THINGS YOU SHOULD SHOULD KNOW ABOUT TRENDS INVESTING



For professional investors

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Contents

	Foreword	5
1.	Trends investing isn't about following the latest fads	6
2.	Trends investing can capture behavioral biases	10
3.	Trends investing is about the key enablers and structural winners	14
4.	Trends investing profits from digital disruption	17
5.	Trends investing plays 'winner takes all'	21
	Conclusion	25



Foreword

Just consider this stunning statistic: only 4% of all US stocks were responsible for all the wealth creation on the US stock market over the 1926-2016 period. In other words, over the years, there have been many more losers than winners on the stock market. This extreme skewness is also clearly visible in the distribution of profits among companies. In recent times, the best companies took up to 90% of all profits, while the rest were either barely profitable, or worse still, lost money. At Robeco, we firmly believe that this skewness will persist in the future as it is due to the ever-changing nature of our economy and society. These changes, which we prefer to call trends, can be combined into three megatrends, which are driven either by technology, sociodemographics or the need to protect our planet. History has taught us that these megatrends can be quite disruptive. They pave the way for the creation of new types of companies with new business models. The existing firms need to adapt to these new trends in order to survive, and that's really hard. Not to mention find ways to benefit from them, which is even harder. Why is that? We think this is because of a combination of short-termist thinking by managements, or governments, for that matter, along with our incapacity as humans to fully grasp exponential growth.

At Robeco, we are proud to have a large and dedicated team analyzing these megatrends. With more than a decade of experience, we have developed an unorthodox, eclectic and broad analytical toolset that has led to leading-edge and research-based investment performance. We wrote this paper for all investors who would like to benefit from these trends. 'Five things you should know about trends investing' provides an introduction to our basic toolset. We aim to show that trends investing is not about following fads, nor is it about jumping on the bandwagon of the next hype. It is about looking ahead at the next decade and at our economy, our society and our planet. It is about exponential growth, disruption and new business models. It is all about picking the structural winners, but above all, avoiding the losers as there are sure to be many of those along the way, too.

Henk Grootveld,

Head of Trends Investing

Trends investing isn't about following the latest fads

Change is the only constant in our world. It brings risks and opportunities. And it can be disruptive. Trends are profound changes in secular or economic conditions that occur over the long term. Today's world is driven by three powerful megatrends.

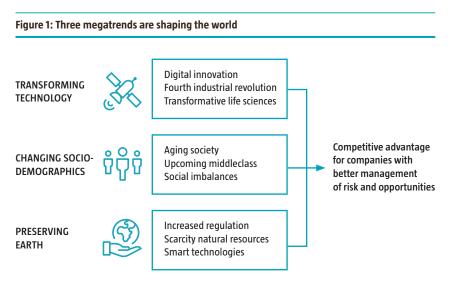


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The first is **transforming technologies**. Technological changes – such as artificial intelligence or the sequencing of DNA – are the most far-reaching in terms of creating investment opportunities. They unfold fast, reach maturity quickly and often have a winner-takes-all quality. The technological megatrend has jumpstarted the never-ending and accelerating cycle of technological innovations, and it has also prompted what we call the fourth industrial revolution. This revolution is about digitalizing the production process, as small, efficiently connected manufacturing hubs become able to produce anything on demand. These hubs of the future will be automated by robots, the Internet of Things and artificial intelligence.

The next megatrend relates to the **major sociodemographic changes** we are seeing. The realities of an aging population, a new digital generation and the rising middle class in countries like China and India define today's demographic megatrend. Sociodemographic trends tend to be predictable and persistent, yet slow and therefore hard to detect. That is why investors often discount their influence. This offers opportunities. For example, with the rising wealth of emerging markets like China and India, we see many new opportunities for consumer product industries as the trend creates a need for new basic consumer products. It also has an influence on how the financial industry is evolving as it creates demand for simple and basic financial products for two or three billion more people. This, for example, will give a boost to the fintech sector. The pension industry will be affected, as well.

