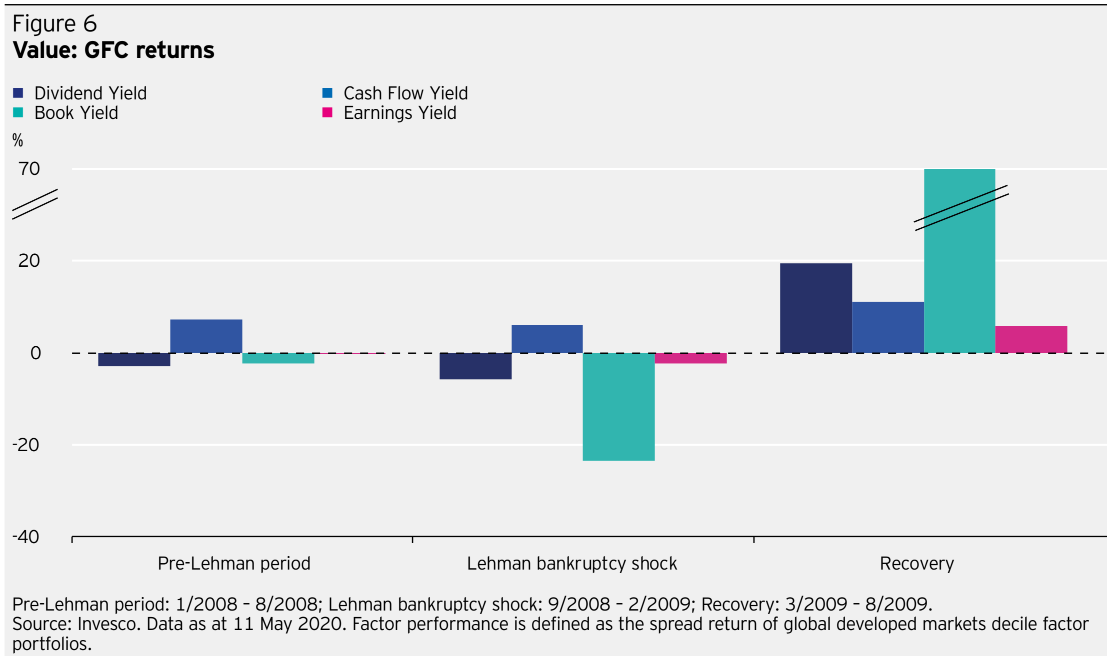
Value: Severe underperformance in sell-offs but leading when markets reverse?

Lastly, our value factor seeks exposure to stocks that are relatively cheap according to some fundamental value measures. This factor is often deemed to be a "risk-on" factor that underperforms during economic downturns as market participants become more concerned about increasing bankruptcy risk. This can be explained by higher debt loads on the balance sheet of these companies and they often possess larger amounts of tangible assets that make their business models typically less flexible. On the other hand, such a factor tends to work best in recovery periods.

The performance of value during the GFC depicted in figure 6 underlines these assumptions. Value performed negatively during the mortgage crisis but was a strong contributor during the recovery in 2009. The chart further reveals that not necessarily all value metrics fit into the cyclical, risk-on definition. While book yield and earnings yield appear to be more sensitive to the economic environment, other value definitions such as dividend and cash flow yield have a more defensive return profile. Cash flow yield at that time was one of the value indicators that worked well in all three phases of the crisis in 2008/2009.

