WHITE PAPER

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RISK PREMIA EXPANSION /COMPRESSION CYCLE

Looking at the investment cycle through the lens of derivatives paints a rather fascinating picture. Following different risk parameters across asset classes and regions, we state that markets have almost reached the stage of maximum complacency.

At this point in the cycle, we observe that trades with the best risk profile almost exclusively have the same characteristics: they are "Long Change". Equity convexity is a remarkable outlier. This parameter hasn't normalized yet and consequently looks rich on a relative value basis.

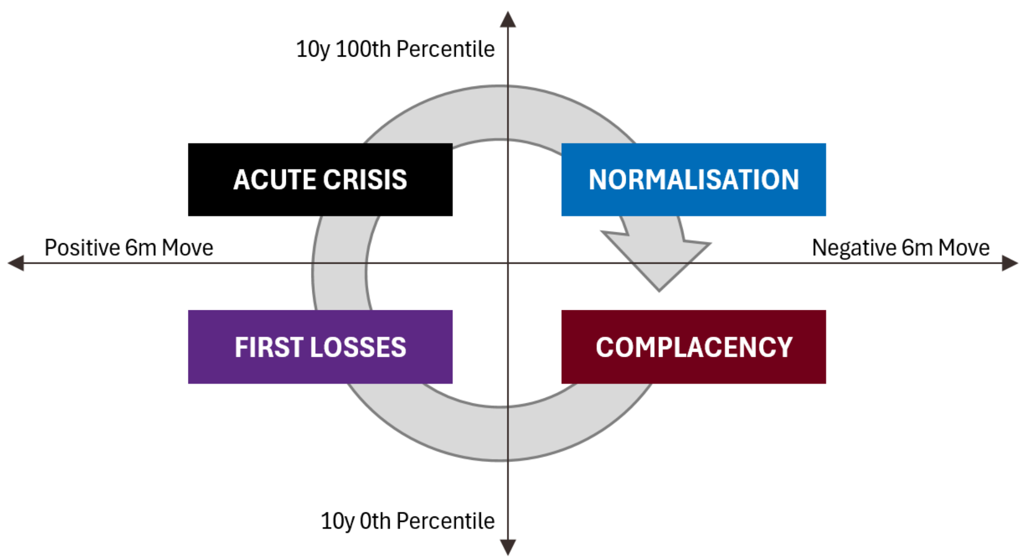
Correlations are also showing signs of extreme behavior creating some potential systemic risk. On one hand, an extremely low single stocks correlation mechanically suppresses index volatility and creates a false sense of security. On the other hand, an increasingly positive correlation between bonds and equities creates profound challenges for allocators and should incentivize the adoption of true diversifying solutions.

1. THE FRAMEWORK

When trading a wide range of parameters across asset classes, regions, and levels of complexities, it is worth taking a moment to reflect on how these parameters evolve over time and where they currently stand. Each parameter lives in its own dimension and is subject to the influence of different supply demand imbalances. Nonetheless, each parameter follows an immutable cycle of expansion and compression. To take a snapshot of the current derivatives universe and assess where each parameter stands within its own cycle, we analyse them across two normalised dimensions: a long terms static dimension using the 10 years percentile and a more dynamic dimension using the parameter's move over the past 6 months. With this framework in place, we can define 4 quadrants which characterize different stages of this immutable cycle. These 4 quadrants are labelled from a risk premium angle.

1. **Complacency**: The risk premium is low compared to historical observations and has gone lower in recent history.
2. **First Losses**: The risk premium remains low, but the direction of travel is upward.
3. **Acute Crisis**: The risk premium is above average, and the direction of travel remains upward.
4. **Normalization**: The risk premium stays high versus historical observation and is now travelling downward.

Figure 1: The 4 stages of a risk premium's lifecycle

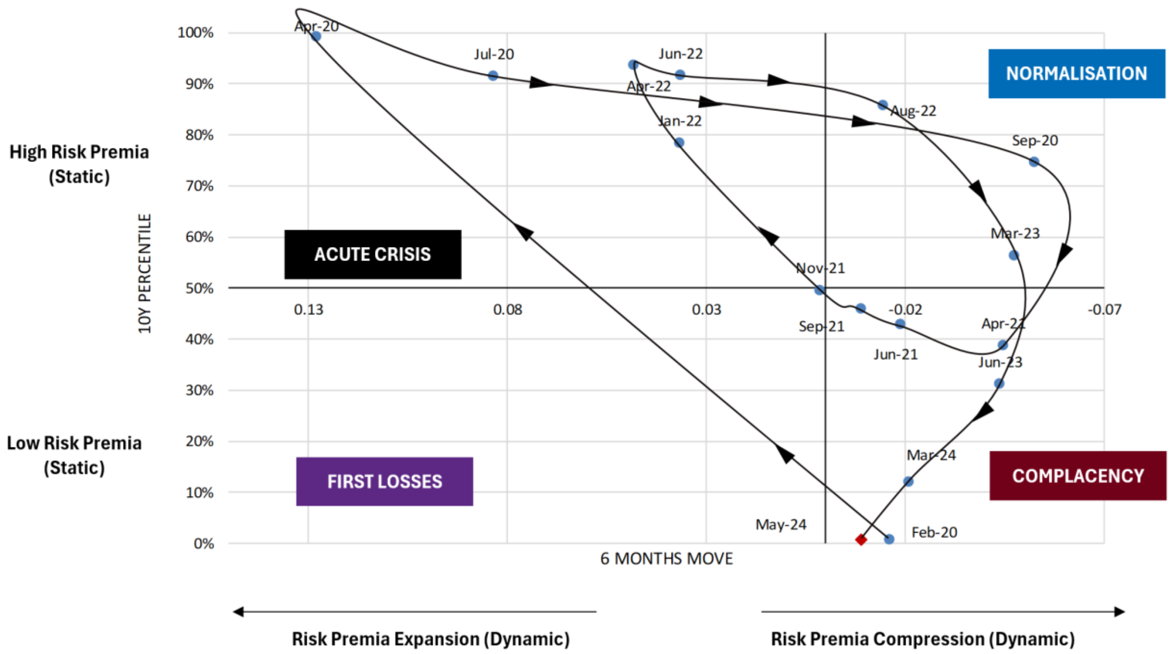


Source: ADAPT Investment Managers

We apply this framework across a broad range of regions, asset classes and parameter types to get the broadest possible view. Parameters are characterized in three different groups.

- First order parameters such as implied volatility which are the purest and most reactive parameters in our universe.
- Second order parameters which are the difference between two first-order parameters such as volatility skew or term structure.
- Third order parameters such as convexity which is the difference between two second-order parameters.