Then, the third megatrend, referred to as **'preserving Earth'** includes increased environmental awareness, increased regulation and a growing scarcity of natural resources. This trend is driving many changes in society – from sustainable food production to cleaner energy systems and the emergence of the electric vehicle industry. This industry is driven by a combination of emissions regulation and social acceptance factors as the millennial generation is becoming more environmentally conscious. All of this leads to technological advances.



Source: Robeco Trends Investing

To avoid following the latest fads, it is important for investors to focus on disruptive trends, for example, the rise and evolution of the internet, artificial intelligence, the Internet of Things or the sharing economy. In particular, trends that combine new technologies and innovative business models tend to be even more powerful than the others – bringing about technological or sociodemographic shifts – in influencing the profitability of companies and entire industries. As shown in the image above, trends usually drive several changes simultaneously. One trend can disrupt or stimulate several industries and hundreds of companies, over multiple regions and sectors. This explains why trends investing abandons more restrictive sector and regional approaches, focusing instead on a group of stocks that are related to a particular trend.

Moving beyond storytelling

The appeal of trends investing originally had to do with storytelling. Many of its growth themes – such as blockchain or cloud computing – offer attractive narratives. And yet, it's about more than just a good story. A trends investing approach does not simply follow short-term hypes. In fact, it relies on a set of fundamental tools with longer time horizons. In that sense, it is more of a science – albeit an inexact one – than an art.

In fact, the key goal of trends investing is to separate the longer-term investment opportunities from the short-term hypes. That is why we draw a distinction between crazes and fads, micro-trends, ordinary trends and megatrends. Megatrends are usually the ones that have the capacity to influence society, the economy and our lives. In trends investing, the expectation is that investments in such megatrends do not depend as much on the daily ups and downs of the financial markets, but seek to profit from the predictability and sustainability of multi-year developments. 'There is a major difference between crazes and fads, microtrends, ordinary trends and megatrends' Megatrends shape our future, and looking at them today gives us a glimpse of tomorrow. Investing in trends means finding the winners of the future, while adopting the traditional, generic market index approach means sticking with the winners of the past, which might also be the winners in the future, yet history has taught us that there is no guarantee for that. Trends investing aims to find out whether the current winners are likely to remain as such for the next five or ten years. And as much as it seeks to pick the winners, it also aims to avoid future losers, or victims of shifting trends. Finally, trends investing is not without risks. It requires a longer horizon compared to a more conventional index approach. For this reason, it might be more appealing for clients with a longer-term view.

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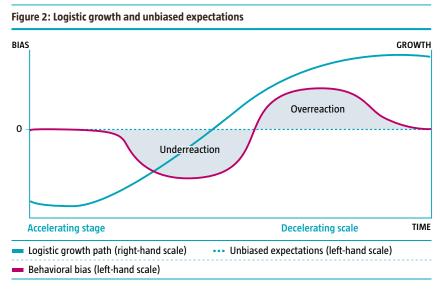
Trends investing can capture behavioral biases

"Prediction is very difficult, especially if it is about the future," is an oft-used aphorism by Niels Bohr. Especially when it comes to a non-linear future, one could add. People have trouble predicting the outcome of non-linear development, often underestimating the power of exponential growth. This is a classic example of behavioral bias. We just assume that things will evolve linearly.



Behavioral biases affect us all. We tend to think or behave in a certain way. We view the world through filters. We pay more attention to information that confirms our opinions than to information that contradicts them. We have trouble changing our opinion even when new information tells us this is justified. Understanding these biases is valuable for investors, because they are hard-wired into our system and do not change much over time.

