



You can beat the market

Whitepaper | Stockholm

By Chief Investment Officer
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You can beat the market

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You can beat the market

Hi there,

By now you've seen the headline above a few times, here and on the cover, and depending on your background you will have met it differently.

If you are an **experienced investor**, chances are that you will be skeptical. It is commonly thought and stated in the financial business that beating the market is impossible for most people.

If you are **new to investing**, you might not see the big fuzz. Why wouldn't it be possible? Obviously, there is an average, and some people will perform above it and some below it.

This paper briefly discuss some of the background as to why the average investor fails to beat the market. Furthermore, we'll give you some tools to help you to do just that: Beat the market.

Our vision is to help people towards financial freedom. By merging knowledge of investing with powerful technology we provide a rating method for beating the market.

In this paper, we've worked hard to provide resources for all our statements, as well as the counter perspective to make sure you have a complete overview of market performance and not just a biased opinion.

However, it is important to state that there are many ways to invest, and that we offer you one way to beating the market consistently. All investment decisions you make should be your own, and you should make sure you do your own research and analytics.

Having said that, we believe the information we are presenting can help anyone. If you disagree or have unanswered questions when you finish reading this paper, don't hesitate to reach out to us. We would love to hear your feedback.

Happy reading and happy investing!

Levi Mårten, CEO & Co-founder



Do more of what you love

Our vision is to help people towards financial freedom.

Stocksholm provides a simple and unique way of presenting stock information. By showing which stocks are performing and which are likely to keep performing, we enable everyone to buy stocks without prior financial experience.

Most humans think and learn in images (SILVERMAN, 2005). This is a biological mechanism that has made us survive over ages – but it is not free of errors. For instance, if we don't know how to filter out the useful information we experience a lot of cognitive dissonance from the information overload. This is why we believe it is more rational to have a simplified yet visually based stock information service.

Our rating tool provides a powerful way to help you construct your portfolio. We've made extensive big data testing to verify that the methods have historical significance.

Everywhere you go looking for stocks there are graphs, data tables, and metrics that are hard to understand. We want to change that.

By providing an easy and fun way to find stocks, more people will be interested in the stock market. We want to see more people participate in the wealth creation that the stock market provides over the long term.

We believe that quantitative tools help people make better investing decisions. With our method, any investor can beat the market and professional investors while keeping risk low.

This paper is written for those who seek to understand how it is possible to beat the stock market. We want to help you build financial freedom.

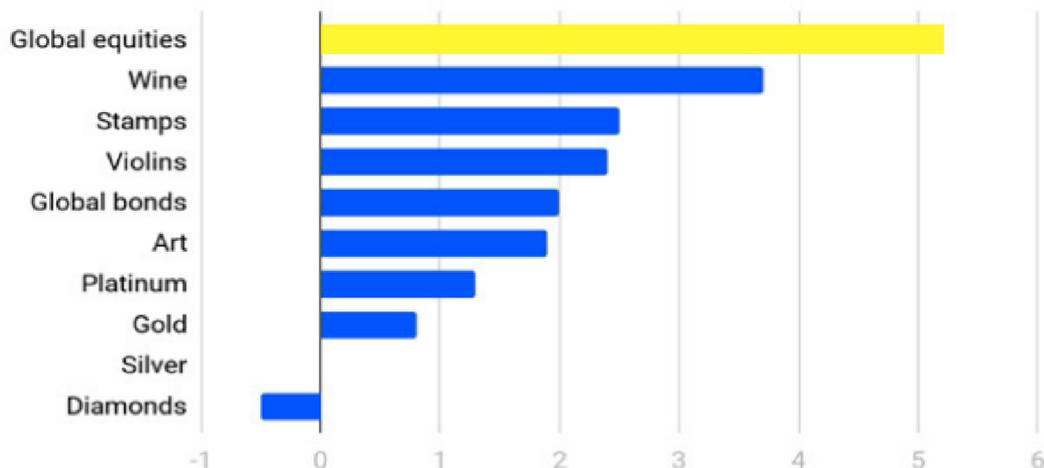
Why invest in stocks?

Stocks are the asset class that tends to perform the best over time by a large margin.

But they can also be very volatile, meaning that the price moves up and down more or less constantly. While this is true, the returns are too good to be ignored. We believe stocks should be an important cornerstone in every long-term investment portfolio.

In our first illustration you can see that global equities (stocks all over the world) have historically performed better than other assets such as gold or bonds.

Average annual real returns, 1900-2017
[%]



Average annual real returns in percent, 1900-2017

Source: "Credit Suisse global investment returns yearbook 2018" by E. Dimson, P. Marsh, M. Staunton, London Business School

U.S. equities have performed even better than global equities. With dividends reinvested, the average yearly returns have been close to 7% (inflation adjusted) for over 120 years! (Dow Jones Index Historical Return, 2020).

