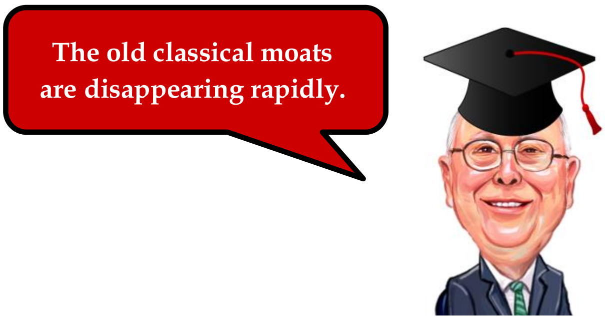
Intelligent Cloning

The Spring 2020 edition



In this edition on Intelligent Cloning, we'll have a look at John Deere, a constituent of the Intelligent Cloning Portfolio for three years now, and up 72%, dividends included. Are the "green and yellow tractor moats" old eroding moats, or is John Deere nowadays a compelling "pandemic" investment opportunity?

Nothing runs like a Deere

You probably know the John Deere story. In the early 19th century, a blacksmith named John Deere moved from Vermont to Illinois, where he noticed that the farmers were having trouble. The sticky prairie soil accumulated on their traditional iron plows, forcing them to stop frequently to clean the blades.

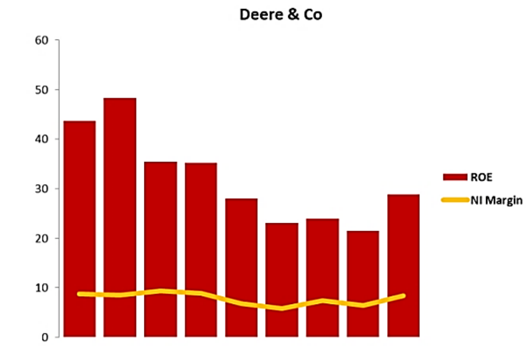
Deere had an idea, and in 1837 he introduced his "self-scouring" steel plow. The blade cut through the tough, root-filled earth, and its curved shape allowed the soil to turn over. Deere's invention became known as "the plow that broke the plains" and helped transform the Midwest into fertile farmland. His eponymous company became the largest plow manufacturer in the world.

Since 1837, John Deere has capitalized on the opportunities presented by increasing population, prosperity, and urbanization. Today, broad trends based on population and income growth, especially in developing nations, are driving agricultural output and infrastructure investment. Further, technological advances and agricultural mechanization are expanding existing markets and opening new ones.

Recently, Charlie Munger made some comments on the durability of moats. "The pace of change has accelerated in recent years. Technology and new business models are making it harder for many incumbent companies to maintain their competitive advantage and continue to generate abnormal profits relative to the capital employed. It's probably a natural part of the modern economic system that the old moats stop working.

Therefore, it's even more important than usual to not practice "blind" value investing. In blind value investing, an investor just looks backwards at the financial history, assumes that something similar will occur in the future, and considers a company a bargain if it's cheap relative to historical profits. That is still a good place to start, but a lot more judgement needs to be exercised to guard against adverse fundamental changes to the business."

So what about the John Deere moats? Are they still there, and if so, how durable are they?



This chart shows the John Deere return on equity (ROE) and the net income (NI) margin.

Return on equity is an important measure of company performance. In his 1987 letter to shareholders, Warren Buffett refers to the Fortune 1988 Investor's Guide, where Fortune reported that only 25 of the 1,000 companies met two tests of economic excellence:

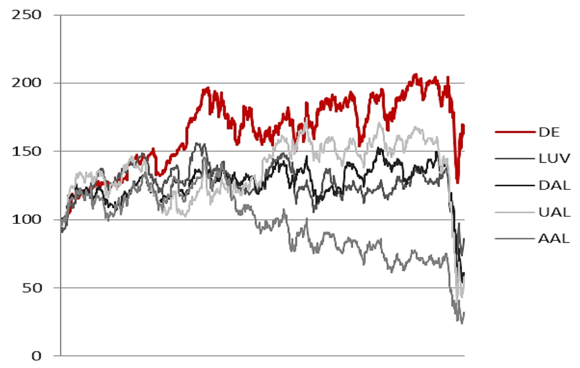
- An average return on equity of over 20% in the last ten years.
- No year worse than 15%.

John Deere matches both criteria for economic excellence.

John Deere doesn't use ROE as the one and only performance metric though. They use Shareholder Value Added (SVA). This is the metric former Deere CEO Bob Lane introduced 2 decades ago. And they still are using this rigorous financial discipline as of today. It is a sign, I believe, of good corporate governance, and not many investors truly appreciate (or realize) the compounding effect good corporate governance can have on stock returns.

John Deere was copied, or “cloned” if you will, from the Berkshire Hathaway portfolio. Interestingly enough, as of recently Berkshire Hathaway bought stock in Kroger, the United States' largest supermarket by revenue. Kroger is another example of a company that (almost) matches these ROE Buffett criteria for economic excellence.

Perhaps you remember, it’s in my initial write-up on Intelligent Cloning, that I decided NOT to follow Buffett in selling the John Deere stock, and buying airline stocks (Southwest Airlines LUV, Delta Airlines DAL, United Airlines Holdings UAL and American Airlines Group AAL). This is what would have happened if you invested 100 USD in these stocks. All airlines stocks went into negative territory, while the John Deere stock is up 63% since October 2016. Before the corona-crash, it was up more than 100%.