Figure 2: EuroStoxx 50, 1Y ATM implied volatility. 2020-2024 Lifecycle



Source: ADAPT Investment Managers

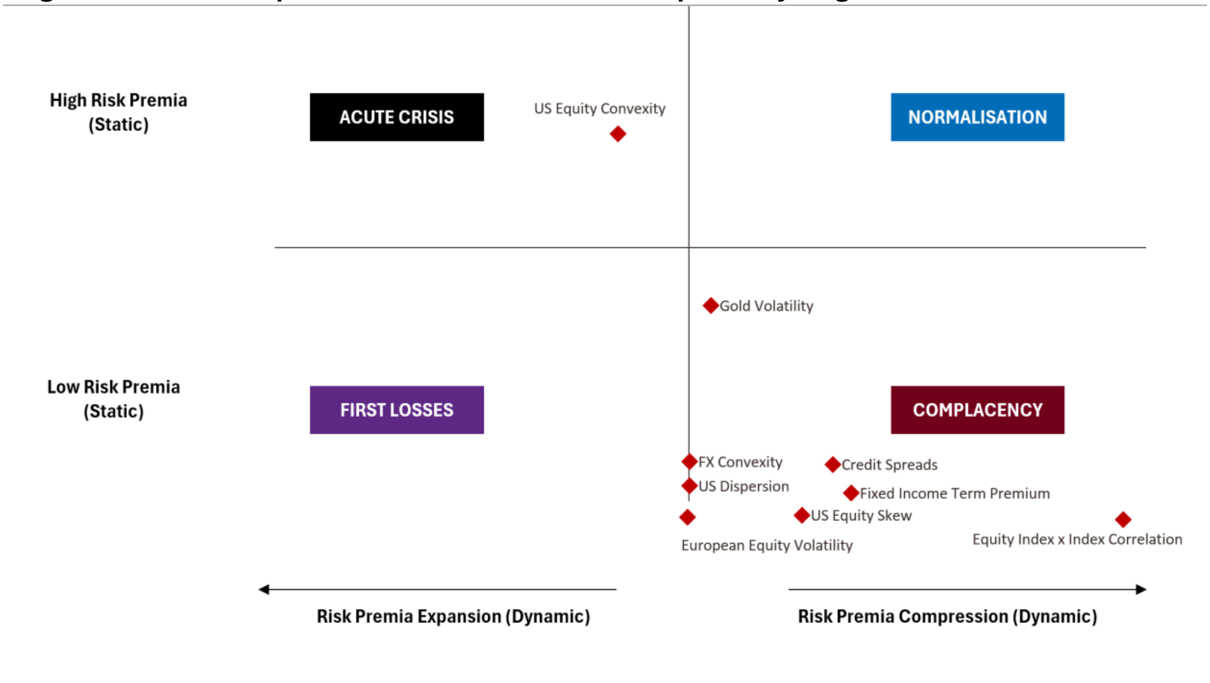
To illustrate this framework, we suggest the example of the 1Y ATM implied volatility on the Eurostoxx 50 which clearly displays the expansion/compression dynamic. Starting from “Complacency” in February 2020 then quickly moving to “First Losses” and “Acute Crisis”. Then in April 2022, before settling in “Complacency” the parameter takes another spin into “Acute Crisis” and finally goes through a full “Normalization” process to eventually anchor itself firmly into “Complacency”.

Individual charts illustrating the cycle for each parameter we chose can be found in the Appendix. While each parameter has its own idiosyncrasies such as the speed of travel or the width of the cycle, we observe a common pattern across all of them suggesting that they are all subject to the same immutable forces.

2. A CONCENTRATION OF PARAMETERS IN THE COMPLACENCY QUADRANT INDICATES THAT WE ARE WELL ADVANCED IN THE CURRENT COMPRESSION CYCLE.

Analysing a set of ten parameters we observe that only one of them has not yet normalised. This is across asset classes, regions, and parameter types. The risk compression cycle is self-fulfilling. It starts with first-order parameters followed by second and third-order parameters. The business model of risk premia harvesting strategies is to extract value from parameters one after the other, always extending their reach to a parameter that is riskier than the previous one. The fact that we see first, second and third order parameters in the Complacency quadrants, indicates that we are well-advanced in the current cycle. This indicates an overall high level of positioning and elevated level of fragility.

Figure 3: A cluster of parameters anchored in the complacency stage.



Source: ADAPT Investment Managers

3. THE EQUITY CONVEXITY EXCEPTION

The standout exception in this analysis is US Equity Convexity which is still in the "Acute Crisis" quadrant and suggests that we have not yet reached the point of maximum complacency. There are several explanations behind this apparent anomaly.

Convexity, a third-order parameter, follows a slower cycle than first and second-order parameters. It is a much stickier parameter which takes more time and much bigger forces to both expand and decompress. In that sense, it is not surprising to see equity convexity lagging other parameters.

The other reason why equity convexity looks rich on a relative value basis is simply because until very recently convexity sellers had not returned to the market. Convexity is a very powerful parameter, selling it is extremely dangerous and market participants are still remembering the 2020 convexity meltdown which almost completely wiped-out of convexity sellers.

Now that most parameters are in the complacency zone it is not unsurprising to see convexity sellers coming back to the market since convexity is essentially the only risk premium with some value left to squeeze. Convexity selling can take many forms: it can be explicit (short variance versus long volatility swap) or implicit (var vs up-var swaps)

4. IMPLICATIONS FOR THE OPPORTUNITY SET

ADAPT's investment process starts with a trade-centric, bottom-up approach, looking for healthy trades with clear positive asymmetry. With a concentration of trading parameters in the "Complacency" stage, trades with the best asymmetry and the best risk profile share similar characteristics: they are long volatility, long convexity, or long optionality. Let's take the example of implied ATM volatility, a dynamic first-order parameter. P&L from a long or short implied volatility position can come from two sources (ignoring second-order effects):

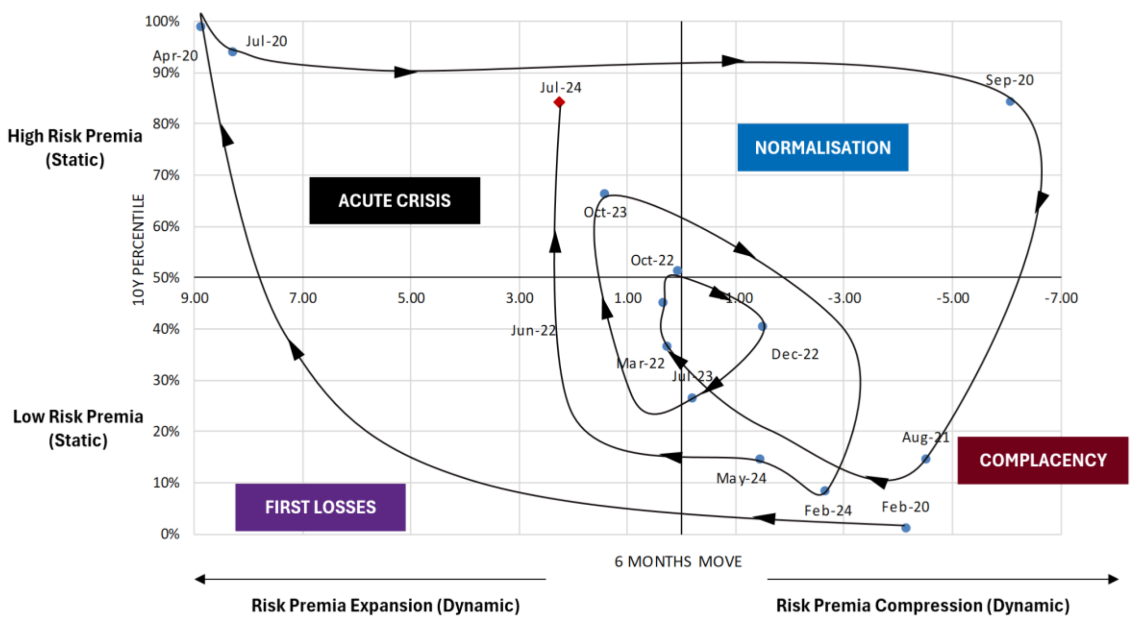
a) Moves in implied volatility: P&L is crystalized by buying or selling back options.
b) Change in realized volatility i.e. actual moves in the underlying: P&L is crystalized via Delta hedging and Theta.

In the bottom left-hand side of the "Complacency" quadrant, a short volatility position will make money almost entirely from Theta as there is limited scope for the parameter to move lower. Given that implied volatility is very low the return on capital is also very low: one needs to sell a larger option quantity to achieve the same $ P&L. In this configuration short volatility positions are extremely vulnerable to a rise in implied or realized volatility which can quickly erase several quarters or years of earned carry. From our perspective it is much healthier to structure a short parameter position in the "Acute Crisis" or "Normalisation" quadrants. Indeed, profits can come from both lower implied and realised volatility and market dislocation makes the possibility of a limited downside implementation more likely.