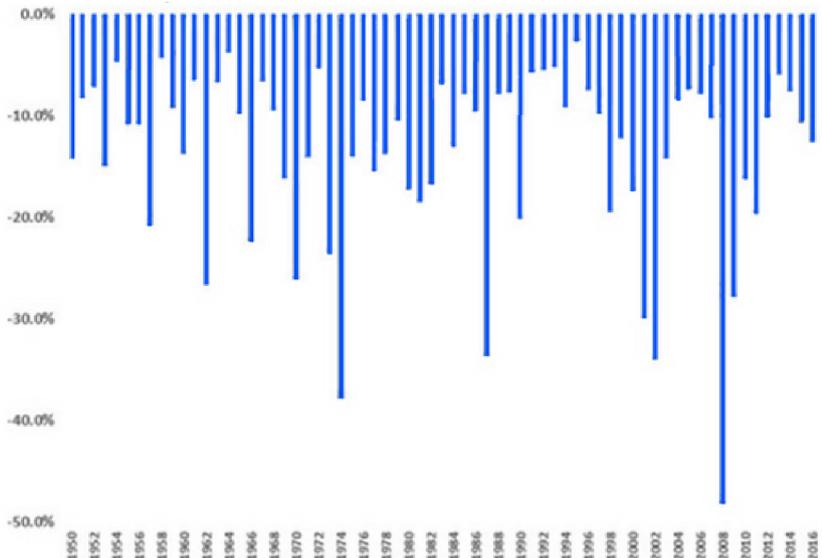
So, isn't there risk connected to *when* you enter the market? What if there is a market crash coming?

The next illustration shows how bull markets can last for over a decade, with short bouts of downside volatility that usually gets bought up quickly. Prolonged bear markets are relatively rare but can be devastating for the emotional investor who sells out near the lows.



Bull markets and bear markets 1903-2016
Source: Morningstar

The image above shows how the market has been mainly positive for the last 100 years. Let's look at only the drawdowns of the S&P500 index, 1950 and onward:



Worst annual drawdowns of the S&P 500, 1950-2016
Source: Bloomberg

Here you see that there have always been temporary downward trends of huge impact – but combined with the image before you understand that these are only temporary. This shows that long-term investing over decades is very safe, considering the past. It also shows why timing the market is extremely difficult.

There are always convincing reasons to sell off completely due to the political or macroeconomic context. But...

... as you see in the illustration below, the trend keeps pointing up. It seems that there have always been reasons to fear a downward trend coming.



Smart-sounding reasons to sell stocks in a period when the market increased by 100x after inflation. (S&P 500, 1950-2014)
Source: Marketwatch.com

It is critical to have a well thought out method to approach investing. By following a well-researched, evidence based, systematic approach to investing in the markets, an investor can outperform the overall market and most of its participants by a wide margin.

What seems to be the problem then?

There are many cognitive biases causing us to behave emotionally and irrationally. That is a big problem for us in the financial markets. Data shows that individual investors underperform mutual funds, which in turn underperform the major stock indices. Most professionals and experts underperform quantitative models, shows work and studies by Eugene F. Fama who was awarded the Nobel Prize for economic sciences in 2013 (Nobel prize laureates in Economic Sciences 2013, 2020)

So, what kind of cognitive biases are we talking about...

Most market participants underperform – even professionals!

Let us dig deeper into some important reasons of why our model is so powerful yet not used by many investors.

The average hedge fund lags the performance of the S&P 500 Index. Hedge funds as a group have no ability to generate positive, risk-adjusted excess returns (GRIFFIN J M, 2009). Hedge funds have taken 84% of investor profits since 1998 in fees. All the money ever invested in hedge funds would have earned twice as much returns in Treasury Bonds (A L. S., 2012). Not only do they reliably underperform, but risks have also been higher due to high leverage, fraud and blowups (DICHEV I D, 2009). The numbers for actively managed mutual funds are no better (MORNINGSTAR, VANGUARD):



20% of active managers outperform their benchmarks any given year



Out of those 20%, only **3%** still outperform after 5 years



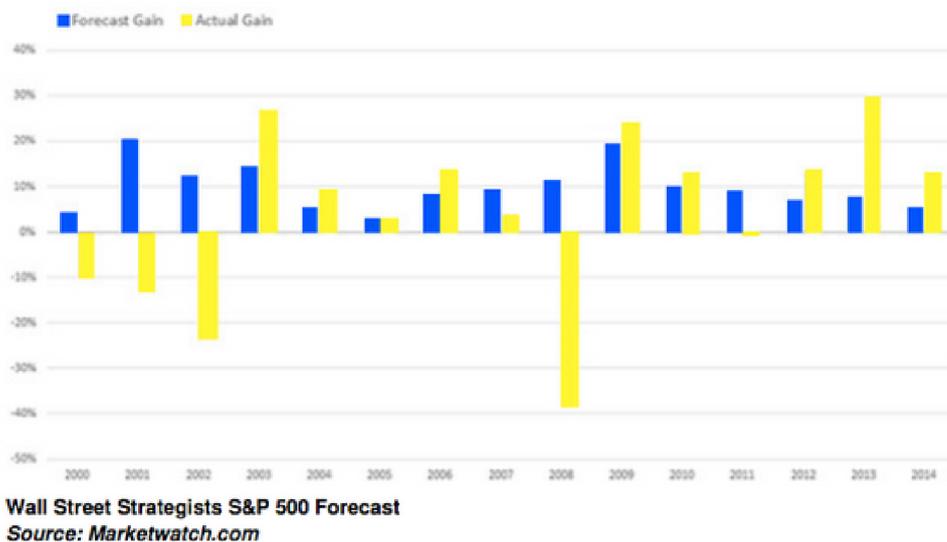
Once costs and fees are included only **1%** outperform



