



Low-Volatility investing: Standing out from the crowd

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1. Executive summary

Low-volatility strategies have grown notably popular in recent years, assuming many of the qualities of an investment bandwagon and prompting fears of a crowded trade. We argue that these fears remain unfulfilled and, perhaps more importantly, that even their realisation should not diminish the appeal of products that adopt a truly distinctive approach.

In explaining why we believe this is the case, we aim to demonstrate the appeal of strategies that acknowledge the continued value of looking beyond the herd. We argue that such strategies should take the best elements of the methodologies now commonplace in the sector - foremost among them the use of factors to exploit the low-volatility anomaly - and combine them with a process that also draws on experience, expertise and insight.

The ultimate goal of such an approach should be to recognise the blurring of the lines between passive and active management and to span them as effectively as possible. In short, we suggest that what investors in this sphere increasingly want is a rigorous, proactive investment ethos that genuinely strives to deliver both low volatility and high alpha.

2. Introduction

A celebrated financier and tycoon was once invited to sum up his business philosophy. “If you see a bandwagon,” he said, “it’s too late.”

Investors could be forgiven for thinking this axiom now applies to the sphere of low-volatility investing. Once dismissed as absurd, the notion that greater reward need not involve greater risk is today so widely accepted that “smart beta” funds designed to exploit this anomaly reportedly accounted for more than \$640 billion in assets under management by the end of Q3 2017¹. What began almost half a century ago as a heterodox research paper that struggled to find an audience has metamorphosed into a genuine investment phenomenon - a classic illustration of contrarianism in action and a stunning realisation of that most overused of scientific tropes, the “paradigm shift”.

Yet does it automatically follow, as some commentators have warned, that this particular bandwagon’s wheels are in danger of falling off? Is it inevitable, given the sheer weight of passengers, that its axles will buckle and its suspension will collapse? Or does a low-volatility approach still have appeal in a risk-averse age, especially for investors who recognise the continued value of looking beyond the herd?

In this white paper we examine the remarkable history of low-volatility investing, charting its rise from the margins to the mainstream. We investigate the theoretical and behavioural underpinnings of the concept and the extent of their present-day relevance; we ask whether the current market really is crowded and what, if anything, has changed; and we assess the threats and opportunities that have emerged from the sector’s extraordinary growth.

In the spirit of unconventional thinking that was central to smart beta’s genesis, we also look at the importance of staying ahead of the curve. We discuss the construction of portfolios that aim to minimise rather than spread risk; we reflect on the role of factors, fundamentals and behavioural insights in achieving this goal; and we present evidence of the effectiveness of such strategies.

In doing so we hope to answer a number of questions that institutional investors are increasingly posing in light of recent developments. In tandem, we seek to make what we believe is a crucial point: that it is still possible, even in a mass-market scenario, to stand out from the crowd.

“What began almost half a century ago as a heterodox research paper that struggled to find an audience has metamorphosed into a genuine investment phenomenon.”

3. From the margins to the mainstream

3.1. Overview

For years the notion that higher returns could be achieved only through higher risk was an immovable cornerstone of finance. It was more than a mere idea: it was a defining tenet - one enshrined at the heart of the most celebrated investment models.

The first serious, empirical challenge to this belief surfaced in the early 1970s. It was so at odds with established thinking that many of its most significant findings were expunged during the review process. When it was finally published, by and large, it was disdained as a curiosity.

Now, almost half a century later, the fundamental message of this landmark piece of research - that higher risk does not necessarily translate into higher returns - underpins some of the most successful investment strategies in the world. In this chapter we examine how this turnaround came about, why it took so long and where it has led us to today.

3.2. A lone voice in the investment wilderness

There was no shortage of world-shaking events in 1972. Black September gunmen brought terror to the Munich Olympics. US Secretary of State Henry Kissinger, in what history would duly record as a spectacular bout of optimism, announced the imminent end of the Vietnam War, declaring: "Peace is at hand." Five men were caught burgling the Democratic National Committee's headquarters at the Watergate Complex in Washington DC, triggering a sequence of events that would eventually lead to the downfall of President Richard Nixon. Small wonder, perhaps, that the publication of *On the Evidence Supporting the Existence of Risk Premiums in the Capital Markets*, a working paper by American economists Robert Haugen and James Heins, went essentially unremarked.

The authors were well aware that their findings would not even sit comfortably with the financial spirit of the times, let alone rocket to the top of the news agenda. The investment sphere was in thrall to the wonders of "modern finance", as epitomised by Harry Markovitz's Modern Portfolio Theory and the Capital Asset Pricing Model. With the concept of the efficient market firmly entrenched, capitalisation-weighted indexes such as the S&P 500 were attracting trillions of dollars. There was scant appetite, particularly in academic circles, for the suggestion that less risk could translate into favourable returns.

As if to emphasise the privations of daring to challenge conventional wisdom, many of Haugen and Heins' results were excised from the manuscript prior to publication. Nonetheless, sufficient survived to support the pair's key contention: based on an analysis of US stock and bond markets from 1926 to 1971, Haugen and Heins concluded that less volatile portfolios had delivered higher average returns than their "riskier" counterparts over the long term.

Enthusiasm for this attempt to topple one of the mightiest pillars of finance was decidedly muted. Some of the potential extrapolations - not least that risk might not actually carry a "risk premium" and could therefore be mispriced or even a source of negative reward - were especially unpalatable for the vast majority of researchers and practitioners. Accordingly, *On the Evidence Supporting the Existence of Risk Premiums in the Capital Markets* was swiftly condemned to the realms of heterodoxy.

Undeterred, Haugen and Heins repackaged their findings in a 1975 paper. This, too, failed to trouble the mainstream. Swept along by the prevailing intellectual tide, "modern finance" sailed serenely onwards.

3.3. Contrarianism trumps convention

Two of our colleagues, Stephen Anness and Andy Hall, neatly encapsulated the nature of genuine contrarianism in a white paper entitled *Daring to Be Different: the Benefits of Contrarian Investing*. They wrote: "True contrarianism... is much more than irksome devil's advocacy: it is a willingness to examine the consensus, recognise it as imperfect and demonstrate that a better answer lies elsewhere. In the sphere of investment, where farsightedness and ingenuity can frequently appear in short supply, such a mindset can be of notable benefit."