A recent example of a parameter which quickly got out of the narrow equilibrium of "Complacency" is the USDMXN implied volatility. In our framework FX is the asset class which shows the most acute level of complacency, especially in G10 currencies. With years of coordinated central bank intervention, there hasn't been a real shock to FX markets in decades. Consequently, volatility and convexity sellers have been very active and still feel comfortable rolling their shorts. This relentless supply of risk parameters is what helped driving EURUSD convexity deep in the "Complacency" quadrant. (See appendix. 1Y EURUSD 10 Delta Fly)

As described above, shorting a parameter in "Complacency" is extremely dangerous and even a small catalyst can break the equilibrium and is enough to wipe off previously earned carry.

Figure 4: USDMXN Volatility: Ejected from the narrow equilibrium.



Source: ADAPT Investment Managers

5. IMPLICATIONS FOR PORTFOLIO CONSTRUCTION

When parameters are scattered across the 4 quadrants, the opportunity set presents healthy trades with very different profiles which supports the construction of an all-weather portfolio.

The current concentration of parameters in the complacency quadrant means that one can find significantly more trades with a long volatility profile that look attractive than carry trades. It makes the construction of a balanced portfolio considerably more challenging. The current backdrop is both a long-term blessing and a short-term curse. A long-term blessing because trades with the highest degree of asymmetry, trades which can make a real difference in “First Loses” or “Acute Crisis” are only available now. A short-term curse because if the environment remains complacent these trades will not perform.

The exercise of portfolio construction is, specifically at time like this, a balancing act between participating in the most asymmetric trades in a cycle and controlling the negative Theta of the portfolio.

What makes this balancing act possible is patience and long-term commitment to a strong set of principles which filters out trades with negative asymmetry from the portfolio.

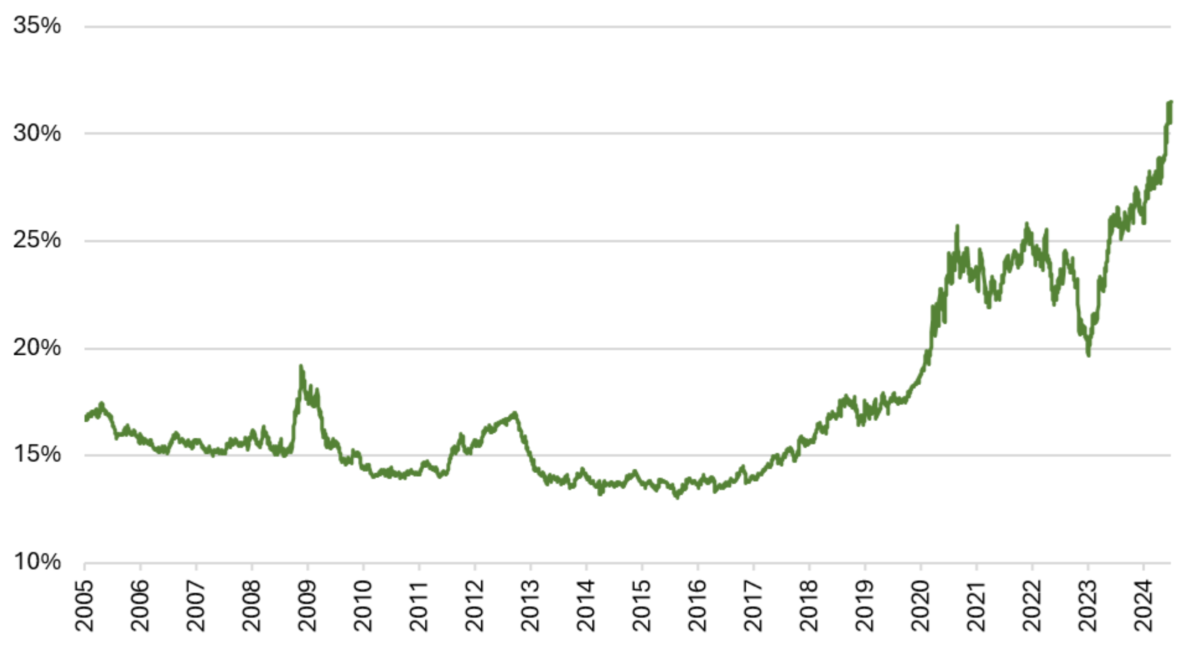
6. THE RISKS OF CORRELATION EXTREMES

The current environment is characterized by correlations extremes which can be a source of acute systemic risks. Correlation is a sticky parameter which moves slowly and is often thought as stable until it breaks down and moves rapidly. Combining assets with presumed low or negative correlations is regularly perceived as best practice but investors should remain warry of the impact of correlation shocks. In the current environment we can highlight two correlations which have reached some extreme levels and could create serious market turbulence.

a. S&P500 Volatility is vulnerable to a correlation spike from current suppressed levels.

The composition of the largest stock index in the world has never been more concentrated in the past 20 years. The top 7 stocks in the index now represent more than 30% of the total index weight (Figure 5).

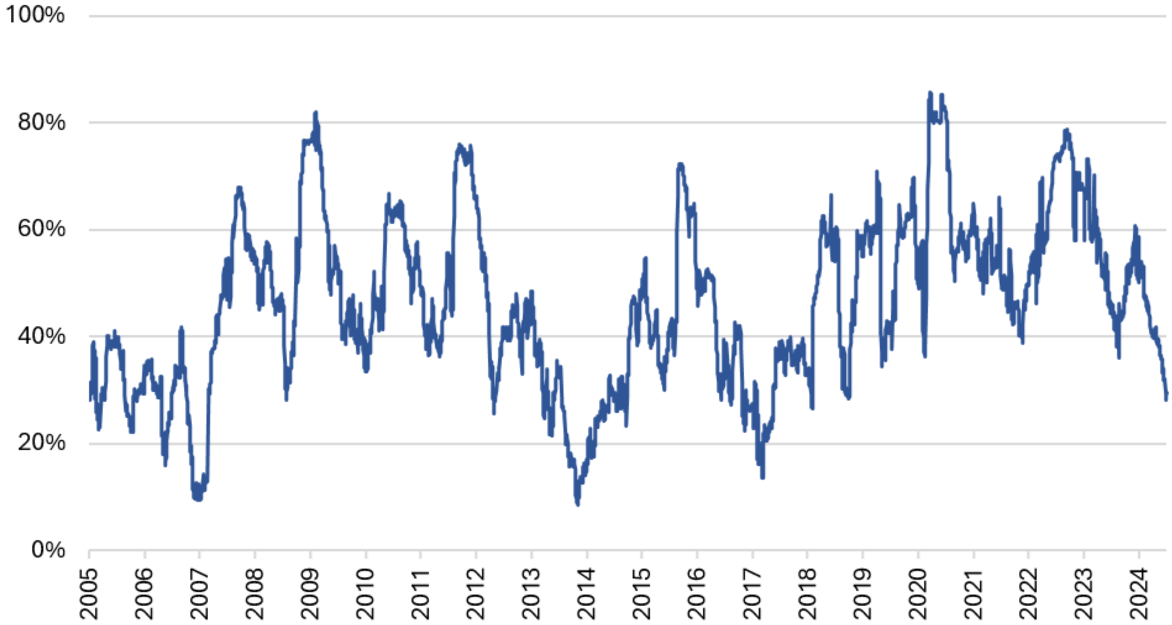
Figure 5: Total Weight of Top 7 Names in S&P 500



Source: ADAPT Investment Managers, Susquehanna

From a fundamental perspective, one could expect these stocks to be highly correlated. Indeed, these stocks either belong to the same industry, have strong business ties, share similar sensitivities to interest rates or benefit from the same market hype. However, the average realized correlation between these stocks has decreased. (Figure 6.)

