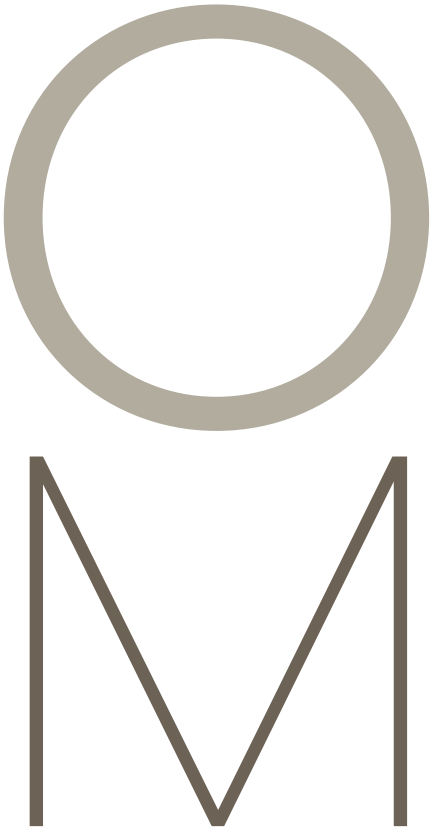


RISK INSIGHTS PRESERVING WEALTH IN A PANDEMIC

AFI
Agile Financial Insights

OXFORD METRICA

ABOUT AGILE FINANCIAL INSIGHTS

Agile Financial Insights (AFI) is a new global financial technology company focused on delivering insightful risk analytics to the private wealth and fund management sector. We help clients understand overall risk and embedded risk more effectively. Our portal delivers insights derived from the industry's broadest and most comprehensive wealth management repositories. This includes a wide range of analytical tools that track multi-risk exposures and customizable benchmarking tools to compare a broad range of risk and performance-related drivers for investment and retirement portfolios.

ABOUT OXFORD METRICA

Oxford Metrica is a strategic advisory firm, offering informed counsel to boards. Our advisory services are anchored on evidence-based research in risk and financial performance.
Our work includes statistical analysis and index construction for banks and insurers, risk and performance analytics for asset managers, due diligence support in mergers and highly customised services for corporate boards.

RISK INSIGHTS PRESERVING WEALTH IN A PANDEMIC

AFI
Agile Financial Insights

OXFORD METRICA

CONTENTS

FOREWORD	3
MULTI DIMENSIONAL RISK	4
A TALE OF TWO QUARTERS	5
RISK TOOLS IN A DOWNTURN	7
RISK ARISES IN MANY FORMS	8
RISK TOOLS FOR ASSET ALLOCATION	10
RISK TOOLS FOR CURRENCY HEDGING	11
REPUTATIONAL RISK	12
VALUES AT RISK	15
APPENDIX	17

FOREWORD

We are delighted to present this white-paper which aims to provide some risk perspectives for investors in an increasingly uncertain world.

Investors are currently facing increasing uncertainty exacerbated by the likely financial and economic consequences of the global pandemic. The global risk landscape has significantly changed during 2020. The need for deeper insights into risk is paramount especially for the preservation of wealth.

More than ever before investors require better analytical tools to interrogate the relevant data on the specific risks to which their wealth is exposed. The increasing volatility of markets is causing the signal to noise ratio to reduce which inevitably obscures the risks to which capital is exposed. An example we use is the increased volatility in currency markets that may hide important changes in the co-movement among equity and currency returns and *vice versa*.

Investors need to ensure that risk is adequately highlighted and unpacked in *ex post* performance reports. There is a tendency for performance reports to be dominated by various types of return analysis and consequently portfolio decisions may underweight risk considerations.

Asset allocation decisions need to be supported by the most effective data analytical tools to adequately identify risk and ensure its mitigation. The risk associated with each asset and segment of the portfolio should be considered and in addition the inter-relationship among all the assets should be measured. Our view is that the analysis should provide a clearer view of risk and avoid the excesses of data paralysis.

In this paper we highlight a number of key risks currently facing investors and demonstrate how the use of risk analysis tools is able to facilitate the more effective management of portfolios to better mitigate these risks. We consider market risk, currency risk, reputation risk and values at risk. The latter being the risk of investing in assets that are incompatible with an investor's moral values.

Agile Financial Insights (AFI) and Oxford Metrica are delighted to partner together to launch this inaugural white paper which aims to provide insights on risk and its containment.

Dr Rory Knight
Chairman
Oxford Metrica

Tim Keaney
Chairman
Agile Financial Insights

Dr Rory Knight is Chairman of Oxford Metrica and chairman of the investment committee at the John Templeton Foundation. He was formerly Dean of Templeton College, Oxford University's business college. Prior to that he was Vizedirektor at the Schweizerische Nationalbank (SNB) the Swiss central bank.

Tim Keaney is co-founder of Agile Financial Insights (AFI). Tim spent 14 years at BNY Mellon, latterly as Vice Chairman and Member of the Executive Committee. He was CEO of the largest division (BNY Mellon Investment Services) consisting of six businesses with 40,000 employees globally, generating $10 billion in revenue and managing $28.5 trillion in assets under custody and administration, representing 25% of the world's investable assets. Prior to this Tim held senior roles at Deutsche Bank, Bankers Trust and Mellon Bank. Tim is a board member and Chairman of the Finance Committee of Unum Group. Other board positions have included Euroclear Bank S.A., (2010 - 2013), and the Association of Financial Markets Executive (2006 - 2010).

MULTI DIMENSIONAL RISK

Return is understandably the prime focus for investors in assessing historic performance, since after the fact risk is largely irrelevant. Reporting the myriad of possible outcomes that did not occur seems tedious when assessing, after the event, the relative historic performance of assets in a portfolio. However, this bias toward return assessment is problematical when basing forward looking investment decisions on past performance. Especially in such uncertain times investors need to give more attention to the multitude of risks to which their assets are exposed. Simply put, historic performance needs to be unpacked more rigorously than reporting returns relative to a benchmark with some rudimentary style analysis. Investors must be conscious of the risk dynamics of all their investments and carefully analyse the relationship between the sources of risk and their contribution to performance. Risk is multi-dimensional and can arise in many forms depending on the underlying characteristics of the investments. Investors need to carefully consider the aggregate risk dynamics of their entire wealth, understanding the dynamic between unique individual multi-asset holdings and their risk exposures in total. In order for this to occur, access to better data is key. Access to high quality risk data from across multiple sources gives investors an improved ability to analyse and interrogate risk trends over time. Furthermore, the data and risk analytics must be presented in a concise and understandable manner, by not over complicating the presentation of results, allowing investors to better grasp the risk dynamics present in their portfolios.

The recent market volatility, brought on by the global pandemic, has significantly increased the focus on risk. Consequently more investors are seeking ways to better understand the level of risk exposure in their investments. Furthermore, Covid-19 has increased awareness of sustainable and responsible investing and investors are now more than ever, concerned as to whether their holdings meet their personal sustainable or social goals, in essence are investor values at risk?

