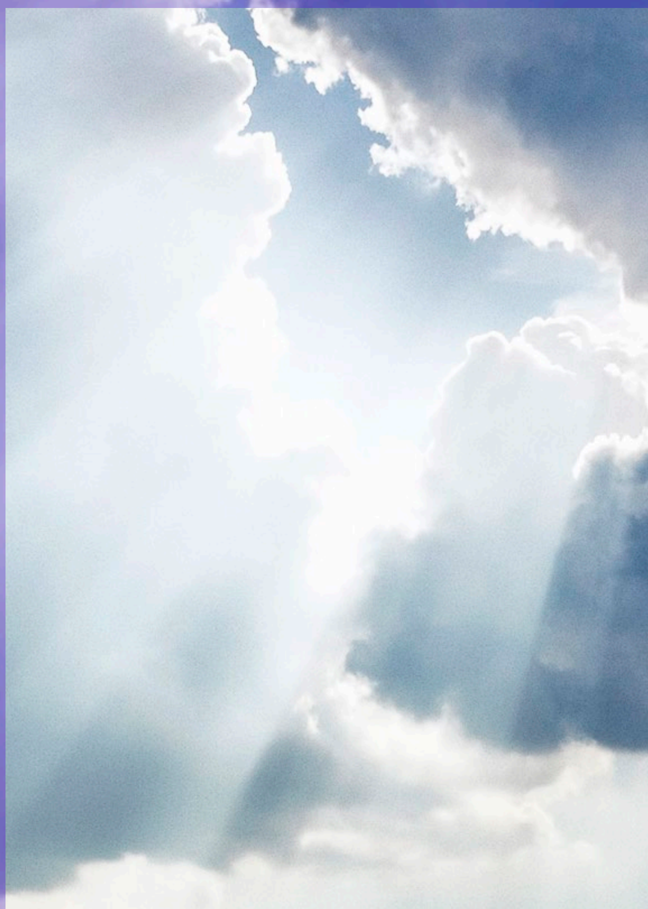
Quarterly Brief

Valuation in times of geopolitical tension, macroeconomic shifts and microeconomic challenges

18th Edition of our International Valuation Newsletter
Q3 2022



October 2022
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Preface

Dear reader,

The last couple of months have been dominated by global and regional events that are having multiple and enormous impacts on our society, markets and economy; on our clients; and on each of us at a personal level. We're seeing increased demand from clients for our services as they seek to make decisions amid forceful and rapidly changing influences. The question of value and price remains at the heart of discussions, while the level of uncertainty is even higher than in the years 2020 or 2021.

Over the last few years, the focus of our Quarterly Brief has included COVID 19 (twice), ESG and renewable energy. All these topics are still highly relevant today, for sure. In addition, we now face the tragic war in Ukraine, other looming geopolitical tension, continuously disrupted global supply chains and inflation levels not seen for decades in developed countries. With winter soon upon us in the northern hemisphere, we face skyrocketing energy prices due to an expected shortage of gas and electricity, while underdeveloped countries are threatened by food scarcity. The list of dramatic global effects is long, very long.

One thing we learned over the last two to three years is that all the shockwaves we have experienced have affected industries and sectors differently. There is no one-size-fits-all answer to the question of a market-adequate valuation – because there are no stable markets these days.

Acknowledging that any aggregated view misses the specifics and nuances ultimately so important in determining a robust value for an individual company, we attempt to summarize certain key influencing factors to consider in a business valuation. In the main part of this edition of our newsletter, we also take a closer look at some interesting trends in capital market data. With some overlap – but for the sake of consistency – we then provide a summary of recent key capital market data in our well-known format in the final section of this Quarterly Brief.

We wish you all the best in these unpredictable times and look forward to discussing your questions regarding valuation trends and practices.

Yours faithfully

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The perfect storm?

The way we dealt with global crises over the last 15 years, the COVID pandemic and the Ukraine war seem to be the main triggers for today's macroeconomic shifts and microeconomic challenges. In addition, ESG has become a key driver of global systematic change and all sectors are affected.

Calm before the storm

Since the collapse of Lehman Brothers indicated the climax of the subprime mortgage crisis in 2008, we have seen one global or regional financial and economic crisis after the other. We got used to the "new normal". Part of this new reality was that governmental bailouts and massive support programs didn't seem to hurt economic wellbeing in the short and medium term as our traditional macroeconomic models might have suggested. Money was pumped into the markets big time. No inflation. No long-lasting period of economic stagnation or high level of unemployment. Quite the opposite.

Over a 20-year period, from 2002 to September 2022, the MSCI World index grew on average by 5.2% every year and the Swiss All Share index by 3.5% (KPMG analysis, based on Capital IQ data). Considering the dividends paid in these years, which are not reflected in these index developments, the total performance of companies was even higher.

Without meaning to sound cynical, even a global COVID pandemic seemed – initially – not to bother too much the long-term stability and growth of the global economy. Or at least this is the picture that emerges when looking at share price developments in the months after the outbreak, as shown later in this newsletter.

Unquestionably, a lot of damage and harm occurred. Societies and individuals suffered to a very large extent under catastrophic circumstances. However, the measures implemented by governments during all these crises seemed to work and the likely negative economic long-term effects appeared to be under control. Or at least that's what many investors believed so over the last one and a half decades – and they felt comfortable enough.

One thought was mentioned regularly over this 15-year period, though: While the economy seems not to collapse, and even continues to grow, the economic system remains weak and vulnerable to any additional disruption.

Under stress

The outbreak of COVID in February 2020 marked the start of a constant stress level. We had no time to breathe, rest or recover. For over two and a half years the volatility of global equity markets has resembled the racing heartbeat of an emergency patient. The amplitude in March 2020 was extreme, with another peak at the beginning of the Ukraine war.