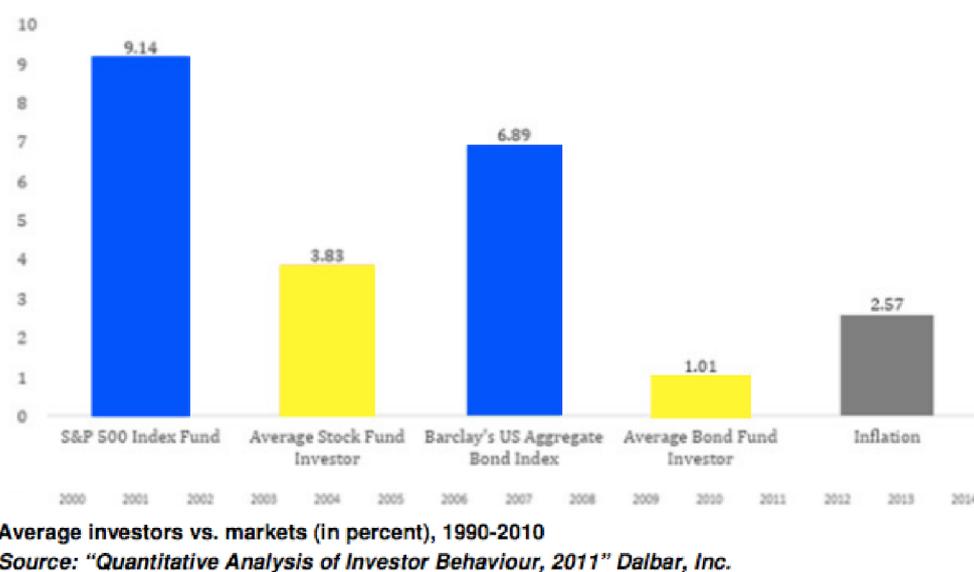
Due to poor timing decisions (buying high, selling low), the average investor in the funds earned even **slightly less** than the funds

There is a small fraction of elite managers that do beat the market over multiple decades, even after fees, but what are the odds of being able to pick one out of those 1% beforehand?

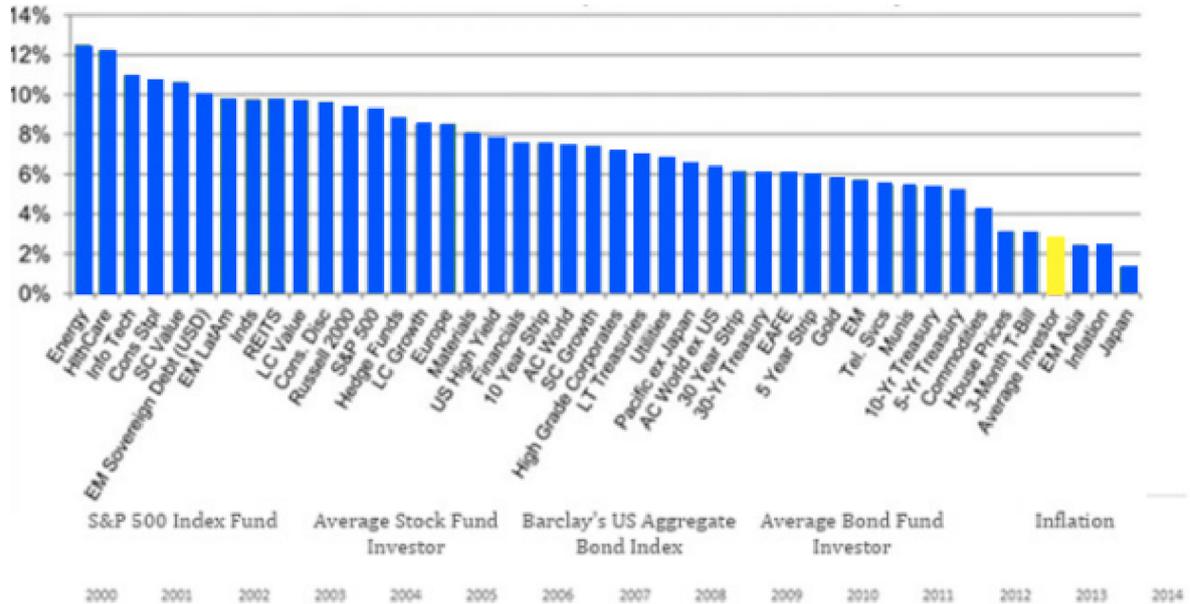
Analysts and stock market forecasters can't do any better (COWLES III, 1932).
See the image below:



We looked at the sad performance of the professionals as a group. Now, let's look at the individual investors. S&P 500 Index vs the average fund investor:

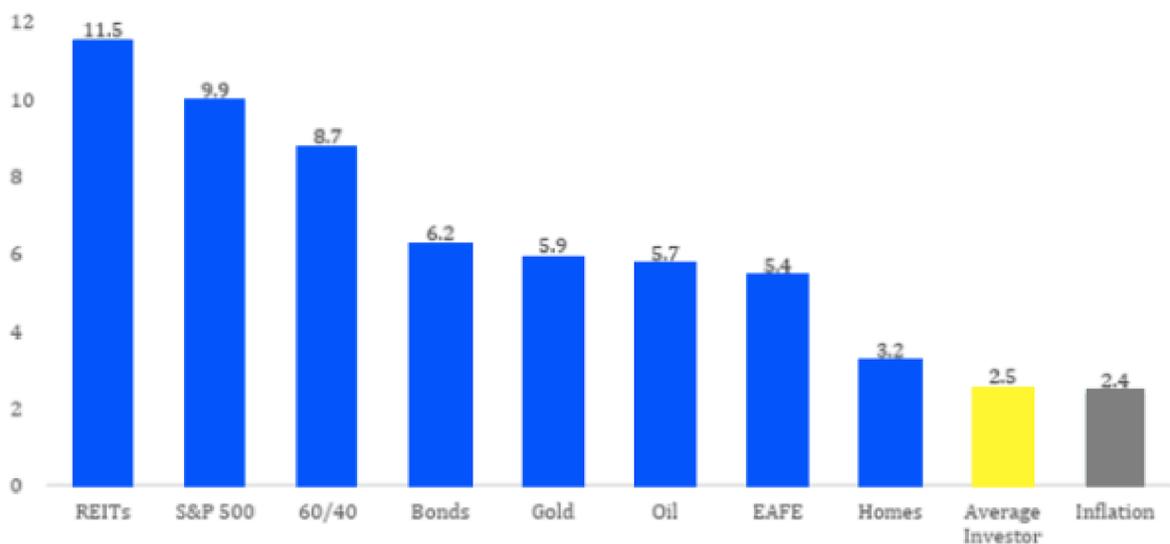


As you can see, average investors in stocks barely beat inflation – and bond investors lose money. The average investor vs different asset classes and sectors:



Asset class returns vs. The “Average Investor”, 20 years annualized (1993-2013)

Source: Richard Bernstein Advisors LLS, Bloomberg, MSCI, Standard & Poor’s, Russell, HFRI, BofA Merrill Lynch, Dalbar, FHFA, FRB, FTSE



20-year annualized returns by asset class in percent, 1995-2014

Source: Dalbar Inc.

Some of the most common barriers to high-return investing

#1 Disposition effect

Individual investors sell stocks for a gain more frequently than they sell stocks for a loss. They are in effect selling their winners and keeping their losers.

Behavioral finance calls this *the disposition effect* (SHEFRIN H, 1985) and this alone costs on average 4.4% in annual returns (T, 1998). A paper loss is less painful than a realized loss and we tend to hope for our losers to come back so we can sell them at least for a break-even. Investors also tend to buy high and sell low, chasing lottery type investments (AL., 2014) and overtrade and are generally under diversified (GOETZMANN W N, 2008), which causes increased volatility and poor investing judgement due to emotional reactions.

#2 Confirmation bias

Overconfidence causes investors to exaggerate their ability to predict future events. They are quick to use past data, and to think they have above average abilities that enable them to predict market movements into the future. Why? It is called *confirmation bias*. We unconsciously collect information that agrees with our original decision and disregard any additional information that disagrees with that decision.

#3 Narrative fallacy

Another reason that can explain overconfidence when investors try to predict future events is *narrative fallacy*. We tend to weigh additional information based on how coherent we perceive it to be within the narrative that we have constructed. In other words, If it fits into the story, we include it, if not, we disregard it. The new, additional information that fits into the story makes us even more confident that the story is accurate.

The implication for investing is that collecting more and more data about a stock may not improve our returns, only our confidence. It is better to just focus on the most important data. Us humans tend to like complexity over simplicity, we can't help ourselves (P W. , 1977). Simple models should be preferred over complex models.

Joel Greenblatt, the famous hedge fund manager and financial author, and creator of the popular quantitative investing method the "Magic Formula", found that people who overruled the investing model, eliminating stocks that they didn't like, eliminated all of the outperformance in their portfolios. The investors reliably and systematically avoided the best future performers. Even Greenblatt himself was not able to outperform the model by eliminating stocks that he was certain were value traps (J G. , 2005).

#4 Availability bias

The availability bias leads us to more heavily weigh information that can easily be brought to mind. Stories from the media about train crashes or animal attacks make us overestimate the probabilities of these occurring, while driving a car is much more dangerous. For example, there is an airplane crash and the airline owner's stock goes down sharply, but how big is the chance of this occurring again? The stock is already down after irrational market participants sold in panic. This is where value investors step in.

We also love to buy high-flying stocks with sexy stories a friend told us about and hate boring stocks with bad news. We simply ignore the base-rates of these stocks (GRAY W, QUANTITATIVE VALUE; A PRACTITIONER'S GUIDE TO AUTOMATING INTELLIGENT INVESTMENT AND ELIMINATING BEHAVIORAL ERRORS, 2012).

#5 Recency bias

Recency bias is the tendency for the most recent observations to have the largest impact on an individual's memory and on their perception. This may affect the investment behavior where recently rising prices may cause the investor to buy and vice versa. This can in part explain both the value effect and the momentum effect. This also causes investors to buy high and sell low, causing them to underperform the mutual funds they invest in. Despite research and education about these issues, this behavior gap between market returns and actual investor returns continues (C, 2012).

So, what can we do to avoid the fate of the average investor? A superior approach is to follow a quantitative, disciplined rebalancing strategy.

Other types of barriers to good investing

There are many types of risk and psychological barriers that can be encountered when investing. It's important to be aware of these, protect yourself against the ones you can be protected against, and accept the ones you can't. In classical investing and when getting recommendations and advice from professionals, the tendency is to focus only on the volatility of assets and portfolios – how much they tend to fluctuate in value. But there are several other risks that are just as important to look at.