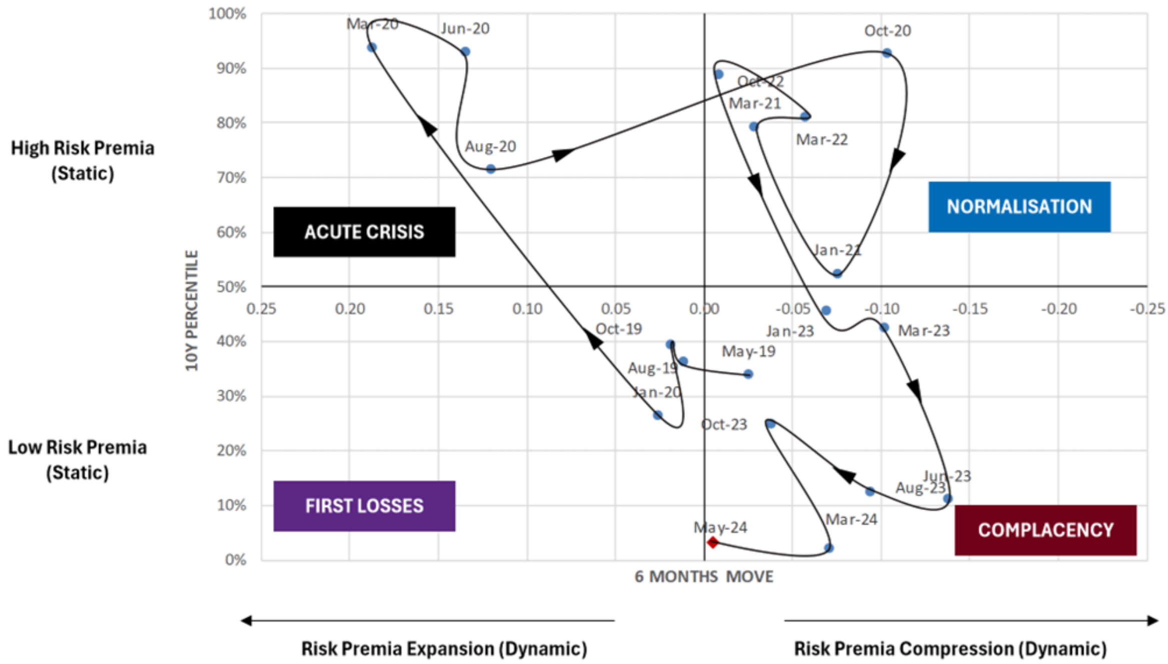
Figure 6: Average Pair-wise realised correlations of the S&P 500 top 7 Names(120 Days)



Source: ADAPT Investment Managers, Susquehanna

As a result, even this high concentration of similar stocks is not enough to raise the overall S&P 500 single socks correlation, as show in Figure 7.

Figure 7: 1Y SPX implied single stock correlation, TOP 50 names



Source: ADAPT Investment Managers, Susquehanna

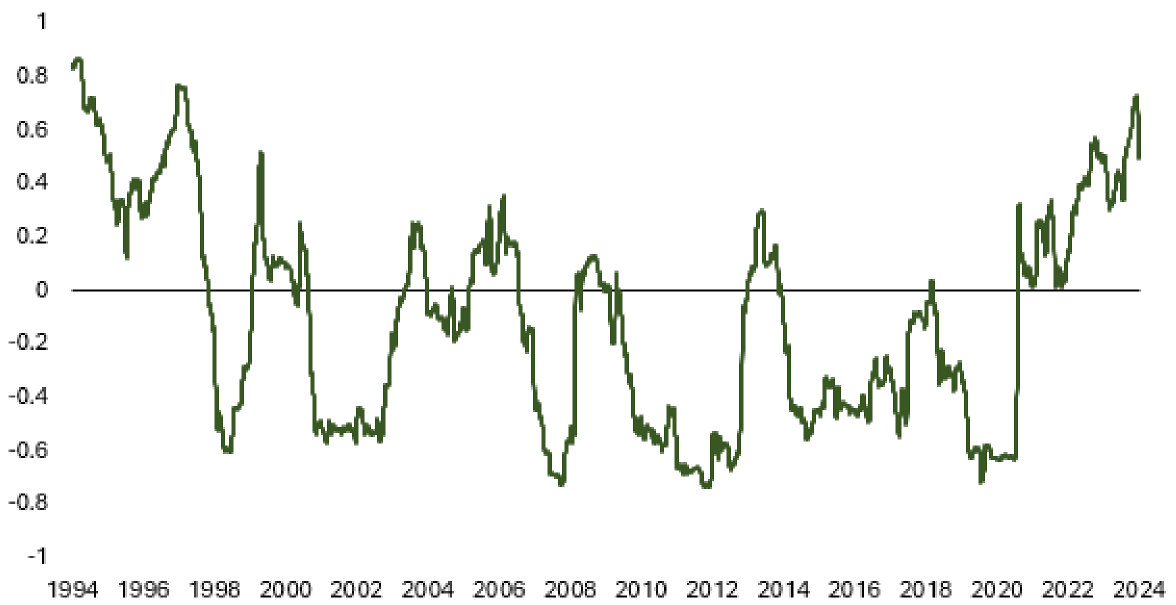
Mathematically, lower correlation between single stock suppresses index volatility. This disconnect will last as long as markets are driven by flows and technicals rather than fundamentals. For us one of the largest risks in the market lies in this low correlation which leaves index volatility extremely vulnerable to a correlation shock.

A rise in index correlation will not only impact traditional volatility sellers it will also impact large part of the equity dispersion complex as well as leveraged passive investor who increased their positioning as index volatility came off.

b. Allocators should watch out for higher bond / equity correlation.

Correlation between bonds and equity is on the rise, it creates issues for portfolio construction and confronts long standing risk management principles. If market participants are prompt to ignore the risks of positive correlation when both asset classes rise, the damages can be immense when market turns, and correlation remains positive. This makes the case for truly diversifying solutions with very low correlation to traditional asset classes and very low correlation to other sources of alternative strategies.

Figure 8: Equity / Bond correlation, SPX and TY1 Correlation (1month returns, 1 year window)

