European Risk Management Council

Risk Landscape Review

June 2022

- **Credit risk analytics: Shaping the future of the credit business**

- **Measuring the physical risks of climate change: overcoming the complexities**

- **Q2 2022 Risk Sentiment Index: There is no end of the "roller-coaster" journey…**

DEAR READER,

I am delighted to present Q2 2022 edition of the Risk Landscape Review. This issue includes three articles covering three different areas of risk.

Recently EXL published a very insightful report dedicated to credit risk analytics. In this issue, we include a summary of the report "**Credit risk analytics: Shaping the future of the credit business**" written by Daniel Rolles, Director, Data & Analytics at EXL and Manish Dureja, VP and Subject Matter Expert - Credit Risk Analytics at EXL. I am proud that European Risk Management Council collaborated with EXL and shared our insights with the authors in the process of preparing this report.

Q2 2022 Sustainability Think Tank's meeting organised by the Council was dedicated to physical risk of climate change. To follow up this important conversation, we include an article "**Measuring the physical risks of climate change: overcoming the complexities**" written by Lindsey Hall, Head of ESG Thought Leadership at S&P Global Sustainable1. The article provides a case study of the physical risk assessment for the technology sector and advocates a data-driven bottom-up analysis that financial institutions should implement to accurately measure the financial impacts of physical risks.

We also continue the publication of the **Risk Sentiment Index (RSI)**, an expert driven forward-looking index that reflects expectations of experts about the risk landscape of the financial sector in the next 12 months. The results of surveys that we recently conducted in the UK and APAC suggest that Chief Risk Officers and other risk decision-makers expect another bumpy ride for the financial services in the next 12 months.

My huge thanks to all contributors and survey respondents.
Enjoy the reading.

Yours sincerely,

Dr Evgueni Ivantsov

Chairman of European Risk Management Council

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Credit risk analytics: Shaping the future of the credit business

By Daniel Rolles, Director, Data & Analytics at EXL, and Manish Dureja, VP and Subject Matter Expert - Credit Risk Analytics at EXL

In the last 20-25 years, credit risk analytics (CRA) used by banks and other financial institutions has greatly improved, evolving from basic credit risk estimates to state-of-the-art analytics driven by stochastic modelling, machine learning and artificial intelligence (AI).

Additionally, CRA has been integrated into the modern risk management framework. In fact, for the majority of today's credit institutions, CRA is the central element of the risk management framework and a driver of strategic risk decision-making and business efficiency.

The accelerated development of CRA has been driven by several global trends:

• **Digital transformation**: The digital transformation of financial services.

• **Data and analytics revolution**: The revolution in data and analytics techniques which has improved on traditional analytics methods through the use of stochastic modelling, machine learning, AI and other advanced techniques.

• **Drive for RoE (Return on Equity)**: Credit Risk teams are being asks to activity manage the portfolios to drive RoE. This drive is pushing teams to look for risk weighted opportunities in the portfolio – all whilst in a low or rising interest rate environment.

• **Dynamic market**: Changes in credit market structures and industry competition caused by financial innovation and disruptive new entrants (FinTech).

• **Changing regulatory environment**: Increased regulatory scrutiny in terms of conduct towards customer, customer vulnerabilities as well as equal opportunity of credit.

In the recently published credit risk analytics report[1] , we discuss in detail how we have developed a comprehensive methodology to measure the CRA capabilities of banks and other credit institutions which allows for benchmarking of CRA maturity versus peers. By performing CRA assessments on

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[1] Read the report to find out more about the findings of our industry study, learn about the developments and trends in credit risk analytics and understand the three tiers of our CRA assessment we can provide for credit institutions. We would like to thank the European Risk Management Council for their contribution and insights.

numerous credit institutions across the globe, we have created a unique dataset of information on their CRA competencies. The credit risk analytics report addresses the following questions:

• Credit risk analytics: what are the developments and trends?

• How mature is credit risk analytics across the industry?

• How to assess and benchmark the maturity of credit risk analytics capabilities.

Our industry study reveals that the level of CRA maturity varies significantly among credit institutions. Using our unique repository, we have identified emerging trends in CRA, observed a number of industry best practices and provided a reliable and detailed peer comparison and a gap analysis of CRA capabilities. We have also uncovered key characteristics that make some institutions industry leaders and others "laggards".