This paper is produced by Oxford Metrica, in partnership with Agile Financial Insights (AFI), who has built an institutional quality risk analysis platform for the wealth sector. AFI's thesis is that by applying a rigorous analytical process to understanding past, current and future risk environments, investors gain improved market and portfolio insights, resulting in more investment confidence and therefore the ability to better preserve wealth.

The paper seeks to provide perspectives on various aspects of risk faced by investors. The study will be relevant to a variety of investors, including but not limited to high net worth individuals, family offices, foundations, endowments and their respective advisors. The four dimensions highlighted are market risk, currency risk, reputational risk and investor values at risk. The paper provides an analysis of the significant volatility experienced across global markets in the first half of 2020, focussing on the sharp drawdown that occurred and the capital at risk during the first two quarters. The paper highlights many areas of risk that could impact international investors, including volatility of returns, capital loss and currency risk. Next, the paper analyses risk at the individual holdings level that can significantly impact investment performance, namely reputational risk. Finally, the study evaluates how international investors have positioned their portfolios towards responsible investing, seeking to understand the underlying investor values that may be at risk and the requirements for investors to allocate more capital to sustainable investment.

A TALE OF TWO QUARTERS

The outbreak of Covid-19 at the start of 2020 and the subsequent global pandemic, caused extreme volatility across the global financial markets, leading to the two most volatile quarters on record. The first section of the paper analyses, from a performance and importantly a risk perspective, the story of the global equity markets during the first half of 2020.

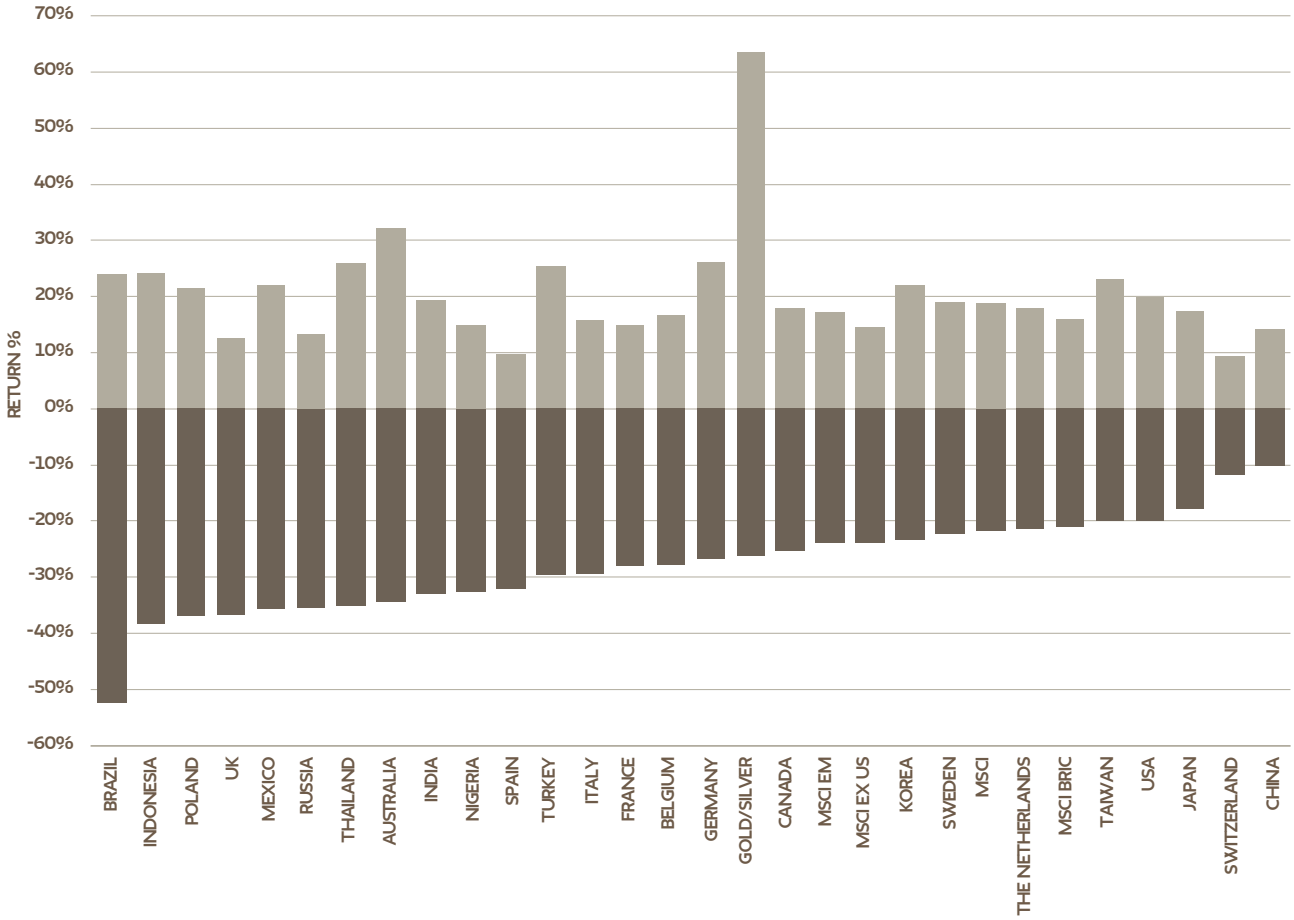


FIGURE 1. Equity market returns Q1 and Q2 2020

Q2 2020 GAIN ($)
Q1 2020 LOSS ($)

Figure 1 highlights the dispersion in returns of international markets between the first and second quarters of 2020. The figure presents the performance of the 25 largest economies in addition to five global indices, in USD. The striking result is the magnitude of dispersion between the quarters, with all Q1 returns negative and all Q2 positive. However, the size of the gain experienced during the second quarter in almost all indices was not enough to recoup the losses endured in Q1.

Figure 2 provides more granularity on the performance for major equity markets in the first half of 2020. From a risk perspective, the figure presents two key results: Magnitude of drawdown and recoupment of losses. The graph highlights the size of losses endured by major markets, with the UK losing over 26% and the United States more than 30%. Secondly, only one market was in positive territory by the end of H1 in dollar terms: China. Although, all markets had rallied during the second quarter, China was the only equity market to reverse the losses endured in the first quarter of the year.

