



# DIVERSIFYING STRATEGIES

Time to talk about tail risk protection





# Time to talk about tail risk protection

## Summary

Over the past decade, the proliferation of tail risk protection strategies has added a useful weapon to the investor armoury; one that did not exist for most of the history of investment markets.

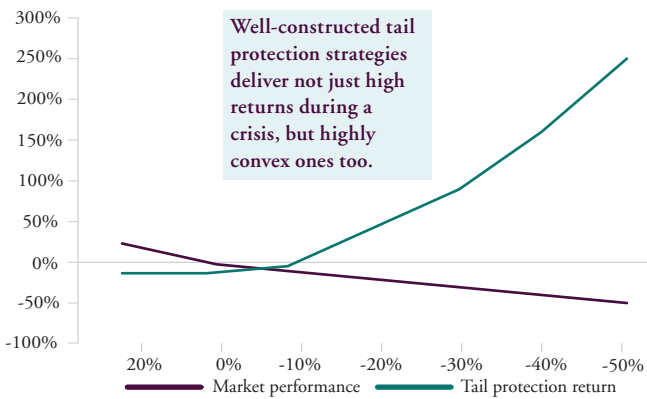
Rather than having to make a binary decision to be in equity markets and live with the volatility, or out of them and miss out on a potentially extended bull run, tail risk protection provides investors with the possibility of having their cake and eating it: participate in a good amount of the upside, whilst being protected from left tail risk.

This is possible because well-constructed tail protection strategies have the potential to deliver not just high returns during a crisis, but highly convex ones too; a strategy which does well in a 30% drawdown might perform exponentially better in a 45% one (see Fig. 1a).

The non-linear nature of this return profile is of particular significance, given the non-linear nature of gains required to recover from substantial drawdowns. This is what makes tail risk protection a good potential hedge for equity market risk (see Fig. 1b).

### It is tail risk protection's potential convexity...

Fig. 1a Idealised Tail Protection return profile



Well-constructed tail protection strategies deliver not just high returns during a crisis, but highly convex ones too.

Source: Diversifying Strategies Limited, Yahoo Finance. This is a hypothetical illustration, not representative of any specific tail risk product.

Whilst this return profile is likely additive in any environment, other than after a substantial drawdown, it seems particularly relevant now, given the unattractive state of the bond market, and the over-extended nature of equity markets.

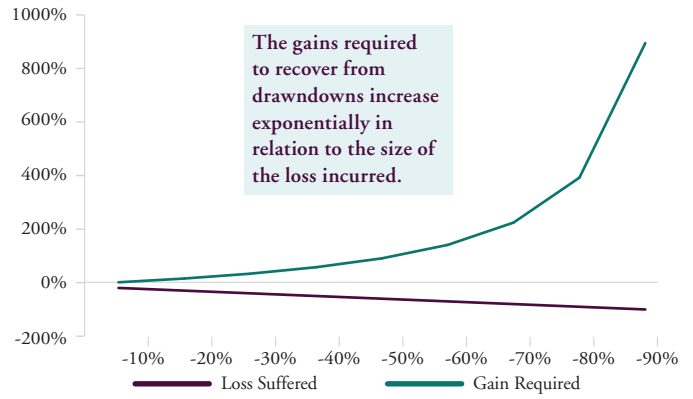
Yet relatively few investors allocate to tail risk protection in any meaningful way. Why is that?

A few reasons, no doubt, but I believe the primary one is that most investors incorrectly evaluate tail risk products on their raw returns alone, concluding that they have a negative expected value. I want to challenge investors to re-examine this, and account for the benefits that owning tail protection brings to a portfolio as a whole before, during and after a crisis. If you read only one section of this report, read section 4 that covers this topic.

It has not helped that the proliferation of these strategies, post the Global Financial Crisis has coincided with the worst possible environment for them: a very benign, low volatility environment courtesy of Quantitative Easing and the so-called Central Bank Put, which has reinforced the perception of negative expected returns.

### ...that makes it such a good hedge for equity drawdowns

Fig. 1b Gains and losses are not equal



The gains required to recover from drawdowns increase exponentially in relation to the size of the loss incurred.

Source: Diversifying Strategies Limited, Yahoo Finance.



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For the same reason, it is possible that some investors think they don't need any protection; that the central bank put has rendered substantial drawdowns a thing of the past, or, at least something we are unlikely to experience in the foreseeable future.

Whilst it is entirely possible that this 12-year-old bull market can extend further yet, perhaps even a good deal further; in time, it will surely be the drawdown-free Twenty-Tens that will prove to be the anomaly, not the rest of history; **substantial drawdowns happen, and – historically – they have happened quite regularly.**

What I think is less well understood, is the damage substantial drawdowns can wreak on long term performance. The S&P 500, for example, would be trading 19x higher than it currently is (at 73,000), had it somehow managed to avoid or offset, the six drawdowns of over 30% it has suffered in last 50 years. Whilst tail risk cannot offer absolute protection, or negate drawdowns altogether, these are precisely the sorts of drawdowns in which well-constructed tail protection strategies should thrive.

