

ECONOMIC MOAT

THE SYSTEMATIC RECIPE FOR LONG-TERM QUALITY INVESTMENTS

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THE BATTLE OF ALESIA

"With an army made in his own image, Caesar brings a daring charge through Gaul, across the English Channel, and to the wilds of tribal Britain." [1].

Myth or reality, the siege of Alesia is considered not only a war, but also an engineering master piece that Julius Caesar had decided on, in order to subdue Vercingetorix of the Arverni in his "oppidium" (fortified settlement). During the stand-off, romans constructed a very sophisticated moat by which they were able to cut-off the offended town and simultaneously protect their backs.

A moat is defined by the Oxford dictionary as "a deep, wide ditch surrounding a castle, fort, or town" [2]. In our times, Warren Buffet vulgarized the word among investment enthusiasts, and he made it part of the long-term investing jargon. Talking about franchising, one of the best techniques to monetize on a brand, the famous investor preached to "look for the durability of the franchise" [3]. Of course, a successful business is tied to the uniqueness and to the sustainability of its competitive advantage. Indeed, a value and long-term investor can only hope that his/her investment is protected.

In this paper, we propose a systematic approach to invest in companies with lasting competitive advantages. We first explain the concept of an Economic Moat, and then present an index methodology to allow investors to track such a concept.

THE FATHER OF VALUE INVESTING

"When management with a reputation for brilliance tackles a business with a reputation for bad economics, it is the reputation of the business that remains intact." [4]

In his book, *The Intelligent Investor*, Benjamin Graham describes the importance of value investing. The key ingredients are, first, buying a security at a lower value than the intrinsic one, and second, holding that security for a long-term. Speculation is heresy and a good investor uses market fluctuations to his own benefit. Having said all these ideals about investing, the father of value investing and his student agree that favorable business conditions are not enough, but rather believe that good business economics are key for a successful investment. In fact, "the chief losses to investors come from the purchase of *low-quality* securities at times of favorable business conditions" [5]. A *high-quality* security, we argue, would be surrounded by an Economic Moat. This can be simply defined as a business with a long-lasting competitive advantage at different levels.

As a starting point, the levels below constitute the basis to build a competitive advantage:

1. The first level, intuitively, is the low-cost of production in relative terms.
2. The second level is the scalability of the business either to capture a larger market share or to scale the business horizontally and/or vertically.
3. The third level are the company's intangible assets, e.g. intellectual properties, brands, patents and licenses.

Yet, a business model is considered to be surrounded by an Economic Moat when the competitive advantage is maintainable. Naturally, there is no secret recipe, but adding to the business a product having a high switching cost and triggering a strong network effect can potentially lead to developing an Economic Moat. Consequently, the following elements are the defensive blocks:



- The fourth level is the high switching cost or a low substitution threat.
- The fifth level is a strong network effect.

A common example for high switching costs – and potentially the most known – is the Microsoft Office Suite. No matter which operating system you are using or which PC technology, Excel would still be your spreadsheet of choice, as the competing products do not offer the same usability convenience. Everyone is simply used to the Microsoft product.

An interesting example for a strong network effect is Netflix - Figure 1 below demonstrates the idea. The more series you watch, the more you might talk about it with friends and family, the more likely new members will join. More subscriptions imply more cash flows, and consequently more content and production by the company – a potential Economic Moat.