Table 1 highlights the two ends of the spectrum in regard to performance in the first half of 2020. As mentioned above, China was the leading equity market, generating 2.5% in dollar terms. However, all other equity markets were still

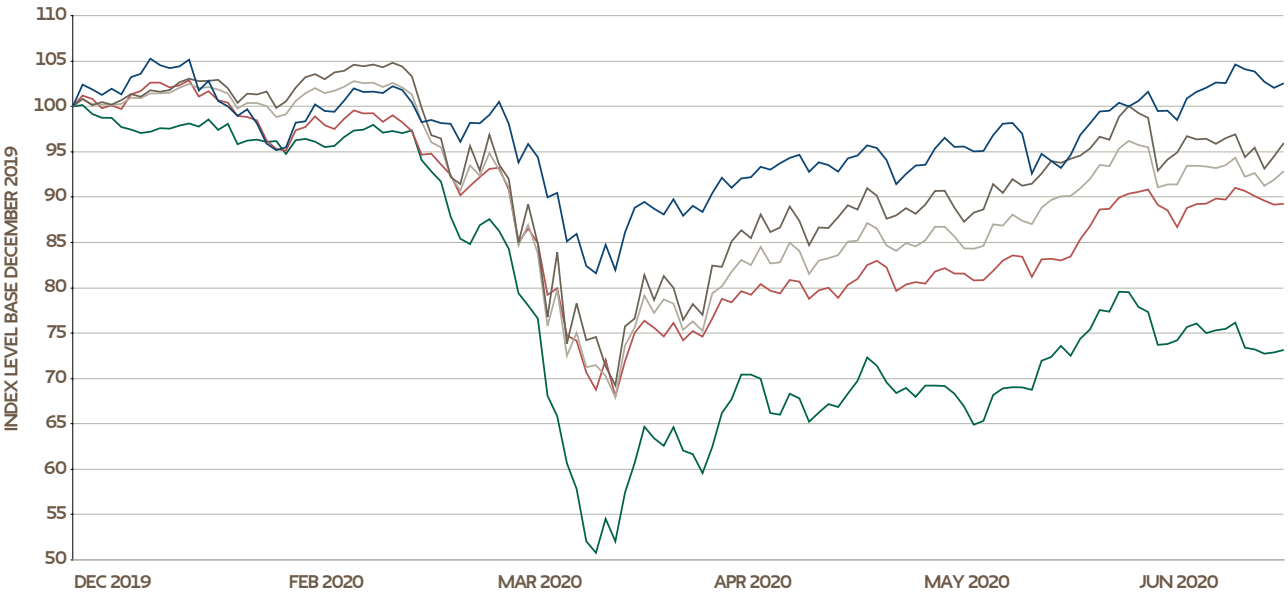


FIGURE 2. Equity market performance H1 2020 ($)

- CHINA
- USA
- MSCI WORLD
- MSCI EM
- UNITED KINGDOM

in negative territory with Brazil losing over 41% during H1. The table further highlights two areas of risk: Capital lost and shortfall *return*. The table presents the dollar lost per $1 million invested during the first quarter. Even for the subsequently best performing markets, the dollar loss ranged from $100,000 to $300,000 per million invested. The capital lost for the poorer performing markets ranged from $320,000- $520,000 per million invested. Secondly, shortfall return is introduced, which is defined as the difference between the required return to recoup the losses from Q1 and the actual return in Q2. The risk measure highlights that although many of the markets generated robust returns in the second quarter, nearly all global markets fell short of recouping their Q1 losses.

TABLE 1. Best and worst performers H1 2020 ($)

BEST PERFORMERS FOR H1

Rank	Country	Return H1 2020 $	Return Q1 2020 $	Return Q2 2020 $	$ Lost Q1/1M	Shortfall Return
1	China	2.5%	-10.2%	14.2%	$(102,388.84)	2.84%
2	Taiwan	-1.5%	-20.0%	23.2%	$(200,399.80)	-1.87%
3	Japan	-3.6%	-17.8%	17.4%	$(178,489.93)	-4.33%
4	Switzerland	-3.6%	-11.9%	9.4%	$(119,114.66)	-4.09%
5	USA	-4.0%	-20.0%	20.0%	$(200,010.52)	-5.05%

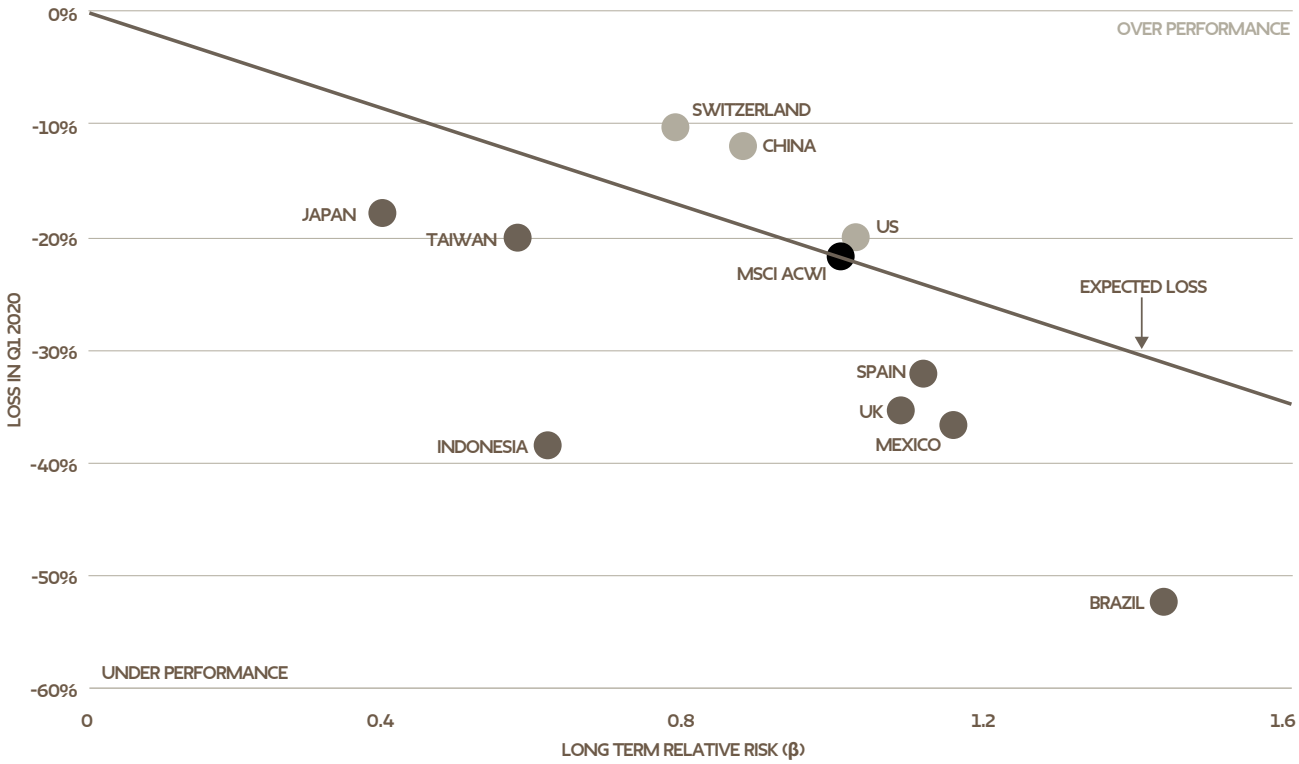
WORST PERFORMERS FOR H1

Rank	Country	Return H1 2020 $	Return Q1 2020 $	Return Q2 2020 USD	$ Lost Q1/1M	Shortfall Return
1	Indonesia	-23.6%	-38.5%	24.2%	$(384,719.33)	-38.30%
2	Spain	-25.5%	-32.1%	9.8%	$(321,106.57)	-37.54%
3	UK	-26.8%	-35.4%	13.2%	$(353,698.54)	-41.54%
4	Mexico	-28.7%	-36.7%	12.6%	$(366,659.20)	-45.30%
5	Brazil	-41.0%	-52.4%	24.0%	$(523,634.13)	-85.97%