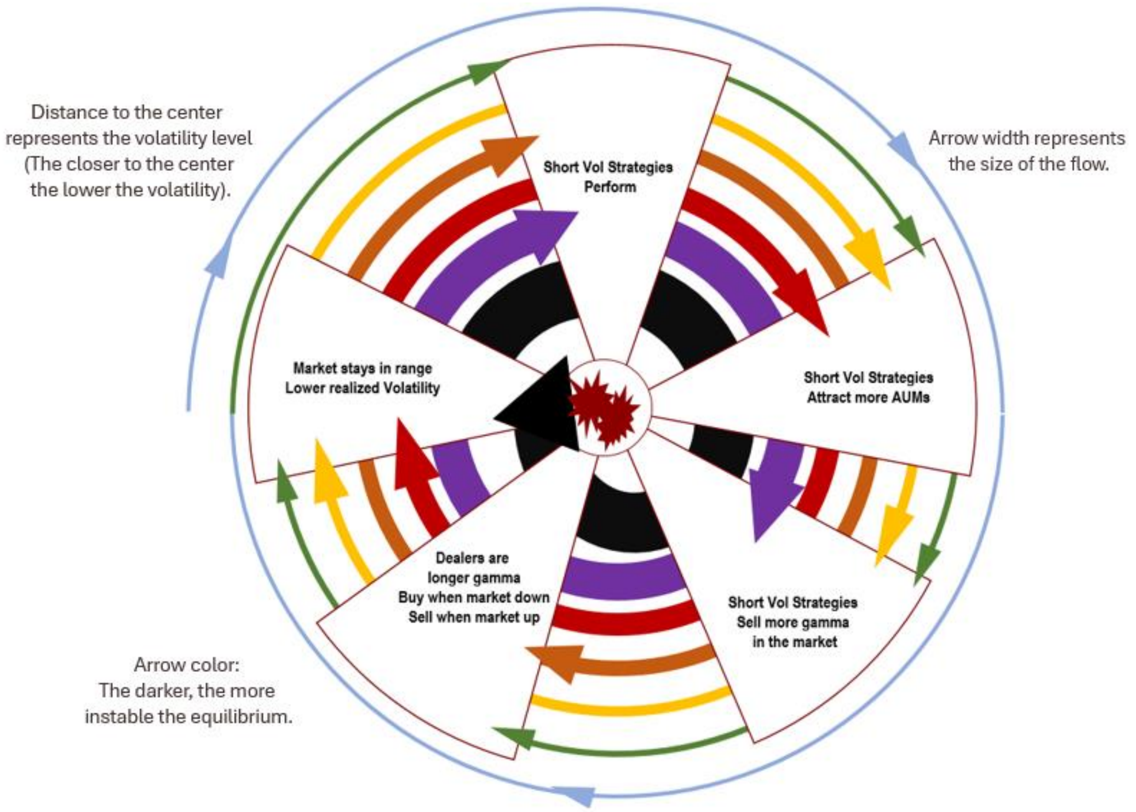


Source: ADAPT Investment Managers

7. COMPLACENCY CAN LAST, BUT NOT FOR EVER

Markets have shown signs of complacency for about 18 months, and no one knows how much further it can last. What we know if that the cycles we observe are subject to immutable forces which do not go away, and “Complacency” will not last forever. The longer “Complacency” lasts the more toxic the market positioning becomes. As risk premia compress, selling them becomes more and more dangerous. The amount of capital required to deliver the same returns increases but the risk profile of the trade becomes poorer and poorer. As shown in Figure 9, the amount of capital, represented by the arrow’s width, increases as we go closer to centre and the equilibrium (space between the arrow) becomes narrower.

Figure 9: The virtuous/vicious spiral of short risk premia: The example of implied volatility



Source: ADAPT Investment Managers

CONCLUSION

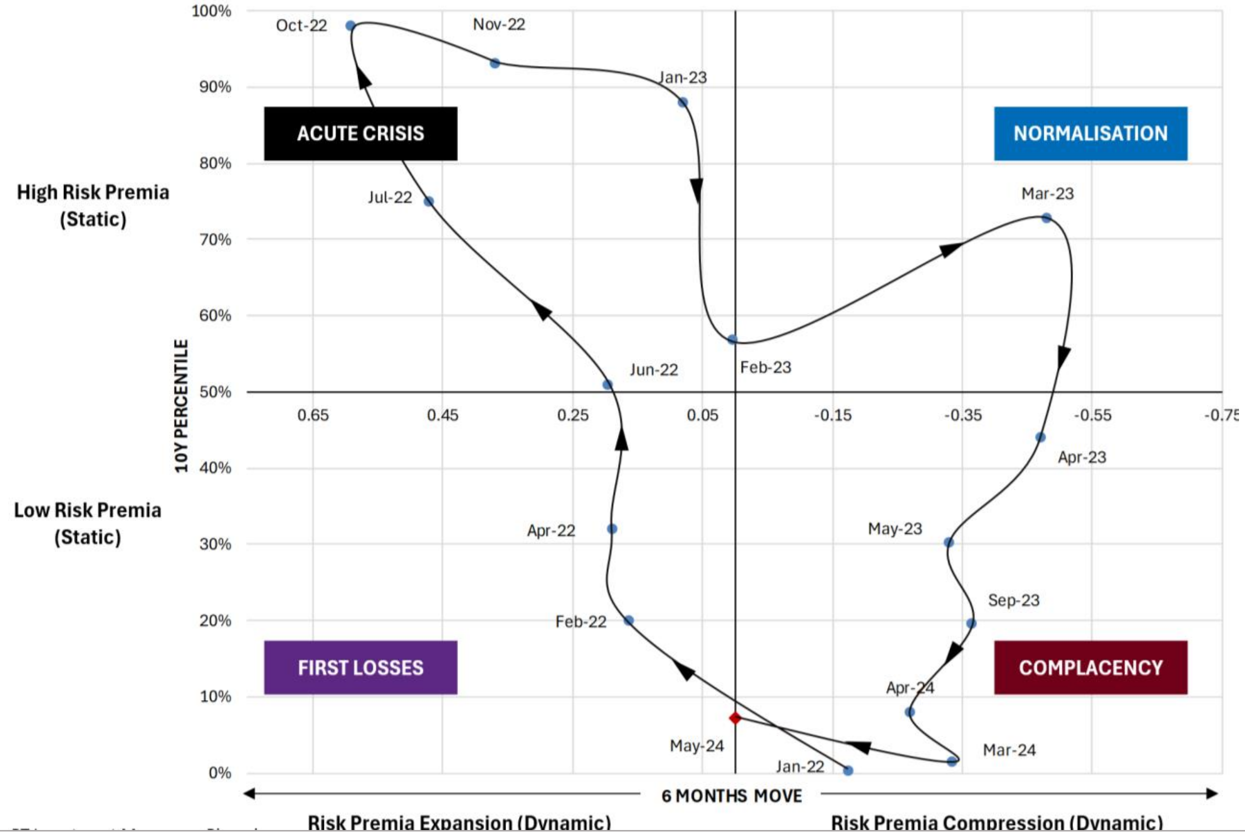
Constructing a balanced portfolio when so many parameters are firmly in "Complacency" is a demanding exercise. Being patient and staying faithful to a strong set of principles is key to navigate the current environment. Complacency can last but not forever.

From an allocator's perspective, diversification remains key. The 4-quadrant framework can help illustrating how different strategies can perform in different parts of the cycle. While many assets can do well in the "Complacency" stage, ADAPT locally suffers in this quadrant. However, this short-term curse is also a long-term blessing: the "Complacency" stage presents attractive entry points for the most asymmetric trades in our investment universe.

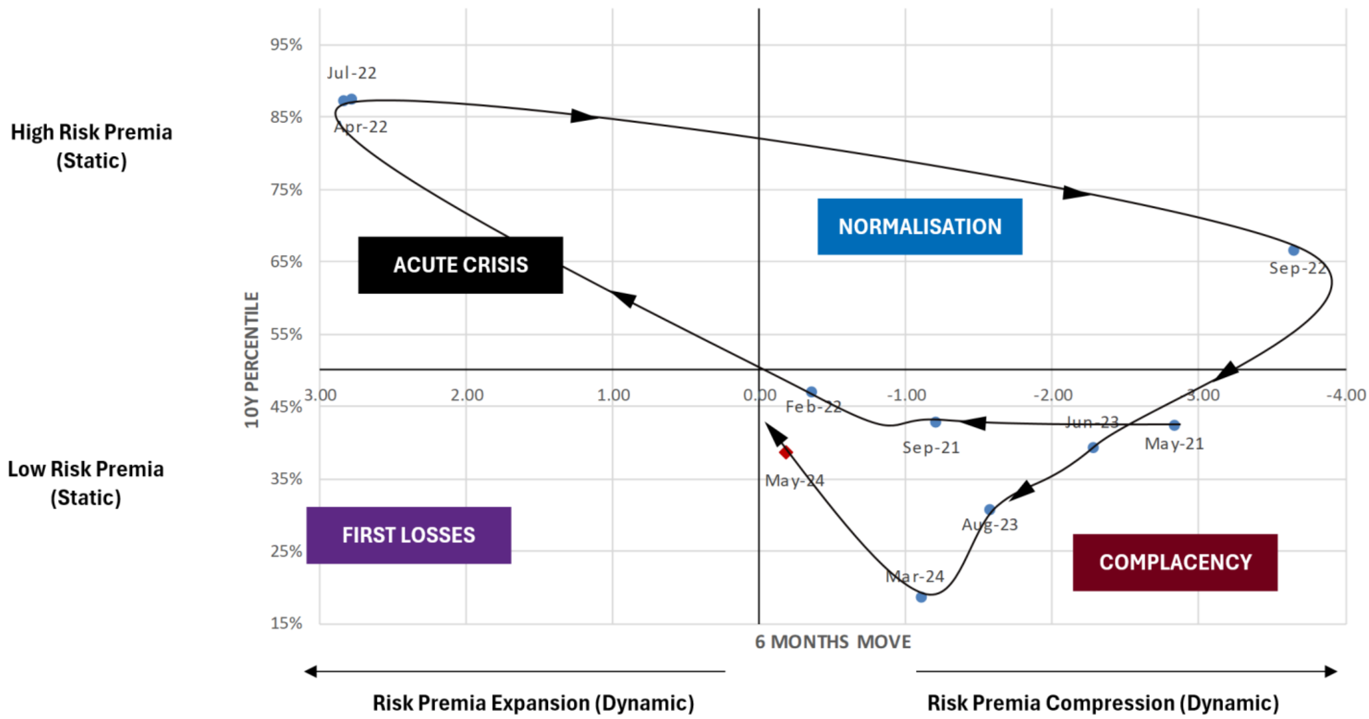
Investors should be wary of extreme levels of correlations. Within the equity asset class, an increase in single stock correlations from the current historical lows could trigger a painful reversal in index volatility. In a multi asset portfolio, rising correlation between bonds and equities is also a source of concern and should incentivise allocators to embrace strategies uncorrelated to their other investments.