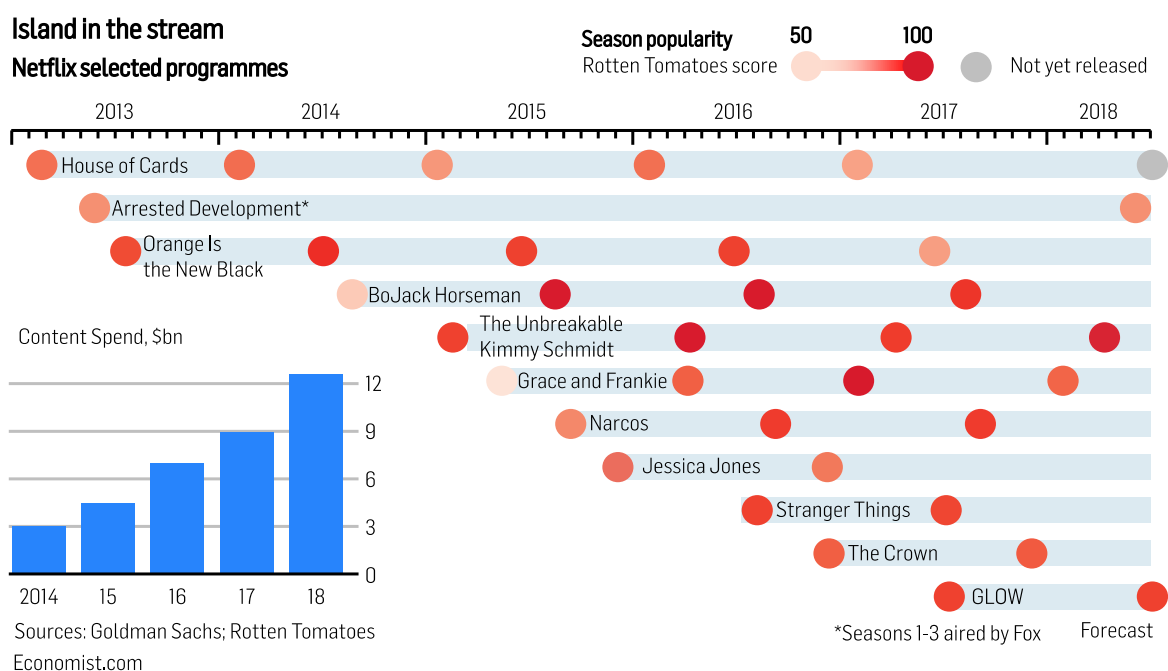


Figure 1: Netflix strong network effect [6]

UNDERSTANDING COMPETITIVE AND SCALABLE COMPANIES

In this section, we investigate the possibility of a rule-based approach to construct a portfolio of companies surrounded by an Economic Moat. We understand that, in an ideal world, detailed and in-depth market analysis is needed to perfectly measure the network effect or the high switching cost associated with a product. Nevertheless, available accounting ratios based on the information presented in the income statement and the balance sheet are and should be reflective of a sustainable Economic Moat.



Lower costs to produce more (level 1). An efficient company, which is managing the costs well, will be able, for the same price as a competing peer, to generate the same amount of output by having an improved economy of scale. Seen differently, a company can have a differentiating factor compared to its peers, and consequently generates higher revenues by charging a higher price for its product. This capacity of maximizing revenues while minimizing costs is reflected by a high operating margin:

$$\frac{\text{EBIT}}{\text{Sales}} \% (1)$$

Additionally, one can argue that a sustainable high *switching cost* (level 4) can be reflected by a consistently high operating margin. With time, the operation processes tend to be improved - cost reduction - and the company would have better price setting capabilities – potentially higher revenues. Similarly, one can argue that a *strong network effect* (level 5) is translated into an organic growth in the sales year over year.

Scalability of the business model (level 2). A company should be able to easily scale the business model at various levels. In fact, such a company is able to gain a larger market share, and consequently reflect growth in terms of revenues and, potentially, earnings. In the general case, companies with low inventory tend to reflect higher scalability as this reflects an efficient flow-through processes in the business model. Thus, we introduce the following ratio:

$$\frac{\text{Inventory}}{\text{Total Assets}} \% (2)$$

Intellectual property of the firm (level 3). Similarly, locking a large number of intangible assets allows a company to impose itself in various markets either through direct investment or through franchising. In relative terms, the intellectual property of a company is measured by:

$$\frac{\text{Total Intangible Assets}}{\text{Total Assets}} \% (3)$$

Willingness to invest. Scalability cannot be realized if a company is not willing to invest in the development of products, or to venture into an expansion. A company's strategic investment is seen in the following ratio:

$$\frac{\text{Total Investments}}{\text{Total Assets}} \% (4)$$

Again, continuous investing can in many ways be used for defensive and innovative reasons. The products could be regularly developed to stay at a competitive edge – protecting the high *switching cost* (level 4). From the same perspective, marketing campaigns to strengthen the brand name and defensive attitude towards the intellectual properties' preservations definitely lead to a stronger *network effect* (Level 5).



SOLACTIVE SYSTEMATIC MOAT STRATEGY

As an analysis, we created a portfolio of stocks picked from the constituents of the Solactive US Broad Market Index and readjusted quarterly.

The criteria for inclusion are the following:

1. The stocks should have a market capitalization in excess of USD 500 million.
2. The average daily volume in USD terms should be in excess of USD 1 million.
3. The stocks should rank between 1 and 40 as explained next.

In fact, we create three rankings of the stocks based on the EBIT as a % of the Sales (descending order) (1) after filtering out the companies scoring low on this ratio to create a quality tilt, Inventory as a % of Total Assets (ascending order) (2), and Total Intangible Assets plus Investments as a % of Total Assets (descending order) (3) & (4). Then, the resultant index constituents are those that score between 1 and 40 on the average of the three rankings (ascending order).

The result is an index having 40 USD denominated constituents. The portfolio constantly performs better than the starting benchmark, the Solactive US Broad Market Index – Figure 2. As expected, Table 1 shows that the created portfolio, i.e. the Solactive Systematic Moat US Index, outperforms the benchmark by 3.96% p.a. over the historic observation period. Similarly, since the constituents by construction are expected to be healthier companies, the Solactive Systematic Moat US Index exhibits a lower maximum drawdown of -53.02% versus -54.84% of the benchmark. To avoid having a bias towards size, the index constituents are equally weighted. The risk-adjusted returns are considerably better for the Solactive Systematic Moat US Index compared to the benchmark.