As Bergakker and Van Oerle argue in their 2017 white paper 'The Rationale for Trends Investing', having a good understanding of trends and behavioral biases offers a consistent source of alpha. It is alpha – or the difference between a portfolio's risk-adjusted return and the return of the benchmark – that ultimately determines the quality of a portfolio. In fact, an understanding of behavioral biases is more reliable than other sources of alpha, such as access to superior information or better models to process it. This is because behavioral biases persist over time, whereas fundamental analysis or quantitative methods are harder to implement longer term as they quickly lose their competitive advantage. A conservative estimation of growth could be a great source of alpha if used by people that are better at predicting non-linear events than the average investor.



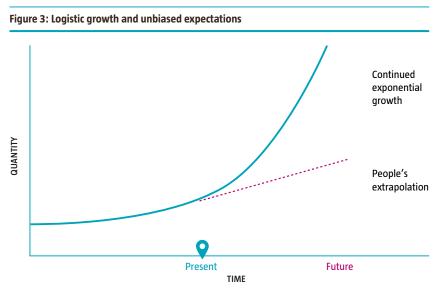
'Alpha generation boils down to investing during the accelerating stage of technology adoption and sidestepping during the decelerating stages'

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Source: Robeco Trends Investing
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People tend to overreact to some situations, and underreact to others, and understanding the context of both of these is key. Bergakker and Van Oerle show how these biases can be exploited in a trends approach if one understands in which context behavioral biases occur. In the case of trends investing, underreaction offers the most valuable opportunities because it tells you when to buy securities that are not priced based on the growth they offer.

Investors typically underestimate the exponential growth potential of trends

The difficulties with non-linearity lead to underreaction or overreaction. People tend to discount – or underreact to – information pertaining to the distant future. This is particularly the case with technological trends that are often faster to take root. By contrast, we tend to overreact to recent, high-impact events, which may turn out to be just noise. People are just not very good at recognizing whether changes in their environment represent a significant departure from the status quo or not. We have a bias toward underreacting to small, but significant changes and therefore underestimate the effects of exponential, or compound growth.

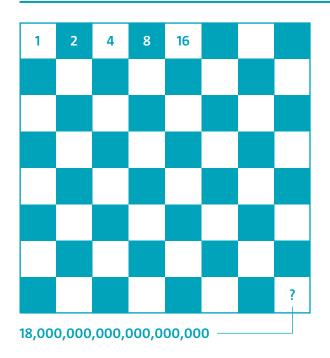


'The human mind is wired linearly and is unable to comprehend exponential change'

Source: Wagenaar & Sagaria; Robeco Trends Investing

When asked to evaluate exponential growth output, people will underestimate it by up to 90%. This is an almost embarrassing fact, and it shows that it's often hard to see the disruptive power of events, even when they happen right before our very eyes. A study by Wagenaar and Sagaria (1975) demonstrates that even when presented with exponential graphs, people typically underestimate the exponent, while compensating with a simple linear multiplier.

Figure 4: Can you think exponential?



- A sage was challenged by the king to play chess.
 To motivate his opponent the king offered any reward that the sage could name. The sage modestly asked for a few grains of rice in the following manner: a single grain of rice on the first chess square and double it on every consequent one.
- Having lost the game the king ordered a bag of rice to be brought to the chess board. He started placing rice grains according to the arrangement:
 1 grain on the first square, 2 on the second, 4 on the third, 8 on the fourth and so on:
- Following the exponential growth the king quickly realized that he was unable to fulfill his promise because on the twentieth square the king would have had to put 1,000,000 grains of rice.
- On the fortieth square the king would have had to put 1,000,000,000 grains of rice. And, finally on the sixty fourth square the king would have had to put more than 18,000,000,000,000,000,000 grains of rice which is equal to about 210 billion tons and is allegedly sufficient to cover the whole territory of India with a meter thick layer of rice. At ten grains of rice per square inch, the above amount requires rice fields covering twice the surface area of the Earth, oceans included.

Source: the Legend of Paal Paysam; Robeco Trends Investing

Certain situations may require us to predict a range of possible outcomes. However, as humans, our ability to do this is limited. This has direct implications for trends investing. A digitalizing world stimulates the innovation of new technologies. Both their disruptive force and the speed of growth are hard to see.