APPENDIX

FX CONVEXITY: 1Y EURUSD 10 DELTA FLY

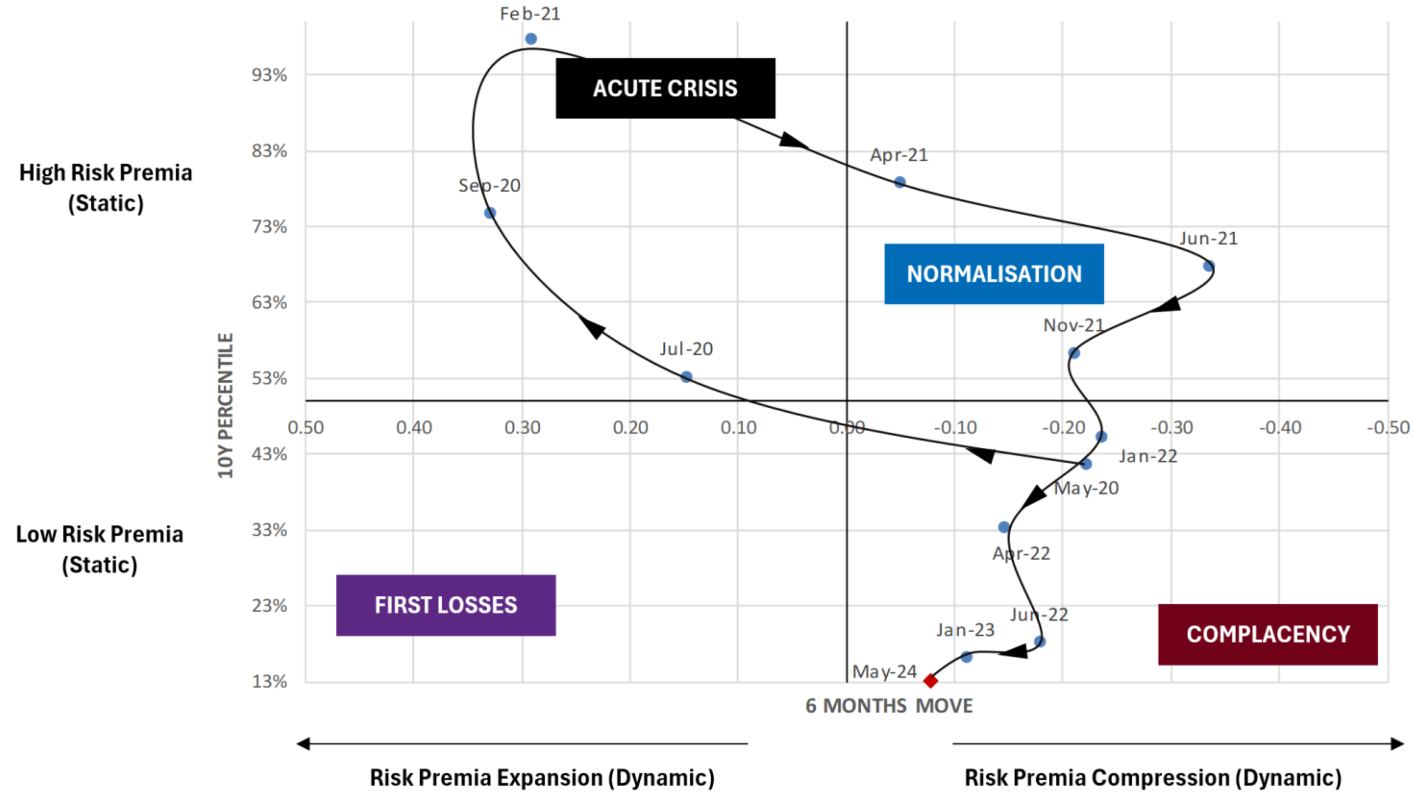


GOLD VOLATILITY: 1Y ATM IMPLIED VOLATILTY

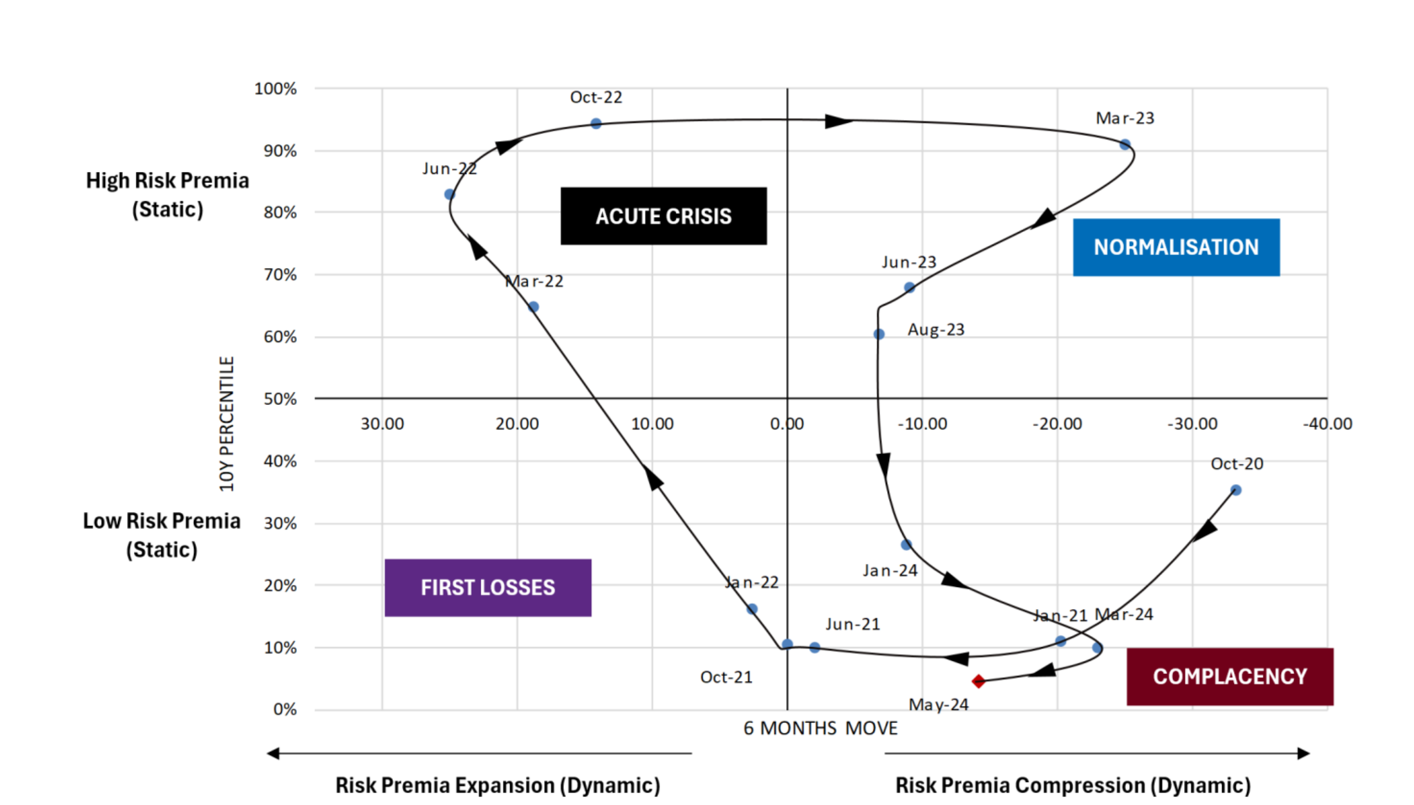


Source: ADAPT Investment Managers

FIXED INCOME TERM PREMIUM: 20Y-10Y SOFR SPREAD