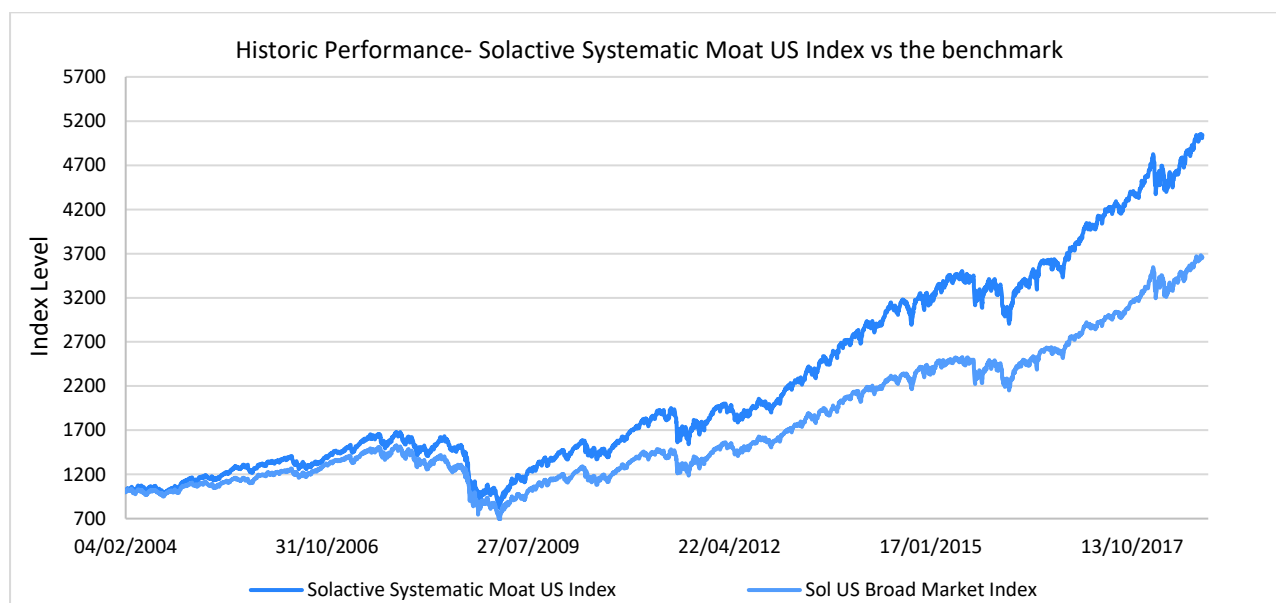


Figure 2: Historic timeseries of the Solactive Systematic Moat US Index vs the Solactive US Broad Market Index from 04-Feb-2004 till 28-Sept-2018

**Past performance is not representative of current and future performances, and alone cannot be used to evaluate an investment.*



	Solactive Systematic Moat US Index	Solactive US Broad Market Index
Mean	12.88%	8,92%
Standard Deviation	19.55%	18,06%
Downside Deviation	13.92%	12,89%
Max Drawdown	-53.02%	-54,84%
Sharpe Ratio	0,66	0,49
Sortino Ratio	0,93	0,69

Table 1: Stylized figures of the Solactive Systematic Moat US Index vs the benchmark. The values are the averages p.a. over the period of the back-test from Feb 2004 till Oct 2017.

Figure 3 below shows the consistent outperformance of this novel strategy with respect to the benchmark over time. In the period prior to the crisis from mid-2005 till 2007, and like other value strategies, the index underperformed the benchmark as it is common in bubble periods that investors overvalue less healthy and risky companies. In particular, prior to the mortgage crisis, the Finance sector was overweighted in the benchmark. Figure 4, shows that it is not the case in the presented strategy. Yes, banks are generally a utility in our daily lives but, financially speaking, their margins are narrow and the barrier to entry for the competition is relatively low. The remaining largest allocations to sectors such as Health Technology, Consumer Services, Utilities, or Electronic Technology are consistent between the Index and the benchmark. The returns growth by the strategy as of 2009 was generally higher than those of the benchmark.