Haugen and Heins certainly recognised the imperfection of the consensus. They were also utterly determined to demonstrate that a better answer lay elsewhere. Yet vindication would arrive only after an ordeal that contrarians in any walk of life must inevitably endure: the conviction-testing wait for the herd to abandon the comfort of conformity.

It may seem incredible now, at a time when low beta's value is almost universally acknowledged, but the wait would last for decades. It was not until the turn of the millennium that the evidence began to accrue at speed, with a variety of studies either reinforcing Haugen and Heins' formative findings or exposing striking parallels in other markets. In 2006 an

analysis by researchers from Columbia and Cornell Universities highlighted the "abysmally low" performance of high-volatility US stocks - an inference the authors memorably described as "something of a puzzle". Drawing on 30 years' worth of data, a 2007 paper reported outperformance by low-volatility stocks in global, US, European and Japanese markets and urged investors to "include low-risk stocks as a separate asset class in the strategic asset-allocation phase of their investment process". By 2010, with the dust from the global financial crisis still to settle, what had become known as the low-volatility anomaly was routinely being discovered in the course of studies encompassing the MSCI World Index.

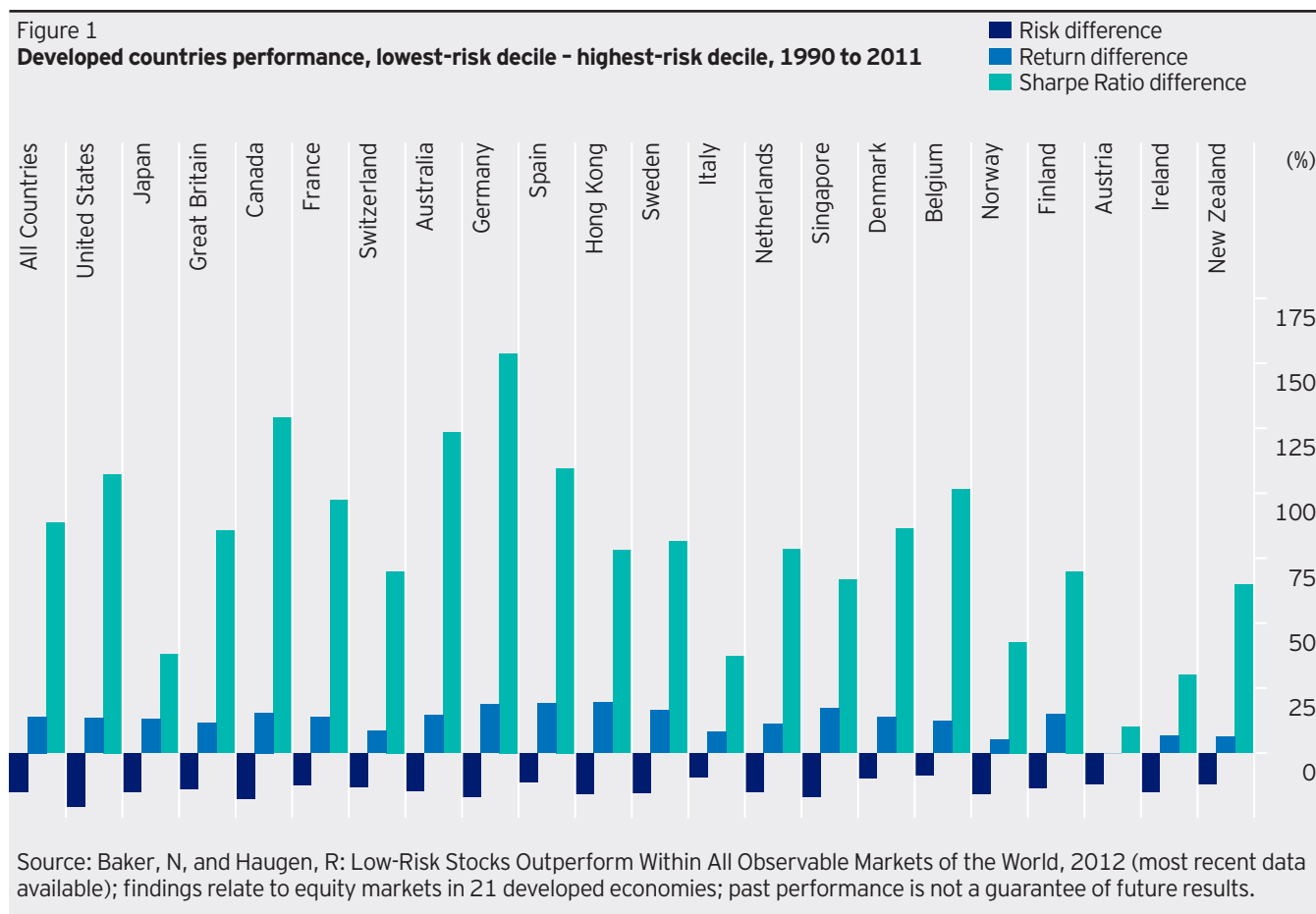
It is well worth noting that by this stage, given the seismic events of 2007 and 2008, the tune that had met with such apathy when first played by Haugen and Heins suddenly found an altogether more receptive audience. Once drowned out by the all-stifling din of "modern finance", it was now sweet music to the ears of investors everywhere. The revelation that high volatility was not a prerequisite for high returns chimed beautifully with a renewed fervour for aversion to risk.

Fittingly, it fell to Haugen to administer the coup de grâce. In a 2012 study co-authored with Nardin Baker, creator of one

of the first-ever low-volatility portfolios, he showed the historical persistence of the anomaly across almost all of the world's equity markets - 21 developed and 12 emerging economies - between 1990 and 2011. Decorating his final remarks with a cathartic censure of those bent on safeguarding "the dominant paradigm", Haugen proclaimed: "Existing textbooks are wrong and need to be rewritten." Published shortly after his death, it was to be his last paper.