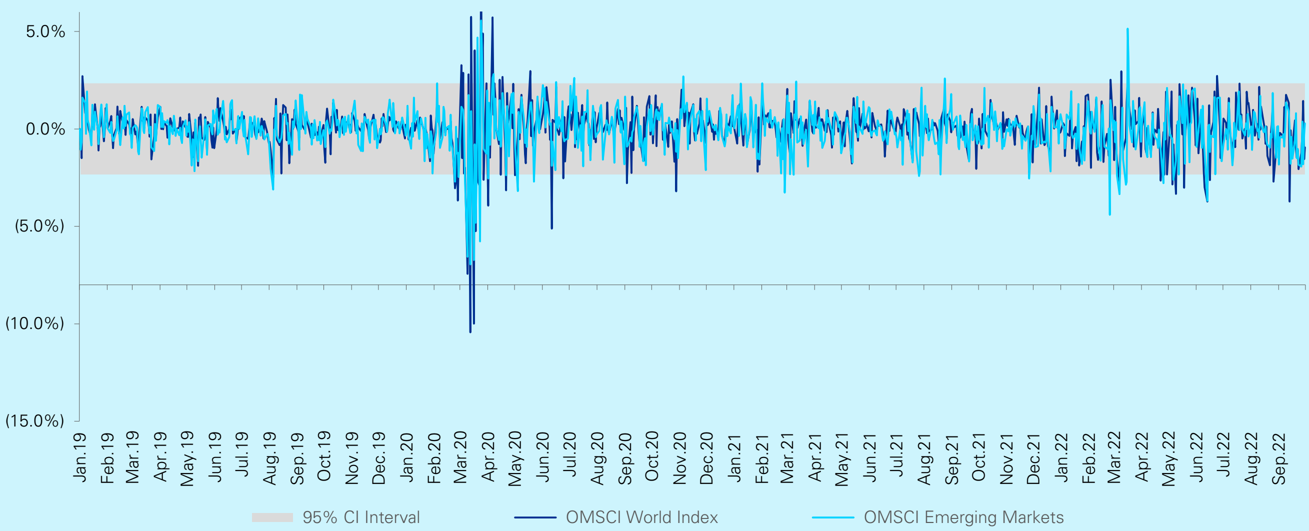
- The Ukraine war has direct and indirect consequences such as supply shortage of energy and crops, and sanctions against Russia.
- The COVID pandemic is not over, and we still feel the economic impact, e.g. on supply chains. We are all concerned about the coming winter in that respect.
- Global inflation has significantly increased, and national banks are now reacting with sharp interest rate hikes.
- The biggest long-term challenge remains the implementation of a sustainable economic system.

There is certainly a high number of other factors impacting the environment of companies and investors these days. Nevertheless, already the few – but highly significant – topics listed above make it obvious that sectors are exposed very differently to all the stress factors, which makes it even harder to develop successful strategies and assign meaningful values to assets in order to support decisions for strategic options.

Macroeconomic shifts

When it comes to the macroeconomic environment, companies and investors certainly prefer stability and predictability over fast and unexpected changes. As

Volatility Indices 2019 - 2022



Source: KPMG analysis

Some key factors are driving the current stress and the combination of all of them potentiate the impact:

- We are experiencing a period of very high geopolitical tension. The Ukraine war is the most obvious conflict but there are many other flash points around the globe.

mentioned above, despite much turbulence, the core macroeconomic factors have remained surprisingly stable over the last 15 years. This has certainly changed now.

Inflation is increasing in nearly every country around the globe. Inflation rates vary from country to country as well as depending on the types of products and services.

Energy prices are a key driver of inflation, but not the only one. It's worth noting that the increase of inflation started already before the Ukraine war (see later in this newsletter), thus, we cannot simply blame this war and its consequences. Shortage of any sort of products, components, and services, still a result of the COVID pandemic, are another key factor. As mentioned above the governmental support programs over the last 1.5 decades, however, seem to be the most relevant trigger of today's inflation.

Increasing *interest rates* are not an independent occurrence. They are just a logical reaction from national banks to respond to the escalation of inflation. Some may argue, the reaction is too late. Others may ask how far the national banks must go and when we will see the desired effects of lowering inflation. If we admit that our prediction of the current rise of inflation was rather inapplicable, one might be careful in relying on predictions looking forward.

Due to different inflation and interest developments, but also because of significantly different levels of national debt and different perspectives of future prosperity in each country, the *exchange rates of major currencies* have shifted significantly. Over the last 12 months:

- The US Dollar increased against euro, British pound, yen and Swiss franc
- The Swiss franc is up against the euro, British pound and yen but down against the US dollar
- The euro outperformed the British pound and yen but lost against US dollar and Swiss franc
- The British pound is up against the yen but down against all other three currencies
- The yen decreased compared with all other four currencies

In addition to inflation, interest rates and currencies, the macroeconomic landscape is heavily impacted by new *regulations* at the national and international level. Policymakers are responding to developments and reviewing regulatory approaches and priorities, in particular with regard to sustainability and sanctions.

Microeconomic challenges

The uncertainty of political and social developments as well as rapid macroeconomic changes already put companies under enormous pressure. Key topics are increasing energy costs, impending energy disruptions as well as ongoing challenges in the supply chain. Depending on their exposure to Russia and Ukraine, companies may directly or indirectly face difficulties with production, sales, supply and financing. Sanctions are not only in place against Russia and seem to be increasing in their application.

Cyber-attacks have been mentioned in past years as a growing risk for companies of nearly all sectors and sizes. The Russian-Ukraine war increases the risk that critical government and private sector networks as well as vulnerable infrastructure might be attacked, with an unpredictable effect on all companies.

Liquidity issues and credit shortages could soon be another area demanding a new approach to finance growth and innovation, even for companies whose business model is still reasonably robust and healthy.

Inflation is already curbing consumer spending today, but it is unclear how this will develop, and which products and services will be impacted most. In addition, the desire to consume in a more sustainable was is already triggering a shift in consumer behavior. It's important to identify the goods and services affected more than others by this change in consumption. However, magnitude and timing are again hard to assess.

All the factors discussed above have a massive and fundamental impact on companies' business models and strategies. As always, most factors do not only represent risks but also offer new opportunities. Technology certainly remains a key area for innovation, and we will continue to see sectors converge. However, complexity stepped up another level in recent months. The challenges of navigating through such a perfect storm are enormous and require a transparent view of options, scenarios and simulations.