You can’t deny that I was the lucky one over here, at least up until now. And “luck” is one of the ingredients of investment success. If you have an appetite for contrarianism, and a strong stomach, why not pick up some airline stocks right now? Anyhow, Let’s have another look at this chart 10 years from now.

Shareholder Value

Robert W. Lane joined John Deere in 1982, following an early career in global banking. He managed various operations within the Worldwide Construction Equipment Division and later served as president and chief operating officer of Deere Credit, Inc. In 1992, he joined the Worldwide Agricultural Equipment Division where, as senior vice president, he directed equipment operations in Latin America, Australia, East Asia and South Africa.

Lane was elected chief financial officer in 1996, and two years later moved to Germany where, as managing director, he led Deere's agricultural equipment operations in Europe, Africa, the Middle East, India and the nations of the former Soviet Union. He returned to the United States as president of the Worldwide Agricultural Equipment Division in 1999; subsequently he was elected Deere & Company’s President and Chief Operating Officer.

Lane established the SVA model, which helped the company attain world-class status in asset efficiency and return on investment. His focus on global expansion led to significant investments throughout the world, most notably in Brazil, India and China. Deere's traditional factories were reworked and modernized, and at the same time, Deere's dealer organizations worldwide were significantly upgraded to better support the advanced needs of customers.

Lane announced that SVA, based on a simplified version of the economic value added formula used previously in the Construction and Forestry division, was a metric that operating staff worldwide could understand, and it would be implemented company-wide, with all employees working toward the common goal of producing increased shareholder value.

Simply, operating return on operating assets (OROA) was the measure while shareholder value added (SVA) was the outcome—additional cash created from a more efficient operation using less assets. Shareholder Value Added (SVA), essentially, is the difference between operating profit and the pretax cost of capital.

Lane set lofty objectives, believing that to become a truly great business, John Deere needed to aim high. The line was originally established at 12 percent to be acceptable on what the company referred to as operating return on operating assets (OROA). 12% represents actually a SVA neutral level. But to be a great business, Lane eventually concluded that John Deere actually needed to strive for a 20 percent annual OROA, at mid-cycle sales volumes and equally ambitious returns at other points in the cycle. For purposes of this calculation, operating assets are average identifiable assets during the year with inventories valued at standard cost.

I remember, when I first read a John Deere annual report in 2016, that I contacted their Investor Relations department to ask for their definition of average identifiable operating assets. Well, it includes inventory, receivables, plant property and equipment (PP&E) and goodwill. Excluded are cash, deferred taxes, pension and investment in financial services subsidiaries.

Here is a summary of the OROA & SVA results. You can find the exact calculations in their annual report.

Equipment Operations			
$MM	2017	2018	2019
OROA % standard costs	21.3%	24.1%	21.3%
SVA	1,248	1,790	1,478

Construction & Forestry			
$MM	2017	2018	2019
OROA % standard costs	10.2%	20.9%	21.9%
SVA	-61	321	395

AG & TURF			
$MM	2017	2018	2019
OROA % standard costs	25.1%	25.1%	21.1%
SVA	1,309	1,469	1,083

Financial Services			
$MM	2017	2018	2019
Return on Equity %	10.6%	11.1%	10.7%
SVA	35	70	37

Looking at the SVA results over the last 2 decades, I think it's fair to say that John Deere succeeded in attaining world-class status in asset efficiency and return on investment. Here are the latest ratings:

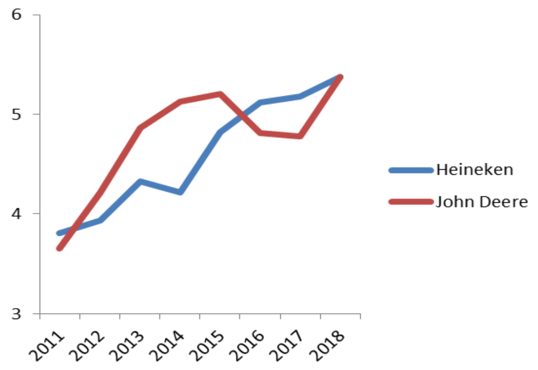
Ratings	
Fitch Credit Rating	A
Moody's Credit Rating	A2
Standard & Poor's Credit Rating	A
The Value Firm® Risk Rating	2

All ratings indicate "Low risk".

Still the brand to beat

Like great people, great brands are dimensional. They have a soul, personality and behaviors that differentiate them from others. They leave an impression and invite you to engage with them. Great brands are interesting and make it clear why people need them. – Quote from Shawn Parr.

Building an iconic brand like John Deere takes decades. It will be very hard to replicate. Brands generally drive a price premium and willingness to pay because consumers are willing to pay for consistency, trust and piece of mind. In terms of brand value growth in $B, the John Deere brand is comparable, I believe, to the Heineken brand.



Source: Interbrand.

The three top performing factors for the John Deere brand are clarity, engagement and authenticity. Besides that, the brand is compelling, relevant, entertaining and it's courageous and different.

Brand clarity drives confidence and performance. It's one of the most important assets you have as a company to drive and differentiate your business. Like confident people, brands that operate with clarity generally deliver more consistent results.

According to a Farm Equipment Survey a few years ago, John Deere farmers have maintained their level of brand loyalty. 77% of the Deere farmers would call themselves "brand loyal" and 84% desire to buy new equipment of the same brand, as what they consider to be their primary brand, the John Deere brand.

A few years ago, BrandingBusiness talked to Bill Becker, by then the Director of the Brand Center of Excellence at John Deere, about the multi-country communications initiative using the purpose-driven corporate theme of "Committed to Those Linked to the Land" and a philanthropic theme of "Solutions for World Hunger".