The growing importance of CRA for decision-making in risk management, product development, and business strategy means that the board and executive committee should regularly review the effectiveness of their organisation's CRA to ensure that it is as good as, and ideally better than, their competitors'. The Senior Management should therefore obtain a holistic, independent and fact-based assessment of their firm's CRA. This is where EXL can help your organisation. Using our holistic CRA assessment framework and in-depth qualitative studies tailored specifically to each firm, our highly qualified analytics team can provide a thorough diagnostic of a firm's CRA capabilities and a credible assessment of its CRA maturity level. This assessment supplies the vital information that boards, executive committees and CROs need to carry out their CRA review process and stay ahead of the competition.

# Measuring the physical risks of climate change: overcoming the complexities

By Lindsey Hall, Head of ESG Thought Leadership, S&P Global Sustainable1

Extreme weather events from flooding and heatwaves across Europe to hurricanes and wildfires in the U.S. are bringing home the reality of climate change. The number of weather-related disasters has risen five-fold from the 1970s to the 2010s, with economic losses related to those events reaching $1.38 trillion in the 2010-2019 decade, the World Meteorological Organization said in August 2021. Without a combined effort from corporations, the financial sector, policymakers and regulators, the economic impact from the physical effects of climate change could be massive.

Results from the 2021 S&P Global Corporate Sustainability Assessment, or CSA, show that more companies are building strategies to prepare for climate change. The CSA is a research framework that captures data from thousands of companies annually on relevant ESG topics. The latest assessment shows that companies are measuring and disclosing their risks and using scenario analysis to test how their approaches hold up under different climate change scenarios. Nearly one-quarter of companies assessed now give climate change the weighty label of "material issue."

Rising number of companies see climate change as material risk
Percentage of surveyed companies identifying climate change as one their "top 3 material issues" or as an "emerging risk" by year
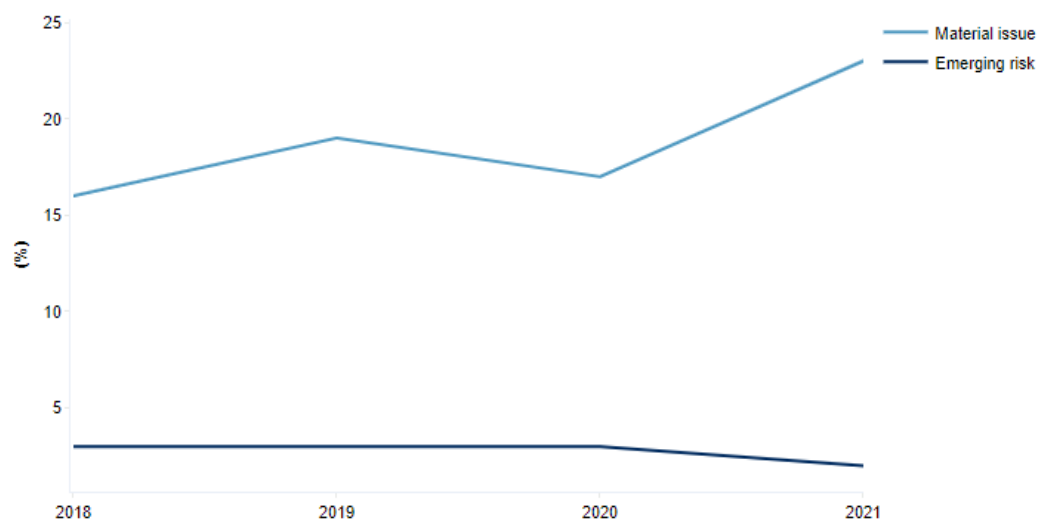
Data as of November 2021. Based on 2,130 to 3,967 companies surveyed each year from 2018 to 2021.
Source: Corporate Sustainability Assessment 2021, S&P Global Sustainable1.

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Companies have good reason to prepare. Almost [60% of the companies](#) in the S&P 500 have at least one asset at high risk of physical impact from climate change, according to S&P Global Sustainable1 data.

Shareholders and portfolio managers are also increasingly assessing their holdings for climate change risk. And a growing number of regulators across jurisdictions are outright requiring climate risk disclosure at financial institutions or stress testing their economies' climate resiliency.