Of course, owning tail protection comes with a cost, which would need to be accounted for, although - against that - we would also need to factor in any gains generated from excess equity market allocations during an extended bull market, that the investor may not have held without having the tail protection in place (likely at the expense of high-grade, but ultra-low yielding, bonds.)

This analysis challenges the notion that the impact of large drawdowns should be measured in time, equating to the length of the drawdown.

This thinking is analogous with a car journey from A to B, where if the car breaks down – whilst tedious and inconvenient – the only consequence is to arrive at B later than initially expected. Viewed this way, the impact of the breakdown is just lost time. But there is no final destination in investing; each breakdown results in permanently lost ground.

### Assumptions

It is important to note that the examples and scenarios in this document are all hypothetical.

This report assumes that any tail risk investments deployed are successful in achieving their objectives. In practice, the level of returns and associated long term performance benefits provided by an allocation to tail risk will depend on several variables such as timing, allocation, the nature/path of market drawdowns (and subsequent recoveries), the level of volatility in intervening periods, and of course, the particular tail risk strategy/variant chosen.

I have intentionally kept things both hypothetical and high level, without delving into the specifics of different tail risk strategies, in an attempt to illustrate these concepts clearly and simply.

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# Time to talk about tail risk protection

## 1. A relatively new addition to the investor armoury

Historically investors had little choice but to ride out equity market volatility, save for opting to step out of equities altogether, either permanently (“equity vol is not for us”) or, more likely, via a macro, market-timing call. That call ran the risk of either being late (oops!), or early, missing out on an extended bull market. As such – and for understandable reasons – most investors simply accepted drawdowns –substantial or otherwise – as an inevitable and unavoidable part-and-parcel of investing. To mitigate some of these risks, they allocated a decent amount to bonds.

But does this have to be the case going forwards?

Surely not, how it was in the past is not how it has to be in the future. The proliferation of tail protection strategies over the past few years has added a very useful weapon to the investors’ armoury, one designed to manage left tail events. Rather than simply having to choose between riding markets out or stepping away, investors now have a third option of staying invested and participating in any extended bull market, whilst simultaneously being protected, at least to some degree, from any market crash.

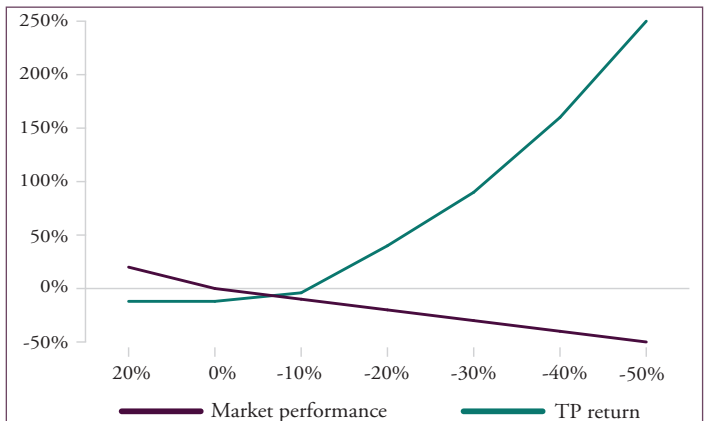
Evolution of this nature occurs in most walks of life: once upon a time, there was no such thing as home insurance, and then there was, and now everyone has it. Tennis rackets were made of wood, and so were golf clubs, but they are not anymore. I read my newspaper via an app.

Yet, despite this proliferation of tail protection strategies and the obvious benefits they can bring to investors, relatively few investors allocate, at least in a meaningful way, to them.

## 2. Convexity in a crisis

What makes successful tail risk protection such a good equity hedge, is the high, and highly convex, nature of the returns these strategies can generate during financial crises. A tail protection strategy set up to fire when markets are down 30%, might achieve exponentially greater returns if markets are off 45%.

Fig. 2 Idealised risk tail protection return chart



Source: Diversifying Strategies Limited

This is a hypothetical illustration, not representative of any specific tail risk product.

This profile is surely an attractive one at any point in the investment cycle, and it strikes me that had it existed when Markowitz was penning Portfolio Solutions in 1952, he would have been an advocate of it. Whether you agree or disagree with that statement, surely he would have been an advocate of it today given how little bonds have to offer?

## 3. Bonds ain’t what they used to be

For some time now investors have been re-examining the traditional 60%/40% asset allocation split that evolved from Modern Portfolio Theory 70 years ago.

This re-thinking is for good reason; whilst this long-established split made perfect sense for half a century, the investment landscape has changed so dramatically over the past 15 years – and particularly since the 2008 Global Financial Crisis (GFC) – that what once worked so well, no longer does.

### First 50 years post Modern Portfolio Theory (1952-2002)

Whilst the absolute level of interest rates varied considerably from 1952 to 2002 – peaking at 15% in 1981 – they were consistently much higher than they are today. Most importantly, with rare exceptions even 12m T-Bills provided investors with positive real returns.



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Allocating, over this period, to a portfolio of US government bonds or highly-rated corporate bonds achieved a good deal of what investors were looking for by way of diversification from equities: low risk, a positive real return and, negative correlation at times of financial stress, courtesy of a flight to quality at such times.