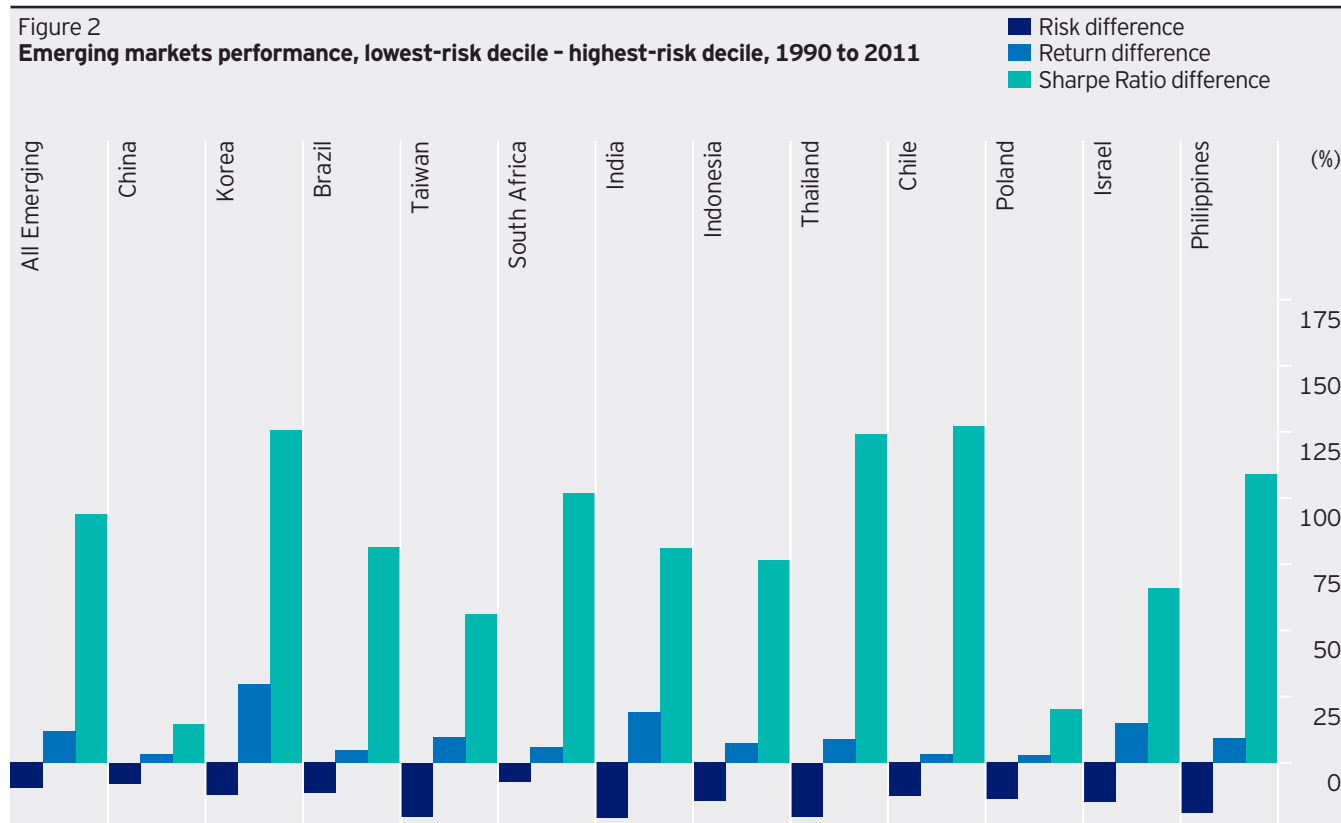
Figure 1

Developed countries performance, lowest-risk decile - highest-risk decile, 1990 to 2011



Source: Baker, N, and Haugen, R: *Low-Risk Stocks Outperform Within All Observable Markets of the World*, 2012 (most recent data available); findings relate to equity markets in 21 developed economies; past performance is not a guarantee of future results.

Figure 2
Emerging markets performance, lowest-risk decile - highest-risk decile, 1990 to 2011



Source: Baker, N, and Haugen, R: Low-Risk Stocks Outperform Within All Observable Markets of the World, 2012 (most recent data available); findings relate to equity markets in 12 emerging economies; past performance is not a guarantee of future results.

3.4. Understanding the low-volatility anomaly

Even in the 1970s, Haugen and Heins were not alone in bidding to overturn some of finance and economics' most fiercely protected precepts. Pioneering developments in other areas were also under way, and in time these would aid the low-volatility anomaly in its long fight for legitimacy; just as importantly, they would also shed much-needed light on the reasons for its very existence.

The emergence of what we now call low beta was only one part of a broader move towards an enhanced understanding of factors. Under the aegis of the Capital Asset Pricing Model (CAPM), it was held that market risk - the element of a security's overall risk or volatility due to correlation with a capitalisation-weighted benchmark - was the sole factor deserving of consideration when building portfolios. A succession of advances, including Stephen A Ross's Arbitrage Pricing Theory and Eugene Fama and Kenneth French's three-factor model, steered us from the seductive simplicity of the CAPM to the state-of-the-art multi-factor models of today. Vital to the journey was the realisation that diversification purely by asset class might obscure risk concentrations and that much more thought should be given to risk-premium-based strategies - low-volatility approaches among them.

The idea of the efficient market was also coming under attack from another direction, with behavioural scientists amassing an ever-distending body of evidence to torpedo the long-cherished ideal of the rational investor. Nobel Prize winners Daniel Kahneman and Amos Tversky led the way, introducing groundbreaking theories such as loss aversion and the conjunction fallacy (see sidebar) to explain why - contrary to the graceful equations and myopic suppositions that had ruled for years - investors might not be relentlessly machine-like in their dispassion and Vulcan-like in their grasp of logic. As a consequence, along with several other peculiarities in the sphere of finance, the low-volatility anomaly could be attributed to the sort of mass propensity for cognitive error that has forever dogged humanity in all its endeavours.

Informed by all of the above, the basic argument runs as follows: high-volatility stocks produce inferior returns because they are overpriced; they are overpriced because of excessive demand; excessive demand is driven by an array of psychological biases; and such biases occur because people are irrational. We will return to each of these points in the following chapter, since the question of whether some or all of them still apply today is pivotal to the debate over whether low-volatility investing is now a crowded trade.