Still, investors and financial institutions face the persistent challenge of how to measure these physical risks from climate change, which include rising sea levels or an increase in extreme weather events like hurricanes, flooding and wildfires. Potential physical impacts can be modelled at a high level based on geographic region, sector or industry, which can provide a broad sense of the financial impacts for companies. But taking a more accurate measurement of physical risk is complex. While climate change is occurring worldwide, climate damage is local — and to measure that, asset-level data is needed.

The technology sector: a case study

Not all business sectors will be affected in the same way. The technology sector, for example, will be particularly sensitive to changes in climate and physical risks because its data centres, critical to business operations, face an increasing chance of river and coastal flooding, as well as temperature extremes, data from The Climate Service, an S&P Global company, shows.

An analysis of 1,000 assets belonging to 11 large global technology companies shows that they face substantial potential financial losses on assets such as data centres, offices, manufacturing plants and retail stores if global temperatures rise by 1.7 degrees C to 3.2 degrees C by 2090, which would be a low-emissions scenario. The Paris climate accord aims to limit global warming to "well below" 2 degrees C and "preferably" to 1.5 degrees C relative to preindustrial temperatures before the beginning of the next century. The projected losses include operating costs, capital expenditures, and business interruption expenses.

Companies within sectors with similar assets can face vastly different physical risk profiles depending on their location. In the technology sector, financial impacts from physical risks are projected to rise in some regions but recede elsewhere.

For example, in addition to the changing frequency and intensity of storms, climate change is altering the paths of tropical cyclones. In a high-emissions scenario, reflecting global warming of 3.2 degrees C to 5.4 degrees C by 2100, eastern China is likely to see an increase in financial risk because of damage from tropical cyclones, but the northern Philippines and southern Japan would see a decrease, S&P Global Sustainable1 data demonstrates.

According to the S&P Global Sustainable1 analysis, data centres, critical to the business continuity of technology companies, face annual losses of up to 2.5% of asset value by the 2040s in a high-emissions scenario. Some data centres in the U.S. face significantly more risk than others by the end of the century under a high-emissions scenario.

Even under the low-emissions scenario, financial impacts related to a rise in local temperatures, including increased cooling costs and decreased employee productivity, are expected throughout

Europe. Financial risks under both low- and high-emissions scenarios are widespread by mid-century, and losses become increasingly greater under the higher emissions scenario throughout the century, S&P Global Sustainable1 analysis shows.

The risk for financial institutions

For financial institutions, measuring the physical risks of climate change requires quantifying climate-related losses for specific companies. By quantifying the risk, a bank, for example, can use that data to better calculate probability of default. One of the concerns of financial regulators is that banks may be more exposed to climate change because they lend to virtually the whole economy, across all types of businesses and households. For insurers and asset managers, holdings that are on solid ground today could no longer be investment grade in the future.

In a separate analysis of the mortgage portfolio of a multinational bank, borrowers would face $22 billion in annual losses because of physical hazards in the 2030s under a high-emissions scenario. The projected losses would include clean-up and repair costs as well as other operating expenses. In the 2050s, these losses rise to $50 billion annually. Under a lower emissions scenario, these losses remain substantial: $18 billion in the 2030s and $38 billion in the 2050s.

Data-driven, science-based insights like these can help inform the bank's approach to managing climate-related financial risk.

For businesses and investors to accurately measure the financial impacts of physical risks, high-quality asset data will provide the foundation for a bottom-up analysis. This starts at the asset level and aggregates to the company and portfolio level, across multiple greenhouse gas emission scenarios and time horizons.

Acquiring a detailed knowledge of physical risks is vital as stakeholders across the value chain work to mitigate their climate risk and create credible adaptation plans. Investors face the challenge of drilling down into data on specific companies to discover where the physical risks in their investments lie. Corporations must decipher where the risks lie in their business to avoid costly interruptions to their business and damage from extreme weather. Households have to be aware of whether a home they wish to acquire lies on a future flood plain or could be subject to wildfires. How these risks are quantified over the coming months and years will be key to preparing for and mitigating the financial costs related to climate change.