"When people come to us and share terrific stories of how John Deere helped them be successful over generations it is really fulfilling. Some are so loyal they even sport tattoos of the John Deere logo on their backs or say they have decorated their House in green and yellow. The reason people love us? We've helped them succeed.

The world is going to produce more food in the next 40 years than we have produced in the last 10,000 years. With the standard of living getter better and with growth in emerging markets and in the middle class, the need for more, better food is there. Also, people are moving to cities faster than we ever imagined. So there is demand for our products in agriculture and construction. In China alone, big equipment is needed on state-run farms in Northern China while, right down the road, are smaller farms that require different mechanization.

We have a great dealership network that takes care of our customers. We select the best and support them with a suite of tools that few others just can't match. We are bringing tech innovation to the fold that's a way to differentiate John Deere above product and service."

Also Sam Allen, former CEO of John Deere, made two points that stood out as particularly poignant. First he talked about the importance of trust with its customers, ensuring that farmers can depend on Deere's products to be running at critical times. That's key to the farmer's profitability. Allen highlighted that the reputation of their 183 year-old company is predicated on trust.

Allen also made it very clear that their dealers are their most sustainable competitive advantage. For Deere, the company's ability to be responsive for end users is made possible by their long-standing relationships with the field. Allen also highlighted that many of their dealers are independent businessmen and businesswomen who have an existential need to run their dealership well. Brand clarity, being clear why the brand exists and what it's trying to accomplish, is a precondition for moving decision making on future changes closer to the edge (to customer end points). These changes can only be done in a way that doesn't betray the trust of those who ensure that customer outcomes are met at critical times.

John Deere brings a strong sense of how to do business in high-integrity way. They are very strong in terms of integrity. They operate every day around the world with compliance training. Some markets may still have a culture of bribing. Deere doesn't do that. Does that mean they lose business? Maybe. But that's the way they do business.

Through their "Solutions for World Hunger," John Deere supports projects in farmer training, value-chain enhancement, and water access and use as just a few examples. John Deere is tying their brand to citizenship.

"We are in the business of feeding the world and providing for infrastructure needs and helping our customers feed the world. We are turning that into a higher-purpose message and using it to support the business.

There are key messages we use and we turn the volume up or down based on who we are talking to. Our message of "feeding the world" is a very powerful motivator for our distributors, employees, and for governments. Customers appreciate that message but most of all want us to help them be successful. So with them we make sure we do that but we let them know that they can feel confident that they are doing their part to feed 2 billion people."

John Deere was an early content marketer with The Furrow magazine. The Furrow is a tour de force combining strong horizontal global brand messages mixed nicely with dedicated content geared to segment and market, depending on the edition of the magazine. It is available in scores of countries and languages around the world.

It has a strong history of being a good friend to the farmer in terms of information that is important for that farmer/business man or woman to make smart decisions on how they spend the resources. Interestingly, the emerging markets love it. They love the high level of knowledge that goes into it and the personalized flexibility of how the message is delivered to the customer.

The Furrow's content is strong enough to make it a respected reading choice beyond customers to governments, NGOs and associations. It has done much to help the success of the individual farmer and for the John Deere brand as a "thought leader" in the industry.

John Deere's The Furrow has become something of a legend in two exceptionally disparate communities: agriculture and brand publishing. For farmers, it's the agrarian version of Rolling Stone. For brand publishers, it's a thing of wonder: a brand magazine born generations before the term "content marketing" was coined, which sees its back issues fought over—fiercely—on eBay.

The Furrow's first issue was printed in 1895, and its popularity quickly snowballed. According to longtime Furrow art director Tom Sizemore, most consumers seem to still be reading the print edition, even as the digital age has changed many other farming routines. https://www.johndeerefurrow.com/

Competition

The competitive environment for the agriculture and turf segment includes some global competitors, including AGCO Corporation, CLAAS KGaA, CNH Industrial N.V., Kubota Tractor Corporation, Mahindra, and The Toro Company and many regional and local competitors.

These competitors have varying numbers of product lines competing with the segment's products and each has varying degrees of regional focus. Additional competition within the agricultural equipment industry has come from a variety of short-line and specialty manufacturers, as well as indigenous regional competitors, with differing manufacturing and marketing methods.

Because of industry conditions, including the merger of certain large integrated competitors and the emergence and expanding global capability of many competitors, particularly in emerging and high potential markets such as Brazil, China, and India where John Deere seeks to increase market share, the agricultural equipment business continues to undergo significant change and is becoming even more competitive. The segment's turf equipment is sold primarily in the highly competitive North American and Western European markets.

Global competitors of the construction and forestry segment include Caterpillar Inc., CNH Industrial N.V., Doosan Infracore Co., Ltd. and its subsidiary Doosan Bobcat Inc., Fayat Group, Komatsu Ltd., Kubota Tractor Corporation, Ponsse Plc, Terex, Tigercat Industries Inc., Volvo Construction Equipment (part of Volvo Group AB) and XCMG. The construction business operates in highly competitive markets in North and South America and other global markets, including China and Russia. The forestry and road building businesses operate globally. The segment manufactures over 90 percent of the types of construction equipment used in the U.S. and Canada, including construction, forestry, earthmoving, road building, and material handling equipment.

In terms of the Warren Buffett criteria for economic excellence, only The Toro Company fits the bill. If you take into account only the last 5 years, Ponsse Plc is the second competitor John Deere is advised to keep an eye on.