## The Real Interest Rate (1952-present)

Fig. 3a First 50 years post Modern Portfolio Theory (1952-2002)

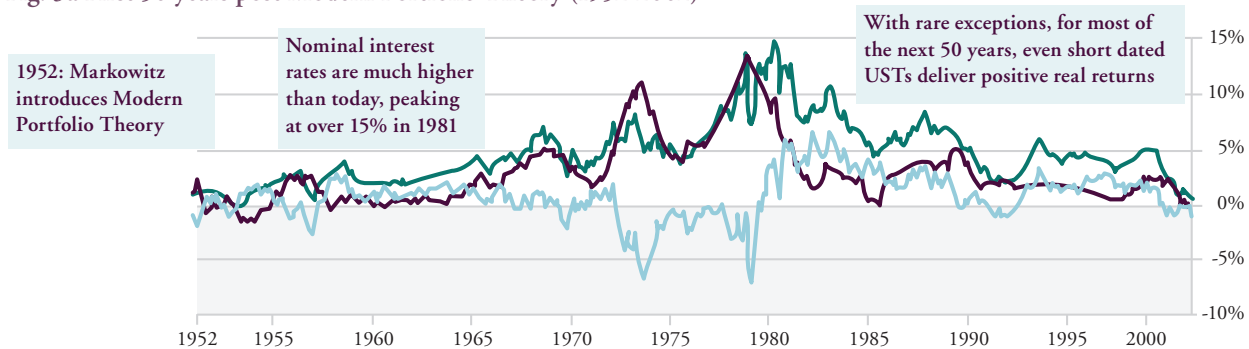
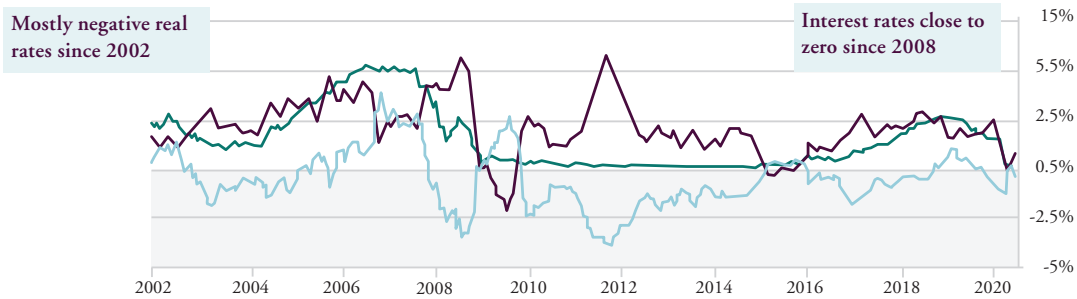


Fig. 3b The last 20 years (2002-present)



### Interpretation

The real interest rate is calculated as the difference between the nominal interest rate and the inflation rate. The chart above displays the **nominal interest rate** of a one-year US Treasury bond, the US **inflation rate**, and the resulting one-year **real interest rate**. Inflation is defined as the yearly percentage change of the Consumer Price Index (CPI). When inflation is high, prices for goods and services rise and thus the purchasing power per unit of currency decreases. The chart shows that, adjusted for inflation, the yields on US Treasuries (blue line) have often been negative.

Source: [Longtermtrends.net](http://Longtermtrends.net)

### Data Sources

#### Nominal interest rate

- Capital Markets Data: Nominal One-Year interest rate – from 1929 until 1990
- Quandl: Constant Maturity Treasury Rate since 1990

#### Inflation

- Federal Reserve Bank of St. Louis: CPI since 1913

## The last 20 years (2002-present)

Over the past twenty years, nominal interest rates have been very low, and post the GFC close to zero. Over the same period, real returns have generally been negative.

QE has changed the landscape beyond all recognition. Whilst an allocation to highly rated bonds can still provide a safe haven in moments of crisis, holding that position, other than for short periods of time, acts as a sure-fire drag on performance, possibly a very significant one. In the meantime, these bonds provide no real offsetting benefit in a crisis and certainly no convexity.



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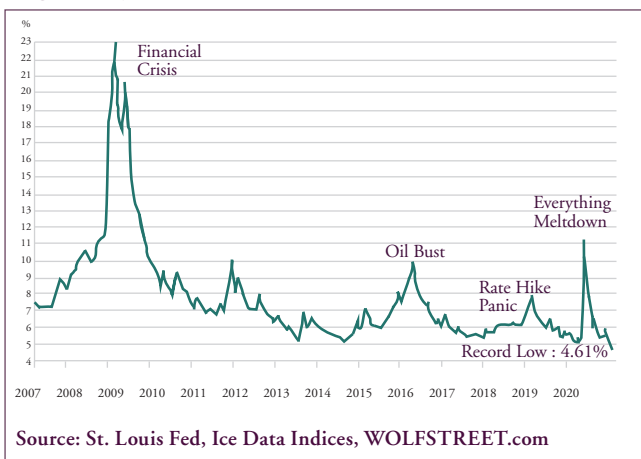
Yet, as investors have been re-examining the traditional 60/40 asset allocation, very few have seen fit to allocate to TP.