This tendency towards underestimation is intensified by short investment horizons. Often, trends are hard to discern and even harder to sell as they typically play out over timeframes of five to ten years into the future. The two-year time horizons that are so widespread among investors often make it hard to exploit the longer-term potential of secular changes.

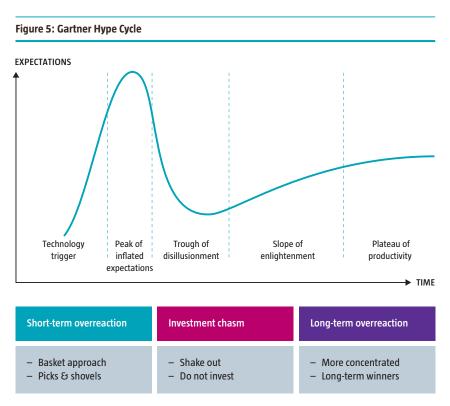
To conclude, people do not always act as rational actors, especially in the way they view trends. Personal beliefs, past events, preferences – all of these get in the way of good judgement when it comes to evaluating the influence of new trends on the market. Trends investing is all about turning human bias from an enemy into an ally.

Trends investing is about the key enablers and structural winners

How can one discover which companies best monetize a trend? This will depend on how much hype there is around a particular stock or technology at any given moment. According to Gartner's Hype Cycle, people have a tendency to overreact to new exciting technologies, especially as the media act as a huge amplifier. This is the wrong time to pick the winners, and investing in a broad basket is your best bet.



This is also a good time to use a 'picks & shovels' approach. This strategy got its name from the trend towards starting shops selling picks and shovels to all gold diggers, instead of trying to invest in the star gold miners, that came about during the Great Gold Rush. With this method, you invest in those companies that facilitate new promising technologies rather than in the pioneering companies. For example, in the case of the electric vehicle industry, it is hard to know today which manufacturer will ultimately be the winner. In this situation, investing in the more consolidated enablers like battery makers, lithium miners and sensor makers is more likely to bring success. In other words, investing in the vendors and suppliers of a new technology is a good way of benefitting from the emerging, potentially overhyped technology-based trend.



Source: Gartner; Robeco Trends Investing

Gartner Hype Cycle

According to the model developed by research firm Gartner, after the initial hype, technologies frequently fail to live up to people's unrealistically high expectations. This often comes with a wave of disappointment. But, once these technologies overcome their teething troubles, some of them take root and continue growing. Yet, people are slow to pick up on this new information – and that's where the investment bias that investors can benefit from comes in. This phase is a good time for investors to get into the market. Once the adoption rate of the technology reaches a critical level – 5% is often used as a rule of thumb – investors can focus on a more narrow universe of companies when picking stocks for their portfolio. The stages Gartner terms the 'slope of enlightenment' and the 'plateau of productivity' show who survived the initial phase to join a more select group of winners. For example, the universe of smartphone producers has been narrowed down to just two winners – Apple and Samsung. Industrial robots, for example, are in this slope of enlightenment phase. So we are past the hype and investors are now underestimating the potential of robotics companies.

For us, Gartner's Hype Cycle is one of the most useful tools for taking advantage of behavioral biases when building a portfolio. That said, it is important to note that this model was specifically developed for the adoption of new technologies and is therefore mostly applicable to technology-driven trends.

During the innovation trigger phase, investors can opt to invest in a broad basket of technologies as a clear winner is not yet apparent. This was the case with the digitalization trend and the dot.com boom, which initially gave rise to a lot of new companies, with low barriers to entry and few clear winners among the recent entrants. To conclude, understanding the stages of hypes and behavioral biases that go along with them could be a unique and dependable source of alpha. Combined with sound fundamental analysis, it could offer a great source of monetizing trends, because understanding such biases – or filters created by human experiences – gives investors more accurate expectations than the market.