Insights from key parameters to navigate the storm

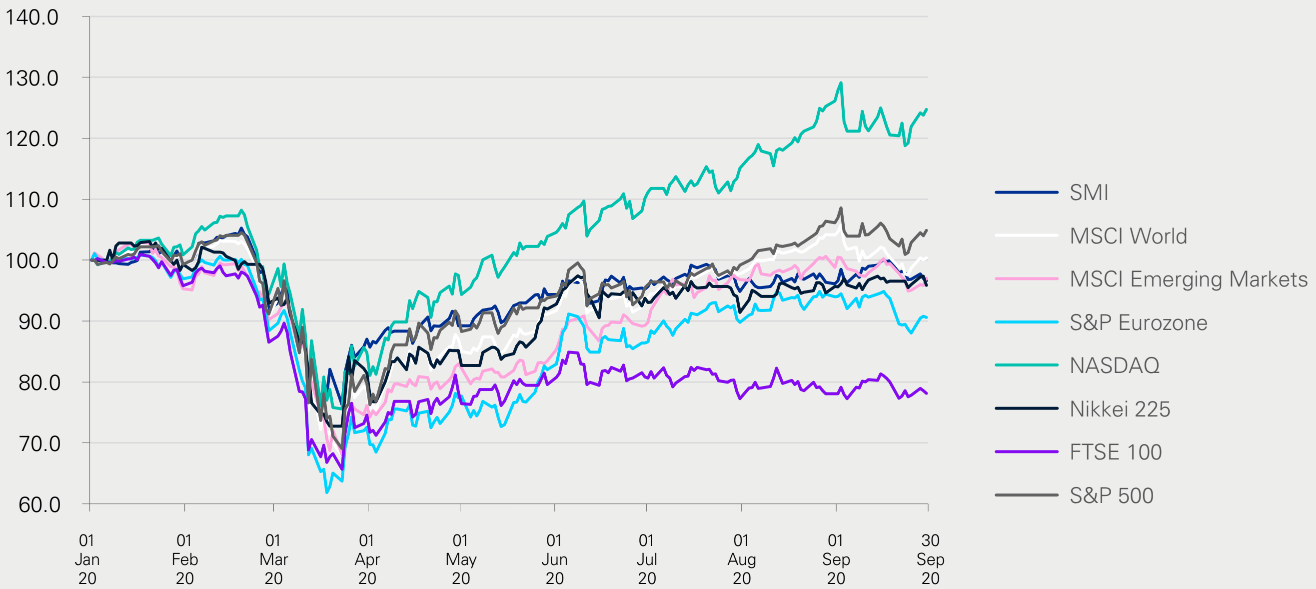
In times of geopolitical tension, macroeconomic shifts and microeconomic challenges, robust valuations are required, even more than ever. In that context, "robust" stands for transparency. We want to disclose the market developments and disruptions in a clear way to provide the user of a valuation the best basis for follow-up conclusions.

A pandemic and a war

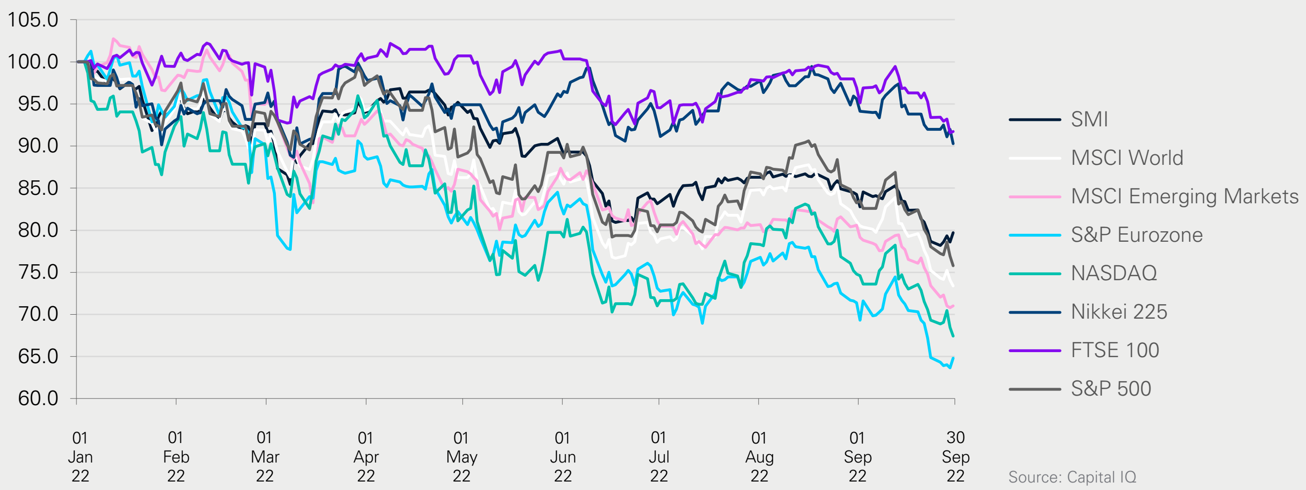
The COVID pandemic reached a global level in February 2020 and the invasion of Ukraine started two years later in February 2022. To understand how these two events have impacted global capital markets, we compared major stock price indices over a nine-month period starting from 1 January to 30 September, for 2020 and 2022, respectively.

The immediate drop of the indices analyzed was more significant right after the global outbreak of the pandemic in spring 2020 compared with the short-term reaction following the invasion of Ukraine in February 2022. The S&P Eurozone index collapsed by nearly 40% from mid-February to mid-March 2020. The same index again lost most in the first four months of 2022, but only around 20%. However, the bounce back after the first market reaction in spring 2020 was more distinctive for

Main indices performance (January - September 2020)



Main indices performance (January - September 2022)



Source: Capital IQ

every major index we have selected compared with spring 2022.

For the FTSE 100 the -23% drop after nine months in 2020 was the lowest performance compared with the other indices in that period, most likely also influenced by Brexit consequences. On the other hand, the tech index NASDAQ was already 25% above its pre-COVID level in September 2020.