Risk Sentiment Index: Q2 2022 Update
There is no end of the "roller-coaster" journey…

The European Risk Management Council has updated its UK Risk Sentiment Index and APAC Risk Sentiment Index (RSI). Fresh data was collected for Q2 2022. Chief Risk Officers and other senior risk executives from banks provided their views on the future trends of seven types of risk (credit, market, liquidity, operational, cyber & IT, conduct and regulatory risks). Using the survey results, the Council aggregated the data into a forward-looking index that reflects expectations about a change of the risk landscape of UK and APAC financial services sector in the next 12 months. Numerically, the RSI reflects the adjusted percentage of respondents who consider that risk will increase in the next 12 months.

UK Risk Sentiment Index

The aggregated RSI for seven risk types increased from **0.39 in Q1 2022 to 0.55 in Q2 2022** which reflects a substantial growth of pessimistic expectations among UK respondents (Figure 1). This is the third highest level we have registered since the launch of the RSI more than 3 years ago. The quarter-to-quarter increase of 0.16 points is the largest jump of the index since its launch in October 2018. This extraordinary increase from Q1 to Q2 2022 is explained by a major risk event – Russia's invasion of Ukraine which greatly amplified financial and non-financial risks. Q2 2022 results are striking different from results of our Q1 2022 survey which was conducted in February, days before Putin started his war against Ukraine.

-        The change of the mood from fairy optimistic to pessimistic is demonstrated by a shift in the vote distribution among main categories (Figure 2). A percentage of respondents who expected that risk will significantly increase in the next 12 months was almost doubled (18% in Q1 2022 vs 35% in Q2 2022). At the same time, less than a quarter of respondents now expect a decrease or no change in risk (in Q1 2022, there was 39%). It is a clear indication that respondents expect very volatile times for UK financial services in next 12 months.

-        Among individual risk types, RSIs for five out of seven types of risk deteriorated this quarter which is another indication how massively the mood has changed in Q2 2022. Financial risks are under larger pressure RSI for credit risk, market risk and liquidity risk had the quarter-by-quarter largest deterioration (Figure 3).

-        Credit risk and market risks are now the prime concern for UK respondents (Figure 4). RSI for credit risk reached 0.95 points, which is not only the highest level since the launch of the index, but also almost the theoretical maximum of the index (RSI of 1 means that all respondents believe that the risk will significantly increase in the next 12 months). Despite some improvement from the previous quarter, RSIs for cyber and IT risk also remained on the very high level.
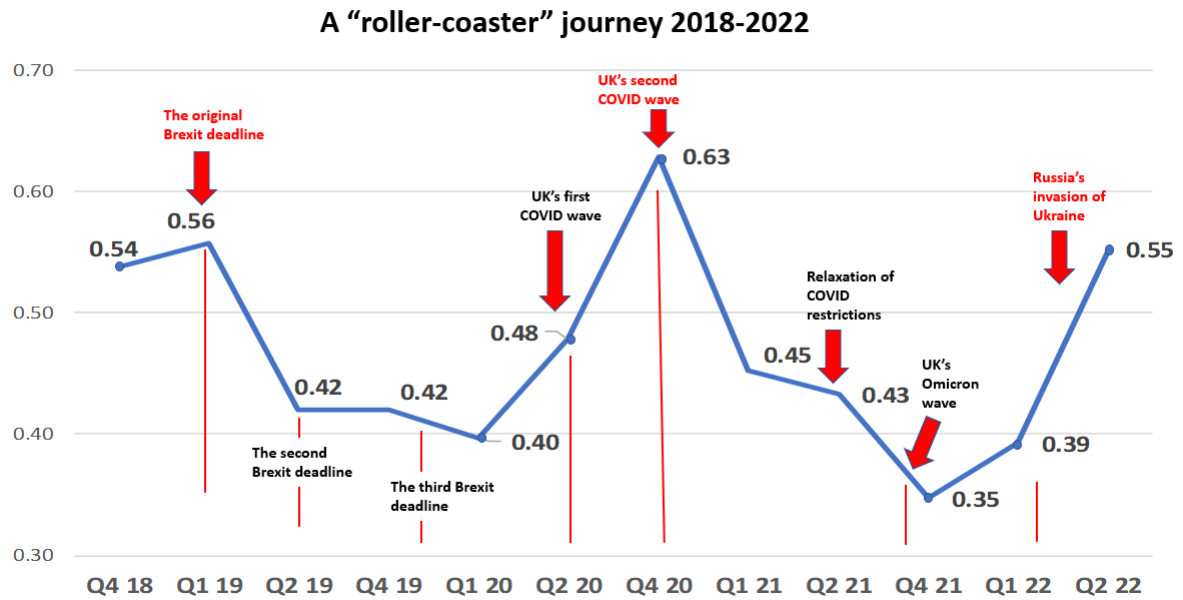
Figure 1. UK RSI trend: Q4 2018 – Q2 2022