And finally, Deere would be well advised to keep an eye on CNH Industrial. Although their current 5 year ROE profile isn't that impressive at all, its new ambitious five year 2020-2024 business plan "Transform 2 Win" is.

John Elkann led EXOR owns 27% of economic rights and 42% of the voting rights of CNH Industrial. Whenever the name Elkann or Agnelli appears, competition better make sure they have their act together. First of all, CNH Industrial plans for significant growth and project a ROIC of 20%. And secondly, their plan for a separation of "On-Highway" (commercial vehicles and powertrain segments) and "Off-Highway" assets (agriculture, construction and specialty segments) will result in the creation of two listed entities, each a world leader in its business. Better keep an eye on the latter one!

On the other hand, none of these companies matches the Artificial Intelligence (AI) capabilities that John Deere brings to the table, and that just might be the core competence that separates the winners from the rest.

Here are the return on equity (ROE) numbers of the John Deere competitors:

Return on Equity (ROE)	2014	2015	2016	2017	2018
Agco	11,0	8,5	5,7	6,4	9,6
CNH Industrial	14,5	5,2	-5,5	6,7	22,6
Kubota Corp	15,6	13,8	11,3	10,9	10,5
Mahindra	12,8	11,8	12,7	22,6	13,9
Toro Co	46,3	45,6	45,9	42,3	35,9
Doosan Infracore	-2,0	-25,6	-4,9	-8,7	-17,3
Doosan Bobcat	n.a.	5,0	5,5	8,1	7,4
Komatsu	10,6	9,0	7,3	12,1	14,7
Ponsse	38,8	40,5	34,2	27,4	23,2
Terex	7,5	-10,5	9,5	10,9	6,1
Volvo	2,7	18,6	14,6	20,7	21,6
XCMG	2,1	0,3	1,0	4,6	7,6
Caterpillar	19,7	13,3	-0,5	5,6	44,3

Data from Morningstar.Com

You might question if return on equity (ROE) is the best corporate performance measure to use. In his latest letter to shareholders, Warren Buffett stated:

What we see in our holdings is an assembly of companies that we partly own and that, on a weighted basis, are earning more than 20% on the net tangible equity capital required to run their businesses. These companies, also, earn their profits without employing excessive levels of debt.

And Buffett also refers to return on capital employed (ROCE) as well:

What we really want to do is buy a business that's a great business, which means that business is going to earn a high return on capital employed for a very long period of time, and where we think the management will treat us right.

These return ratios are often used together to produce a complete evaluation of financial performance. John Deere includes goodwill in their calculations as Michael Mauboussin does, according to his paper entitled “Calculating Return on Invested Capital” (4 June 2014). Warren Buffett though seems to indicate with his remark on “20% on the net tangible equity capital” that you should exclude it. A matter of preferences I suppose.

Using all these ratios on the companies mentioned earlier did not change the end result, with one exception. Mahindra showed up as a company with exceptional financial performance as well.

Deere delivers

When a company earns a profit, it has to decide what to do with it. As a rule, a portion of the profit must be used to replenish capital equipment of the core business that produced that profit. Warren Buffett considers these earnings to be restricted earnings.

Buffett also believes that management should use the unrestricted earnings to give the shareholders the best value, and only retain them if it can earn a higher rate of return on these earnings than the shareholder could earn on the outside.

Year	Dividend per share	Retained Earnings per share
2005	0,6	13,3
2006	0,7	16,7
2007	0,9	19,9
2008	1,0	24,3
2009	1,1	25,9
2010	1,1	28,8
2011	1,4	34,4
2012	1,7	42,0
2013	1,9	50,5
2014	2,1	60,1
2015	2,6	73,1
2016	2,4	76,0
2017	2,4	78,6
2018	2,5	86,5
2019	3,0	95,3

The growth rate (CAGR) of the dividend per share plus the retained earnings per share over a 14 year time horizon is approximately 15%.

“Reinvestment should always come first if a manager can find attractive reinvestment opportunities. The next option is value-creating acquisitions. Not vanity acquisitions, which often result in value destruction. The value to all owners of the retained earnings of a business enterprise is determined by the effectiveness with which those earnings are used.” – Quote Warren Buffett.

On September 26, 2018, the John Deere acquired **PLA**, a privately-held manufacturer of sprayers, planters, and specialty products for agriculture. PLA is based in Argentina, with manufacturing facilities in Las Rosas, Argentina and Canoas, Brazil. The total cash purchase price before the final adjustment, net of cash acquired of $1 million, was $69 million with $4 million retained by the company as escrow to secure indemnity obligations. In addition to the cash purchase price, the company assumed $30 million of liabilities.

In March 2018, the company acquired **King Agro**, a privately held manufacturer of carbon fiber technology products with headquarters in Valencia, Spain and a production facility in Campana, Argentina. The total cash purchase price, net of cash acquired of $3 million, was $40 million, excluding a loan to King Agro of $4 million that was forgiven on the acquisition date. In addition to the cash purchase price, the company assumed $11 million of liabilities.

In December 2017, the company acquired **Wirtgen**, which was a privately-held international company and is the leading manufacturer worldwide of road construction equipment. Headquartered in Germany, Wirtgen has six brands across the road building sector spanning processing, mixing, paving, compaction, and rehabilitation. Wirtgen sells products in more than 100 countries and had approximately 8,200 employees at the acquisition date. The total cash purchase price, net of cash acquired of $191 million, was $5,136 million, a portion of which is held in escrow to secure certain indemnity obligations of Wirtgen. In addition to the cash purchase price, the company assumed $1,641 million in liabilities, which represented substantially all of Wirtgen’s liabilities.