For the year 2022, no bounce back can be overserved in the nine-month period, in contrast to 2020. In fact, the opposite is true. The FTSE 100 seems to resist the turmoil best, with a drop of only -8% from 1 January to 30 September 2022, although it also started from a low level. All other selected indices are performing worse and, again, the S&P Eurozone index suffered most, falling -35% from January to September 2022, followed by the NASDAQ with a drop of -33%.

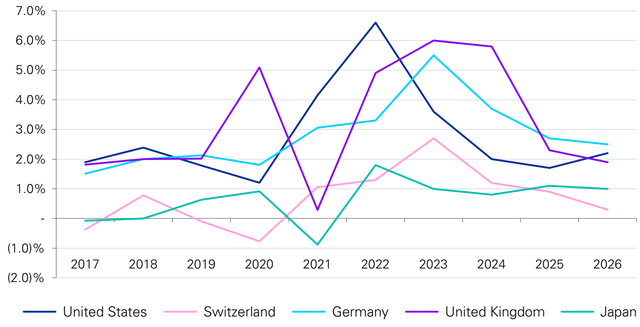
Why have these two periods developed so differently? Unpredictability as to the short, medium and long-term future was very high in both periods (and remains so). We believe that the combination of the various, interlinked effects on geopolitical, macro- and microeconomic level in today's world of 2022 has reached such a level that investors may expect a global economic recession and a longer lasting downturn of all capital markets.

The cycle of inflation

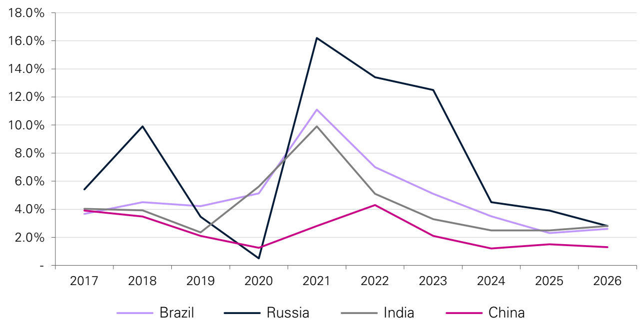
As mentioned earlier, the effects of the various challenges are hitting the sectors differently. However, inflation is an occurrence everyone is exposed to. We like to look at the gross domestic product (GDP) deflator as the measure of inflation. The GDP deflator is calculated as the difference between nominal and real GDP and measures the change in prices for all the goods and services produced in an economy. Thus, it's not dependent on a definition of a "basket" of goods and services like the Consumer Price Index (CPI).

Certainly, the war in Ukraine has aggravated the pressure on energy as well as food prices. But we believe that the main reason for the high inflation in every developed economy these days has its roots in the injection of trillions of dollars by governments across the world over the last 15 years. These measures were an attempt to soften the economic effects of the various crises, mainly the global financial and economic crises starting in 2007/2008, the European debt crises starting in 2009, and, finally, the COVID pandemic. The following graphs indicate clearly that the rise of inflation had already started in several countries before the invasion of the Ukraine.

GDP Deflator – Developed Markets 2017-2026



GDP Deflator – Emerging Markets 2017-2026



Source: EIU

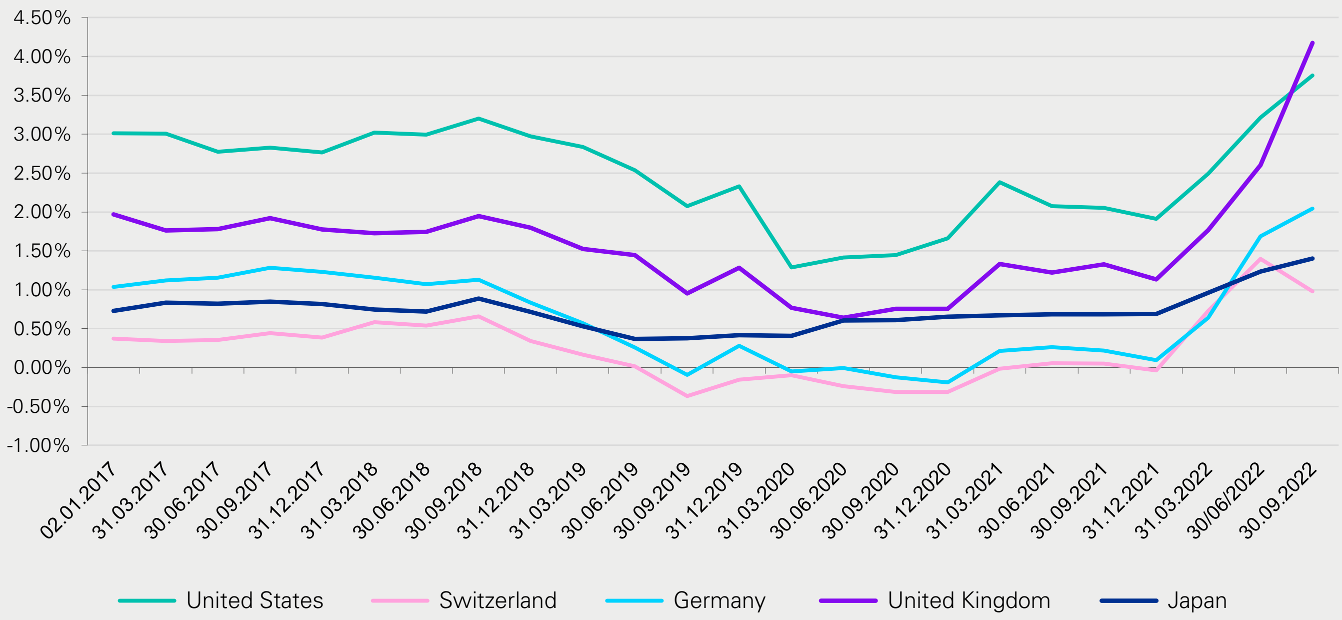
Based on our traditional macroeconomic understanding, most of us would have expected an inflation much earlier. However, our models did not seem to work anymore. It was possible to keep interest rates low. Despite the increase in the supply of money by governments, inflation did not increase, rather the opposite. The capital market got used to these beneficial conditions. During the COVID pandemic, however, the amount of governmental subsidies reached a level which arguably turned back the traditional capital market rules: more money, higher inflation. We are certainly not arguing that the governmental support was wrong. The mistake was to keep the interest rates too low for a too long time. Of course, it's always easier to judge in hindsight.