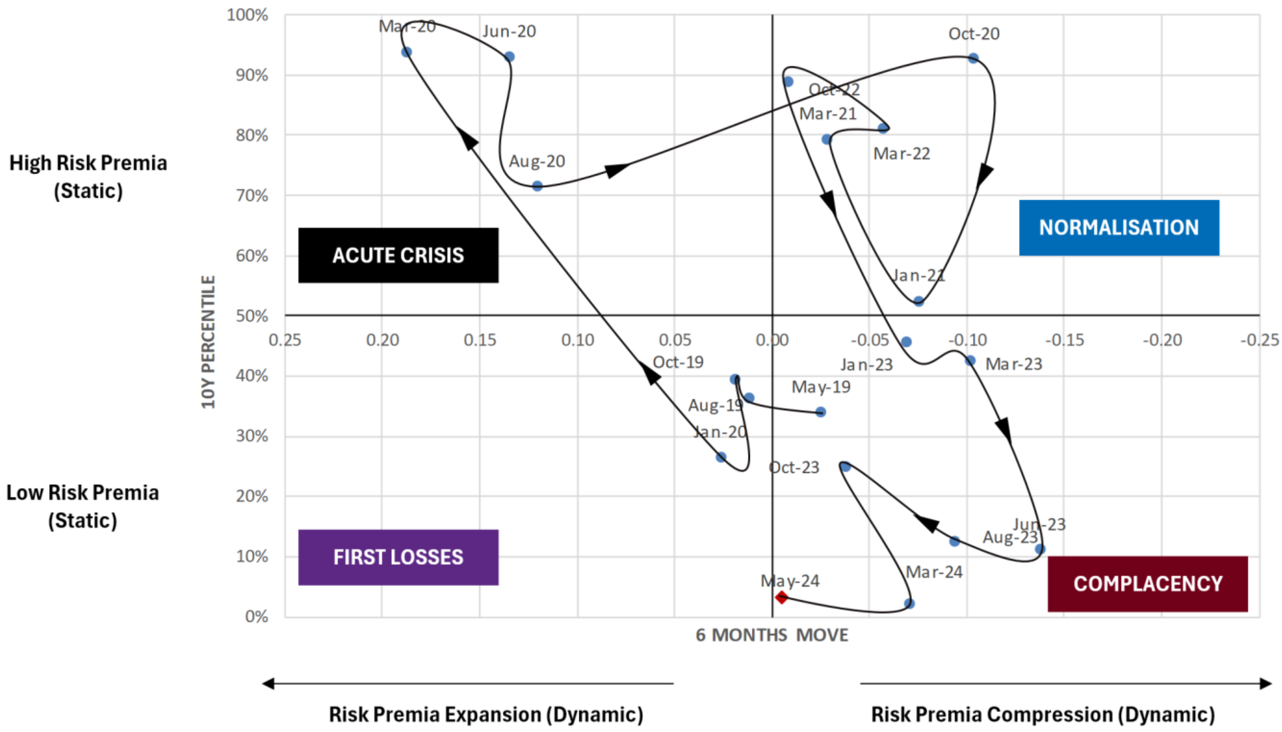


CREDIT SPREADS: US IG CDS SPREADS

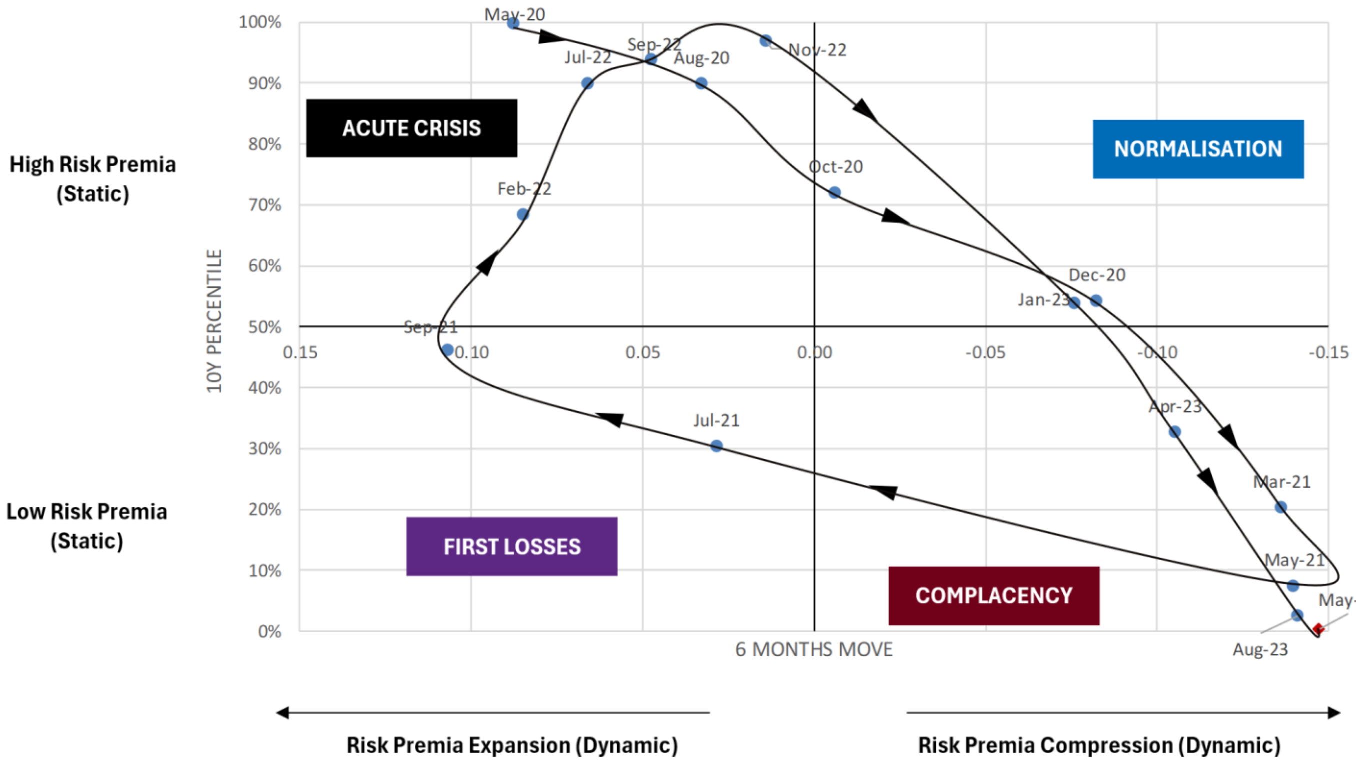


Source: ADAPT Investment Managers

US EQUITY DISPERSION: 1Y SPX IMPLIED CORRELATION (TOP 50)