In September 2017, the company acquired **Blue River Technology** (Blue River), which is based in Sunnyvale, California for an acquisition cost of approximately $284 million, net of cash acquired of $4 million and $21 million funded to escrow for post-acquisition expenses. Blue River has designed and integrated computer vision and machine learning technology to optimize the use of farm inputs. Machine learning technologies could eventually be applied to a wide range of the company's products.

Revolutionizing agriculture, one plant at a time

Former CEO and currently Chairman of the Board of Directors Sam Allen likes to boast that its technology has more lines of software code than a space shuttle. And that assessment was made before John Deere entered the world of Artificial Intelligence by acquiring Blue River.

So let's have a look how the advancement of precision agriculture technology took place. Allison Marsh wrote an interesting article about it for IEEE, and that comes in handy.

Rockwell International Corp., better known as a defense contractor, developed one of the first precision-agriculture applications. The Global Positioning System that precision agriculture relied on was primarily a military constellation, and Rockwell used its knowledge of military satellites to design its Vision System. The system recorded the volume of crops harvested and paired those numbers with location data. The resulting map revealed which plots of land were more productive than others. Farmers could follow up with field tests to determine soil composition and apply targeted levels of fertilizer and insecticide the following planting season.

Unfortunately, the equipment came with a steep learning curve, technical support was lacking, systems were buggy and expensive. Rockwell joined other companies exiting the field.

In comes John Deere. The company worked with NASA's Jet Propulsion Laboratory and NavCom Technology (now a Deere subsidiary) on a better GPS system. The result was Deere's first GPS receiver, which also worked with other regional constellations of positioning satellites. Designed to be mounted on top of a tractor's cab, it carried a GPS antenna as well as a C-band antenna that used signals from regional base stations to correct the GPS readings. The Deere receiver was more accurate because it corrected the signals coming from each GPS satellite.

Meanwhile, Deere engineers continued to work on AutoTrac, their autonomous tractor. They embedded in the second-generation StarFire the ability to link up with a Terrain Compensation Module, which allowed the tractor's GPS system to follow the contours of the ground and trace a line exactly parallel to the tractor's previous path. AutoTrac launched as a commercial product in 2002.

The combination of more accurate GPS and autonomous vehicle control has made precision farming economical, at least for large farms. Self-guided systems now farm approximately 60 to 70 percent of the crop acreage in North America, 30 to 50 percent in Europe, and more than 90 percent in Australia (figures from 2018).

Now let's bring in the artificial intelligence element in the development of precision agriculture. John Deere has never been a stranger to the internet of things. It was connecting sensors and actuators on the farm twenty years ago. The next generation AI driven precision agriculture combines "connected" with "devices" with "machine learning" to have them make faster and more precise decisions, possibly without a farmer's input.

To make this the new reality, John Deere needed Silicon Valley skills. That's why it opened an office in the SoMA area of San Francisco to connect with local talent, hoping to find startups solving robotics, machine learning and artificial intelligence problems that may be of use in agriculture.

For example, looking for a way to deliver nutrients to plants at the right place and at the right time. Other efforts involve making better algorithms that can take advantage of the increasing number of sensors John Deere wants to add to its machinery.

The secondary goal of the office is to connect more deeply with Bay Area companies that already work with John Deere or its growers. For example, John Deere has a relationship with companies such as drone and satellite imagery company Mavericks; software providers FBN, FarmLogs and AgDNA and roughly 70 others.

John Deere acquired Blue River Technology, a startup with computer vision and machine learning technology that can identify weeds–making it possible to spray herbicides only where they're needed. The technology reduces chemical use by about 95%, while also improving yield. What Blue River Technology allows John Deere to do is move to the plant level, and start managing at that plant level.

The technology will be marketed first to cotton growers, who are struggling to deal with weeds that have developed resistance to the chemicals in conventional herbicides. Using computer vision tech to identify and spray only weeds, farmers can switch to other herbicides–including, potentially, organic herbicides that the weeds haven't evolved to resist (and that might otherwise kill the cotton, if they were sprayed everywhere). By killing weeds precisely, crop yields can double–even as herbicide use radically drops. The company plans to target soybean growers next.

You can imagine that growers see dollars and cents when they see a 95% reduction in herbicide spend–that clearly gets them interested, but with everything they're seeing in the last year with herbicide resistance as well as drift, this is becoming a much more important sustainability play as well.

Computer vision and machine learning technology can also be used in every other step of farming: tilling soil, planting seeds in the optimal locations, spraying fertilizer or nutrients, and harvesting. Machines that harvest corn, for example, typically drop a percentage of the corn on the ground. A machine with blades that could dynamically adjust to the width of a corn stalk could increase yield (and reduce wasted resources used to grow the crop) simply by catching more of the harvest. Each of these applications of technology is a way to help prepare for global population growth; there will be another 2.4 billion people to feed in the next three decades. Without changes in agricultural technology, it's unlikely that we'll be able to grow enough food for everyone.

Pulled behind tractors, its See & Spray machine is about 40 feet wide and covers 12 rows of crops. It has 30 mounted cameras to capture photos of plants every 50 milliseconds. But these tractors can't rely on network connections back to the data center. They need inference performance in a low-power, small form factor—onboard. The NVIDIA® Jetson™ platform delivers this performance in the world's fastest, most power-efficient supercomputer for inference at the edge.