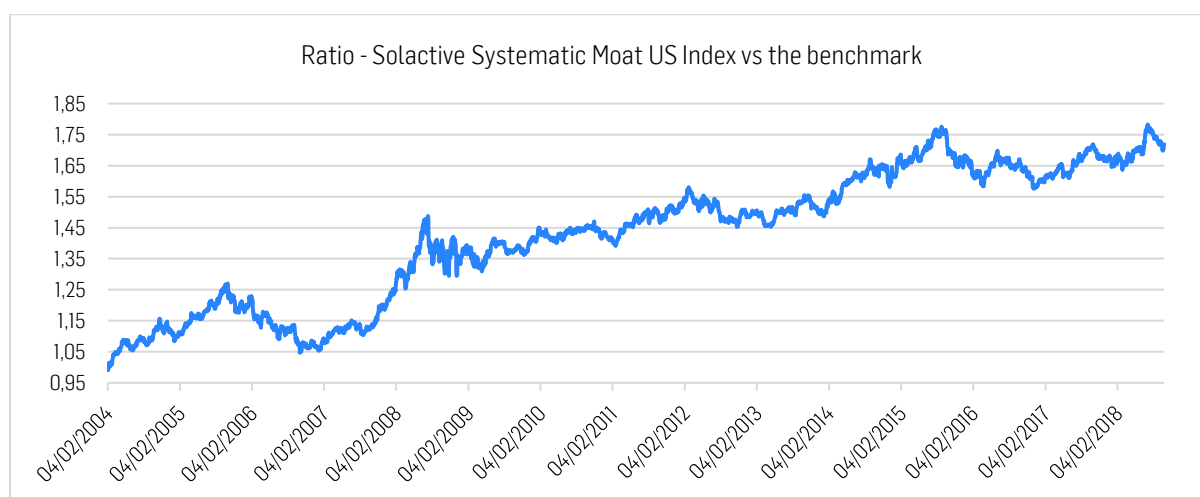


Figure 3: The ratio of the Solactive Systematic Moat US Index to the benchmark

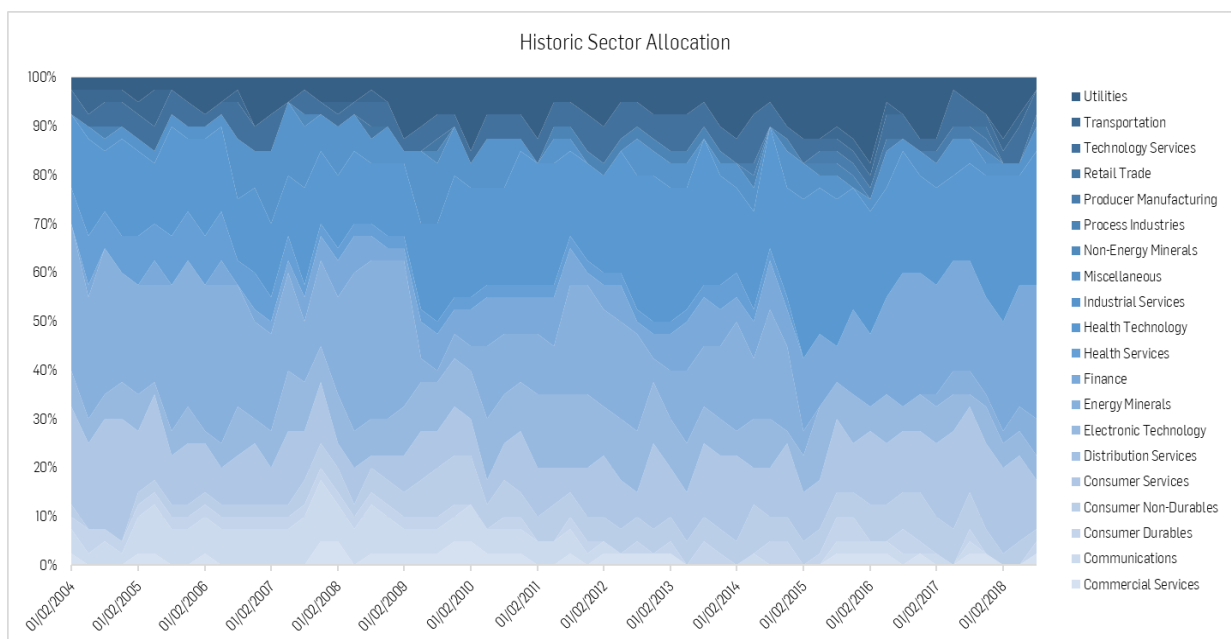


Figure 4: Historic sector allocations

Year-over-year (YoY), Solactive's strategy mostly generates excess returns with respect to the benchmark. In 12 out of 15 years, it outperformed as shown in Figure 5.