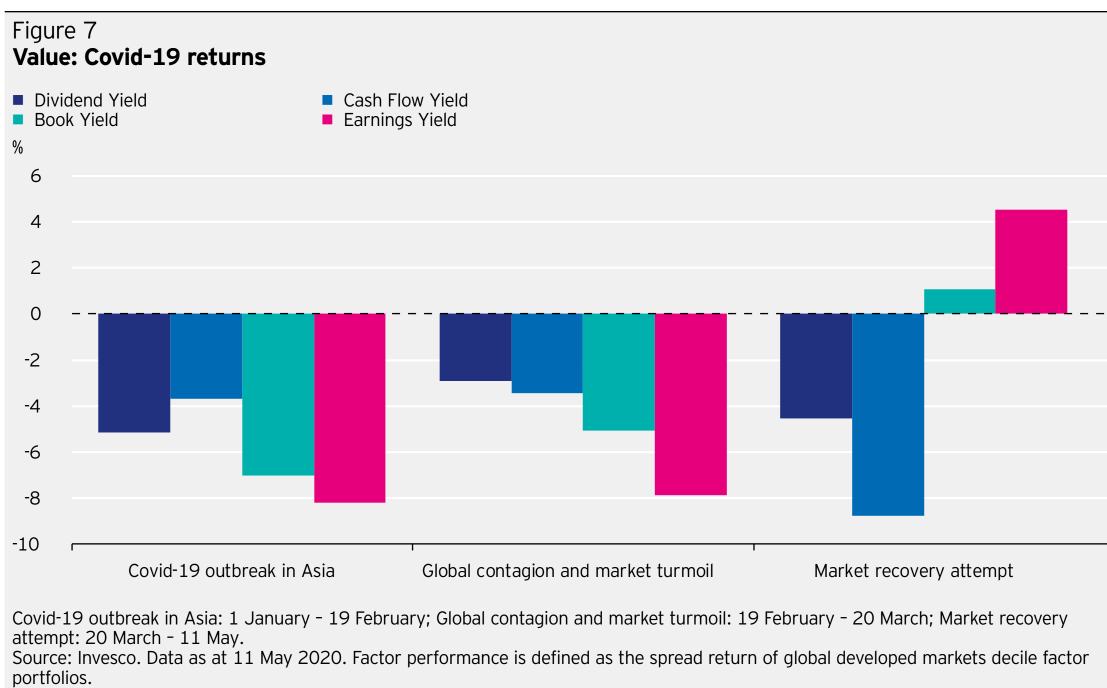
The results during the Covid-19 crisis are somewhat different. Value suffered across the board during the

Figure 6
Value: GFC returns



Pre-Lehman period: 1/2008 - 8/2008; Lehman bankruptcy shock: 9/2008 - 2/2009; Recovery: 3/2009 - 8/2009.
Source: Invesco. Data as at 11 May 2020. Factor performance is defined as the spread return of global developed markets decile factor portfolios.

Figure 7
Value: Covid-19 returns



Covid-19 outbreak in Asia: 1 January - 19 February; Global contagion and market turmoil: 19 February - 20 March; Market recovery attempt: 20 March - 11 May.
Source: Invesco. Data as at 11 May 2020. Factor performance is defined as the spread return of global developed markets decile factor portfolios.

sell-off, resuming its already weak performance from the first two months of the year. At the same time, defensive value outperformed cyclical value as we would have expected, although it did not manage to provide positive performance discrimination.

When markets started to recover, earnings yield and book yield started to recover as well but traded in a particularly volatile fashion. Simultaneously, defensive value did not participate in the rebound and continued to underperform. In summary, taking into account the sharp drawdowns, value also disappointed in the recovery (see figure 7).

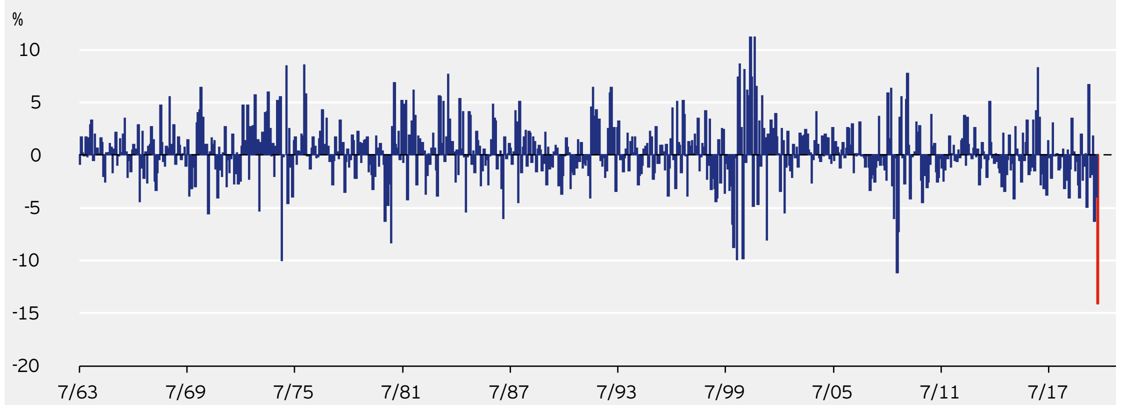
While a weak performance of value in February and March may be less of a surprise, the magnitude of these returns is striking. So what is the long-term evidence? To analyze this aspect, we use the academic version of value, the HML factor that is provided on Kenneth French's website. Comparing the monthly returns of the US HML factor since 1963 we can infer how bad the performance has been (see figure 8). In fact, March 2020 was the worst month on record for this factor, surpassing the GFC months by a sizeable margin.