The outlook regarding inflation rates predicts a pre-pandemic level in 2024. Analysts – not only the Economist Intelligence Unit as the source for our graphs but also, for example, the International Monetary Fund (IMF) – seem to believe that the current measures from national banks, i.e. increasing interests (see next section), will result in the desired effect and that other factors, mainly the shortage of good and services, will be less impactful than today. This remains to be seen.

Interest rates

Interest rates are the weapon national banks use to fight inflation. There's a fine line between keeping inflation within a desired bandwidth and avoiding negative effects on capital markets, corporate investment conditions and private savings. Setting interest rates is a combination of reacting to observations and a proactive assessment of future developments.

Government Bonds – 30 Year (January 2017 - September 2022)



Source: Capital IQ

There has been always a golden rule that the prime interest rate set by national banks should be more or less in line with inflation rates. This has been achieved in the main since 2008. However, inflation increased already some time ago and the reaction of the national banks seem somewhat delayed. This might be the argument for some very steep interest rate increases recently, e.g. plus 75 basis points from the FED at the end of September 2022. Even in Switzerland we are now back to positive national bank interest rates after more than seven years. Various national banks are indicating that further increases ought to be expected before year-end 2022.

How has risk been assessed recently?

The beta factor is considered as one of the relevant measures of volatility of share prices and, thus, a good indicator of how investors assess the risk of investments relative to the broad market. In order to better understand the volatility resulting from the war in Ukraine, all its direct and indirect consequences, as well as all other effects, we looked at the sector breakdown of the MSCI World and analyzed weekly, raw betas over a two-year period, as of:

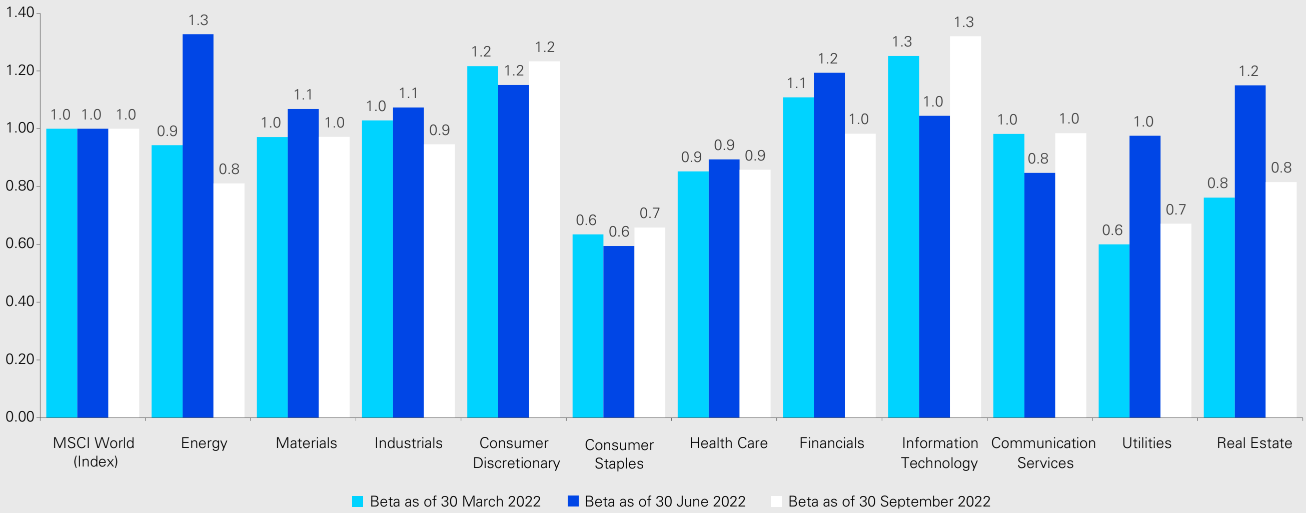
- End of March 2022 – arguably not significantly impacted by the Ukraine war
- End of June 2022 – already considering the impact of the war, and
- End of September 2022 – as a period where the short-term shock of the war and all its consequences is already digested, and a longer view is considered

Unsurprisingly, for most sectors the beta factor peaked in June 2022, with Energy and Real Estate showing the highest changes. Only for Consumer Discretionary, Consumer Staples, Information Technology and Communication do we see the opposite: relative volatility to the overall market dropped from the end of March to the end of June 2022.

For almost all sectors, the beta factors at the end of September 2022 are at the same level compared with the end of March 2022. Energy and Financial Services are remarkably lower than six months earlier, while only Information Technology shows higher volatility compared with the conditions as of March for this sector.

There are manifold reasons within each sector and subsector for these quite diverse developments. The key

World – 2 year weekly raw betas



Source: Capital IQ
Note: betas are calculated by regression of the respective MSCI World sector index against the MSCI World over a 2-year weekly period

message is that a robust valuation analysis ought to consider the specific facts and circumstances of the subject business.

Lessons for valuing assets

For all topics discussed in our Quarterly Brief in recent years with regard to the growing level of uncertainty, we come to the same conclusion:

Risk resulting from unpredictable events with a major impact on value, be it from a global pandemic, geopolitical tension or from microeconomic challenges, should be reflected in the cash flow projections rather than in a "crisis discount" on the cost of capital. Even standard setters are emphasizing this approach more and more. First, there is no reasonable approach to quantify the possible adjustment of the cost of capital. Second, the only way to transparently document the assumptions of magnitude and timing of those events is through cash flow assumptions, even if this is difficult to assess.

Risk resulting from macroeconomic shifts should, however, be reflected in the cost of capital. There is no need to change the methodology of determining the cost of capital. Nevertheless, possible short-term observations of capital market input should carefully consider whether it reflects an appropriate long-term view as of today.

Overall, it is not surprising that results from analytical value analysis may differ – more than usual – from actual (share) price developments for the upcoming months. For decision-makers, the question remains as to which data point, value or price, is relevant in the situation at hand.

KPMG's valuation specialists would be happy to help you in managing corporate finance challenges and steering your business through these very difficult times.