Equally germane is the question of why institutions have customarily neglected to offset the price impact of the "irrational" demand for high-volatility stocks. This conundrum has proved more contentious. Mandates, arbitrage and leverage constraints have been put forward as possible explanations, as posited in a comprehensive 2012 paper co-authored by Jeffrey Wurgler, Professor of Finance at New York University Stern School of Business, and Malcolm Baker, Professor of Finance at Harvard Business School. We will also revisit this issue in the next chapter, as the future direction of institutional responses is absolutely central to the purpose of this white paper.

Common investor biases that fuel the low-volatility anomaly

Loss aversion

Numerous experiments have explored the idea of loss aversion. Also known as prospect theory, the phenomenon concerns an individual's apparently inherent tendency to favour the avoidance of losses over the acquisition of gains. At first the notion seems to suggest investors would shun volatility, bearing in mind the heightened risk of losing money; but research has shown the opposite is more likely, because the willingness to tolerate risk shifts with the probabilities involved.

Imagine, for instance, a gamble that offers a minute chance of landing a six-figure jackpot and an almost certain chance of losing next do nothing. Many people would find such a risk-reward balance too tempting to resist. In the academic literature this is sometimes referred to as "a preference for lotteries"; and it helps to explain not only why various forms of gambling are so popular but why some investors are prepared to overpay for a few volatile stocks - often at the expense of diversification - in the hope of a swift and sizeable payout.

Overconfidence

Behavioural psychologist Daniel Kahneman was once invited to meet with a group of fellow academics to discuss the development of a new school curriculum. Each member of the team predicted the project would be completed within 18 to 30 months. Although one of those present admitted around 40% of all the schemes he had been involved in had failed totally and not one had been realised in less than seven years, they pressed on. The project concluded eight years later. The curriculum was never used.

Kahneman subsequently carried out a series of experiments to show this manner of misplaced overconfidence is commonplace in a range of settings. Moreover, he demonstrated that such errors are systematic rather than random - a consequence of innate bias rather than fleeting confusion. In short, people tend to prize their own judgment over available data - which is why investors habitually overestimate their own ability to handpick "winning" stocks.

The conjunction fallacy

Linda is 31 years old, single, outspoken and very bright. She majored in philosophy. As a student she was deeply concerned with issues of discrimination and social justice and also participated in anti-nuclear demonstrations. Which is more probable? 1 - Linda is a bank teller; 2 - Linda is a bank teller and is active in the feminist movement.

Most respondents to this question, which was originally posed in an experiment devised by Kahneman and fellow Nobel Prize winner Amos Tversky, choose option 2. Wrong! Option 2 is a subset of option 1 and therefore less likely. Behavioural scientists say many investors use much the same warped reasoning to ignore the underlying fact that most speculative investments in high-beta stocks do not pay off: instead they base their decisions on a tiny number of successes and continue their skewed pursuit of "the next big thing".

3.5. Low-volatility investing today

"Low-volatility anomaly" is not the only expression to have entered common economic parlance after being coined in the 1970s. Another - and one with which low beta's fortunes have to some extent recently become interlinked - is "financial repression".

Stanford University economists Edward Shaw and Ronald McInnon introduced the term in 1973 to describe measures by which governments channel funds to themselves to reduce debt. Such measures might include the capping of interest rates, government ownership of domestic banks, high reserve requirements and capital controls.

Sound familiar? Shaw and McInnon's original intention was to "disparage growth-inhibiting policies in emerging markets", but the very same methods have been deployed in many developed economies in the wake of the global financial crisis. Although the macroeconomic picture now appears one of steady growth, the discreet transfer of assets from savers to borrowers - otherwise known as governments - is still taking place, accompanied by the lingering spectre of austerity and the travails of a longer economic cycle.

As a result, the search for returns that are not just reliable but meaningful has undoubtedly become harder. Fixed-income products, many of which were regarded as convenient "safe havens" barely a decade ago, now harbour comparatively little appeal. Despite having their confidence shaken by the turmoil of 2007 and 2008, most investors have come to accept that equities represent one of the likeliest routes to recovery for portfolios that may have suffered from the general waning of bonds and the concomitant erosion of compound interest's much-trumpeted contribution to the preservation and augmentation of wealth.

In such an environment, as touched upon in section 3.3, low-volatility investing has tapped into the zeitgeist like few other financial innovations. Not least among the mushrooming demographic of older and more conservative investors, the prospect of enjoying decent returns while limiting risk can be understandably compelling. Let us not forget, too, that many of the stocks in which low-volatility products invest are dividend payers. For want of a better and less dramatic phrase: where will it all end?

"Low-volatility investing has tapped into the zeitgeist like few other financial innovations."

4. A “crowded” market: threats and opportunities

4.1. Overview

There is an old joke about popularity. It has been attributed to assorted wits and raconteurs through the years, with the first recorded occurrence dating back to the late 19th century. It can be summed up in the following exchange:

- A:** “Why don’t we go to that restaurant we both like?”
B: “Oh, nobody goes there anymore. It’s too crowded.”

Claims that the low-volatility sector has become crowded are most frequently complemented by warnings of rising valuations – and, by extension, overvaluations – and by the implication that the underlying dynamics of portfolios might change. There is also the psychology of the adoption cycle, with research from several fields showing that those who were ahead of the curve tend to look elsewhere when what was once a niche morphs into a mass market. In this chapter we ask whether popularity, in this instance at least, is a blessing or a curse; and we begin to consider how best to respond if the latter is closer to the truth.

4.2. A victim of its own success?

Anyone wishing to explain the substantial inflows into low-volatility strategies during the past couple of years could do worse than to start by surveying the performance of the S&P 500 during the second half of 2015 and the first half of 2016. As you may recall from section 3.2, it was this index that was most often liable to capture the hearts of CAPM devotees back when faith in the positive relationship between high risk and high returns reigned supreme.