Similarly, the muted recovery of value in April is also something that may be met with a skeptical frown. Recoveries usually follow a similar pattern that sees strong market returns being led by value and size from a factor perspective. Yet, both factors have not participated in the rally so far.

Conclusion

The Covid-19 crisis has lasted for merely 4 months at the time of this writing, yet it reveals several parallels to the GFC: It will very likely lead to a severe global recession that affects almost all industries and individuals and it has also led to pronounced liquidity and stimulus packages from central banks and governments. On the contrary, the sudden freeze in economic activity and consumer spending as well as an imminent health thread are clearly unparalleled in recent history. From a factor perspective, the current

Figure 8
Monthly returns of the Fama-French US value factor



The value returns are represented by the Fama/ French HML definition. HML (High-Minus-Low book value) is the average return on the two value portfolios (Small Value and Big Value) with high book-to-market ratios minus the average return on the two growth portfolio (Small Growth and Big Growth) based on stocks with lower book-to-market ratios.
Source: Kenneth French's data library: https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html. Data as at 31 March 2020.

crisis resembles the GFC in several aspects: Quality factors mitigated the drawdown but lagged in the recovery, while cyclical value suffered the most in the market drawdown. Momentum has seen mixed results in both crises. The largest difference so far has been the missing reversal in value when markets started to recover in March. As we have noted in a recent note this may be linked to difficult macroeconomic prospects that are not showing signs of improvement and raise concerns that the turmoil is not over yet.

In any way, examining historic events helps to understand how market dynamics affect factors and vice versa. In a balanced quant model, it is inevitable to include defensive factors that diversify in drawdowns as well as cyclical ones like value that allow a participation in recoveries like the one in 2009.

Risk Warnings
The value of investments and any income will fluctuate (this may partly be the result of exchange rate fluctuations) and investors may not get back the full amount invested.

Important Information

This marketing document is exclusively for use by Professional Clients and Financial Advisers in Continental Europe as defined below, Qualified Investors in Switzerland, Qualified Clients/Sophisticated Investors in Israel and Professional Clients in Dubai, Ireland, Isle of Man, Jersey, Guernsey, Malta and the UK. It is not intended for and should not be distributed to, or relied upon, by the public. By accepting this document, you consent to communicate with us in English, unless you inform us otherwise.

This document is marketing material and is not intended as a recommendation to invest in any particular asset class, security or strategy. Regulatory requirements that require impartiality of investment/investment strategy recommendations are therefore not applicable nor are any prohibitions to trade before publication. The information provided is for illustrative purposes only, it should not be relied upon as recommendations to buy or sell securities.

Where individuals or the business have expressed opinions, they are based on current market conditions, they may differ from those of other investment professionals, they are subject to change without notice and are not to be construed as investment advice.

For the distribution of this document, Continental Europe is defined as Austria, Belgium, Croatia, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Italy, Liechtenstein, Luxembourg, The Netherlands, Norway, Portugal, Slovakia, Spain and Sweden.

Issued by Invesco Management S.A., President Building, 37A Avenue JF Kennedy, L-1855 Luxembourg, regulated by the Commission de Surveillance du Secteur Financier, Luxembourg; Invesco Asset Management, (Schweiz) AG, Talacker 34, 8001 Zurich, Switzerland; Invesco Asset Management Limited, Perpetual Park, Perpetual Park Drive, Henley-on-Thames, Oxfordshire RG9 1HH, UK. Authorised and regulated by the Financial Conduct Authority; Invesco Asset Management Deutschland GmbH, An der Welle 5, 60322 Frankfurt am Main, Germany.

Israel: This document may not be reproduced or used for any other purpose, nor be furnished to any other person other than those to whom copies have been sent. Nothing in this document should be considered investment advice or investment marketing as defined in the Regulation of Investment Advice, Investment Marketing and Portfolio Management Law, 1995 ("the Investment Advice Law"). Investors are encouraged to seek competent investment advice from a locally licensed investment advisor prior to making any investment. Neither Invesco Ltd. Nor its subsidiaries are licensed under the Investment Advice Law, nor does it carry the insurance as required of a licensee thereunder.

[EMEA4385/2020]