Capital market data

In this section, we provide a selection of key financial market data covering:

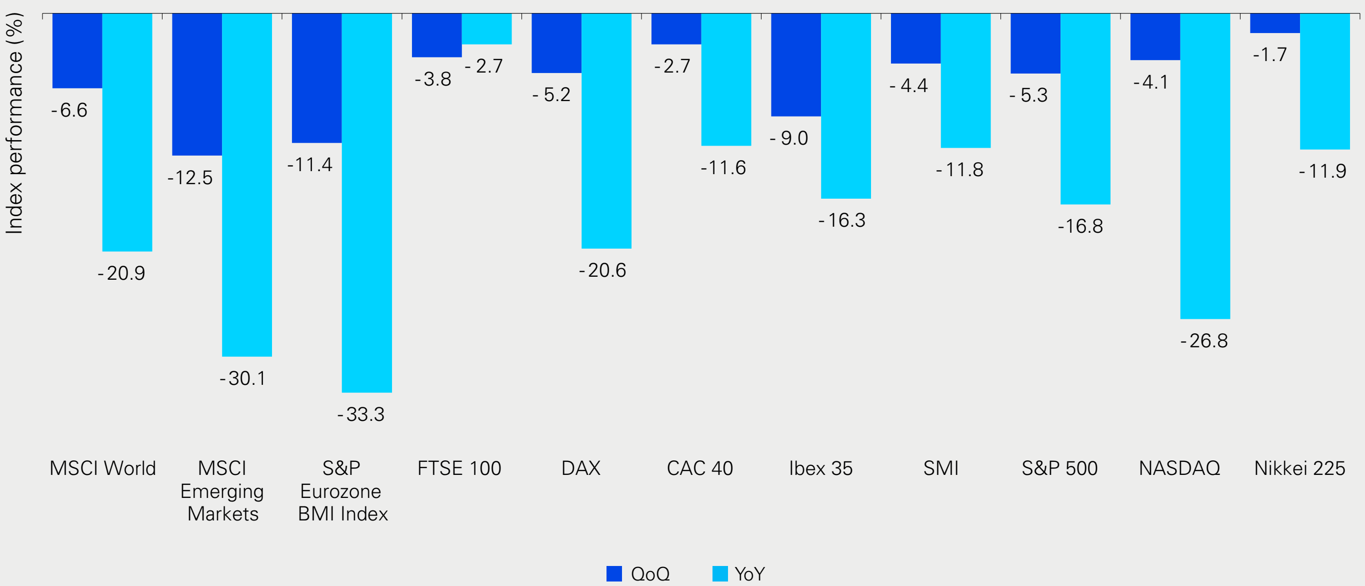
- Comparison of major stock market performance for the 12 months ending 30 September 2022
- S&P Eurozone BMI Index sector multiples
- Risk-free rates for major currencies
- Country risk premiums and inflation forecasts for the BRIC countries

Major stock market performance: Challenging times for equity markets across the world

Investing in the last twelve months has been extremely challenging. We observed double-digit negative year-on-year performances for all major indices across the globe, aside from the FTSE 100 which suffered the smallest loss (-2.7% year-on-year). The largest losses were incurred by Europe (-33.3% for the S&P Eurozone BMI) and Emerging Markets (-30.1% for the MSCI Emerging Markets).

Performance of leading indices

30 September 2021 - 30 September 2022



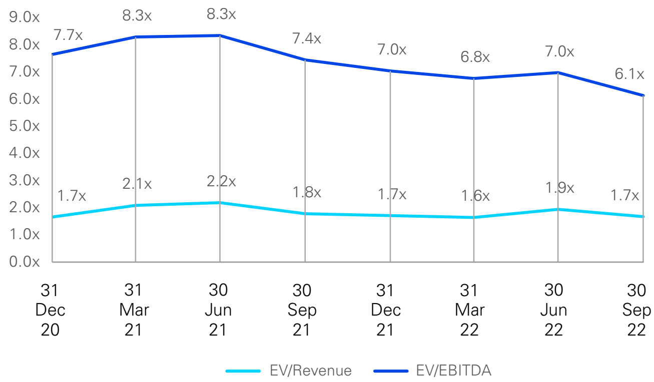
Source: Capital IQ

S&P Eurozone BMI Index sector multiples

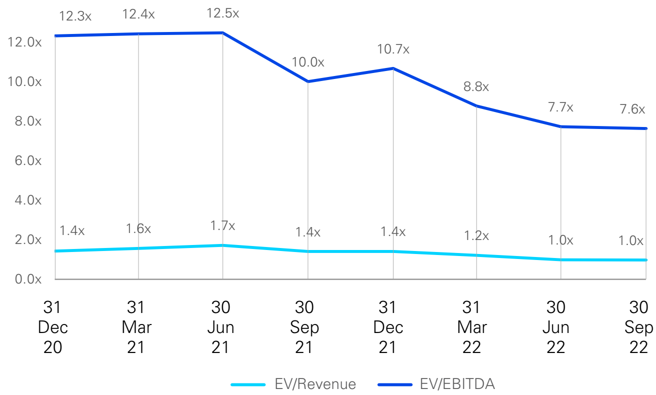
Over the last quarter, we have observed further deteriorations of multiples across most sectors in Europe, Real Estate being the one exception, with a median quarter-on-quarter EV/EBITDA multiple increase of 7%.

Conversely, the largest losses have been observed for energy companies, with a median quarter-on-quarter decrease in EV/EBITDA multiples of -22%, followed by utilities companies, with a median decrease of -17% since the end of June.