A "roller-coaster" journey 2018-2022

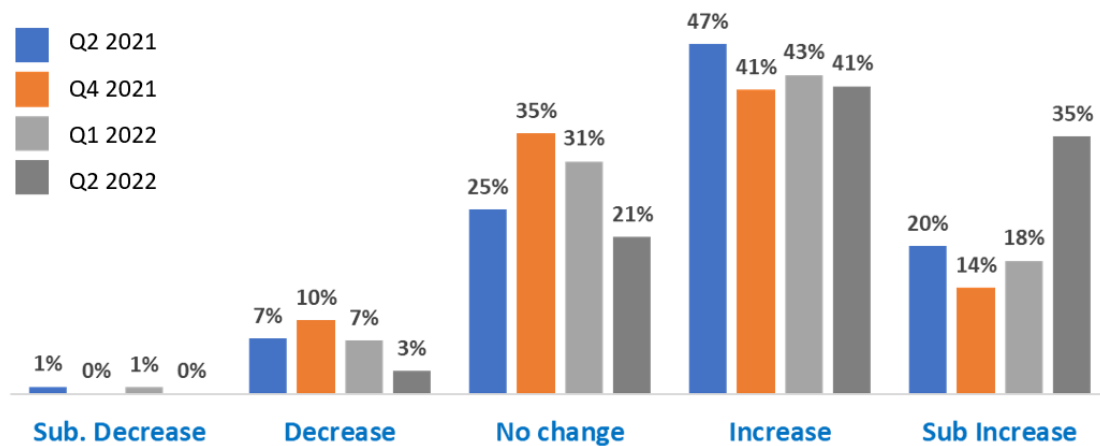*Figure 2. Distribution of respondents' votes*

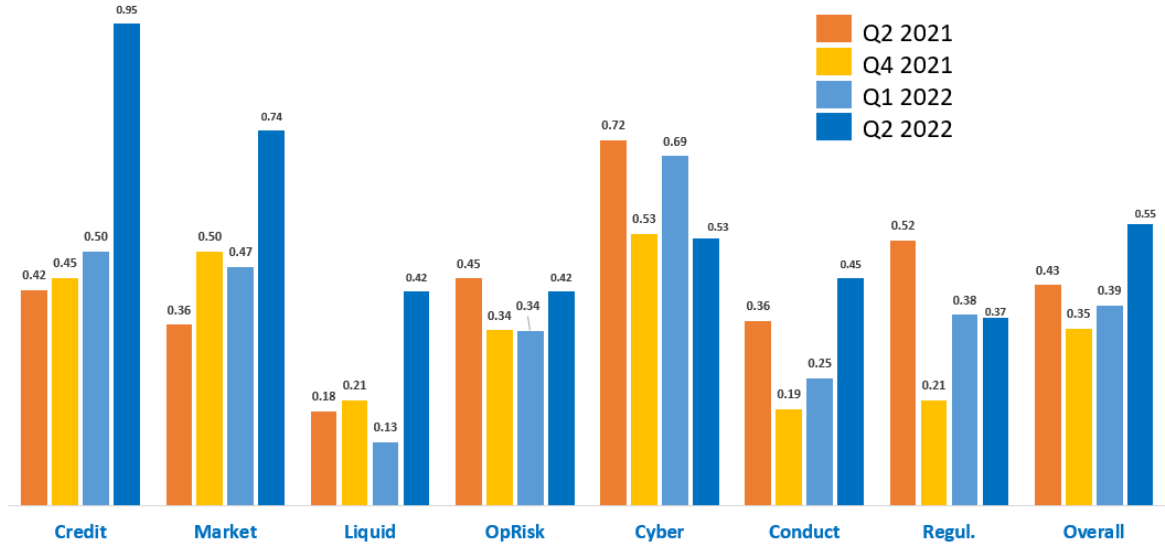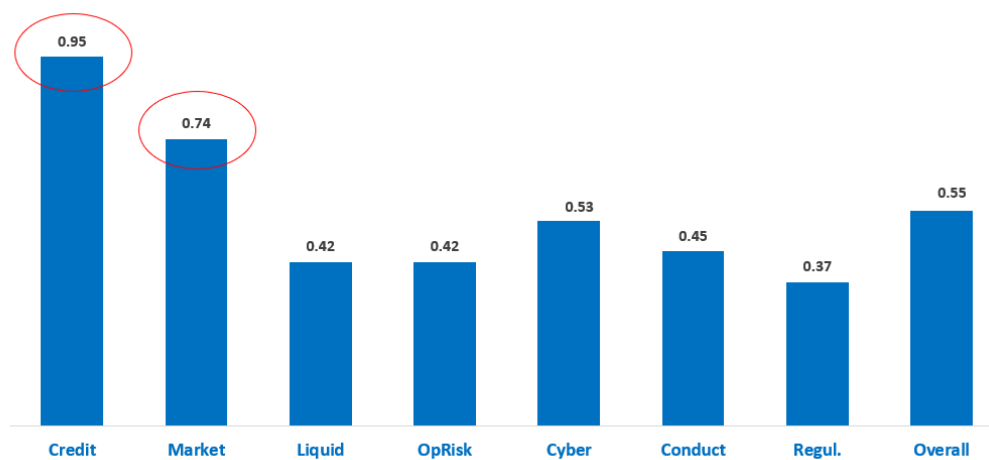*Figure 3. Recent RSI trends for individual risk types*

