

# THE EMISSION

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## 3 LESSONS LEARNED ON CLIMATE CHANGE RISKS BY COMPARING POPULAR INDEX FUNDS

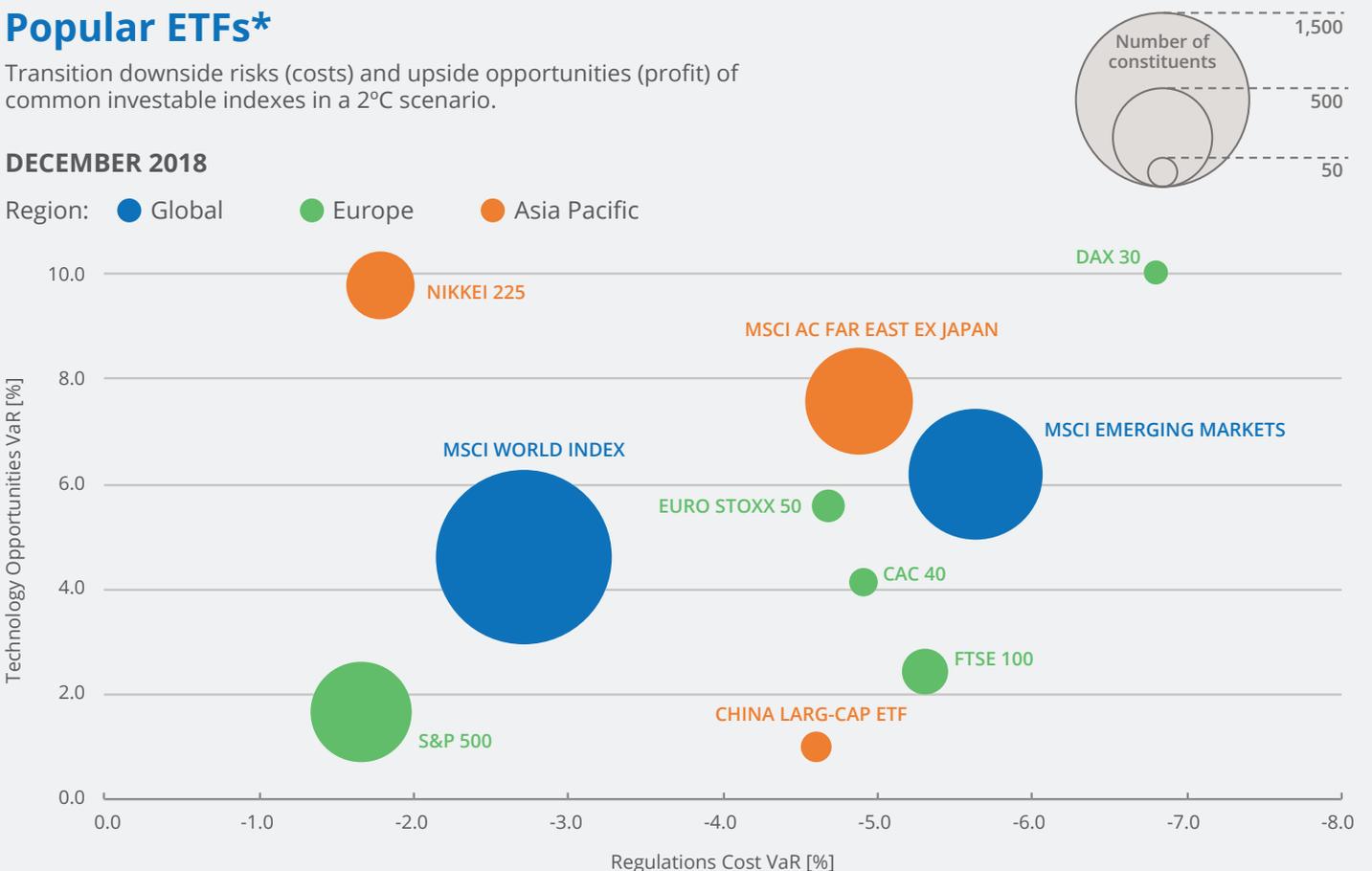
Climate change is set to dramatically impact both financial markets and the wider economy. In this article we have analyzed the most common market indices and ranked them in terms of transition risk exposure, and growth potential. The results show that indices with fewer constituents often have significant transition risk while globally diversified indices present considerable potential whilst maintaining a lower risk exposure. It is also evident that there is no longer a clear distinction for an investor between developed and developing markets when it comes to climate risks and opportunities. Finally, low carbon innovation in Japanese firms appears alive and well.