#6 Anchoring

Anchoring is a form of cognitive bias where we tend to stick to (“anchor”) old information and are slow to react to new information. In other words, investors expect stocks with high and low valuations to remain that way, even though the evidence suggests that the former are likely to disappoint, and a portfolio of value stocks are likely to outperform (ANDERSON K, 2015).

#7 Loss aversion

We tend to be more sensitive to losses than to gains. This is called *loss aversion*. A loss that comes after prior gains is less painful than usual, because it is cushioned by those earlier gains. A loss that comes after a prior loss makes us even more sensitive to further losses. The pain of losing \$100 is much greater than the pleasure of a \$100 gain. Since value stocks in many cases have declined a lot in price recently, many investors have gotten burned on them and keep selling, which reinforces the cycle and makes these stocks generally unreasonably cheap (BARBERIS N, 2001). The investors can even experience increases in the stress hormone cortisol, causing them to become more riskaverse and emotional (AL K. E., 2014).

#8 Lack of diversification

Nonsystematic risk can be diversified away, for example industry or stock specific risks. This is why we recommend building a portfolio of 25 stocks in so that a few bad investments won't ruin the portfolio.

#9 Volatility and market corrections

Systematic risk can't be diversified away, it's always present, for example a decline in the stock market. Volatility is common in the investing business, quick selloffs of around 10% or multi-year bleeds of 30-50%+. The former happens most years, often multiple times a year, the latter maybe once or twice a decade of every two-three decades, as explained in previous chapters.



#10 Quitting at the wrong time

The biggest risk to any investment style or method is absolute risk, losing parts of - or all of - your capital and not be able to make it back. An example would be panicking and selling out of your stocks, after the market declined over 50%, in early 2009, right before the 300% subsequent advance in the markets. Would you have bought back in higher? Probably not. If you got that scared, why would you trust the market later and buy back higher? That is how the reality looks like for many people. They buy high, and sell low and lose a large part of their capital.

#11 Switching methods instead of trusting the process

Tracking error this is when you compare the recent returns of your investment method to an index. Your method may have been shown to outperform that index over the past 50 years. But lately it may have underperformed that index over the past 3 or 5 years, so you give up and jump over to something else. Subsequently that same method outperforms over the next 3 years. These cycles of periodic underperformance happen all the time, with every asset class and investment style. The important thing is to stick to something that has been proven to work over a long time and makes intuitive sense. Otherwise you are just going to give up and won't give yourself a fair chance for the method to actually work over time.

#12 The risk of taking no risk at all

For most people long-term failure means not meeting their financial goals. Taking too little risk is a risk in itself. It's easier for investment managers to sell low risk methods, but in reality they are 18 often toxic to your financial goals, especially if you are young. Putting a large part of your money in bonds or holding cash, where inflation will eat up the returns, will lead to a worse outcome than investing in stocks which outperform inflation by a wide margin.

Humans are flawed decision makers.

Our brains were adapted to a life in the wild, where split-second decision-making meant the difference of life and death. We developed **mental shortcuts – heuristics** – that enable us to identify a snake and jump away before we are conscious of the snake's presence. When we realize moments later that the "snake" was a stick on the ground, we are a victim of the heuristic that avoids snakelike objects (J P. J., 2004).

These heuristics are useful for survival in the wild, but they have given us a number of cognitive biases that impede us in our efforts to make rational or optimal decisions in modern financial markets.

Acquisition of additional information increases our confidence but not our accuracy.

Even if accuracy does increase with more information, confidence rises even more so. We tend to get overconfident about our accuracy and our understanding of the world (TSAI C, 2008; D K. , 2011). Overconfidence in turn may stem from two additional cognitive biases; self-attribution bias and hindsight bias.

#13 Self-attribution bias

Self-attribution bias is our tendency to blame our failures on bad luck, rather than to a lack of skill, and blame our successes on our skill.

#14 Hindsight bias

Hindsight bias is when we think we predicted the past better than we actually did, and we tend to believe that we can predict the future better than we actually are able to (TVERSKY A, 1974). Our distortion and illogical interpretation of what we see, and our poor judgement, is so regular, it is predictable.

In other words, we are predictably irrational (D A. , 2010).

Investing seems scary ... is it really for me?

As we have illustrated, there are many pitfalls and things to keep in mind if you want to let your money work for you. Even once we are aware of our biases, we must recognize that knowledge does not equal behavior.

The solution lies in designing and adopting an investment process that is at partially robust to behavioral decision-making errors. But there are also ways of overcoming these challenges.