Figure 4. Comparison of RSIs for different risk types in Q2 2022

APAC Risk Sentiment Index

- The aggregated RSI for seven risk types increased from **0.46 in Q1 2021 to 0.56 in Q2 2022** which reflects a shift from more optimistic to more pessimistic expectations among APAC respondents (Figure 5). Putin's war on Ukraine and the ongoing wave of Omicron in Asia drive the negative expectations. As a result, the current RSI level is the second highest level we have registered since the launch of the RSI more than 3 years ago.

- The Q2 2022 survey revealed a major shift in distribution of votes. Compared to the previous survey, the share of respondents who expect the substantial increase of risk in the next 12 months jumped from 22% to 33%. At the same time, a percentage of respondents who believe that risks will not charge dropped from 26% to 18% (Figure 6). These results suggest a big change of mood of respondents that now expect more volatility for APAC financial services in next 12 months.

- The picture for the individual risk types in APAC is similar to what we observe for the UK. Q2 2022 results demonstrate a massive increase RSIs for financial risks. For example, RSI for liquidity more than double (0.59 points vs 0.28 points). At the same time, RSIs for operational risk and for cyber & IT risk remain broadly unchanged and RSIs for conduct and regulatory risks have been improved (Figure 7).

- In Q2 2022, according to respondents in the next 12 months top 3 "pressure areas" will be credit risk, market risks and cyber & IT risk which RSIs are the highest among individual risk type RSIs. A large majority of respondents believe that these three risks will increase slightly or significantly in the coming year (Figure 8). On the opposite side of the spectrum, there is conduct risk. Most of respondents expect no change for this risk in the near future. RSI for conduct risk is only 0.2 points, the lowers level among all risk types recorded in the past 2,5 years.