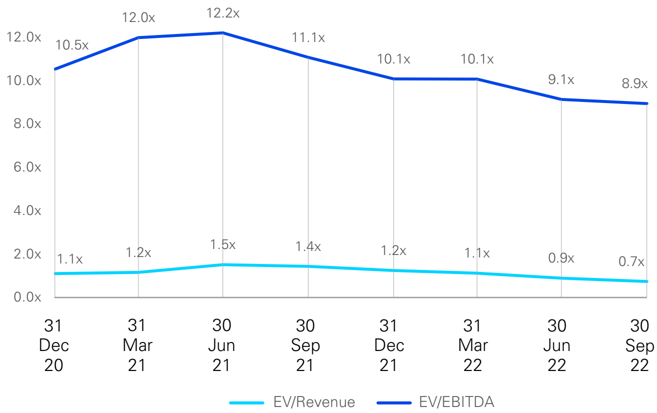
Communication Services



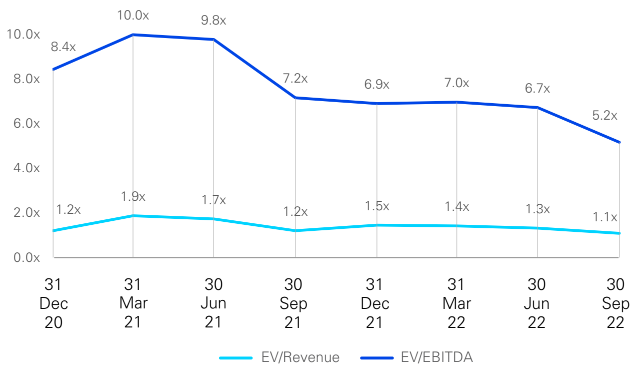
Consumer Discretionary



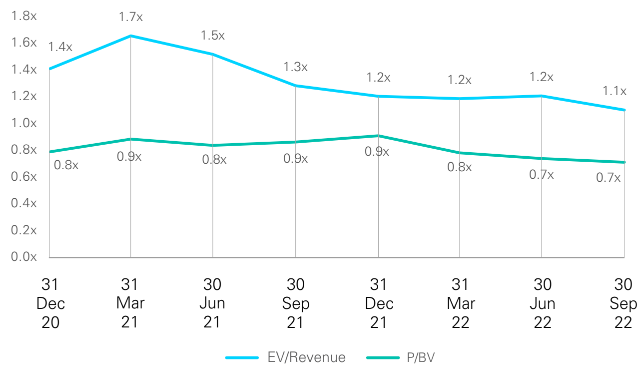
Consumer Staples



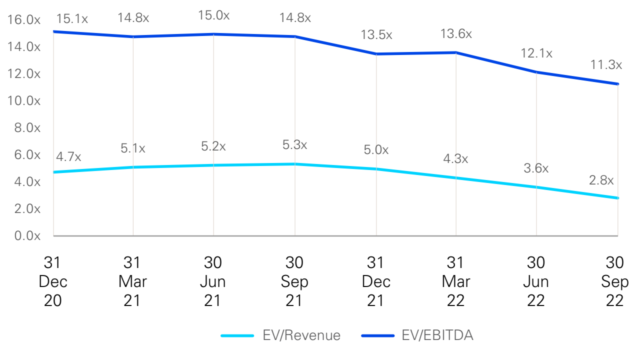
Energy



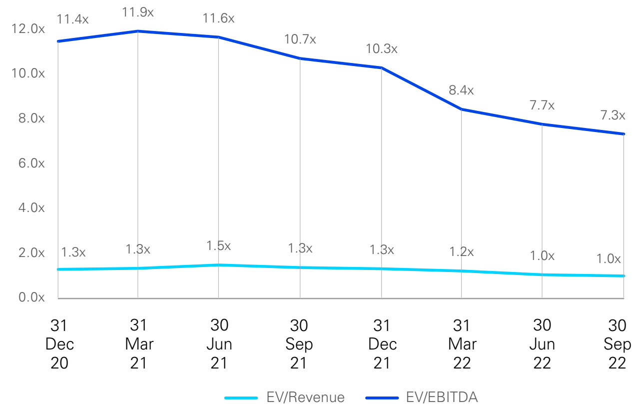
Financials



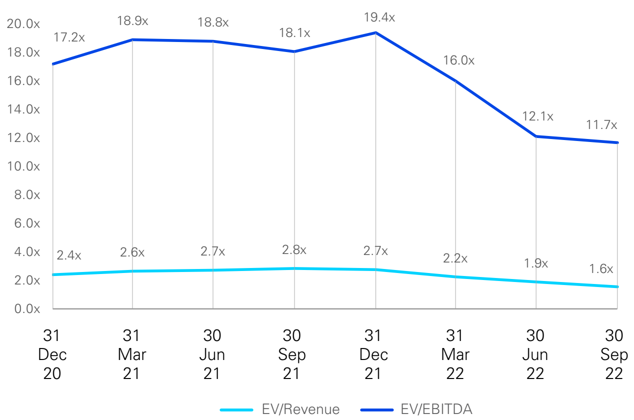
Health Care



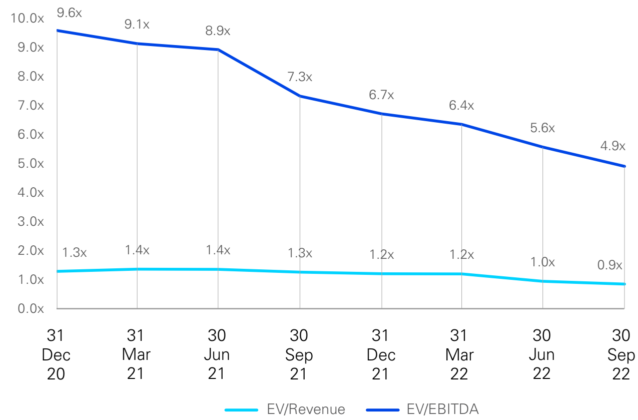
Industrials



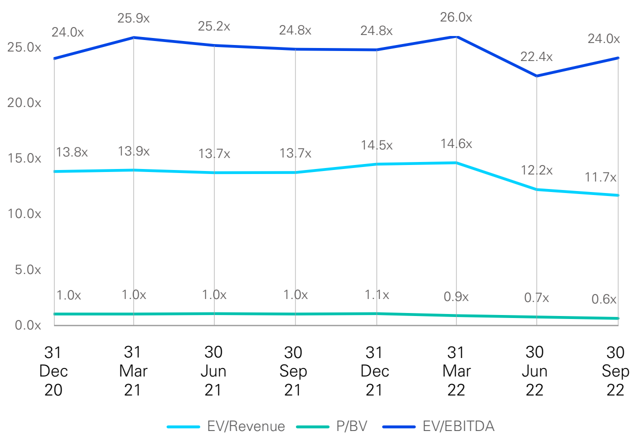
Information Technology



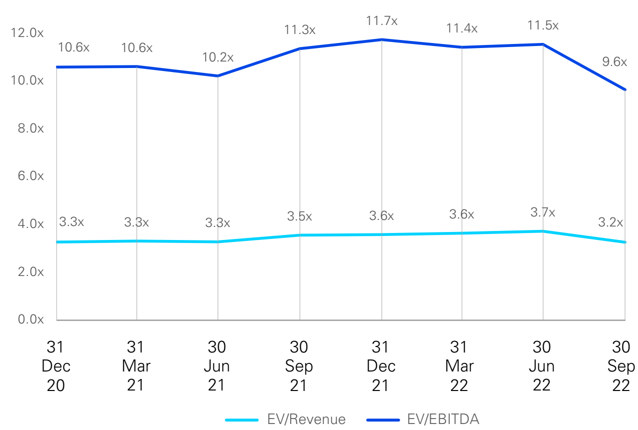
Materials



Real Estate



Utilities



Source: Capital IQ, S&P Eurozone BMI Index

Notes: Multiples are analyzed based on the latest information available as of the assessment date for the respective edition of the Quarterly Brief. Changes of index composition, revised financial information, and newly available information as of the respective assessment date may cause multiples to change. Financial services companies differ from many other companies in how they operate. Debt acts more as "raw material" than operational capital for financial services companies. A common valuation metric used by analysts evaluating such firms is the price-to-book (P/B) ratio.

Risk-free rates: Increase across the board

Amid fast-rising inflation, central banks across the globe have increased their policy rates. The present value-equivalent uniform interest rates derived by KPMG are shown in the table below. Conceptually, they represent a uniform yield curve derived on observable policy rates defined by Central Banks. We can see that, as of 30 September 2022, US interest rates represented the highest rates among major economies, followed by the UK, Europe, Germany and finally, Switzerland.

Risk-free rates

	EUR	EUR	GBP	CHF	USD
30.06.2016	0.46%	0.49%	1.85%	(0.03)%	2.50%
30.09.2016	0.53%	0.47%	1.61%	(0.06)%	2.48%
31.12.2016	0.97%	0.95%	2.03%	0.35%	3.06%
31.03.2017	1.25%	1.24%	1.88%	0.32%	3.27%
30.06.2017	1.39%	1.33%	2.02%	0.39%	3.04%
30.09.2017	1.40%	1.38%	2.05%	0.45%	3.04%
31.12.2017	1.34%	1.34%	1.89%	0.36%	2.89%
31.03.2018	1.25%	1.24%	1.79%	0.56%	3.08%
30.06.2018	1.09%	1.12%	1.83%	0.51%	3.00%
30.09.2018	1.13%	1.15%	1.87%	0.61%	3.10%
31.12.2018	0.90%	0.94%	1.91%	0.37%	3.17%
31.03.2019	0.67%	0.65%	1.65%	0.17%	2.96%
30.06.2019	0.35%	0.33%	1.56%	0.02%	2.71%