On the other hand, many – it seems – have been happy to either extend duration or go out the credit curve (junk bonds at 4.5% anyone?).

Extending duration is understandable, but it brings significant interest rate risk, even if today that risk feels quite low.

The move out the risk curve is far harder to comprehend; whilst sympathising with the need for yield, surely the modest returns do not compensate for the risk. In a risk-off moment, these positions are likely to correlate highly with equities (look at March '20 for example), and the convexity in these bonds, is entirely against you (limited upside, but can lose 100%).

Fig. 4 US junk bond yield hit record low



Other investors have simply increased their exposure to equities, hoping – praying – that the central bank put lasts forever. They know it will not, but so long as the ride does not stop now, they will always have time to come up with a plan B.

Well, Plan B is right in front of them!

Surely the better trade is to get yield from longer term, non-correlated investments (if the mandate allows for going out the liquidity curve), and then at the more liquid end, keep your equity exposure higher than you might otherwise feel comfortable doing, by allocating meaningfully to tail risk strategies?

Yet very few investors, at least in any meaningful way, do invest in tail protection. Why not?

### 4. The ‘negative expected value’ fallacy

Whilst, no doubt, there are several reasons, I believe the main one is that most investors significantly underestimate the real value of tail risk protection, instinctively assessing the returns in isolation and concluding such strategies have a negative expected return.

But however widely held this view may be, I believe it is wrong: owning well-constructed tail protection has the potential to offer a portfolio benefits above-and-beyond the raw returns of the strategy itself.

To evaluate these, returns need to be considered in the round, looking at the impact owning this protection has on the whole portfolio, and over the long term.

This approach is a central tenet of Modern Portfolio Theory and its logic remains sound today. If a portfolio manager constructs a trade with multiple legs, they do not – and should not – evaluate the performance of each leg in isolation; each part has its purpose, and what matters is the outcome of the trade as a whole. Indeed, it may well be that the trade itself serves a greater purpose within the broader portfolio and also needs to be viewed in that context.

This does not mean each component should not be scrutinised to ensure it has performed its role as expected; that should, of course, happen but is a different point.

And so it is with tail risk protection: one component part of a portfolio that brings to the investor considerable benefits before, during and after a financial crisis:

#### Before

With protection in place, the investor can stay more fully invested than would otherwise be the case. Given financial crises often come after extended bull runs, this has significant value to the investor that is not captured in the returns of the tail risk strategy.

#### During

In addition to the obvious benefits of the returns provided, and the reduction in volatility and drawdowns, owning tail risk could buy the investor time to think – rather than panic – in a free-falling market. If the fundamental principal of investing is to buy low and sell high, then being forced to capitulate when markets are crashing, must be counter to this ideal. This is neatly summarised in Warren Buffet’s famous quote: “be fearful when others are greedy, and greedy when others are fearful”. Not having to panic out in a crisis, provides investors with real value that is not captured in the raw returns of the tail protection strategy.



## Time to talk about tail risk protection

### After

Owning tail risk protection enables investors to do the opposite of panic out; they can average in. This is possible because an attractive feature of successful tail protection, is that liquidity in the positions they own generally increases in a crisis as market participants scramble to cover their short vol positioning. As gains are locked in, these returns can be redistributed to investors, providing them with valuable cash flow that can be invested just when markets are 'on sale' and when the most interesting, stressed opportunities exist.

Any gains made from these additional allocations, which might then be compounded over many years, and which might not have been possible without owning the tail protection, are, once again, never encapsulated in the raw returns of the tail protection strategy.

### Putting a value on these combined, mostly invisible benefits

Unfortunately, because these benefits remain invisible until you have experienced them, they end up being significantly under-appreciated by prospective investors, who wrongly conclude that tail protection has a negative value.

As an aside, even if tail protection did have a negative expected value – which, in any event, would depend on how often substantial drawdowns occurred – I would still make the argument to own it, in the same way I would advocate owning home insurance, car insurance and health insurance, all of which have negative expected values.

### 5. Have investors been lulled into thinking large drawdowns are a thing of the past?

It has not helped that the proliferation of these strategies, post the Global Financial Crisis has coincided with the worst possible climate for them: a very benign, low volatility environment courtesy of Quantitative Easing and the so-called central bank put, which has reinforced the perception of negative expected returns.

It is possible that this has lulled some investors into thinking that they don't need any protection; that substantial drawdowns have been rendered a thing of the past, or, at least unlikely to occur in the foreseeable future.

Whilst it is entirely possible that this 12-year-old bull market can extend further for some time yet, in the fullness of time, surely it will be the drawdown-free Twenty-Tens that is the anomaly, not the rest of history. Substantial drawdowns happen, and historically they have happened quite regularly.





## Time to talk about tail risk protection

### 6. Substantial drawdowns happen, and, historically, they have happened quite regularly

In the 50 years since 1970, one or both the S&P and Nasdaq suffered a drawdown of at least 25% on nine separate occasions (no double counting); that is one every 5 ½ years on average, or close to two a decade. This average has been skewed downwards by the last decade, the Twenty-Tens, which thanks to QE, saw a worst drawdown in the S&P of under 20%.