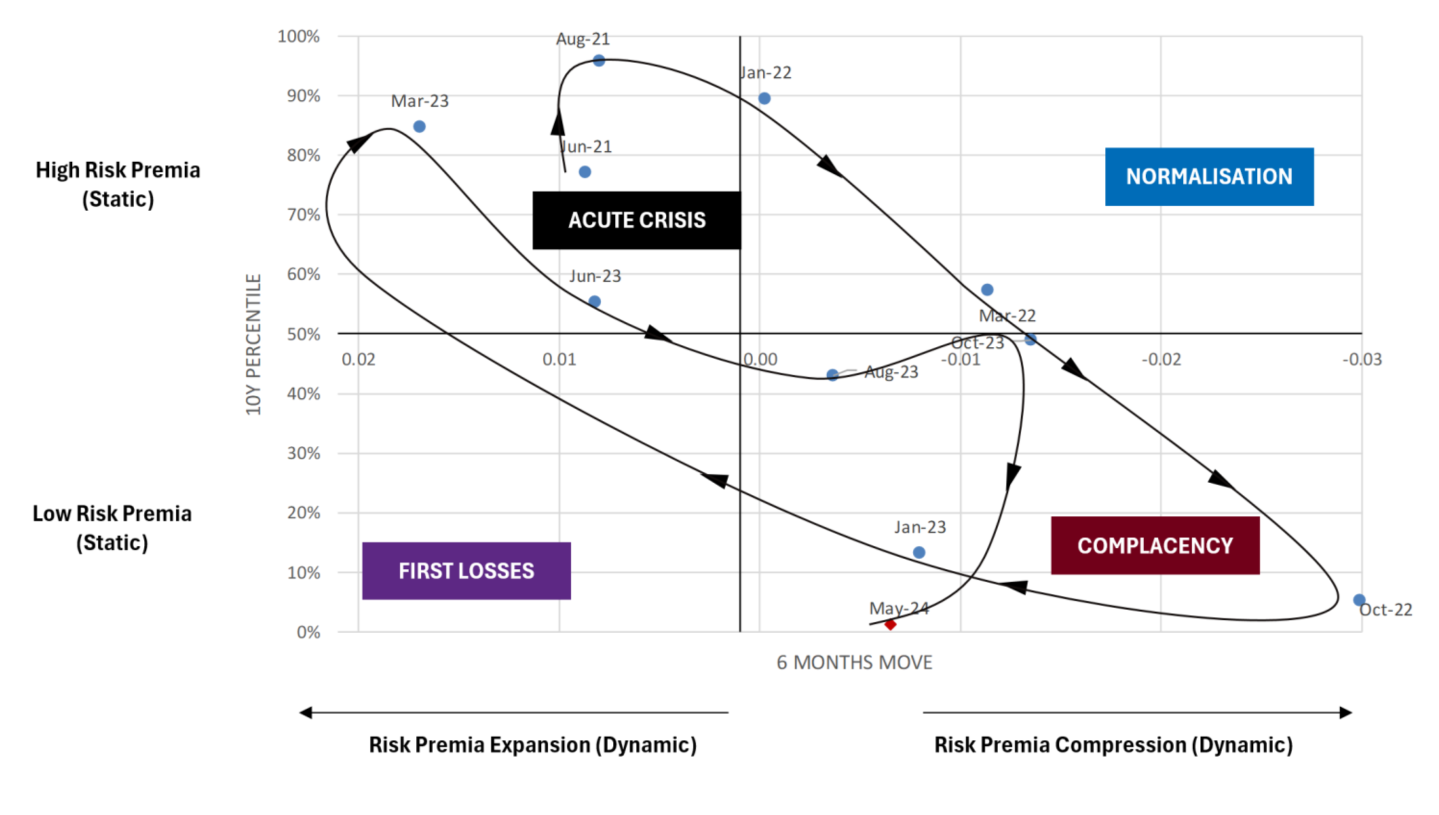


EQUITY INDEX x INDEX CORRELATION: SPX-NKY-SX5E 1Y IMPLIED CORRELATION

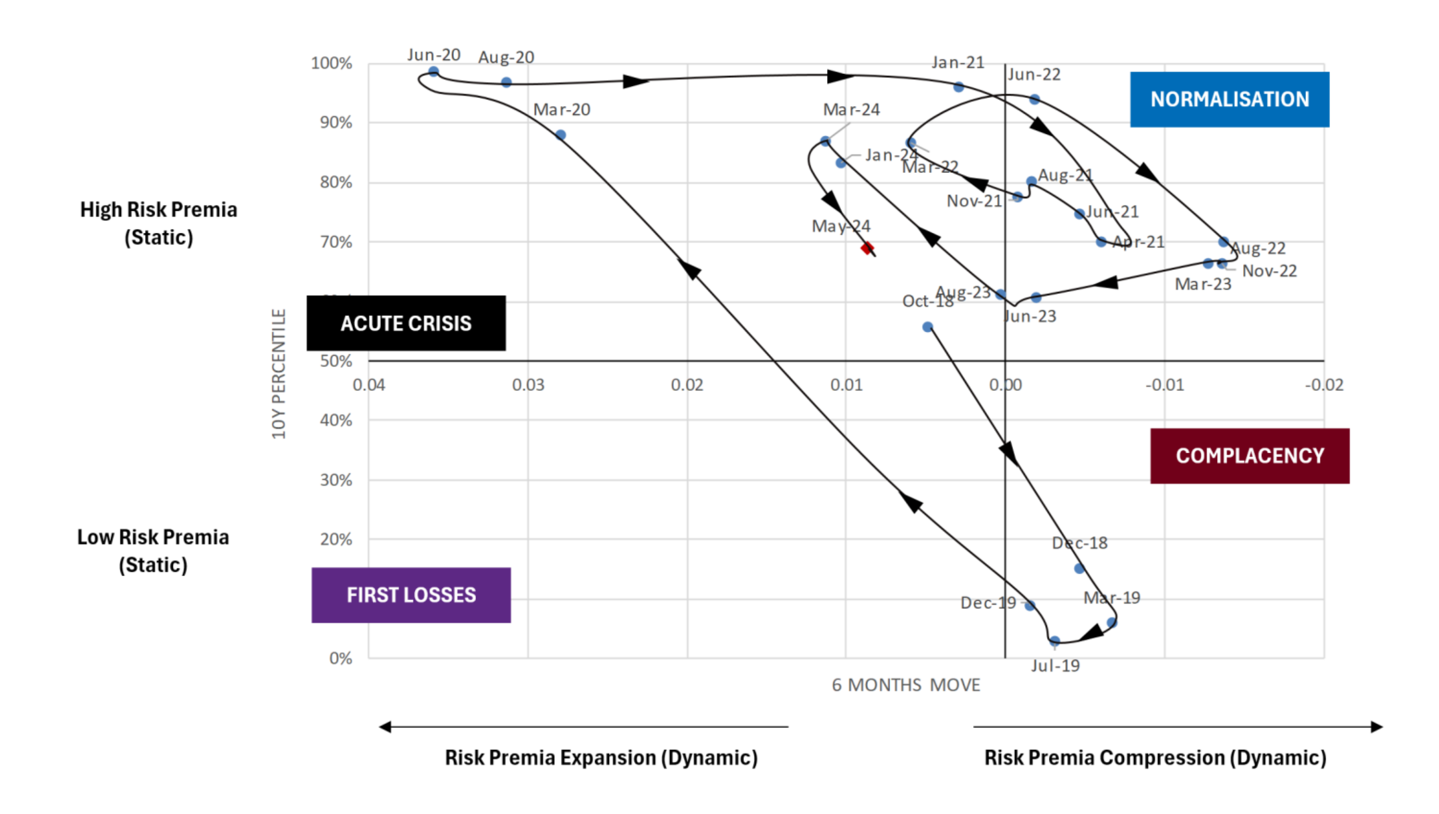


Source: ADAPT Investment Managers

US EQUITY SKEW: SPX 9 MONTHS 90-110 SKEW



US EQUITY CONVEXITY: 9 MONTHS 80-100-120 FLY



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