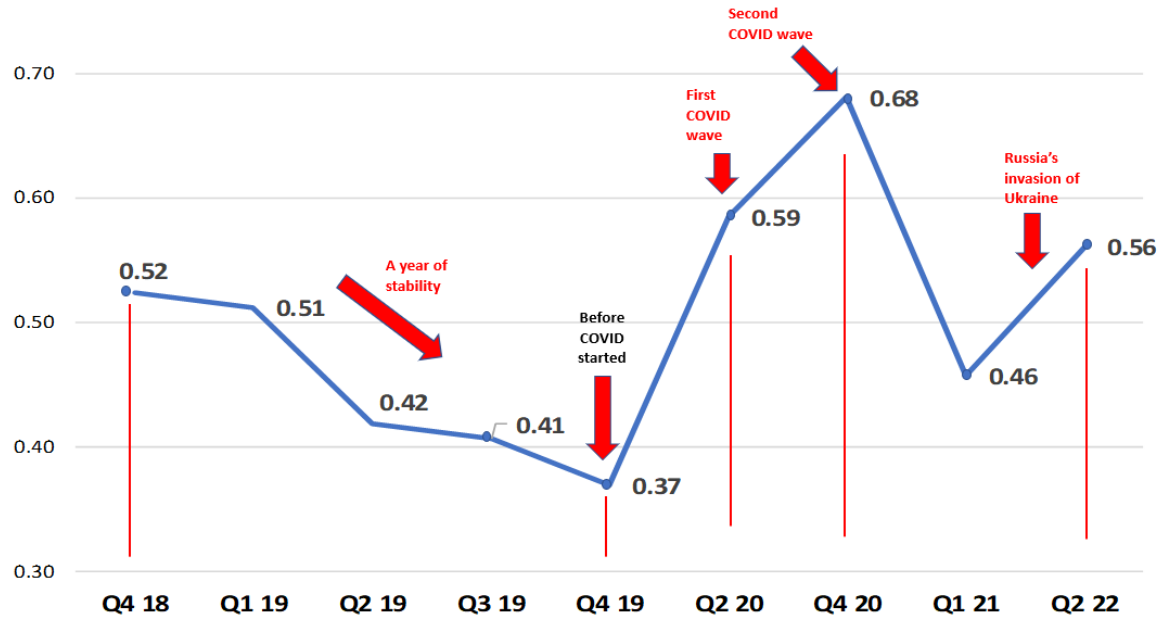*Figure 5. APAC RSI trend: Q4 2018 – Q2 2022*
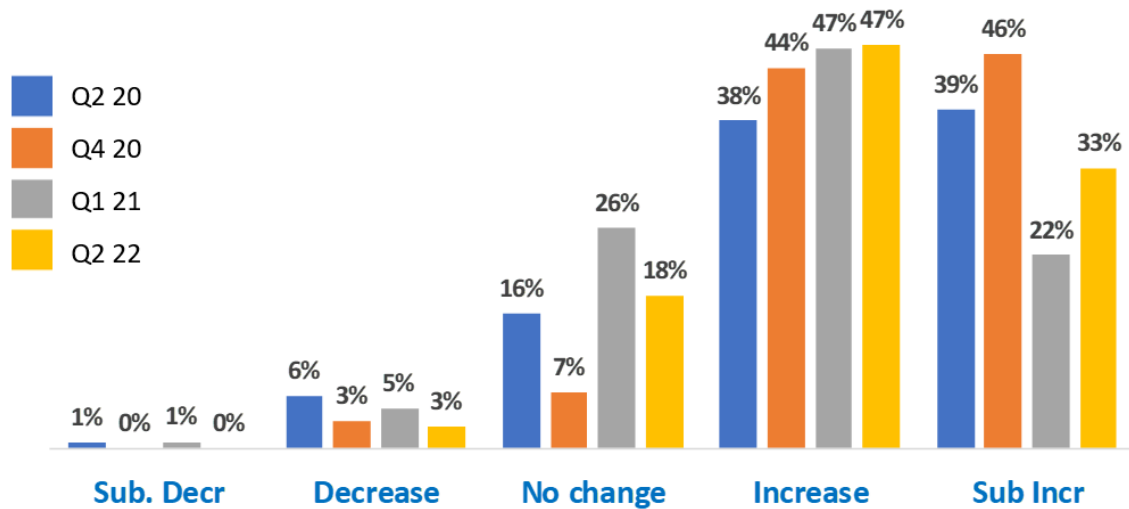