These nine drawdowns are only for the US; there are plenty of significant drawdowns in other markets, unrelated to those in the US. Two such examples are:

- Japan: it may surprise many that for a brief time in the aftermath of the 1987 Crash, Japan had a larger market cap than the US. Not for long, however, as the Country's leading index, the Nikkei 225, peaked on the last day of 1989 at 38,915. Remarkably, 31 years later, it is still 26% below that peak. The length of the drawdown is so extreme that in this report I break it in two: the initial drawdown, a decline of 63% through Aug '92, and the max drawdown to-date of 81.9% through Mar '09.
- The Asian crisis in 1997/98, for which Hong Kong's Hang Seng Index is a good proxy, was down 56% at the low point (Aug '98), and then, having recovered from that by Nov '99, started another 50% drawdown just four months later.

Table 1: Drawdowns of greater than 25% in the past 50 years (no double counting), S&P 500, Nasdaq and some non-US example.

Drawdowns greater than 25% <sup>1</sup> since 1970 <sup>2</sup> (no double counting <sup>3</sup> ), S&P 500, Nasdaq, and <u>some</u> non-US examples						
Index	Peak date	Valley date	Max Drawdown	Peak recovered	Total months of DD	Total months recovery
S&P 500	Nov '68	Jun '70	-32.90%	May '72	19	23
S&P 500	Dec '72	Sep '74	-46.20%	Jul '80	22	70
Nasdaq	May '81	Jul '82	-25.10%	Nov '82	15	4
Nasdaq	Jun '83	Jul '84	-27.90%	Dec '85	14	17
S&P 500	Sep '87	Nov '87	-30.20%	Jul '89	3	20
Nasdaq	Sep '89	Oct '90	-30.30%	Mar '91	14	5
Nikkei 225 <sup>4</sup>	Dec '89	Aug '92	-63.23%	N/A	32	N/A
Hang Seng	Dec '93	Jan '95	-38.20%	Sep '96	14	20
Hang Seng	Jul '97	Aug '98	-55.50%	Nov '99	14	16
Nasdaq	Feb '00	Sep '02	-75.00%	Nov '14	32	146
S&P 500	Oct '07	Feb '09	-52.60%	Mar '13	17	49
Nikkei 225 <sup>4</sup>	Dec '89	Mar '09	-81.87%	Not yet	230	?
S&P 500	Dec '19	Mar '20	-33.90%	Jul '20	3	4

1. Monthly data used throughout, save for the Covid-related drawdown where daily data is used. This is because using monthly data, the max drawdown in the S&P was 20%, whereas the actual max drawdown was 33.9%. Given this is the only substantial drawdown since the GFC, I felt it warranted inclusion. Apart from the Nikkei (see 4 below), this analysis does not account for drawdowns that occur when markets are still below their prior high watermark.

2. S&P 500 1970 drawdown calculated from its start in Dec '68

3. No double counting meaning I have only listed one index for each event. The only exception to this is in 2009, where I wanted to include the Nikkei as well as the S&P, because to date at least, this marks the low point for Japan's against its 1989 peak. Please note, I have not selected the index with the largest drawdown in each event; my default has been to use the S&P, save for the dotcom bust, where I have, correctly I believe, used the Nasdaq, which was epicentre of that drawdown.

4. The Nikkei remains in a drawdown started in 1989. I have included the initial low point (Aug '92) and the current max DD (Feb '09), neither recovered yet.

Source: Diversifying Strategies Limited, Yahoo Finance

**Note the regularity of these drawdowns:** two in the Seventies, three in the Eighties, four in the Nineties and three in the Noughties (all over 50%). Only the Twenty-Tens was (substantial) drawdown-free, and surely this will prove to be an outlier.

Indeed, it did not take long for the Twenties to record its first drawdown of note, and although this was quickly recovered, who would bet against a much larger and longer drawdown in the not-too-distant future?

Which is not to say that markets can't become much more extended yet; as Jeremy Grantham notes in his recent market review: "long, slow-burning bull markets can spend many years above fair value and even two, three or four years far above." However, the more extended the run, the nastier the eventual bursting of the bubble is likely to be.





## Time to talk about tail risk protection

### 7. Drawdown losses and recoveries are not equal

Substantial drawdowns require non-linear recoveries that are exponential relative to the scale of the loss; gains and losses are not equal.

Here is the same table now including the gains required to recover from each drawdown.