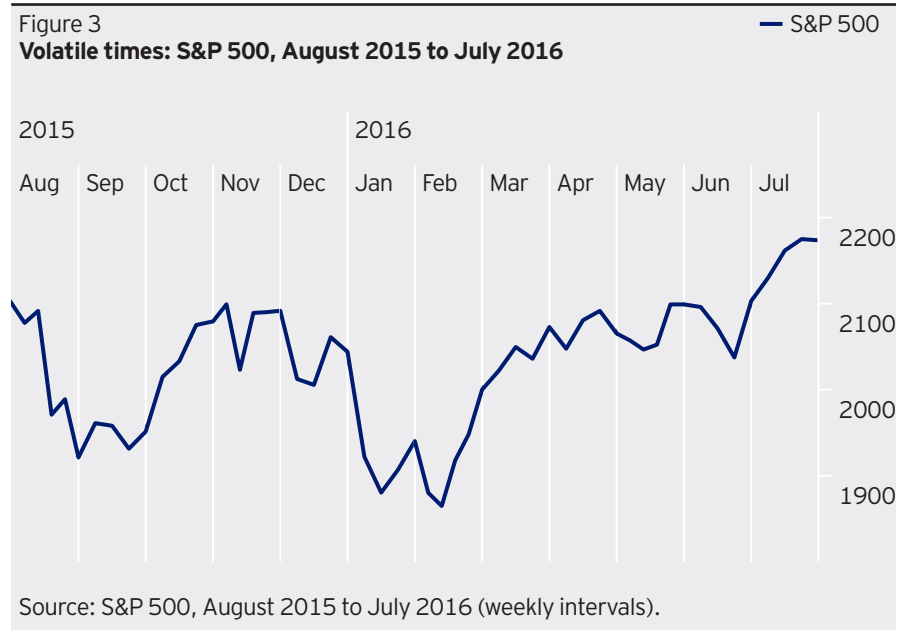
In August 2015, according to data from Bloomberg, the S&P 500 plummeted by 11% after China devalued the yuan.

In 2016, as investors grappled with the outlook for global growth, it plunged by 10% during the 45 days from January 1; the UK’s vote for Brexit then triggered a 5% drop in June. By the middle of July 2016, having recovered from every shock, the index was at an all-time high.

Such a rollercoaster ride is not for the faint-hearted, and when a low-volatility approach is able to flatten out these vertiginous peaks and troughs – and, moreover, when it can deliver favourable risk-adjusted returns – it is not difficult to see why those who are averse to extreme turbulence opt for what should be a far smoother and less stressful journey. Yet any investment strategy, however disciplined it might be, can become either overpriced or underpriced with the passing of time; and a question we are nowadays asked more and more regularly is whether there is a price to pay – both literally and figuratively – for the low-volatility sector’s continued success.

It is easy enough to find media stories that might set alarm bells ringing. In May 2016, in an article featuring opinions from both sides of the debate, the Financial Times quoted one asset manager’s grave counsel that “low-volatility stock funds are probably the most dangerous thing out there”. The logic expressed in such coverage is essentially this: investors hold low-volatility stocks because they think their value will not go down; and if and when their value does go down, as might happen in a crowded market, investors will suddenly sell such stocks en masse.

In other words, there might be a bubble – and it might be about to burst. In the following section we will examine the psychology behind this kind of trajectory; and in section 4.4, crucially, we will ask whether such a psychology is really at work here.



4.3. Early adopters and bandwagon jumpers

The basic model still widely used to chart the adoption life-cycle for novel technologies was first outlined by Joe Bohlen and George Beal, two researchers at Iowa State University's Department of Economics and Sociology, in 1957. It was created to track purchasing patterns for farmers buying a new hybrid seed corn - an apt inauguration, you might think, given that it has been employed ever since to illustrate how consumers sort the wheat from the chaff.

The classic bell-curve distribution of "innovators", "early adopters", "early majority", "late majority" and "laggards" was subsequently formalised by Everett Rogers, then a Professor of Communication Studies at Ohio State University, in his 1962 book, *Diffusion of Innovations*². Since then the subject has inspired more than 4,000 scholarly articles and myriad criticisms. It is anything but an exact science, particularly with reference to the topic at hand, but it may be interesting to reflect upon it very briefly.

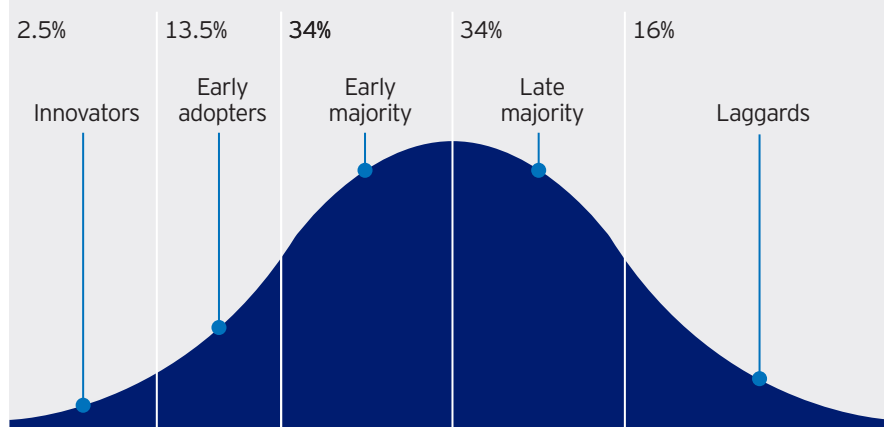
We can really only guess, of course, as to where on the curve the adoption of low-volatility strategies might currently stand, but the "early majority" phase would seem a likely candidate. According to Rogers' model, this leaves some distance to travel. And yet maybe we should be thinking less about diffusion and curves and more about cycles in the strictest sense of the word, as history indicates that innovators and early adopters are wont to move on when what was once their exclusive preserve becomes overrun.

In 2010 a study by Peter Swann, a Professor of Industrial Economics at Nottingham University Business School, framed this effect beautifully by examining how the English spa city of Bath was transformed into a chic haven for polite society before falling victim to its own popularity. The cycle ran thus: in 1702 and 1703 Queen Anne visited Bath, bestowing immediate kudos; following her regal lead, Her Majesty's friends also began frequenting the resort; less eminent strata of society joined the fray; sensing a lowering of the tone, Anne and chums went elsewhere; and Bath, having been "invaded by the mob", gradually became passé³. Although Swann took into account different consumer types, their relationships with and dependences on each other, waves of consumption and the socioeconomic mix, the story is ultimately a quite straightforward tale of trendsetters fleeing from the crowd⁴ - or, to put it another way, of a bandwagon's founding passengers leaping to safety before its axles snap.