### Popular ETFs\*

Transition downside risks (costs) and upside opportunities (profit) of common investable indexes in a 2°C scenario.

DECEMBER 2018

Region: ● Global ● Europe ● Asia Pacific



This graph shows the behavior of 10 ETFs\* which track the performance of well-known indexes. The horizontal axis shows the (negative) Value-at-Risk on an index in a 2°C scenario arising from regulation costs, while the vertical axis shows the (positive) Value-at-Risk arising from technological opportunities in that scenario.

An index represents the total return of a group of securities. ETFs are marketable securities that aim to track the performance of a specific index. ETFs are generally thought as highly diversified investments and therefore considered to have a lower exposure to risk. However, our analysis demonstrates that the number of constituents in each index has a significant impact when it comes to the degree of climate change risks, and also on the opportunities from the transition to a low carbon economy.

The graph above also confirms that well diversified, large indexes such as the MSCI World Index and the S&P 500 Index have relatively low policy risk. The former represents a potentially balanced investment vehicle due to a policy risk of approximately -3% while maintaining a relatively high technology opportunity of around 4.5%. On the other hand, MSCI Emerging Markets Index has a different profile; higher low carbon technology opportunity but almost double the policy risk. It can also be clearly seen that smaller indexes are consistently more exposed to policy risk in a 2°C warming scenario. Of course, in some cases they may be able to counteract this risk through a low carbon technology opportunity e.g. the DAX 30 Index which has a policy risk of almost 7% but a technology opportunity of approximately 10%.

It becomes clear then that an investor cannot delineate risk and opportunities in terms of geographies alone; in the Asia Pacific region the difference in technology opportunity is highly significant when comparing the China Large Caps Index against the Nikkei 225 Index, and even against the MSCI Far East Ex Japan Index. The same is also true when we turn our attention to Western Europe with the CAC 40 Index, the FTSE 100 Index, and the DAX 30 Index.

However, it does appear that Japanese firms are well positioned to benefit from the transition to the low carbon economy – the Nikkei 225 has a low carbon technology opportunity of 9.8%; just shy of the DAX 30, and with far less policy risk.

So what are the **three key takeaways** for an investor from looking at indexes with a climate risk and opportunity lens?

1. Concentrated portfolios often have higher risk profiles even when they pertain to geographies where there is a perception that assets and companies will not be affected by climate change risk; such as Germany.

2. Discussions about risk between developed and developing economy have become more complex and more opaque; investors need to deploy more comprehensive and detailed due diligence to better understand risks as traditionally risky and volatile global regions now exhibit both great opportunities and significant risk once climate change is taken into account
3. The Japanese industry has always been well regarded for their innovative capacity and their agile work processes. This is also appearing in our analysis and Japanese companies appear well positioned to take advantage of the transition to a low carbon economy – they have significant and high value low carbon patent portfolios

As the world population increases to around 10 billion by 2040 the pressure on available food, water, and energy will increase. This will in turn affect emission growth levels and challenge our need to reduce emissions in the future. For this reason, it is important to redirect nearly USD 400 trillion worth of stocks and bonds investments into low carbon technology opportunities to help channel investments into a green economy. From the chart above it becomes apparent that **climate risks assessments are complex, but material in size**. This article highlights how Carbon Delta's Climate Value-at-Risk is a tool for investors to help with important investment decisions.

Please note that the analysis is based on policy risk and technology opportunity components. Physical risk represents a major component of such risk models and is not considered here. This topic will be examined and discussed in more detail in future editions of The Emission.

## Sources

\*Representation of ETFs through iShares by BlackRock. Included are the following ETFs: iShares MSCI World UCITS, Core S&P 500 UCITS, China Large Cap UCITS, EURO STOXX 50 UCITS, FTSE 100 UCITS, MSCI AC Far East ex-Japan UCITS, Core MSCI EM IMI UCITS, Core DAX® UCITS. CAC 40 is obtained through Euronext.

## References

[1] IPCC, 2018: Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [V. Masson-Delmotte, P. Zhai, H. O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J. B. R. Matthews, Y. Chen, X. Zhou, M. I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, T. Waterfield (eds.)]. In Press. Reference 1



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Phanos oversees developing and implementing methods to approximate supply chain information, using multi-regional input-output analysis. Part of his research includes water accounting, developing risk metrics for a coal-exit scenario and large scale scope 3 carbon footprints. He is passionate about using macro-economic data to increase the transparency of global supply chains and quantify their environmental impacts. Phanos studied at EPFL in Lausanne, Technical University of Denmark and ETH Zurich and holds a MSc in Environmental Engineering from ETH Zurich.

Questions? Ideas? Talk directly to Phanos

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