**Table 2: Drawdowns greater than 25%<sup>1</sup> since 1970<sup>2</sup> (no double counting<sup>3</sup>), S&P 500, Nasdaq, and some non-US examples.**

Drawdowns greater than 25% <sup>1</sup> since 1970 <sup>2</sup> (no double counting <sup>3</sup> ), S&P 500, Nasdaq, and some non-US examples							
Index	Peak date	Valley date	Max Drawdown	Gain required	Peak recovered	Total months of DD	Total months recovery
S&P 500	Nov '68	Jun '70	-32.90%	49.03%	May '72	19	23
S&P 500	Dec '72	Sep '74	-46.20%	85.87%	Jul '80	22	70
Nasdaq	May '81	Jul '82	-25.10%	33.51%	Nov '82	15	4
Nasdaq	Jun '83	Jul '84	-27.90%	38.70%	Dec '85	14	17
S&P 500	Sep '87	Nov '87	-30.20%	43.27%	Jul '89	3	20
Nasdaq	Sep '89	Oct '90	-30.30%	43.47%	Mar '91	14	5
Nikkei 225 <sup>4</sup>	Dec '89	Aug '92	-63.23%	171.96%	N/A	32	N/A
Hang Seng	Dec '93	Jan '95	-38.20%	61.81%	Sep '96	14	20
Hang Seng	Jul '97	Aug '98	-55.50%	124.72%	Nov '99	14	16
Nasdaq	Feb '00	Sep '02	-75.00%	300.00%	Nov '14	32	146
S&P 500	Oct '07	Feb '09	-52.60%	110.97%	Mar '13	17	49
Nikkei 225 <sup>4</sup>	Dec '89	Mar '09	-81.87%	451.57%	Not yet	230	?
S&P 500	Dec '19	Mar '20	-33.90%	51.29%	Jul '20	3	4

1. Monthly data used throughout, save for the Covid-related drawdown where daily data is used. This is because using monthly data, the max drawdown in the S&P was 20%, whereas the actual max drawdown was 33.9%. Given this is the only substantial drawdown since the GFC, I felt it warranted inclusion. Apart from the Nikkei (see 4 below), this analysis does not account for drawdowns that occur when markets are still below their prior high watermark.
2. S&P 500 1970 drawdown calculated from its start in Dec '68
3. No double counting meaning I have only listed one index for each event. The only exception to this is in 2009, where I wanted to include the Nikkei as well as the S&P, because to date at least, this marks the low point for Japan's against its 1989 peak. Please note, I have not selected the index with the largest drawdown in each event; my default has been to use the S&P, save for the dotcom bust, where I have, correctly I believe, used the Nasdaq, which was epicentre of that drawdown.
4. The Nikkei remains in a drawdown started in 1989. I have included the initial low point (Aug '92) and the current max DD (Feb '09), neither recovered yet.

Source: Diversifying Strategies Limited, Yahoo Finance

#### These are big numbers, often taking years to recoup.

The most famous drawdown of all was the Dow Jones between 1929 and 1932, when it declined by 89%, requiring a subsequent gain of more than 800% to recover.

If that feels like ancient history (and Japan too far away), then how about the NASDAQ, which declined a whopping 78% from its 5048.6 peak in March 2000, to a low of 1114.1 on 9th October 2002.

It took 12 ½ years to gain the 354% required to reach a new peak on 23rd April 2015. So great was this fall, that the market was still more than 40% off its peak when the GFC started.

And what about the GFC itself? The S&P 500 was down 57% between 9th October 2007 and 9th March 2009, from which it took 4 years to recover the 132% required to regain its previous high watermark.



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The following chart shows, in order of severity, the losses and corresponding gains required for all the drawdowns in the table above (>30%) with the Dow Jones drawdown from the Great Depression thrown in for good measure.

Fig. 5 Drawdowns >30% from Table 1, plus the Dow Jones from 1929-1932



As Fig. 5 makes plain, the gains needed to recover from a drawdown are non-linear. As the severity of a drawdown increases, the subsequent gains needed to recover increase exponentially.

## 8. Substantial drawdowns result in permanently lost ground

I think less well appreciated is the impact substantial drawdowns have on long term performance, with many perceiving the impact to only being short-term, equating in some way to the length of the drawdown in time.

But is that right?

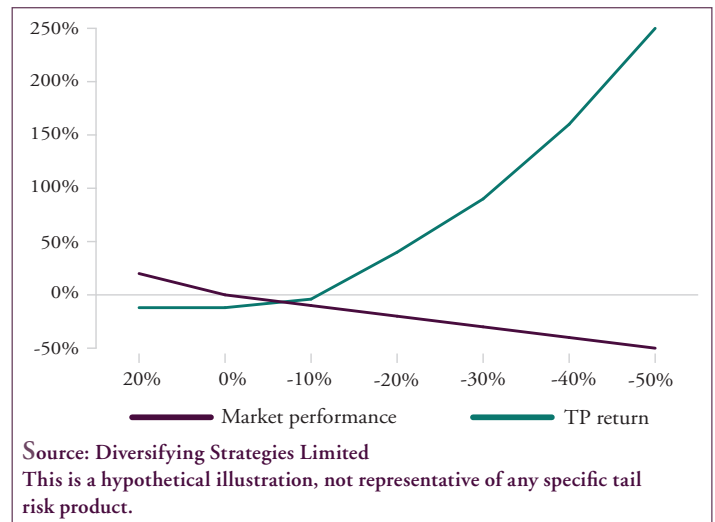
In an attempt to illustrate this impact, I calculated where certain indices would be today had substantial drawdowns been avoided. I ran these calculations for drawdowns of both >30% and >45% and over two lookback periods covering the past 25 years and 50 years. These hypothetical 'Protected Index' values are shown in the table below.