So is there anything left in the low-volatility sector for late adopters and laggards? And, if there is, would their advent invite saturation point? Could we in fact already be nearer to critical mass than we might dare imagine? And would innovators and early adopters - or, for that matter, anyone else - be wise to get out while they still can? It is time to reassess the theoretical and behavioural underpinnings of low-volatility investing and to ask which of them, if any, still applies.

Figure 4

The bell curve of innovation adoption



Source: Rogers, E: *Diffusion of Innovations*, 1962; percentages per Rogers' original calculations. For illustrative purposes only.

4.4. What has really changed?

We mentioned in section 3.4 the circumstances broadly deemed necessary for the effectiveness of low-volatility investing. Let us contemplate them again now, having just discussed some of the nascent threats they purportedly face.

The first prerequisite is investor irrationality. Remember that high-volatility stocks are said to deliver inferior returns because they are overpriced; they are overpriced because of excessive demand; and excessive demand is driven by cognitive error arising from psychological biases. In line with the insights of Daniel Kahneman and his cohorts, this suggests we should be strangely heartened if the world remains full of people who are still vulnerable to the allure of gambles, who still admire their own judgment above all else and who still think Linda the bank teller spends her lunch breaks reading the collected works of Germaine Greer and Simone de Beauvoir.

As far as we are aware, there is no obvious reason to believe irrationality is a thing of the past. By common consent, powerful emotions still encumber many investors' choices; avarice, panic, fright and other sentiments unbecoming of Mister Spock still skew countless decisions; and markets are still imperfect and lacking in information. "Ah," an observant reader might say, "but irrationality isn't selective. Your assertions are rooted in the idea that excessive demand for high-volatility stocks leads to overpricing. Doesn't it inevitably follow that excessive demand for low-volatility stocks should have the same effect? In other words, you make a case for welcoming irrationality, but isn't

irrationality now an out-and-out problem for low-volatility investing rather than a beneficial contributor to its cause?"¹⁵

This is a fair point, which is why we need to take a more detailed look at what constitutes "excessive demand". In September 2016 research consultancy ETFGI reported that global smart beta equity ETF assets as a whole had increased by 7.1% in the 12 months up to June 30, capping a five-year compound annual growth rate of 31.3%; yet Morningstar data for the same period showed low-volatility strategies, despite impressive inflows, were still at AUM levels well below those of more "traditional" exposures - including dividend-based approaches - and a slightly longer-term analysis by eVestment echoed this conclusion. It is, as Einstein might have said, all relative.

We would contend that there has been some change but that fears of a crowded market, on balance, are as yet unfounded. Amid the doom-mongering and other "noise", low-volatility investing's asset base is not as perilously monumental as some headlines might imply; at this stage, although they may have stretched, valuations have not deviated hugely from historic norms; and institutional offsetting of the price impact of the persistent appetite for high-volatility stocks is still somewhat conspicuous by its rarity. That all said, it is only right to concede that every market evolves and that investors must evolve concurrently; and this is why we should nonetheless give serious thought to the merits of standing out from the crowd - even if, as appears to be the situation at present, the crowd has yet fully to materialise.

4.5. Staying ahead of the curve

We quoted earlier from Daring to Be Different: the Benefits of Contrarian Investing, a white paper written by our colleagues Stephen Anness and Andy Hall. At this juncture we might usefully raid it again, on this occasion borrowing its abstraction of the qualities and enemies of contrarianism.

Anness and Hall summed up the qualities of contrarianism as follows: a willingness to challenge and, ideally, disprove received wisdom; a capacity to "see further" and exhibit creativity and ingenuity; a desire to identify inaccuracies and imprecisions in prevailing paradigms; and a firmness of conviction in the face of herd mentality. They summed up the enemies of contrarianism as follows: a predisposition to expend as little effort as possible; a reluctance to think freely and generate original ideas; a tendency to wallow in overconfidence and/or ignorance; and a blinkered fondness for conformity. Crucially, having delineated each of these traits, they added: "Remember that true contrarianism is about redefining the consensus rather than unrelentingly opposing it."

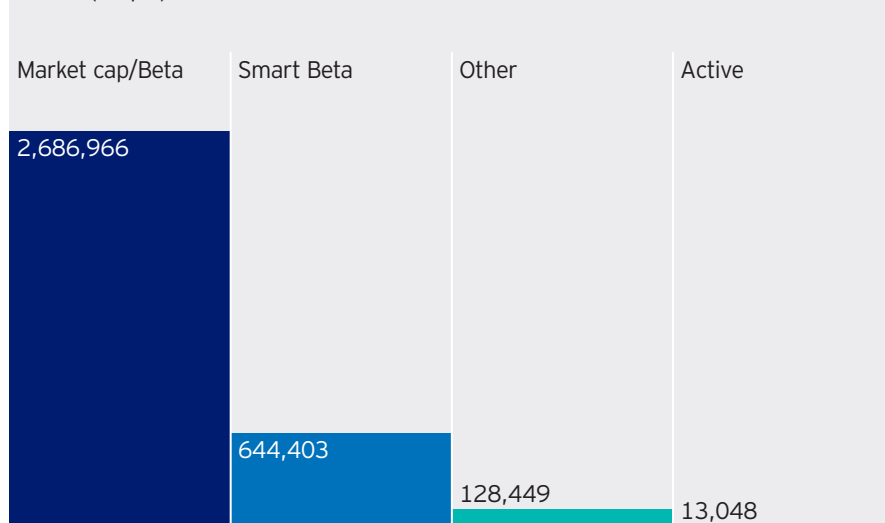
We would argue that much of the above is relevant to the sphere of low-volatility investing today. If we want to stand out from the crowd - irrespective of whether the crowd is real or illusory or imminent - we have to draw on the qualities of contrarianism to overcome the enemies of contrarianism.

We are not advocating another "paradigm shift", for we do not think one necessary. As stressed previously, we are in no way promoting a seismic abandonment of the sector. It is, we would say, a matter of evolution rather than revolution.

To express our argument at its plainest: there are now many low-volatility strategies out there, and they cannot all be the same in how they work or how they perform. So what might make some more attractive than others? What might set A apart from B, C, D, E and the rest? In the next chapter we will attempt to demonstrate that the presence of the herd does not preclude the opportunity to do things differently or better - or both - and that contrarianism, just as it gave us smart beta in the first place, still has a vital role to play in exploiting the low-volatility anomaly.