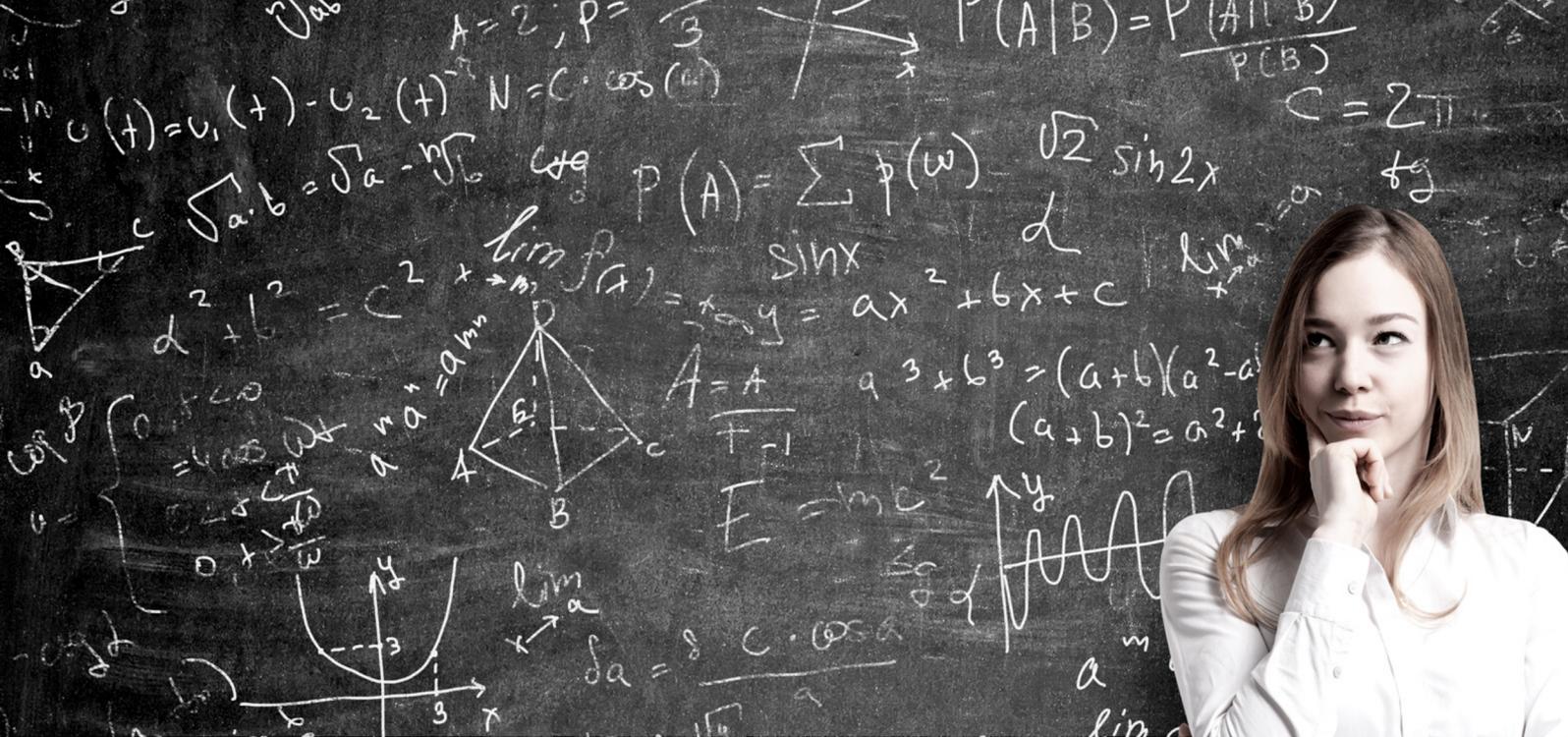
These biases create opportunities for systematic and quantitative investors.

This is where the Stockholm process and tools come in. We can help you become a successful investor that could beat professionals – and even the market.



The Stockholm method





Quantitative models outperform human judgement. Yes, really.

Quantitative models not only outperform experts in investing (J M., 2010), but in a diversity of fields like politics (TETLOCK, EXPERT POLITICAL JUDGMENT: HOW GOOD IS IT? HOW CAN WE KNOW?, 2006), sports (I A., 2007) and others. This happens even when the experts are given access to the models (MONTIER, 2007; J G., 2005). Even though quantitative models have gained popularity in the past few decades they are still uncommon. Why is that when evidence suggests it may be a superior method?

Montier (MONTIER, 2007) argues that the most likely answer is the very human cognitive bias of overconfidence (DANIEL, 1998). We (especially smart and highly educated people) think we know better than simple models, which have a known error rate. We prefer our own judgement, which has an unknown error rate.

Factor investing

The rating tool we provide is quantitative and based on factors. A factor is a characteristic that explains the returns or the risk profile in a stock. We want to know why one type of stock performs better than others or why one type is less volatile than others.

There are over 600 published factors and more complex and exotic ones are added every year. Factors are cyclical. If you want to earn the expected (but not guaranteed) return from a factor, you must be willing to accept the risk that there will almost certainly be long periods when the factor underperforms, or when the returns may even be negative (LEVI Y, 2014; HARVEY C, 2015).

What makes a good factor?

What makes a good factor? For a factor to be considered good and solid, it needs to pass the following criteria (BERKIN A L, 2016):

INTUITIVE	We can make a reasonable argument for why the factor may work.
PERSISTENT	It holds across long periods of time and different economic regimes. (There are many factors that work well for short periods of time, and then flame out.)
PERVASIVE	It holds across countries, regions, sectors, and even asset classes
ROBUST	Sufficiently broad with multiple approaches showing similar results
INVESTABLE	It works not only on paper but can be turned into an investment strategy

The factors we use pass all these criteria with data from several continents over many decades and – in some cases – centuries

Why a quantitative method?

There is a huge advantage with using a quantitative method. As we show in this paper, evidence suggests that most of us are fundamentally not suited for investing (due to temperament and biases) (GROVE W, 2000). With a quantitative method we can acknowledge that problem from the onset and build a process that forces us to exhibit the proper behaviors.).