RISK TOOLS IN A DOWNTURN

Although all markets suffered a significant loss in the first quarter of 2020 (see appendix), the scale of these relative losses should not have been a complete surprise. Given that the world market proxy, MSCI ACWI, was down around 21% the international investor would have expected a commensurate loss across various markets. Risk analysis tools would have provided a measure of the long-term relative risk of each market in the form of an international beta (β) which is the coefficient measuring the long-term co-movement in the returns of each market against the world index. Figure 3 shows the losses in Q1 2020 for selected markets against their long-term risk. The expected loss line shows the loss that would be anticipated in the event of a 21% fall in world markets. Those above the line were more resilient than expected and those below the line incurred heavier losses than one would have expected. China, Switzerland and the US managed to avoid the full expected loss whereas markets such as Indonesia, Brazil and the UK experienced losses far greater than expected. Being overweight in these markets during Q1 2020 was extremely costly. Understanding the relative risks of assets is an essential ingredient to making asset allocation decisions.

FIGURE 3. Relative risk in a market downturn



Insightful risk analysis can allow investors to understand the relative risk of their portfolio in market downturns, allowing for more informed asset allocation.

Evidence-based decision making is critical.

RISK ARISES IN MANY FORMS

The first section provided an insight into the risk and return dynamics that investors have experienced during the recent market turmoil. This section reveals more deeply the risk dynamics that have occurred in an international investor's portfolio. This section focuses on the capital recovery bias, standard deviation of returns on an absolute and relative basis and currency risk.

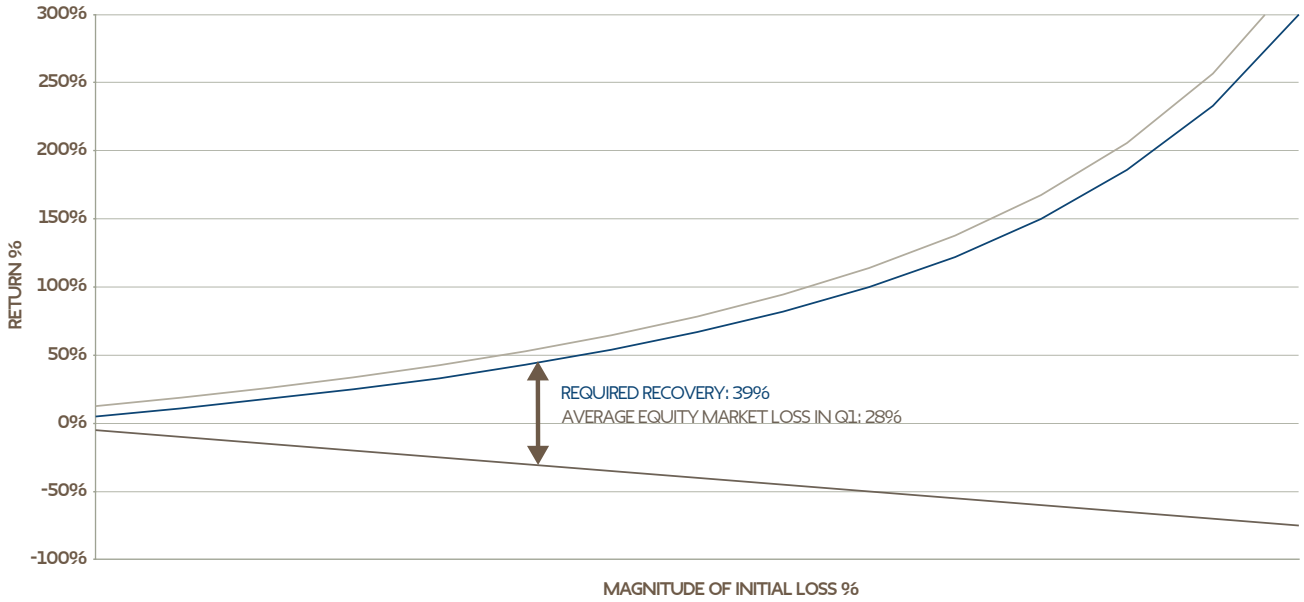


FIGURE 4. Capital recovery bias

REQUIRED RETURN TO ACHIEVE 7%
REQUIRED RETURN TO RECOVER
INITIAL LOSS

Figure 4 depicts the capital recovery bias that arises in a falling market. The figure highlights the return required to breakeven for a given loss and the required return to generate a 7% target return. The key insight is the exponential gap that emerges between the initial loss and the required return. At smaller levels of loss, the gap is not significantly different from the initial loss, for example given a 5% loss a 5.3% return is required to recoup the capital lost. However, as one moves to the tail of the distribution, the gap widens and continues to widen at an exponential rate. In the context of the equity market performance in the first half of 2020, the average loss in Q1 was 28% in USD, therefore requiring a 39% return to fully recover the loss and over a 48% rebound to meet a 7% return requirement. This will require a multi-year strategy to recover.

TABLE 2. Highest volatility markets H1 2020 ($)

Rank	Country	Annualised standard deviation 2020	Largest single day loss	Risk Multiplier
1	Brazil	65.54%	-16.4%	3
2	Canada	47.47%	-13.5%	5
3	Russia	44.39%	-12.0%	3
4	Mexico	43.61%	-9.5%	2
5	UK	42.18%	-11.1%	3
6	USA	42.10%	-12.0%	4
7	Australia	42.09%	-10.8%	4
8	Italy	41.55%	-17.5%	3
9	India	41.26%	-14.0%	3
10	Belgium	40.30%	-14.9%	3