'The Gartner Hype Cycle can be used to distinguish opportunities from hypes'

Trends investing profits from digital disruption

The digital revolution is a disruptive megatrend that is changing what companies do and what people want. Recent studies show that 82% of today's businesses have changed the way they do things in response to the new digital reality. This has happened due to both the new technologies and new business models disrupting the status quo. That is why analyzing digitalization waves is one of the key tools in trends investing.



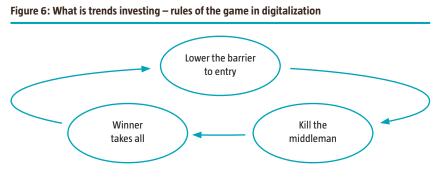
With the arrival of the smartphone around 12 years ago, consumption started to become more and more digital. Social media, online dating and e-commerce spread like wildfire, followed by network-based business models such as those used by Facebook, Airbnb and Uber. They all had two things in common: they were much less capital-intensive than traditional business models, and, they had a disruptive effect on the market.

In the next stages of the digital revolution that we are now observing, the production and financial side of the economy also started to go digital. With smarter automation, more robots, better artificial intelligence (AI) tools and faster 3D printers, manufacturing is undergoing profound changes as production speeds up, while costs and the amount of waste go down. Production is becoming more flexible and taking place closer to the end consumer. For example, shoemaker Adidas has rolled out its speed factory – a small, flexible manufacturing site in Germany, which will use robots, the Internet of Things and 3D printing to make high-end sports shoes for the European market within 24 hours. For Adidas, this will reduce both inventories and fashion risk.

On the financial side, we are also seeing the emergence of disruptive digital products. First, the fintech sector began to offer basic digital financial services in countries like India and China. Being a part of the financial inclusion theme, they help to lower the share of population that is underbanked by providing a very basic savings account, as well as access to insurance and a pension. Apart from financial inclusion, online payments are also becoming an increasingly mainstream method, particularly in China where city dwellers hardly ever use cash anymore. These and other services provided by fintech companies, such as digital wallets, or electronic billing – will create more and more challenges for the traditional banking industry.

The end of the middleman

Digitalization is a prime example of a megatrend that is disruptive to existing industries. It lowers the barrier for companies to enter new markets – anyone can start a web shop – and causes moats to either disappear or transform. Moats are a business' ability to maintain competitive advantages in order to preserve its long-term profitability and market share in the face of competition. In addition, digitalization kills the middleman. In the past, the services of many different parties – wholesalers, importers and distributors – were needed to get a piece of handmade Chinese furniture into your living room. Today, all you need is the Alibaba network to contact a local craftsman directly to place a customized order, and the network takes care of the rest.

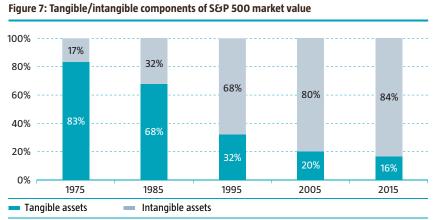


Source: Robeco Trends Investing

The blockchain technology has the potential to eliminate the need for either exchanges, or custodians, or investment brokers over time. The same goes for the US healthcare system, which is marked by a huge number of intermediaries, such as pharma benefit managers, insurers, and drug distributors. All of these middlemen might be out of work someday, as the healthcare sector will increasingly go digital – with personalized and more affordable DNA analysis, or telemedicine – the assessment of patients with mobile phones – or smart health monitors and wearables. Within the digital realm, we believe that the innovation of business models could be even more disruptive than the technologies themselves. That is why the analysis of evolving business models is one key tool in trends investing.

Intangible assets on the rise

Among the business models that are gaining in prominence are the ones that rely on intangible assets – such as intellectual property or reputation – and such models are valued the most by the market. This stands in stark contrast to firms than mostly own tangible assets – whether these are machinery, buildings or land. If we look at the S&P 500's market value, we see that the share of intangible components in company value has grown from 17% in 1975 to 84% in 2015.