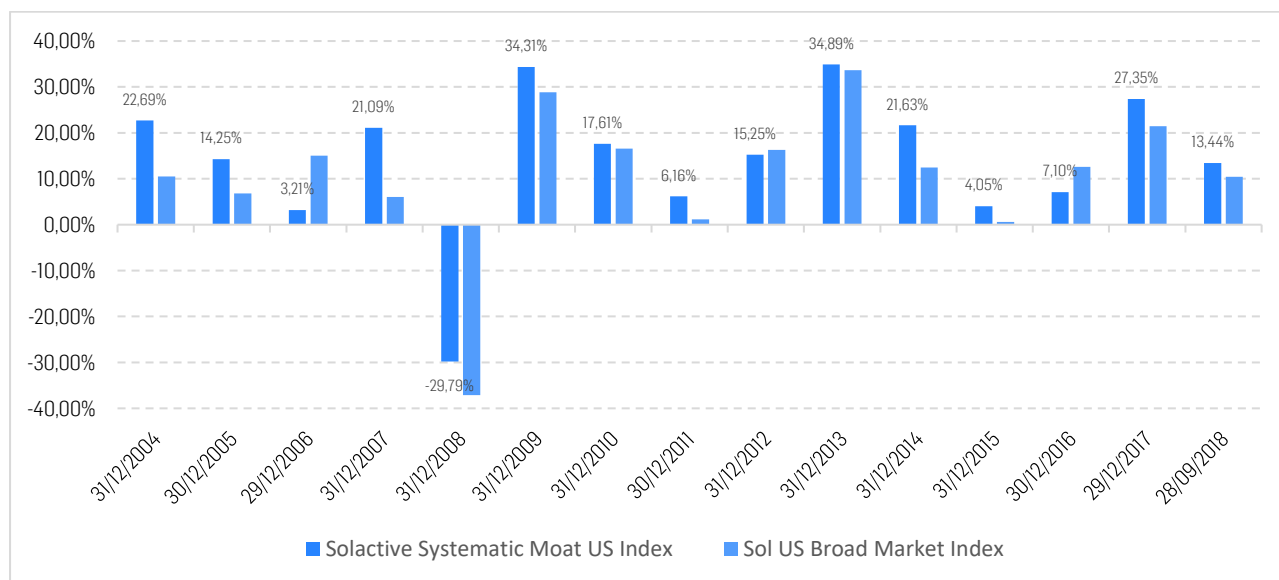


Figure 5: Year-over-year returns as of the 31 of December of the Solactive Systematic Moat US Index versus the benchmark



Naturally, the names in Table 2 below ring a bell. They all are considered surrounded by an Economic Moat and managed to survive several crises. The common point among them is the fact that they were a subset of the index' constituents during at least 5 selections from Feb 2004 till Sept 2018.

Companies Name
Apple Inc.
Amgen Inc.
Burger King Worldwide, Inc.
Discovery, Inc. Class A
Dolby Laboratories, Inc. Class A
Gilead Sciences, Inc.
Iridium Communications Inc.
McDonald's Corporation
Altria Group Inc
Microsoft Corporation
Marvel Entertainment (acquired by Disney)
Oracle Corporation
Planet Fitness, Inc. Class A
PennyMac Mortgage Investment Trust
QUALCOMM Incorporated
Reynolds American Inc.
Aqua America, Inc.

Table 2: 17 constituents that are part of the index during at least 5 selections from Feb 2004 till Sept 2018

Final Note

The Solactive Systematic Moat US Index is a rule-based alternative approach for investors looking for companies surrounded by an Economic Moat. It is possible to run a similar screening on different universes such as the European or Emerging markets. From the same perspective, more innovative products can be tailored, based on fundamental and essential financial data, to reflect the healthiness of the underlying companies. The human intuition and judgement can lead to proper identification of products with high switching costs and strong network effects, yet we believe that a systematic approach would overcome the subjective equity selection process over time.



REFERENCES

- [1] *Emperor: The Field of Swords*, by Conn Iggulden
- [2] <https://en.oxforddictionaries.com/definition/moat>
- [3] Linda Grant, "Striking Out at Wall Street," U.S. News & World Report, June 12, 1994
- [4] Warren Buffet
- [6] *The Intelligent Investor*, by Benjamin Graham
- [5] <https://www.economist.com/graphic-detail/2018/07/04/how-netflix-became-a-billion-dollar-titan?fsrc=scn/fb/te/bl/ed/hownetflixbecameabilliondollartitandailychart>

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All numbers are calculated by Solactive as of Q3 2018.

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