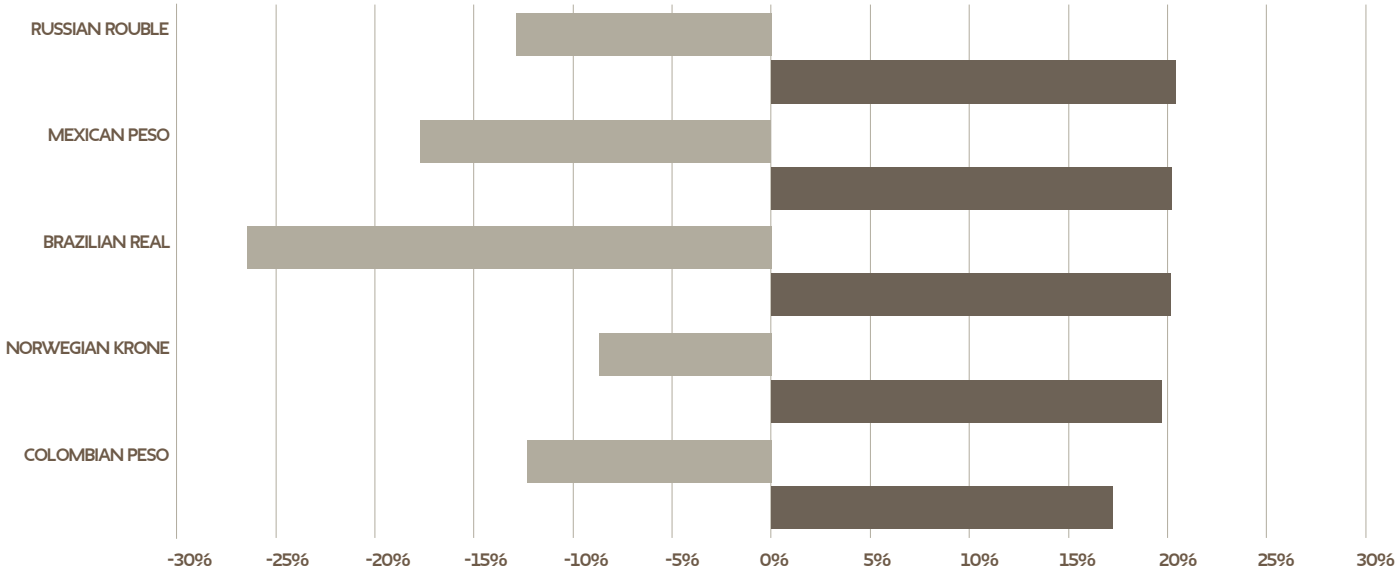
Table 2 presents the more traditional measure of risk in a portfolio: Standard deviation. Standard deviation is a measure of volatility, capturing the amount of variation from the mean in a distribution. The table presents the ten most volatile markets, in USD, for the first half of 2020. The measure captures the magnitude of swings the market endured, Brazil being the most volatile market with a 65.5% standard deviation annualised. However, major developed markets were not immune from the volatility, with the UK and USA ranking 5th and 6th respectively. Furthermore, the table provides an indication of the volatility on a relative basis through the risk multiplier score. The score is a multiple of the 2020 standard deviation (annualised) to 2019 standard deviation. The table indicates that the 2020 volatility is between 3-5x that of 2019. Of course, if one were to compare the risk multiplier across markets, the multiple must be scaled for respective market returns.

TABLE 3. Major currency performance H1 2020

Currency	Return vs $ H1	Standard deviation (annualised) 2020
Sterling	-6.5%	16.43%
Yen	0.64%	14.81%
Euro	0.2%	11.16

The final measure of risk this section highlights is *currency risk*. If an international investor allocates capital to foreign markets and does not have a 100% hedge ratio, currency risk and return will impact the characteristics of their portfolio's performance. Table 3 compares the world's major currencies relative performance to the dollar during H1 2020 and their respective volatilities. Although, Euro and Yen have appreciated against the dollar over the period and Sterling has depreciated, the magnitude of the standard deviation measure indicates that all currencies experienced large swings during the period and the currency risk contribution in the portfolio would have been significant. Figure 5 below provides further insight into the most volatile currencies during the first half of this year. Although, the size of depreciation against the dollar varied among the cohort, it is evident that all experienced significant volatility of over 20% on an annualised basis. The benefits of investing in a great company may be lost if it is in a weak currency area. Unless there is a natural hedging, whereby the company benefits from a weaker home currency, investors may consider hedging the currency risk to some extent.

FIGURE 5. Currency volatility vs $ (H1 2020)



RISK TOOLS FOR ASSET ALLOCATION

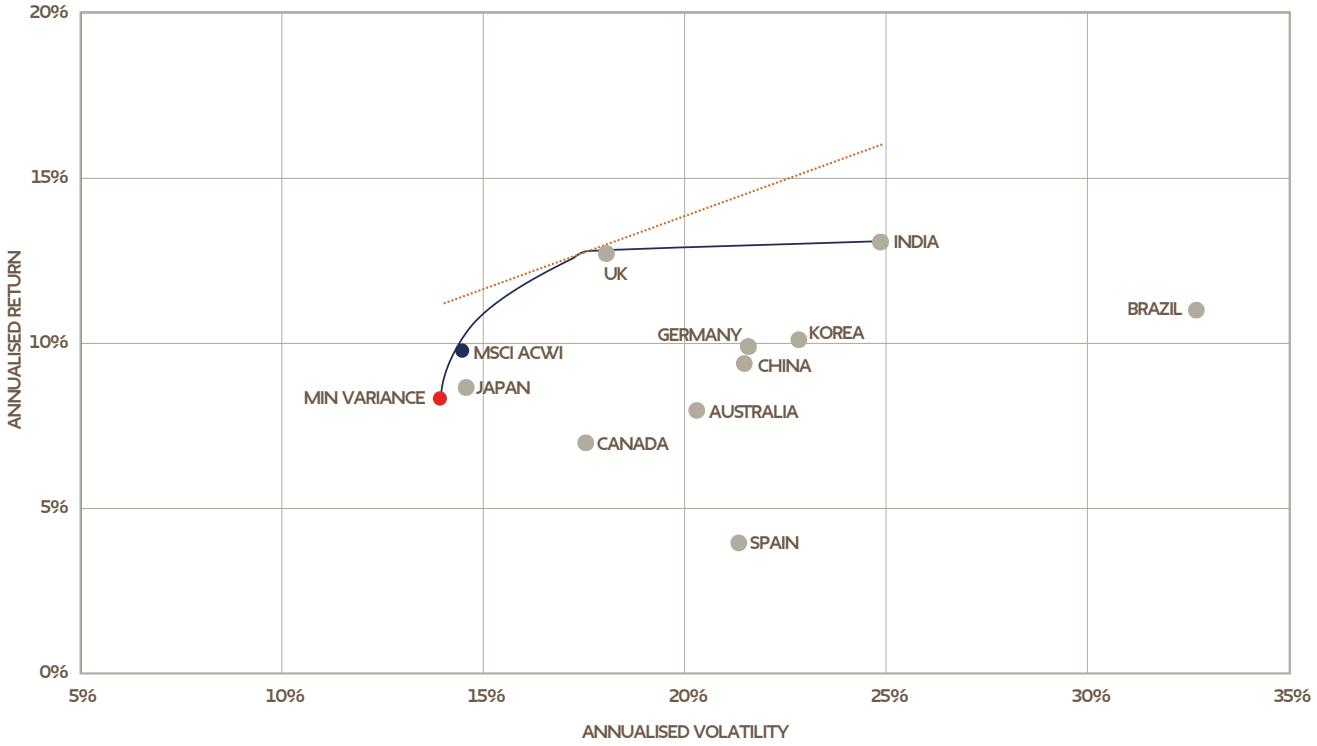
The combination of the figures and tables presented highlight the need for international investors to understand and monitor the underlying risk exposures of their portfolios as this will impact asset allocation, sector selection and currency hedging policies.

Risk analysis tools not only allow the investor a better understanding of risk exposure on an *ex post* basis but they are an essential element in the portfolio construction process.