19 | TRENDS INVESTING

Of the intangible assets, the ones with intellectual capital and consumer trust take center stage as the most valuable. The ability to offer customized and even personalized products and services is becoming a more important way to gain a competitive advantage. Companies that have access to intellectual property such as patents, copyrights and trademarks, as well as software source codes, are well positioned. This is typical for sectors such as biotech, technology and pharmaceuticals.

Networked businesses such as digital networks and digital marketplaces are well positioned, too. This is because a business model involving value networks – those that facilitate commercial and/or social interaction – has proven to be the most disruptive. Examples are virtual marketplaces and peer-to-peer networks and those that rely on the collaborative use of assets as agents of the 'sharing economy'. These value networks are found primarily in asset-light, information-heavy industries: information technology, financials, media and retailing. These business models have already been successfully rolled out – Skype in telecommunications, PayPal in financial services, Amazon in retailing, Airbnb in lodging and Uber in transportation. And, they have disrupted the existing industries.

Networked businesses and other ventures with intangible and digital assets tend to have a winning business model. Industries with physical assets – buildings, machinery or land – that can either be digitized, digitally knit together into a network or both, are vulnerable to disruption.

Everything as a Service

Finally, the model of Everything as a Service also has a strong competitive advantage and moderately strong disruption potential, particularly in capital goods manufacturing. This is because in a business-to-business configuration, there is a significant shift in value from products to services. It started with Software as a Service (SaaS), Platform as a Service (PaaS) and Infrastructure as a Service (IaaS). With the rapid development of the Internet of Things, the model was adopted in many other domains, eventually becoming Everything as a Service (XaaS). It has a powerful appeal for certain sectors, because it turns upfront capital expenditures into regular operating expenses. In this way, it reduces maintenance expenses, increases switching costs and strengthens customer lock-in.

To conclude, the recent waves of digitalization have disrupted many industries and brought a number of winners to the fore. They have created promising new models, particularly Everything as a Service and value networks, such as online marketplaces. With the longterm digitalization trend, comes a market preference for companies that are holders of the intangible assets. 'The model of Everything as a Service has a strong competitive advantage and moderately strong disruption potential'

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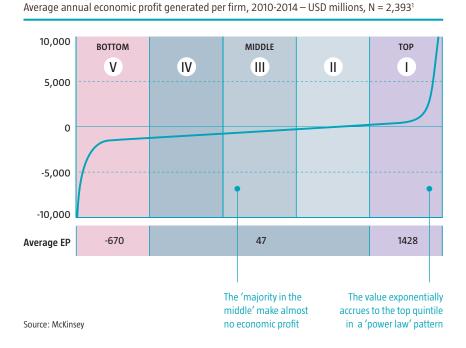
Trends investing plays 'winner takes all'

Studies show that up to 70% of the best-performing industries were still among the group of best performers ten years later. At the same time, the most profitable players in an industry tend to maintain their winning position. And, 40% of a company's economic profit depends on the industry in which it operates while the remaining 60% can be explained by company-specific factors, such as M&A and past investment in R&D.



Although the majority of investors probably already know intuitively that profits are not uniformly or even normally distributed among companies and industries, most of them would likely be surprised at the extent of the skewness. A McKinsey study has shown that during the period from 2010 to 2014, the top 20% of global companies captured nearly 90% of all the economic profits created by all the companies in the sample. By contrast, the bottom 20% lost huge amounts of economic value, while the companies in the middle more or less earned their cost of capital and broke even. So ABBA was right after all: "The winner takes it all".

Figure 8: The global distribution of economic profit is radically uneven





22 | TRENDS INVESTING

The same level of skewness was found on an industry level in the more recent data gathered by HOLT. In both 2007 and 2017, the best-performing companies in terms of economic profits belonged to the staples sector, certain segments of the healthcare sector, and the software and internet industry. The companies that lagged behind were mostly in the utilities and mortgage finance sectors, as well as some cyclical industries, like aviation and the automotive sector. The fact that there was not much movement during this period raises questions about the speed of mean reversion in economic profitability.