To be clear, I am not suggesting that drawdowns can be negated altogether. Tail risk does not offer absolute protection against portfolio drawdowns. However, this does provide a stark illustration of the impact large drawdowns have over time.

If it is possible hold a genuinely uncorrelated asset, which has the capacity to increase in value exponentially whilst other assets are falling, and where these returns can outweigh the cost of carry over the long term, surely this is something every risk-conscious portfolio manager should consider.

With this in mind, surely it is logical to hold an asset which is uncorrelated with the rest of a portfolio, and which is itself capable of exponential gains during a crisis?

Fig. 6 Idealised risk tail protection return chart



By dampening the drawdown, investors can reap a disproportionate benefit in easing the recovery. This is why successful tail risk protection is such a good hedge for equity market risk.



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**Table 3: Actual index levels (end 2020) are shown in light grey, with 'Protected Index' levels shown in green.**

Impact of >30% and >45% drawdowns <sup>1</sup> on the S&P 500, Nasdaq & Hang Seng over 50 <sup>2</sup> and 25 <sup>2</sup> year time frames							
Index	Level of drawdown avoided	Time period	Index value – end 2020	Protected Index value if substantial drawdowns avoided	Outperformance vs actual index – Percentage	Outperformance vs actual index – Multiple	Under performance: Index Value as a percentage of Protected Index value
S&P 500	-30%	50 Years	3,756	73,042	1945%	19.45	5.1%
S&P 500	-45%	50 Years	3,756	27,381	729%	7.29	13.7%
S&P 500	-30%	25 Years	3,756	18,422	490%	4.90	20.4%
S&P 500	-45%	25 Years	3,756	14,738	392%	3.92	25.5%
Nasdaq	-30%	50 Years	12,888	295,081	2290%	22.90	4.4%
Nasdaq	-45%	50 Years	12,888	124,064	963%	9.63	10.4%
Nasdaq	-30%	25 Years	12,888	57,463	446%	4.46	22.4%
Nasdaq	-45%	25 Years	12,888	51,646	401%	4.01	25.0%
Hang Seng	-30%	35 years	27,231	1,089,801	4002%	40.02	2.5%
Hang Seng	-45%	35 years	27,231	557,337	2047%	20.47	4.9%

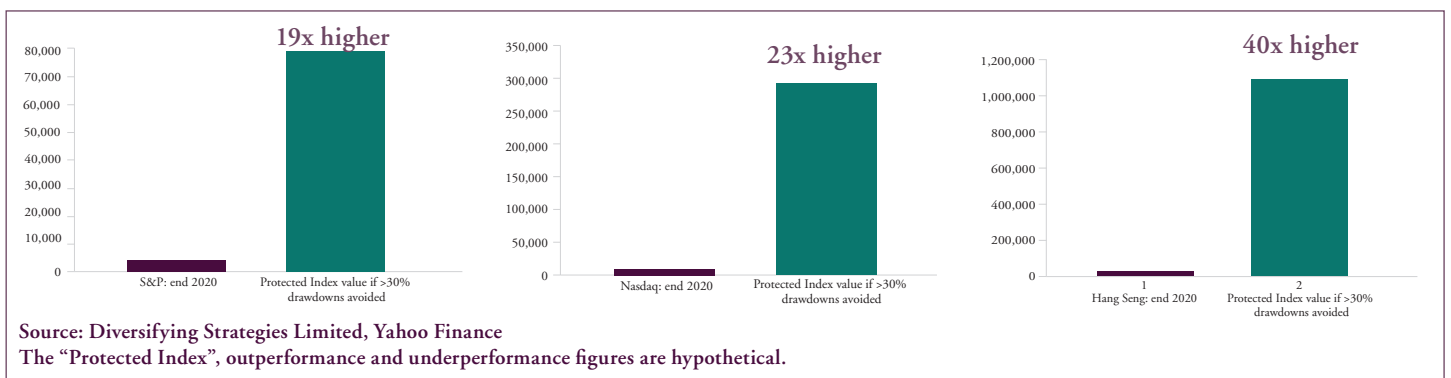
1. This table uses monthly data, save for the Covid-related drawdown where daily data is used. This is because using monthly data, the max drawdown in the S&P was 20%, whereas the actual max drawdown was 33.9%. Given this is the only substantial drawdown since the GFC, I felt it warranted inclusion.

2. If an index was in a drawdown at the start of the period, then period extended to start of drawdown. Nasdaq Index launched in Feb 1971 so just under 50 years, Hang Seng data shown for one period only, from 1986.

**Source: Diversifying Strategies Limited, Yahoo Finance**  
**The “Protected Index”, out performance and under performance figures are hypothetical.**

The columns in blue quantify the differential between actual and 'Protected' index levels in different ways, with some of the highlights shown in the charts below:

**Fig. 7 The devastating long-term impact of substantial drawdowns**





## Time to talk about tail risk protection

### Primarily an academic exercise, but quite telling:

I recognise this is substantially an academic exercise; tail protection will generally come with an annual cost, which varies enormously depending on the market environment, although against that, we would also need to factor in any 'excess' gains generated from excess equity market allocations during an extended bull market, that the investor may **not** have held without having the tail risk protection in place. Likely at the expense of high-grade, but ultra-low yielding, bonds.