The cameras have a forced mechanical shutter, coupled with edge-computing capabilities, and neural networks trained on what to recognize. Powered by computer chip developer NVIDIA's Jetson AI/ML chips, the new Deere rig uses Jetson-powered smart cameras to identify crops and weeds in real time, and trigger precisely metered sprays that kill the weeds and nurture the lettuce.

As a tractor pulls at about 7 miles per hour, according to Blue River, the Jetson Xavier modules running Blue River's image recognition algorithms need to decide whether images fed from the 30 cameras are a weed or crop plant quicker than the blink of an eye. That allows enough time for the See & Spray's robotic sprayer — it features 200 precision sprayers — to zap each weed individually with herbicide.

Blue River has trained its convolutional neural networks on more than a million images and its See & Spray pilot machines keep feeding new data as they get used. Capturing as many possible varieties of weeds in different stages of growth is critical to training the neural nets, which are processed on a "server closet full of GPUs". (A GPU is a graphics processing unit. GPUs have ignited a worldwide AI boom).

See & Spray can reduce the world's herbicide use by roughly 2.5 billion pounds, an 80 percent reduction, which could have huge environmental benefits. It's a tremendous reduction in the amount of chemicals. It's very aligned with what customers want.

John Deere has other machine and deep learning systems which are already in the hands of thousands of farmers across the globe. One of these is the Combine Advisor system. Again, built around computer vision, this involves using cameras mounted on combine harvesters that monitor video images of grains as they are taken up the combine's elevator and into the tank.

Deep neural networks are used to analyze the quality of the grain and make adjustments to the operating parameters of the machinery on-the-fly if grains are getting damaged. More cameras monitor the detritus from the harvesting operation – stalks, leaves, and cobs – as they are ejected from the rear of the harvester to become fertilizer for the fields. These cameras check that no grains are being ejected – with the aim being to ensure zero wastage.

The revolution taking place with deep learning has opened doors to solving problems that farmers have dreamed about solving for years … with computer vision systems and deep neural nets, there's a very exciting future in these technologies in farms. Pretty cool stuff.

So here we are

I started this Edition on Intelligent Cloning with an observation from Charlie Munger:

The old classic moats are eroding rapidly.

At first glance, John Deere seemingly has the characteristics of a corporate dinosaur. Many of Deere's competitive advantages are rooted in its long-standing operations and the conservative culture it has embraced throughout its corporate life. As a testament to the company's consistency and steady culture, the Roman Catholic Church has had more popes than Deere has had CEOs since it was started in the 19th century.

Since 1837, John Deere has capitalized on the opportunities presented by increasing population, prosperity, and urbanization. Today, broad trends based on population and income growth, especially in developing nations, are driving agricultural output and infrastructure investment. Further, technological advances and agricultural mechanization are expanding existing markets and opening new ones. If you take a closer look, I would argue that John Deere successfully has added the dynamics of silicon valley startups to its already excellent businesses.

According to Melius Research analyst Rob Wertheimer, John Deere has a quarter-trillion opportunity selling new technology and services that improve farmers' crop yield while saving them money on pesticides, herbicides, fertilizer and seeds.

John Deere is exceptionally well-positioned to seize compelling opportunities and, besides their other businesses, lead the pack in the AI driven precision agro tech business, and fulfill their higher purpose of helping improve living standards for people everywhere through their commitment to those linked to the land.

Just remember the next time you eat a sandwich that, if it's up to John Deere, every grain your sandwich is made of, is analyzed by convolutional neural networks powered by the world's fastest, most powerful NVIDIA supercomputers for inference at the edge.

Finally, food supplies across the world will probably be "massively disrupted" by the coronavirus. Those who advocate this lockdown of the economy are probably clueless when it comes to the ripple effect through the rest of the economy. Unless governments act the number of people suffering chronic hunger could double. And the harsh reality is that that makes a company like John Deere, offering "Solutions for World Hunger", even more important and irreplaceable, and, I believe, a great investment opportunity. The stock trades just below 11 times 2019 pretax income.

John Deere continues to operate in the face of COVID-19 because their business, as designated by the President of the United States and the United States Department of Homeland Security, is essential to ensuring community and national resilience and well-being.

Keeping farmers and those involved in infrastructure and energy production up and running is essential to food production and their ability to support critical infrastructure needs. Recently, their employees were identified by the Department of Homeland Security as essential critical infrastructure workers, defined as "the essential workers needed to maintain the services and functions Americans depend on daily and need to be able to operate resiliently during the COVID-19 pandemic response.

Stay healthy!

Peter

Peter Coenen
Founder & CEO
The Value Firm®
15 April 2020

Post scriptum. The latest addition to the Intelligent Cloning Portfolio is eBay @ 30 USD.

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Writing an investment thesis nowadays, with all the information available online, is much more a matter of selecting the information that makes sense, put it into context and add some thoughts on valuation. In other words, it's a matter of connecting the dots. In the process of doing so, at times, I just forget or just didn't pay much attention to the original authors of certain passages of text. If I forgot to mention you as the original author, I'm sorry. Just let me know, and I will make the reference anyhow.

Intelligent Cloning

The Winter 2020 Edition

This is the 10th Commandment of the Mohnish Pabrai Commandments of Investment Management. I couldn't agree more. There are some great investors out there. Copy their highest conviction ideas. Cloning is good for your health.

In this Edition on Intelligent Cloning we start with some refreshing insights on cloning. Then we will revisit the Mohnish Pabrai Free Lunch Portfolio and the new quants, with remarkable results thus far. And finally, we will have a first in-depth look at the newly developed Risk Rating Algorithm. Enjoy!