"If we want to stand out from the crowd - irrespective of whether the crowd is real or illusory or imminent - we have to draw on the qualities of contrarianism to overcome the enemies of contrarianism."

Figure 5
Comparison of assets in market cap, smart beta, other and active equity products, as at end of September 2017
 Assets (US\$m)



Source: ETFGI, October 2017; data excludes active equity ETFs, which do not track a specific index.

5. Looking for continued value in the low-volatility sphere

5.1. Overview

As we noted in section 3.4, factors have transformed investment thinking. This is true not just of those related to volatility but of many others. It is now appreciated that they make a telling contribution to overall performance and that returns are derived from rather more than an elementary blend of beta, as represented by market risk, and alpha, as represented by skilful active management.

In spite of this epiphany, recognition of factors' influence can sometimes seem suspiciously inconsistent. Underlying correlations might serve as a handy scapegoat when performance is poor, for example, while adept management is more likely to be trumpeted when performance is good. Is this apparent selectivity ever justified?

There is no doubt that the rise of factor-based asset allocation has induced a blurring of the lines between passive and active management. As we will try to show now, however, a diminution of the latter is not inevitable – especially with regard to low-volatility strategies that strive to distinguish themselves in terms of investment ethos and portfolio returns.

5.2. Approaches to low-volatility investing

There are numerous approaches to low-volatility investing. All aim to deliver an improved risk-return profile compared to the broad market over the medium or long term, and in that much they are united; and yet, as we said at the end of the preceding chapter, they cannot all be the same. As ever, the devil is in the detail. In endeavouring to establish what might set some apart from others, not least amid talk of a potentially crowded trade, we should first divide them into two rudimentary groups: those that take a stock-based approach and those that take a portfolio-based approach.

A stock-based approach involves no portfolio construction per se. It looks to lessen volatility by investing in stocks on the basis of historical risk measures and typically uses heuristic weighing methods. By contrast, the goal of a portfolio-based approach is to identify the least volatile combination of stocks, which means explicitly targeting portfolio risk.

In the days of “modern finance”, when the CAPM was king, the art of distributing portfolio risk was enshrined in mean variance optimisation (MVO). A cornerstone of Modern Portfolio Theory, MVO offered a characteristically elegant means of assessing the trade-off between risk and return in the hope of maximising the latter while tolerating a given level of the former. More than half a century later, notwithstanding its dependence on the long-debunked myth that higher risk brings higher reward, this is still something of an industry standard. In light of factors, though, we now know it may be better to minimise risk rather than simply to distribute it.

This brings us to the minimum-variance portfolio (MVP), whose construction is usually determined by a covariance matrix that gauges the extent to which the returns of two assets move in tandem. Diversification is guided by low covariance. Stock X and stock Y might be added to the mix, for instance, if it were found X fares well when Y fares badly and vice versa. Ideally, this should result in the lowest level of portfolio risk possible.

MVP is well suited to the low-volatility anomaly, but this still leaves us with a number of pressing questions. Is low covariance alone sufficient to steer diversification and portfolio construction? Is one factor enough? Maybe above all, where does alpha come from? Let us try to provide some answers.

5.3. Factors and the stock-selection process

It was in the early 1990s that the real power of factors was perhaps grasped for the first time. Eugene Fama and Kenneth French's seminal three-factor model laid the foundations for a raft of further research into non-traditional beta and the notion that ostensibly uncorrelated asset classes might be exposed to the same "hidden" drivers of returns. For years it had been thought market risk was the sole factor; then Fama and French proposed the addition of value and growth; and soon the floodgates opened.

The novel view that asset-class correlations could be harmful during market stress was reinforced by the global financial crisis. Famously, a government-commissioned study of the performance of the Norwegian Pension Fund during the worst of the turmoil attributed 70% of active returns between 1998 and 2008 to systematic factors - among them credit spreads, duration, foreign exchange and, as posited by Fama and French, value and growth⁶. The discovery of new factors duly advanced at pace, prompting debate over quite how many there might be and which of the dozens already "found" could actually withstand meaningful scrutiny.

These conundrums are still with us today. With hundreds of factors vying for legitimacy and many more supposedly waiting to be unearthed, it has become important to separate authentic factors - that is, those that can be unmistakably discerned from data - from those carelessly plucked from the ambit of happenstance. A very general rule of thumb is that bona

fide factors exhibit marked persistence and comprehensiveness - per, say, the low-volatility anomaly in Robert Haugen's 2012 study of equity markets worldwide - whereas their faux counterparts, upon closer examination, are revealed to be the stuff of quirk or coincidence.

Given all of the above, it is not hard to see how various subtly different strategies might come to feature in a market as busy and as in-vogue as low-volatility investing. Some may use only one or a handful of factors; some may use more sophisticated multi-factor models while still pursuing an essentially passive methodology; and some may use multi-factor models while granting much more scope for the inclusion of rigorous analysis, behavioural insights and active management.

We favour something akin to the last of these. Remembering the "blurring of the lines" we mentioned at the start of this chapter, let us picture a continuum stretching from "pure passive" to "pure active": we would place our preferred style of low-volatility investing somewhere near the middle. With the need to stand out from the crowd in mind, such a perspective seems to us particularly appropriate now. Divisions may have grown less distinct, and definitions may have become fuzzier; but we still believe events further up the decision-making chain can be pivotal to the quest to generate alpha.

5.4. Fundamentals, insights and portfolio construction

The early 1990s also witnessed the introduction of what would go on to become one of the business world's most treasured neologisms: core competency. Formulated by CK Prahalad and Gary Hamel, of the University of Michigan's Ross School of Business, it is nowadays customarily - if rather verbosely - defined as "a harmonised combination of multiple resources and skills that distinguish a firm in a marketplace".

While this alone chimes with any effort to stand out from the crowd, the three criteria that Hamel and Prahalad stipulated for any core competency sound almost uncannily apposite here. They are as follows: it should make a significant contribution to the perceived customer benefits of the end product; it should be difficult for competitors to imitate; and it should allow potential access to a wide variety of markets.

So which core competencies might a fund manager call upon to tick these boxes? Ultimately, we would champion the old-fashioned yet ever-indispensable ability to select stocks - not by relying exclusively on the integration of one or two factors, worthwhile though such techniques can be, but by applying a systematic process that also draws on experience and insight.