Can we really trust the data?

The prominent research we focus on in this paper is based on data from the Center for Research in Security Prices (CRSP) database, the gold standard for academic research and quantitative investors. To assure that no bias that makes us believe the returns would have been better on paper than achievable in practice, the data is adjusted for delisted and "dead" companies to avoid survivorship bias. It is also adjusted for look-ahead bias where we look at data which in reality may not have been available during the time period analyzed. To avoid factors that worked only during a limited time, the time periods analyzed are usually much longer than 15-years to avoid small-sample bias (P O. J., 2011).

The factor that has had the best and most consistent returns historically is **momentum**. The momentum effect is the king of all factors and has been proven and back-tested for over 200 years. Behavioral research has found that prices can deviate from their fundamental values due to cognitive biases (leading some investors to underreact and overreact to news) or to erroneous beliefs. Famed researchers Eugene F. Fama, Robert J. Shiller and Lars Peter Hansen shared the 2013 Nobel Prize in Economic Sciences in part for their explanations for why momentum work (Nobel prize laureates in Economic Sciences 2013, 2020).

The Momentum Factor

Momentum is the tendency for assets that have performed well in the past to perform well in the future, at least for a period of time.

We are using relative momentum, also called cross-sectional momentum. It measures a stock's relative performance, comparing the returns of a stock to every other stock on a timeframe (in long-term investing that timeframe is usually measured in months). This is an extreme example to illustrate the point: if a stock is down 5% in the past 6-months, but most stocks are down more, we give this stock a high momentum rating (good). If a stock is up 5% in the past 12-months, but most stocks are up even more, we give it a low momentum rating (bad).

What we today call **momentum**, has been quantitatively studied (COWLES A, 1937; A L. R., 1967), observed (RICARDO) and practiced (E, 1923; N, 1960; A C. G., 1961; JACK DREYFUS; II; TSAI) by successful investors for over a hundred years. Since the academics started seriously investigating this factor, studies have shown (M, 1997), that this is the king of all factors (JEGADEESH N, 1993). Most factors suffer from diminished returns after academic discovery, but this has not happened with momentum even after decades of research. The anomaly has persisted since (SCHULMERICH, LEPORCHER & EU 2015; GRUNDY B D, 2001; ASNESS C, 2013; SCHWERT, 1993). Recent research has shown that the momentum anomaly is evident in more than 200 years of equity data across 40 countries and more than a dozen other asset classes (ASNESS C S, 2014; GECZY C, 2012; BLITZ D, 2008).

Reasons why momentum works

Momentum works because of several deeply held biases in the human nature, among them the tendency for investors to systematically underreact to good news. Herding is when investors, both individual and professional, jump on as a stock's price is rising, usually by gradually good news (J M. T., 2010), fueled by media, analyst recommendations and investment newsletter recommendations.

All these groups of market participants are affected by **the herding effect** (I W. , 2000; R, 1999; GRINBLATT M, 1995) which creates a positive feedback loop (AL D. E., 1990) where prices tend to keep rising for a period of time. Herding is a primal instinct where it pays to stay with the herd to reduce the risk of being attacked. The famous economist John Maynard Keynes identified herding when he said that the prime directive among investment managers is for them to keep their jobs. In order to do this, one should never be wrong on one's own, which creates herding among professional investment managers (G, 2014). Representativeness and confirmation bias (TVERSKY A, 1974; GARLEANU N, 2007) lead us to draw parallels between events that are not the same but look familiar and assume the recent price strength may be the harbinger of more favorable conditions or news (and vice versa in the case of value stocks).

How we help you build portfolios with great returns

Our rating method is inspired by trending value (P O. J., 2011) and is sorted into deciles. Stocks that have recently been trending higher in price gets a high rating. Stocks that have not had any price appreciation recently, get a lower rating. 3 month and 6 month momentum are used to increase the risk-adjusted returns. The highest rating stocks from momentum get sorted into decile one (>4.5 stars) and the lowest into decile 10 (<0.5 stars). Jim Simons, Cliff Asness and Joel Greenblatt, all billionaire systematic quantitative investors have said that if you are using models, you should just slavishly follow the models. Do whatever the model says, no matter how stupid or smart you think it is now.

Optimal risk-taking

The younger you are, the more of your savings you should have invested in stocks. If you are afraid of losing money and feel very emotional with big draw downs, consider saving less money in stocks. It's important to find an optimal calibration, financial goals and risk tolerance related to your age. Many investors like to balance their stock portfolio with bonds or other resources and assets. Some even prefer to keep some money as cash reserves, but you can invest in gold or crypto currencies as well. Stocks are by far the strongest asset class, as illustrated earlier in this report. As shown stocks tend to fluctuate and companies risk losing money, but there is also the risk in not investing at all. In the table below, you get an overview of the optimal allocation of money in stocks – but it is important that you decide for yourself what level of investments you are comfortable with. Having stocks should not feel like a stress – if it does you would be better off with a lower ratio.

Investment horizon	I can't afford to lose more than ___% amount	Investment maximum in stocks [%]
0-3 years	0	0
4 years	2.5	10
5 years	5	20
6 years	10	30
7 years	15	40
8 years	20	50
9 years	25	60
10 years	30	70
11-14 years	35	80
15-20 years	40	90
20+ years	50	100

In other words...