Cloning

Cloning is fascinating. I just follow a few exceptional investors. I study them and try to understand what they do and why they do it. And then, I just do what they do. That's it.

Sounds simple? It's certainly not easy. It takes a lot of experience and hard work first of all to decide who you want to follow, and then to identify a truly exceptional investment opportunity in the portfolios of these investment managers. And you do need this specific long-term investment temperament to handle stock market volatility with care. Finally, and that just might be the toughest part of it, you have to build up the personal conviction to pull the trigger and buy the stock, knowing that ultimately the decision you finally made might turn out to be a mistake after all.

Professional cloners aren't born. They are forged in fire. They are pounded and shaped with the hammer of experience. Some cloners aren't malleable and break. Others learn and adapt and flow into an investing niche they can exploit.

Picking individual stocks is extremely tough, even for the experts. Recently, Guy Spier made some enlightened comments on the idea of cloning. He even used the phrase "There is an art to cloning". So what did he say?

"There is this idea that we get at universities and schools, that your work has to be original. And in an academic setting that is absolutely true. But the minute we get into the world of business, actually "copying", or as Mohnish Pabrai says, "cloning", is the ultimate thing to do. It's the thing we don't do enough of. When you copy other people, when you copy success, you actually make it your own. So it's actually in a certain way not copying. It's learning from other people."

You could even argue that Warren Buffett is a professional cloner. Buffett didn't come up with a framework on how to think about investing himself. He copied it from Ben Graham. And later on, he copied, or learned from if you will, Phil Fisher and Charlie Munger. There seems to be a kind of academic conviction in people's minds when it comes to cloning. Well. Get rid of it. Start cloning!

Research by Barclays, entitled "Systematic 13F Hedge Fund Alpha", showed that the "best ideas" of successful fund managers produce economically meaningful and statistically significant risk-adjusted returns that outperform the S&P 500.

The more I think about this Intelligent Cloning strategy, the more I realize that it is all about focusing on the best of the best. Forget about the rest. You identify the very best investors on the planet. You select only their very best ideas. You rank these best ideas and once a year pick the number 1 "best-of-the-best-of-the-best" opportunity.

Over the years of learning and investing, I found two categories of investments that suit me best. First, companies with very long term staying power, like John Deere or Heineken. And secondly, companies that are very cheap relative to their 4 to 5 year certainty equivalent future free cash flows. The second category is also known as typical "Mohnish Pabrai P/E equals 1 or less" investment opportunities.

In the end it's all about "certainty" and "price". You have to be very certain on the future prospects of the company you are about to invest in. And since there is no such thing as a company with an infinite price, you demand a price that makes sense.

Lunch for free

In 2017, Mohnish combined three (quant) strategies into a single 15-stock portfolio and christened it “The Free Lunch Portfolio.” You can learn a lot just by trying to understand the thinking behind these Mohnish Pabrai quant strategies. So let’s highlight one of the three strategies: the Uber Cannibals.

This strategy pays attention to an often overlooked corner of the stock market: cash-rich, undervalued businesses that are consistently buying back shares, and thereby generating tremendous value for shareholders. Here are the Uber Cannibals selection criteria:

- Minimum market cap of $100 million.
- Price-to-sales ratio less than 2.5.
- The share buyback percentage over the dividend yield for the last one year is required to be greater than 2.
- No insurance companies.
- Must have a minimum of a 5% increase in trailing twelve month revenue over the previous year and 20% over the last five years.
- The company must have reduced its share count by 3% in the previous year.

The back-test that Mohnish describes in his original Forbes article shows that on average, the Ubers beat the S&P 500 by 6.3% annualized. That is an annual return of 15.5% from 1992 through December 2016. Since 1 March 2017 this approach returned 36.7%. An investment of $100.000 by then, would be worth $136,656 nowadays (according to his website “chaiwithpabrai.com”).

In the Spring 2019 Edition on Intelligent Cloning, I came up with 5 additional quants. So what happened?

	Q1	Q2	Q3	Q4	Q5	Q6
2018	-17.0%	-9.7%	21.7%	40.0%	50.0%	60.0%
2019	21.7%	28.4%	34.7%	40.1%	34.4%	41.1%
2020						
2021						
2022						
2023						
2024						
2025						
2026						
2027						
CAGR	0.01%	7.7%	28.0%	40.0%	42.0%	50.3%

Mohnish reports a 0.01% CAGR for Q1. My calculations tell me 0.5%. Anyhow. Perhaps some rounding difference?

Q1: The Mohnish Pabrai Free Lunch Portfolio (FLP).
Q2: The conservative version of the FLP.
Q3: The conservative FLP, no spinoffs. Sell @ 40%.
Q4: The Hermione Granger Portfolio. Sell @ 40%.
Q5: The Hermione Granger Portfolio. Sell @ 50%.
Q6: The Hermione Granger Portfolio. Sell @ 60%.

With 8 more years to go in this *Grand Prix du Quants*, we have Q6 in pole position with a 2 year CAGR of 50.3%, closely followed by Q5 and Q4.

These quant strategies are only 2 years old, so we can't draw any meaningful conclusions about its long-term performance yet. It’s a huge mistake to believe that these exceptional Q4, Q5 and Q6 returns will be sustainable over a longer period. Prepare for much lower results the upcoming years!

As mentioned in my 2019 Investor Letter, the quants Q3 to Q6 have an extra rule in place: when the stock is down 20%, it will be sold. Here is how this works. Let’s have a look at quant Q4. You buy the three Q4 constituents the first trading day of the new year. And at the same time you add for all of these 3 stocks a conditional sell order at +40% and a conditional sell order at -20%. Both with a time limit of 1 year. So a stock will be automatically sold if the price hits its +40% target or its -20% target.