Figure 6. Distribution of respondents' votes
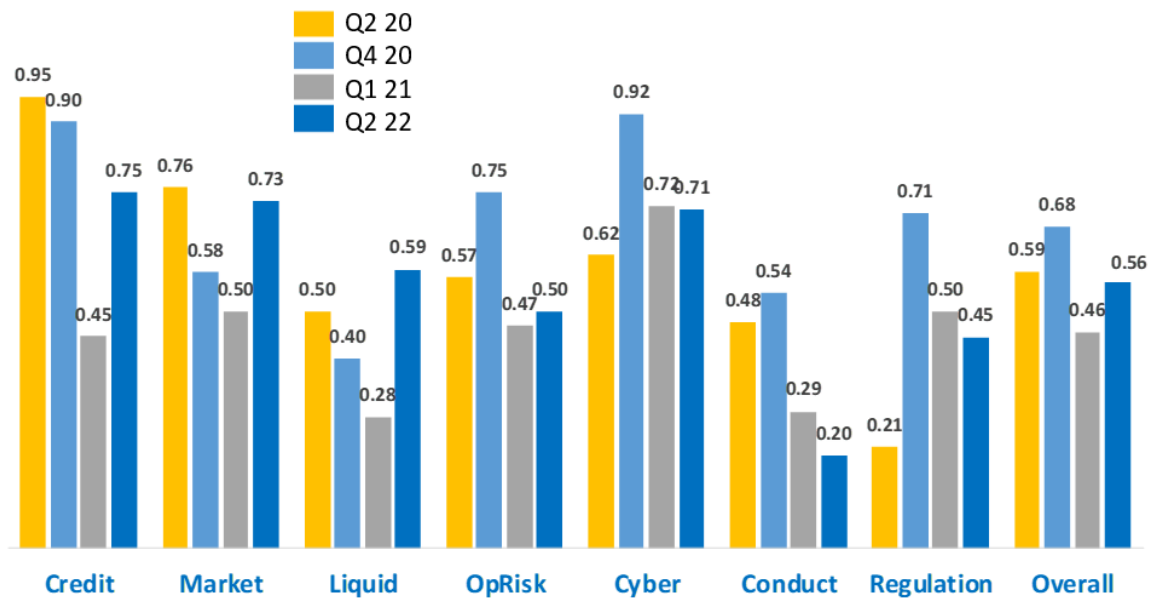
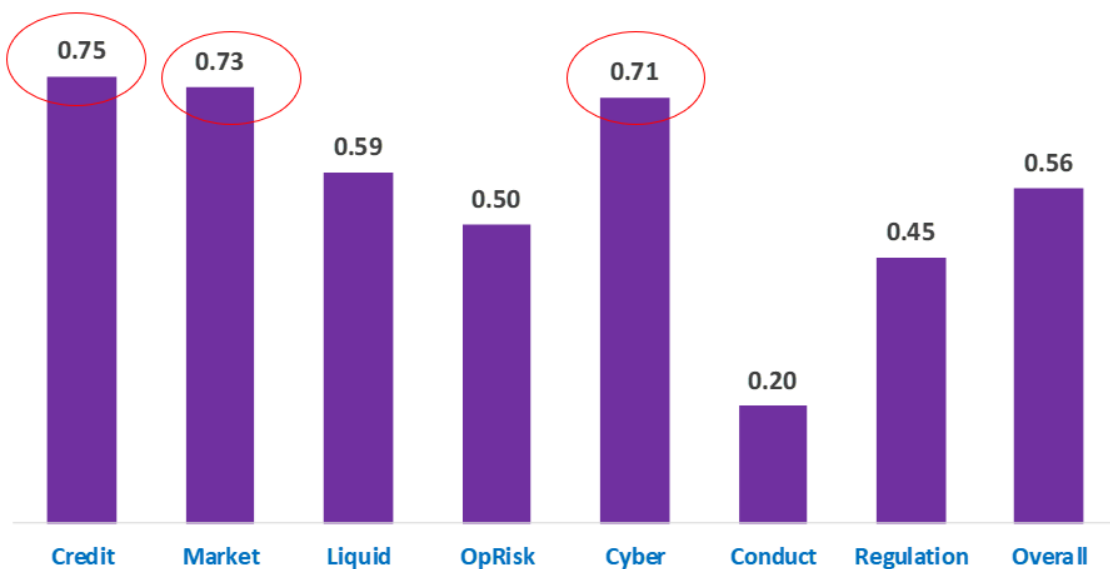*Figure 7. APAC RSI trends for individual risk types*

Figure 8. Comparison of APAC RSIs for different risk types in Q2 2022