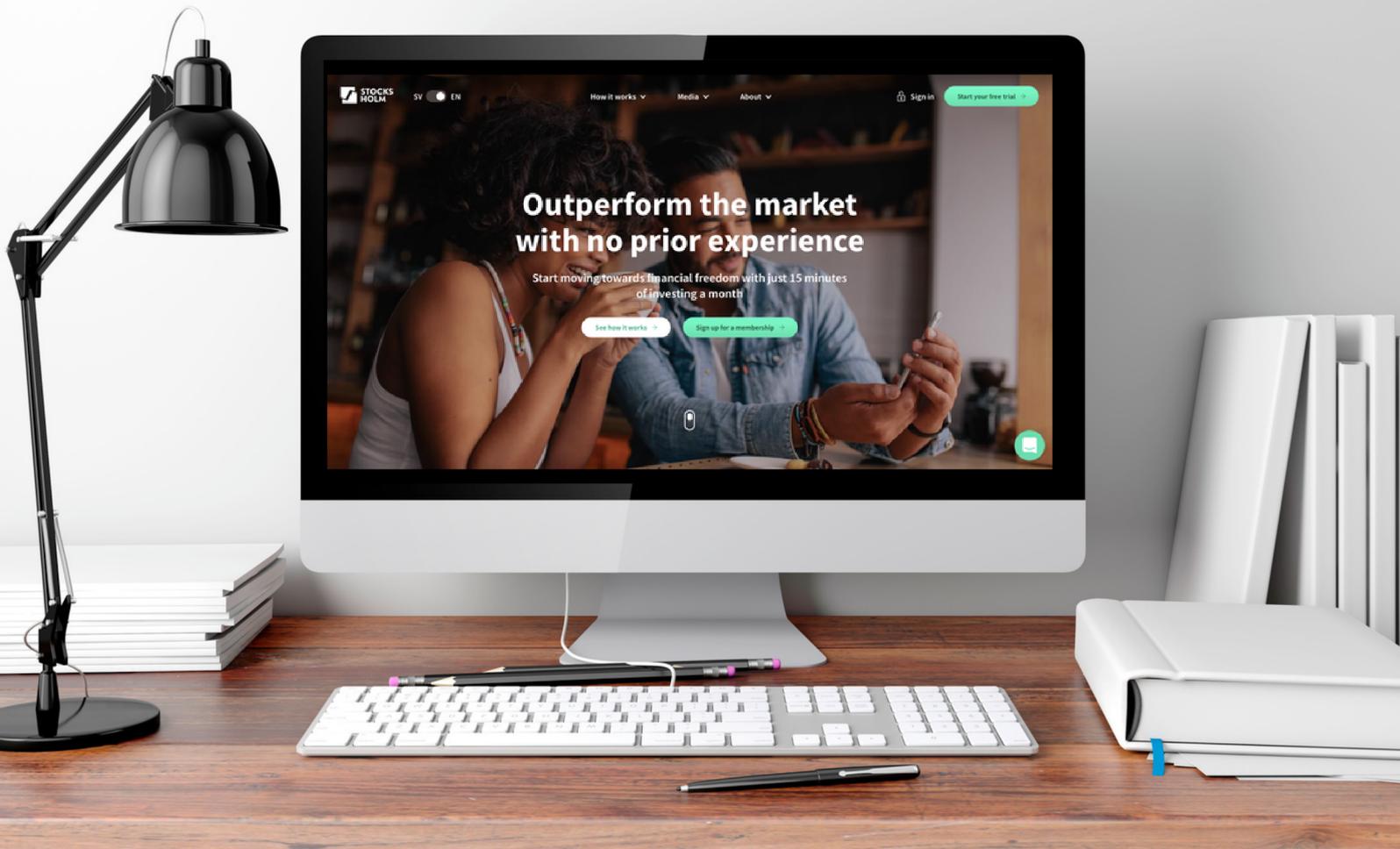
Experts suffer from the same biases as laymen.

They either underperform or cannot do any better than a simple model (TETLOCK, EXPERT POLITICAL JUDGMENT: HOW GOOD IS IT? HOW CAN WE KNOW?, 2006) (MONTIER, 2007).

The evidence suggests that quantitative models (“quant models”) tend to act as a ceiling rather than a floor for our behavior.

Additionally, there is plenty of evidence to suggest that we tend to overweight our own opinions and experiences against statistical evidence (MONTIER, 2007). These cognitive and behavioral patterns explain why momentum works, and keep working even after academics have started publishing their research and made these anomalies well known.

The cognitive biases are deeply rooted and unless investors stop acting like human beings, these patterns and cycles in the markets are likely to continue. We present a simple rating method to create portfolios that have market-beating characteristics and show you how to build powerful portfolios from this knowledge in a simple way.



Powerful portfolios the simple way

We spent several years building an investment algorithm that significantly outperforms the market. Simplifying the fun part of investing and automating the hard part. That way more people get a fair chance to succeed in the stock market. And reach financial freedom - with just 15 minutes of investing a month.

Our momentum centered algorithm removes human error and bias when investing in the stock market. A momentum investor surfs stocks while they are on a good run, and sells them when the wave ends. We identify and monitor 10 stocks for you as a member, so that when you rebalancing your portfolio you're guided to take high-return action.

Start planning your financial freedom. By outperforming the market. Sign up for your free 2 month trial period. Learn more: Stockholm.com



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