This introduces too many subjective variables to spend too much time on, although – for what it's worth – the analysis I have run, evidences that adding tail protection offers the potential to reduce downside deviation, increase the Sortino ratio, lower drawdowns, and improves skew.

How well any individual investor benefited – or not – from such an approach, would depend enormously on timing: someone who invested in tail protection in 2007 and still held it now, would have had a very different experience from someone who invested in it in 2009 and, frustrated by the holding costs, cut it in 2019.

What this analysis does do, however, is make the point that the sorts of drawdown in which well-constructed TP should thrive, could have a very significant impact on long term performance, which is counter to the notion – quite widely held I think, particularly by long term investors – that the impact of SDDs is only short term; equating to the length of drawdown measured in time. If it takes 'only' two years to reach a new high watermark (i.e. peak to valley to new peak) then all that is lost is two years and in the context of a multi-decade investment horizon, what is two years?

This thinking is analogous with a car journey from A to B, where if the car breaks down – whilst tedious and inconvenient – the only consequence is to arrive at the original planned destination somewhat later than hoped for. Viewed this way, the impact of the breakdown is simply lost time.

But with investing, there is no final destination; each breakdown permanently prevents the car from making as much progress as would have been the case had it not broken down.

### 9. Other factors that may put investors off tail risk protection

There are, of course, other factors beyond the perceived negative expected value one, that have contributed to investors reluctance to allocate to tail protection strategies:

#### A lack of certainty that tail risk will pay when needed

I recognise that a secondary concern that holds many investors back, is a fear that having invested in tail protection, it fails to deliver when needed.

This is a legitimate fear, but amongst an ever-growing pool of managers in this space, investors are in a better position than ever to evaluate the various tail risk offerings out there, and to carry out in-depth investment and operational due diligence.

Delving into those strategies is beyond the remit of this report, which is designed to tackle the fundamental issue of whether – assuming it is possible to put in place tail protection strategies that can offset substantial equity drawdowns (and at a reasonable cost) – that investment should be made?

#### Complexity: hard to explain to underlying investors, or the trustees that represent them

Often, though not always, tail protection strategies are complex and hard to analyse. For the same reason, they can be challenging to explain to others; whether that is an analyst trying to brief his boss and/or peers; or a portfolio manager explaining them to their underlying investors, or the trustees that represent them.

- My view is that given the trustees role is precisely to try and ensure long term targets are delivered, this is a job of communication more than anything else:
- The long-term goal – set by you, the investor/trustees – is XYZ
- Substantial drawdowns, which occur frequently, severely impact on our ability to deliver XYZ
- Tail protection can help mitigate against substantial drawdowns
- Explain the benefits that tail protection can provide, as well as the costs and risks of the strategy, and how those risks can be managed.





## Time to talk about tail risk protection

### Concerns about the impact on short term performance

Investing in tail risk has a negative impact on short term performance, and as happened in the Twenty-Tens, it is possible for markets to enjoy extended periods of time between substantial drawdowns.

To my mind this is surely not a legitimate concern. The focus should be on the long term needs of the capital being run, which generally will have a multi-decade horizon. If owning tail risk helps the portfolio achieve its long-term goals, then it should be included. Further, to the degree having proper protection allows the investor to be more fully invested in risk assets, then any short-term cost can be compensated for anyway.

### 10. Conclusion

Over the past decade, the proliferation of tail protection strategies has added a useful weapon to investors' diversification armoury. Useful most of the time, it seems particularly relevant today, given the unattractive state of the bond market and a 12-year bull market in equities.

That relatively few investors allocate to such strategies is mostly down to the perception that tail protection has a negative expected value, something that twelve years of QE has not helped. This thinking needs challenging! Once all the portfolio benefits have been considered – before, during and after a crisis – I believe successful tail protection has a high positive expected return.

It may be that the 'central bank put' has lulled investors into thinking that large drawdowns are a thing of the past, but, in time, it will surely be the Twenty-Tens that prove to be the anomaly, not the rest of history. Substantial drawdowns happen and, historically, they happen quite regularly.

Less well appreciated is the impact they have on long term returns. Rather than thinking of drawdowns in terms of time, investors should look at them through a prism of permanently lost ground.

If it is possible to hold a genuinely uncorrelated asset, which has the capacity to increase in value exponentially whilst other assets are falling, and where these returns can outweigh the cost of carry over the long term, surely this is something every risk-conscious portfolio manager should consider?

**It is time for investors to think again.**

### Disclaimer

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All of the examples and scenarios discussed within this document are hypothetical. The idealised tail risk return profiles are included purely for illustrative purposes and are not intended to represent any specific products or funds. Similarly, the "protected index" figures are included purely to help illustrate the long-term impact that drawdowns can have on a portfolio; there is no suggestion that such returns could be achieved in practice, and no suggestion that tail risk can offer absolute protection against drawdowns. As already noted, this document relies on the assumption that any tail risk deployed is successful in achieving its objectives, which is not guaranteed.

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