Figure 6 shows the outcome of an optimisation procedure to establish the optimal combinations of the selected markets to provide the best return for each level of risk for the 11-year period ending December 2019. The familiar efficient frontier illustrates the benefits of understanding how risk may be optimally diversified away by forming portfolios with asset weights to give the best risk return ratio. Portfolios on the frontier clearly dominate all the individual markets in risk return terms. Naturally the optimal weights are sensitive to the return estimates however the minimum variance portfolio (least risk) is invariant to return estimates and as such is a reasonably stable portfolio. A portfolio of 50% US and 50% the minimum variance international portfolio would have been an excellent protection in the recent downturn. The portfolio lost only 5% compared to the MSCI ACWI loss of over 7% for the first half of 2020 and furthermore it achieved this with a lower volatility.

Although these tools are not a crystal ball they do provide considerable power in constructing portfolios with more desirable characteristics which will perform better in most markets on a risk-adjusted basis.

FIGURE 6. International risk and performance



RISK TOOLS FOR CURRENCY HEDGING

As shown in the previous section investing in international markets introduces an additional level of risk in the form of currency volatility. The investor's returns in their home numeraire currency is subject to the variability in the various currency movements against their numeraire.

Risk analysis tools are essential in guiding decisions on currency risk management in international portfolios. Table 4 decomposes the volatility experienced in 5 key markets over the last decade into pure equity and pure currency. The first column reports the volatility of each market in dollar terms and compares these to the volatility in local currency terms. As one would expect the dollar series exhibit a higher volatility than the local currency series due to currency volatility. Perhaps surprisingly however, the increased volatility (residual currency risk) is considerably less than the observed volatility in the currency alone. The proportion of the currency risk which persists is reported in the second last column. In most cases the persistent currency risk is less than 50%. This is due to the fact that currency movements against the dollar are not highly correlated with equity returns. The correlation metric is reported in Table 4 and is an important determinant of the ideal hedge ratio. Clearly currency volatility that is removed naturally through diversification does not require a hedge. Perversely if the currencies in our example were fully hedged the hedged returns would be even more volatile than their unhedged counterparts.

Japan is an interesting example in that unusually the US dollar returns exhibit a volatility lower than that of the yen-based returns. This is because the currency movements are negatively correlated with the equity returns and investing in Japan from a dollar base for this period actually diversified away some of the equity risk. This would never have been revealed without using advanced risk analysis tools.

TABLE 4. Decomposing volatility in equities

	Annualised standard deviation in return ($)	Annualised standard deviation in return (Local currency)	Residual currency risk	Standard deviation of currency vs $	Persistent currency risk in equity market	Correlation of local return vs currency return
Australia	19.72%	13.8%	5.96%	11.28%	52.78%	0.25
Germany	22.53%	19.5%	3.00%	9.36%	32.02%	0.10
Japan	19.67%	20.7%	-1.03%	9.54%	-10.82%	(0.29)
Korea	21.31%	15.5%	5.85%	12.91%	45.33%	0.20
UK	19.62%	15.2%	4.37%	9.29%	47.10%	0.19

Risk analysis is essential in guiding decisions on currency risk management in international portfolios. Less may be more in currency risk management.

REPUTATIONAL RISK

The previous sections highlighted some of the risk exposures that arise at the aggregate portfolio level. This section analyses a risk perspective at the security or individual holdings level of a portfolio*:* Reputation risk. Reputation risk will impact all corporations across the globe and impact the value of securities investors hold in these companies. A corporate crisis can strike at any time and is largely independent of the overall market environment. Such events include, inter alia, leadership misconduct, cyber security breaches and fatal disasters. How a corporation responds in the face of a crisis can indicate the overall financial impact investors may face.

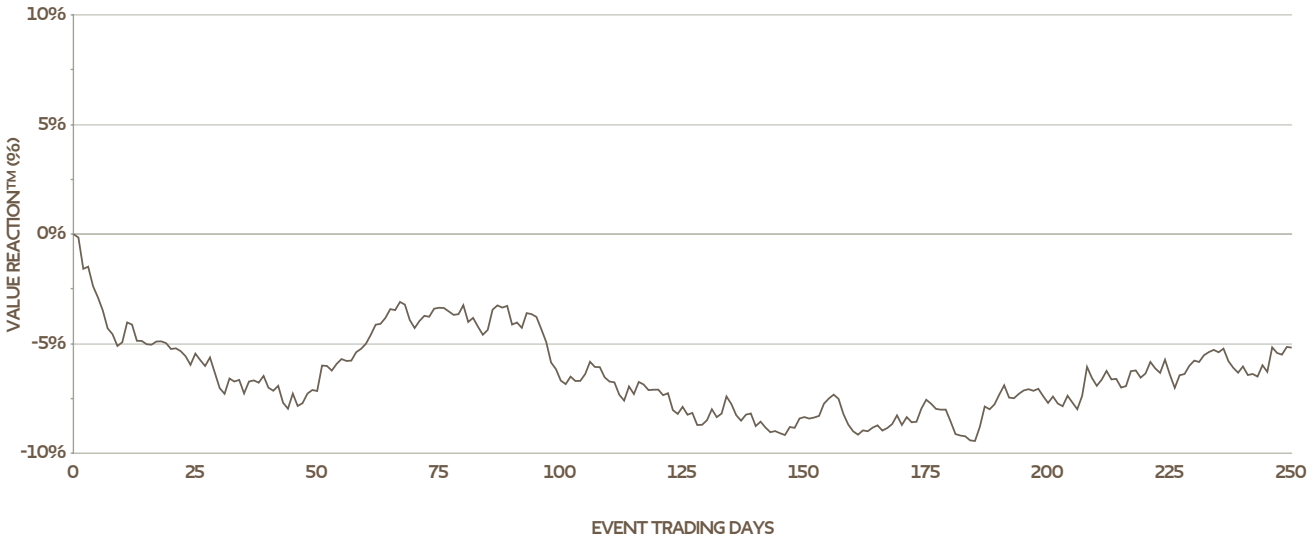


FIGURE 7. Reputation impact of corporate crises

Figure 7 presents the value reaction to the largest corporate crisis since the 2008 financial crisis. The value reaction measured is alpha, representing the risk adjusted return over market movements. The crises analysed were diverse in terms of geographic region and type of crisis, including PR crises, airline disasters, leadership misconduct cases and cyber security breaches. The figure indicates that when a corporation encounters a crisis on average over 5% of value is permanently destroyed, due to the reputational impact of the crisis.

However, analysing the sample further it is evident that not all corporations destroy value for shareholders during a crisis. Figure 8 below, presents the winners and losers from corporate crises. It indicates that a subset of firms is able to emerge from a crisis stronger and generate over 7% of value to the shareholders. This can be achieved primarily through effective communication by management to all stakeholders.

These results have significant implications for investors. Firstly, although an investor may be in the correct sector they may be in the wrong company within that sector, which might be more susceptible to a corporate crisis and at risk of losing shareholder value when a crisis hits. Equally, it highlights the importance of understanding one's portfolio holdings at a security level and being able to monitor whether the companies invested in are well equipped to deal with a crisis, and thus more likely to be in the winner portfolio. The interaction of risk between individual holdings level will determine the aggregate level of risk exposure in a portfolio.