For low-volatility investments this means looking for stocks whose positive attributes extend beyond comparative immunity to violent ups and downs. It might be useful, for example, to consider a company's earning expectations, its management, its use of resources and cashflow, its inherent quality, its sustainability and its valuation; market sentiment, too, can be a helpful barometer. The goal should be to assemble a portfolio that is shaped by systematic factors and proven concepts alike and which consists of "best ideas" that suggest both nerve-settling stability and attractive fundamentals - or, to phrase it more succinctly, low volatility and high alpha. With so many funds content to hug their chosen indexes, a systematic stock-selection approach of this kind should lead to investment positions that are not only "active" relative to the benchmark but removed from the humdrum of the average minimum-variance portfolio.

Rigour and proactivity are imperative if such an approach is to succeed. It is not a task that can be tackled half-heartedly or left entirely to an obliging cluster of algorithms. A 2013 study by Research Associates, *Avoiding Pricey Low-Volatility Investing*, lamented the preponderance of "naive" low-volatility portfolios, branding them "blunt instruments"; and we agree that something sharper, even more so now, is needed to rise above the mediocrity of the herd.

Figure 6
Factors used to explain performance of Norwegian Government Pension Fund, 1998 to 2008

TERM	Difference between long- and short-maturity U.S. Treasury bond returns
CREDITAa	Difference between Aa and Treasury bond returns
CREDITBaa	Difference between Baa and Aa bond returns
CREDITHY	Difference between high yield and Baa bond returns
FXCARRY	Captures the carry trade of investing in currencies with high interest rates and shorting currencies with low interest rates
LIQUIDITY	Reflects periods of high and low liquidity
VALGRTH	Difference in returns between "value" stocks and "growth" stocks
SMLG	Difference in returns between small and large stocks
MOM	Captures the momentum effect of going long U.S. stocks with past high returns and short stocks with past low returns
VOL	Captures differences between implied and realised volatility

Source: Ang, A, Goetzmann, W, and Schaefer, S: *Evaluation of Active Management of the Norwegian Government Pension Fund - Global, 2009.*

6. Conclusion

Fears of overcrowding have long plagued humanity's collective conscious. Not least since Thomas Malthus's *An Essay on the Principle of Population* was published in 1798, the prospect of demand outstripping supply has consistently haunted us at the most basic level.

It is mildly amazing now to recall the panic that greeted 1968's *The Population Bomb*. The work of American biologist Paul R Ehrlich, the book warned: "The battle to feed all of humanity is over. In the 1970s the world will undergo famines - hundreds of millions of people are going to starve to death, in spite of any crash programmes embarked upon now."

This uncompromising prophecy of doom led to the famous wager between Ehrlich and economist Julian Simon⁷. Banking on a marked depletion of resources, Ehrlich bet that the prices of copper, chrome, nickel, tin and tungsten would go up over the course of the next decade; Simon bet they would fall -- and they did. What did Simon appreciate that Ehrlich did not?

Like Malthus before him, Ehrlich had neglected to take into account innovation's role in keeping us ahead of the curve. The prices of those five metals did go up at first, but this served only to encourage innovators to devise novel solutions that ultimately helped them to come back down again. The global population has continued to swell, per Malthus's and Ehrlich's dire predictions; and yet calamity has been averted by the human race's enduring ability, particularly when confronted by the makings of a crisis, to do things differently and better.

It is much the same response, we say, that preserves the appeal of low-volatility investing amid mounting claims of a crowded trade. We do not pretend to have demonstrated beyond question in the course of this white paper that the sector is not crowded - although this remains our belief - but we do think we have made a case for an investment philosophy capable of standing apart both in the current environment and in the environment that may yet develop.

The philosophy we advocate is one that recognises the continued value of looking beyond the herd. It aims to take the best elements of the approaches now widespread in this sector - chief among them the use of factors to exploit the low-volatility anomaly - and combine them with a rigorous, bottom-up, systematic stock-selection process that draws on the sort of experience, expertise and insight that even the most brilliant algorithms might not be able emulate. It acknowledges the blurring of the lines between passive and active management and seeks to span them as effectively as possible. In short, it is an investment ethos that looks to deliver low volatility and high alpha.

We began this white paper with a quote about bandwagons. To recap: "If you see a bandwagon, it's too late." Low-volatility investing may well have become a bandwagon, but we would argue - for now at least - that any concerns about creaking axles can be most effectively offset by a wise choice of driver. All things considered, there should be some distance to travel yet.

"We do not pretend to have demonstrated beyond question that the sector is not crowded, but we do think we have made a case for an investment philosophy capable of standing apart both in the current environment and in the environment that may yet develop."

¹ ETFGI, an independent research and consultancy firm specialising in the ETF market, reported this figure in October 2017.

² It was Rogers who gave us the term "early adopters". He openly courted the torrent of criticism that his work attracted, advocating such "weed-pulling" as an essential component of progress, although he added: "It would be a mistake to become so fond of weed-pulling that the entire garden is destroyed."

³ Bath's grandeur has long since been restored. The resort's fortunes started to recover again in the 1930s, and in 1987 the city was named a World Heritage Site.

⁴ For those who feel this white paper is sadly lacking in equations, we are delighted to report that Swann expressed his theory as follows:

$$\pi(h,r) = u(h,r) - p_r = g(h, Z_r) + f_1[h, m(\cdot, r)] + f_2[h, m(\cdot, r)] + E-p_r$$

⁵ ... to which we might reply: "Your debating skills do you great credit!"

⁶ The fund reported a loss of 23.3% during 2008, yet its equity/fixed-income benchmark was down "only" 19.9% during the same period. The Norwegian Ministry of Finance was sufficiently intrigued - and dismayed - to summon a team of academics from Columbia Business School, Yale School of Management and London Business School, whose research into the disparity has since come to be regarded as a milestone study in the history of factor investing.

⁷ The bet proved a source of lingering bitterness, with Ehrlich and Simon still exchanging barbs many years later and others taking sides accordingly. Dismissing the wager as "trivial", Ehrlich once claimed: "We finally decided that if we took the bet we'd shut him [Simon] up for at least 10 years." Ehrlich lost \$10,000. What did we say in chapter 3 about a preference for lotteries?

7. Appendices

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