30.09.2019	(0.03)%	(0.03)%	0.88%	(0.36)%	2.25%
31.12.2019	0.37%	0.34%	1.25%	(0.16)%	2.46%
31.03.2020	0.06%	0.01%	0.68%	(0.20)%	1.54%
30.06.2020	0.01%	(0.02)%	0.56%	(0.29)%	1.60%
30.09.2020	(0.08)%	(0.11)%	0.72%	(0.32)%	1.61%
31.12.2020	(0.13)%	(0.14)%	0.70%	(0.36)%	1.78%
31.03.2021	0.26%	0.32%	1.29%	(0.01)%	2.55%
30.06.2021	0.29%	0.31%	1.17%	0.05%	2.20%
30.09.2021	0.26%	0.25%	1.29%	0.00%	2.21%
31.12.2021	0.14%	0.12%	0.95%	(0.10)%	2.05%
31.03.2022	0.75%	0.69%	1.63%	0.70%	2.62%
30.06.2022	1.80%	1.64%	2.45%	1.38%	3.38%
30.09.2022	2.27%	2.07%	3.36%	0.92%	4.09%

Source: KPMG analysis
Approach: determination of a present value-equivalent uniform interest rate based on the yield curve of the specific central bank

Country risk premium: No major changes recorded
The Country Risk Premiums (CRPs) for Brazil and India have both increased since the last quarter, by 10 basis points and 30 basis points respectively, while the CRP for China has remained flat at 1.7%.

Country risk premium

	30 Sep 21	31 Dec 21	31 Mar 22	30 Jun 22	30 Sep 22
	2.5%	2.6%	2.7%	2.6%	2.7%
	1.6%	1.6%	n/m	n/m	n/m
	1.9%	1.9%	1.8%	1.7%	2.0%
	0.8%	0.8%	0.8%	0.7%	0.7%

Based on two-year analysis. Source: KPMG CRP study

Growth rates: Inflation expected to stabilize in 2024
Inflation forecasts are one of the typical indicators that can be used to assess the long-term growth rate for the terminal value calculation. The inflation rates for Brazil, Russia, India and China are based on the Economist Intelligence Unit's inflation forecast for the years 2022 to 2026. The expected inflation can be measured through several parameters. For our presentation, we consider the GDP deflator. It is calculated as the difference between nominal and real GDP and measures the change in prices for all the goods and services produced in an economy.

Historical inflation in Brazil, Russia and India has reached (near) double-digit levels in 2021.

Based on the latest available forecasts as of the end of September, inflation is expected to stabilize downward in 2024.

Inflation forecast

	2021	2022	2023	2024	2025	2026
	11.1%	7.0%	5.1%	3.5%	2.3%	2.6%
	16.2%	13.4%	12.5%	4.5%	3.9%	2.8%
	9.9%	5.1%	3.3%	2.5%	2.5%	2.8%
	2.8%	4.3%	2.1%	1.2%	1.5%	1.3%

Source: Economist Intelligence Unit

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