FIGURE 8. Winners vs Losers

WINNERS
LOSERS

Figure 9 presents the value reaction by event type. The figure highlights that certain crises may be more detrimental than others. Crises where there is a loss of life and cyber security breaches can be the most detrimental to shareholder value, losing 13.5% and 9.5% respectively. Thus, investors should be aware of their allocations and exposures to certain reputational risk areas. The policy implication of this result is that investors need to monitor such events and respond to early warning indicators to mitigate reputational risk.

A risk tool that monitors the key reputation drivers of the firms in an investor portfolio is useful to understand the extent to which a portfolio is exposed to the reputation risk of such firms. More importantly, such tools may allow investors to avoid significant losses by being able to read the early warning indicators when firms are thrust into a reputation crisis.

Oxford Metrica's research has found commonalties among those firms which do not recover after a corporate crisis. The framework below can be used as a risk framework for investors to signal that reputation risk has increased in their investments and a reallocation may be prudent, during a crisis event.

The presence of any three of these early indicators suggest that firms will lose value

- Delayed or partial responses from management after the crisis hits.
- Lack of responsibility taken by management.
- Fatalities occurred.
- The incident involved a cybersecurity failure or a data breach.

Understanding reputation risk can assist investors in avoiding significant losses by being able to read the early warning indicators when exposed to a reputation crisis.

FIGURE 9. Crisis types

- AIRLINE DISASTER -9.7%
- CYBERSECURITY BREACH -11.3%
- FATALITIES -13.5%

AGILE FINANCIAL INSIGHTS (AFI)

We believe that applying three core risk focused principles will be a helpful discipline to investment portfolio planning.

1. Embrace better data. Access to high quality risk data from across multiple sources gives investors an improved ability to analyse and interrogate risk trends over time.
2. Understand the Aggregated Portfolio Risk. Understanding risk across the total portfolio leads to more informed decision making and better long-term investment outcomes.
3. Plan for the unexpected. Unforeseen events and unintended consequences of apparently unconnected decisions can have a significant negative impact on investment goals. Integrating scenario analysis and portfolio stress testing into the investment process helps investors model potential outcomes and gauge worst-case portfolio scenarios.

For more insight visit www.agilefinancial.io

VALUES AT RISK

The previous sections addressed the risk in a portfolio at both an aggregate level and an underlying holdings level. The final section, however, addresses the idiosyncratic risk personal to the investor, in essence what are *your* values at risk. There has been an enormous shift and growth in the area of ESG and responsible investing in the recent past, with both institutional and retail investors increasingly allocating capital informed by ESG factors. In addition, the social and health consequences of Covid-19 have brought responsible investing to the forefront of investors' minds. If an investor chooses to allocate capital in a socially responsible way there are a variety of investment decisions that must be undertaken, including how to best allocate the capital and to which sectors allocation should be made or avoided. For investors that have yet to allocate resources or capital to responsible investment it is vital they have access to data to be able to carefully monitor the sustainable characteristics of their own investments.

As an initial step it is helpful to better understand how investment peers have approached responsible investment. Oxford Metrica, in partnership with BNY Mellon, has recently undertaken a study on the practices and perspectives of responsible investing by US foundations. Oxford Metrica conducted a stratified survey of the 250 largest foundations in the United States. Survey respondents' assets ranged from $250m to $3bn. It was found that foundations, tended to address their responsible investment primarily via Mission Related Investing (MRI) or negative screening. MRI invariably means investing with the primary goal being the social return and the financial return of secondary importance. Negative screening is the practice of excluding investments that are socially or morally unacceptable to the investor. The investor is thus making a moral choice in terms of their personal values, departure from these principles places these values at risk.

FIGURE 10. Most frequently screened out sectors

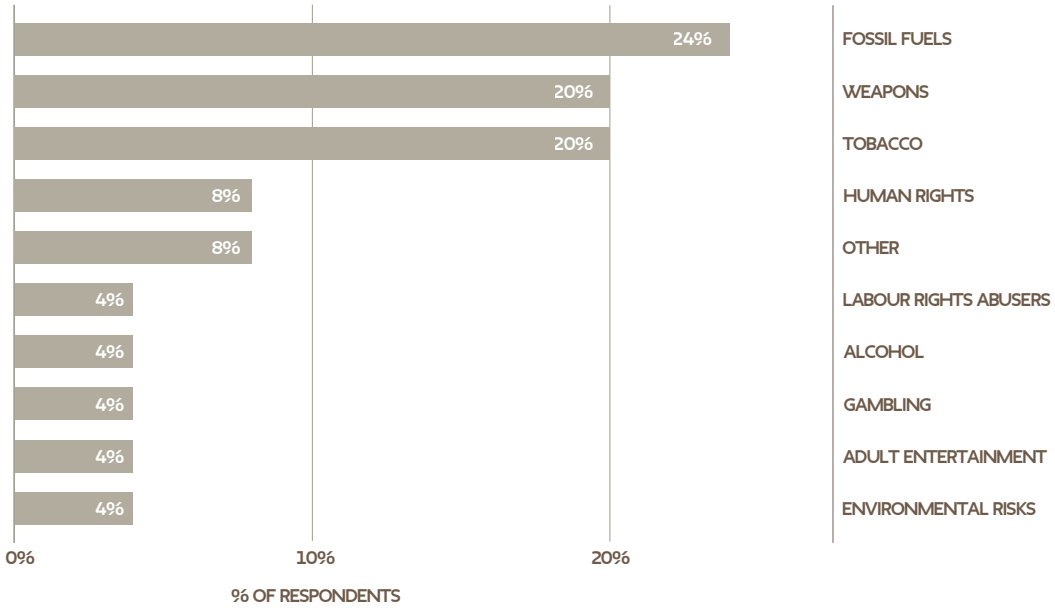
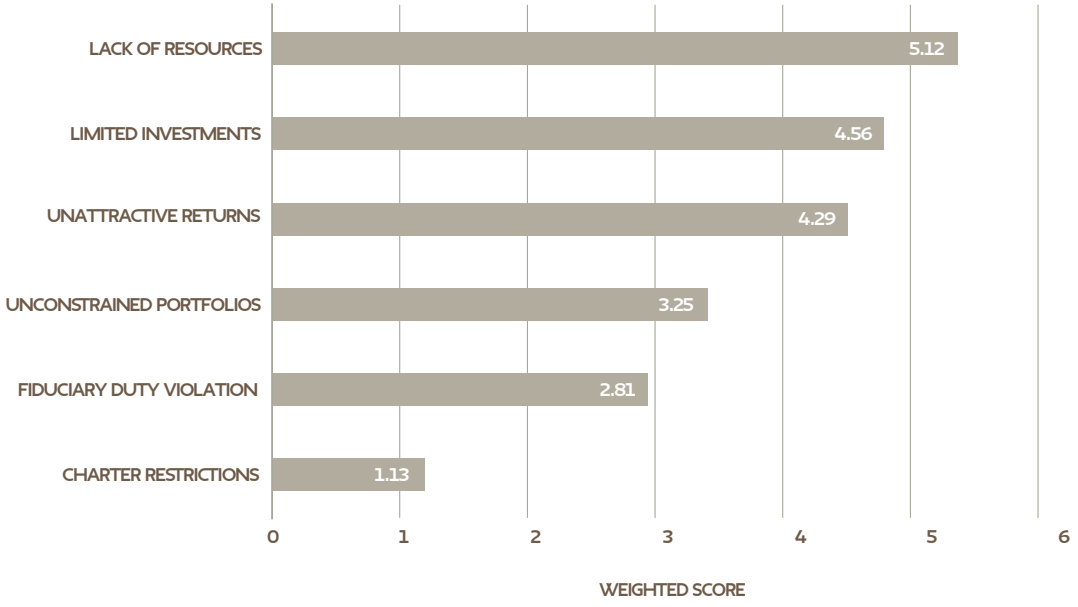


Figure 10 presents the sectors in which negative screens were most applied. The figure indicates that fossil fuels is currently the leading sector excluded followed closely by weapons and tobacco companies. Therefore, it would be extremely helpful to a prospective investor to have reliable data and a platform to monitor which socially unacceptable sectors their investments may be exposed to.