Do highly profitable companies see their profits revert to a mean - or become average again – after a certain period of time? Research conducted by both HOLT and Bergakker shows that the economic performance of both the best- and the worst-performing industries tends to persist over the subsequent decade. Between 60% and 70% of the best industries were still among the best ten years later, while 40% to 60% of the worst industries were still among the worst. This adds an interesting dimension to the finding of the McKinsey study that around 40% of companies' economic profits are determined by the profitability of the industry as a whole.

The Robeco white paper 'Trends, industries and the quest for outperformance' also shows that the best performers among the various industries had the best investment returns over that period, outperforming the general index by over 5% per year. By contrast, the industries that either became the worst or remained the worst also performed the worst. Table 1 shows the relative investment performance of the best and worst industries in both 2007 and 2017.

The importance of these conclusions for us lies in showing that the industry-moving trends are the main determinant of changes in relative profitability. In other words, the trends that transform industries and industry profitability have the biggest influence on a company's profitability.

'The odds that winning stocks will continue performing well are far better than the chances that poor performers will stage a turnaround'

	Best industr	ies in 2017				Worst
		0-20%	20-40%	40-60%	60-80%	80-100%
Best industries	0-20%	5.3%	-	-	-	-7.5%
in 2007	20-40%	6.4%	-1.7%	-0.8%	-4.2%	-10.7%
	40-60%	-	3.8%	-1.4%	-2.4%	-7.0%
	60-80%	-	5.0%	-0.7%	-4.5%	-6.0%
Worst	80-100%	-	-13.7%	2.1%	-0.7%	-6.4%

Table 1: Relative performance of global industries from best to worst (2007-2017)

Source: Robeco Trends Investing

Worst

Table 1 illustrates that the persistence of relative industry profitability was underestimated by investors. The odds that winning stocks will continue performing well are far better than the chances that poor performers will stage a turnaround and deliver outperformance. In addition, the changes in relative industry profitability that did occur were not anticipated by investors and led to the outperformance. We believe that secular trends can significantly affect industry fortunes. One striking example is the effect of the rise and evolution of the internet. This secular trend has made internet software & services a persistently profitable industry since 2005. This industry was profitable almost from the start, yet the secular trend of digitalization has strengthened it even more. Following the internet bubble of 2000-2002, its profits grew non-stop – from USD -0.5 bln in 2000 to USD 70 bln in 2017.

On the rare occasion that the industry's profitability changes significantly, it is caused mostly by a secular and disruptive trend. If one accepts this premise, correctly identifying the industry-wide implications of the current secular trends improves the odds of finding the winning industries of the future. This, in turn, should lead to materially improved odds of investment outperformance.

Conclusion

Trends investing is a great way for investors to take advantage of long-term changes that occur in society – whether they are technological, sociodemographic or environmental in nature. Apart from all of these potentially disruptive changes, trends investing also relies on studying the industries and companies most exposed to these secular changes. This is because adaptation to change is one of the key elements of firms' value creation. And those firms that are able to benefit from the changes, while minimizing the risks, often grow exponentially, and in a winner-takes-all fashion.

Investing in trends means not only finding the winners, but also avoiding many, many losers. In doing this one can make use of behavioral biases that people have. First, people tend to overestimate a technology's potential on the wave of a hype. Then, they tend to get disappointed too quickly once the initial hype subsides. It is during this period that true winners can be found.

We also believe that with some trends – such as digitalization – what matters most is not just embracing new innovative technologies, but also adopting a novel disruptive business model. The 'Everything as a Service'-model or online marketplaces that connect sellers and buyers are two examples of new business models that have disrupted traditional industries. History has shown that is almost inevitable that more disruptions will follow.

Important information

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