The importance of access to data, knowledge and resources to be able to better analyse how an investor's values are incorporated into the portfolio is reinforced through the survey on US foundations. Figure 11 presents a ranking of the most important challenges that US foundations see as limiting further responsible investment. Respondents were asked to rank the five challenges in importance, and thus a weighted average score could be calculated. The most important challenge to foundations, was lack of resources and knowledge currently present. It highlights, the immediate requirement for better resources and data surrounding sustainable investment practice.

FIGURE 11. Challenges to responsible investing



CLOSING COMMENTS

"Volatility is increasing across all asset classes and the amount of data available is expanding exponentially - leading to the increasing complexity of investment management.

Investors need to cut through the noise and seek a clarity of understanding and deep insights on the key factors that threaten capital preservation."

- Tim Keaney, Co-founder, Agile Financial Insights & a former vice-Chairman of BNY Mellon

APPENDIX

Rank	Country	Return H1 2020 $	Return Q1 2020 $	Return Q2 2020 $	$ Loss Q1/1M	Annualised standard deviation 2020	Risk Multiplier 2020 v 2019	Risk Multiplier per unit return
	Gold/Silver	**20.8%**	**-26.2%**	**63.6%**	**$(261,597.46)**	**57.56%**	**5**	**1.2**
1	China	2.5%	-10.2%	14.2%	$(102,388.84)	24.90%	2	5.1
2	Taiwan	-1.5%	-20.0%	23.2%	$(200,399.80)	25.51%	2	5.2
3	Japan	-3.6%	-17.8%	17.4%	$(178,489.93)	30.75%	2	3.9
4	Switzerland	-3.6%	-11.9%	9.4%	$(119,114.66)	27.50%	3	1.9
5	USA	-4.0%	-20.0%	20.0%	$(200,010.52)	42.10%	4	2.9
6	Korea	-6.5%	-23.4%	22.1%	$(233,688.59)	38.91%	3	17.1
	MSCI ACWI	**-7.1%**	**-21.7%**	**18.7%**	**$(217,424.69)**	**33.73%**	**4**	**1.3**
7	The Netherlands	-7.2%	-21.3%	17.9%	$(213,281.56)	33.92%	3	1.8
8	Germany	-7.5%	-26.7%	26.2%	$(267,109.65)	39.51%	3	2.2
9	Sweden	-7.6%	-22.3%	19.0%	$(223,230.21)	38.73%	2	2.7
	MSCI BRIC	**-8.4%**	**-21.1%**	**16.0%**	**$(210,829.73)**	**28.15%**	**2**	**1.5**
	MSCI EM	**-10.7%**	**-23.9%**	**17.3%**	**$(238,709.56)**	**27.80%**	**3**	**1.3**
10	Turkey	-11.6%	-29.5%	25.5%	$(295,151.87)	32.57%	1	4.8
11	Canada	-11.9%	-25.4%	18.0%	$(253,818.04)	47.47%	5	1.0
	MSCI EX US	**-12.7%**	**-23.9%**	**14.6%**	**$(238,580.65)**	**29.08%**	**3**	**0.8**
12	Australia	-13.3%	-34.4%	32.1%	$(343,514.23)	42.09%	4	1.4
13	Belgium	-15.7%	-27.8%	16.8%	$(278,348.61)	40.30%	3	1.2
14	France	-17.3%	-28.0%	14.9%	$(279,976.70)	38.32%	3	0.9
15	Thailand	-18.1%	-35.0%	26.0%	$(350,305.59)	35.94%	4	1.5
16	Italy	-18.3%	-29.4%	15.7%	$(293,693.54)	41.55%	3	0.9
17	India	-20.0%	-33.1%	19.5%	$(330,796.40)	41.26%	3	2.4
18	Russia	-21.4%	-35.7%	22.1%	$(356,714.77)	44.39%	3	0.5
19	Nigeria	-22.5%	-32.5%	14.9%	$(325,484.23)	31.23%	3	0.8
20	Poland	-23.3%	-36.9%	21.5%	$(368,554.05)	40.29%	2	3.2
21	Indonesia	-23.6%	-38.5%	24.2%	$(384,719.33)	38.66%	3	2.5
22	Spain	-25.5%	-32.1%	9.8%	$(321,106.57)	28.23%	2	1.5
23	UK	-26.8%	-35.4%	13.2%	$(353,698.54)	42.18%	3	0.6
24	Mexico	-28.7%	-36.7%	12.6%	$(366,659.20)	43.61%	2	2.2
25	Brazil	-41.0%	-52.4%	24.0%	$(523,634.13)	65.54%	3	1.0

SOURCE. Refinitiv

NOTES

BANKING

BNY Mellon
Credit Suisse
Deutsche Bank
Invesco
Schroders
Templeton & Phillips
UBS

ENERGY & MINING

BP
De Beers
Exxon Mobil
Gazprom
Gold Fields
Royal Dutch Shell

FOOD

DongA One
General Mills
Nestlé

FOUNDATIONS

John Templeton Foundation
TWCF

HEALTH CARE

Baxter
Bristol-Myers Squibb
Johnson & Johnson
Merck Serono
Natura
Novartis
Novo Nordisk
Solvay

INDUSTRIAL

ABB
Aker Solutions
BAA
BAE Systems
General Electric
INI
Jardine Matheson
Kone

INSURANCE

AIG
Aviva
FM Global
If
ING Group
Munich Re
OIL
RSA
SCOR
Swiss Life
Swiss Re
Zurich Insurance Group

PROFESSIONAL SERVICES

Accenture
Aon
Ashurst
Blue Rubicon
Deloitte
Edelman
EY
Freehills
Hill & Knowlton
Ince & Co
KBC Peel Hunt
Kenyon International
Marsh
Ogilvy PR
OTC Markets Group
Porter Novelli
PriceWaterhouse Coopers

PUBLISHING

Reed Elsevier

RETAIL

Huhtamaki
Tesco

TECHNOLOGY

Cisco Systems
Green ICN
Hitachi
IBM
ICN Telecom
Infosys
Intel
KNTV
Naspers
Oracle
Tencent
Xilinx

TRANSPORT

P&O Ferries

GRAPHIC DESIGN BY STUDIO **FM** MILANO