- The Q2 conservative version of the Free Lunch Portfolio (DXC Technology, Discover Financial, Sleep Number, Lear Corp, Micron Technology, Delphi Technology) was up 28.4%.
- The Q3 conservative version of the Free Lunch Portfolio, with the Spin-Offs excluded (Discover Financial, Sleep Number, Lear Corp and Micron Technology), and 2 conditional selling rules in place (sell @ -20% and sell @ +40%) was up 34.7%.
- The Q4 Hermione Granger Portfolio (Xperi Corp, DXP Enterprises and Vera Bradley), and 2 conditional selling rules in place (sell @ -20% and sell @ +40%) was up 40.1%.
- The Q5 Hermione Granger Portfolio (Xperi Corp, DXP Enterprises and Vera Bradley), and 2 conditional selling rules in place (sell @ -20% and sell @ +50%) was up 34.4%.
- The Q6 Hermione Granger Portfolio (Xperi Corp, DXP Enterprises and Vera Bradley), and 2 conditional selling rules in place (sell @ -20% and sell @ +60%) was up 41.1%.

If you follow my writings very closely, you know I initially came up with Express Inc as a constituent of the Hermione Granger Portfolio. And since that turned out to be a mistake by the algorithm, I replaced it after a few days by Xperi Inc. Indeed, Express Inc turned out to be a mistake, and the stock went down substantially, so it would have been sold @ -20%. But still the overall result would be satisfactory, namely 20% for Q4, 26% for Q5 and 33% for Q6.

Here are the 2020 constituents of the Q1 Free Lunch Portfolio: Allison Transmission Holdings, Asbury Automotive Group, Corning, Quanta Services, Sleep Number, Alphabet, Berkshire Hathaway, Chipotle Mexican Grill, Citigroup, Fiat Chrysler Automobiles, Athene Holding, FirstService, Hilton Grand Vacations, RMR Group, Vectrus.

And here are the 2020 constituents of the Q2 conservative Free Lunch Portfolio: Allison Transmission, Asbury Automative, Sleep Number, Fiat Chrysler, Hilton Grand Vacations, RMR Group, Vectrus.

The Q3 constituents (spinoffs excluded from Q2) are: Allison Transmission, Asbury Automative, Sleep Number, Fiat Chrysler.

And yes, Mrs Hermione Granger was so nice to welcome me once again at Hogwarts for some intelligent magic. “Just stick to high quality small cap stocks trading at attractive prices. In the long run, from 1990 until now, the S&P 600 Small Cap Index, although more volatile, outperforms the S&P 500 Large Cap Index. And don’t forget to include your conditional selling orders at +40% and -20%.”

“Wingardium Leviosa!” Here are the constituents for the 2020 Hermione Granger portfolio (Q4, Q5 and Q6): Tivity Health, Hillenbrand and Lantheus Holdings.”

Actually, these are the 2020 New Year Quants. If you read my Investor Letter 2019, you know I came up with the Mid Year Quants as well. The first lessons learned over there is that you should buy the Mid Year Quants on the first of August, not on the first of July. And the second lesson learned is that testing this approach in China and India as well, just might turn out to be a mistake. The financial markets in the United States are much more mature, while emerging stock markets like China and India may experience a very different dynamic. But we will see what happens.

Finally, I will introduce a new quant Q17. The numbers Q7 to Q16 were already occupied. Mohnish came up with some changes to the spinoff selection criteria, and I definitely applaud those changes:

- We tightened the Price/ Sales Ratio entry condition from a P/S of less than 3 to a P/S of less than 2.
- We changed the credit rating requirement so that now both the parent company and its spinoff must meet the minimum credit rating threshold at the spinoff’s entry into the portfolio. If the spinoff experiences any credit rating downgrade since IPO, it is removed.
- We added a new quality condition and now select the top 5 spinoffs with the highest trailing 12-month return on invested capital (ROIC).

The new quant Q17 is the “spinoff only” quant, actually the spinoffs in the Q2 quant. The 2020 constituents are: Hilton Grand Vacations, RMR Group and Vectrus. The conditional selling orders at +40% and -20% do apply.

Risk Ratings

I consider risk management skills just as important as stock picking skills. If done well, risk management is indeed a competitive advantage. It’s key to generating higher returns, setting a bottom for potential losses, improving margins, and raising the confidence of clients, investors and shareholders.

Up until recently, I must admit that my thinking about risks was rather opportunistic. So what I am trying to do over here, is to develop a more comprehensive, or a more holistic if you will, red flag approach for assigning risk ratings to publicly held non-financial companies. The newly developed risk rating methodology is founded on the insights gained by studying 55 bankruptcy cases (from Enron to Thomas Cook), many different fraud and bankruptcies models and years of studying Buffett & Munger. Here are the 55 cases:

"I think you are asking for a lot if you want some simple way of not been taken in by the frauds of this world. If you start to think about it, enormously talented people deliberately go into fraud, drift gradually into it, because the culture carries them there. And the frauds get very sophisticated and they are very slickly done. I think it is part of the business of getting wisdom in life that you avoid getting taken by the frauds." – Quote Charlie Munger.

If you study bankruptcies, you will find some unusual risk profiles, either via the fraud and bankruptcy models, or just by studying the financial statements one at a time. E.g. Ahold, Enron and SunEdison did not generate any substantial free cash flow at all over a 3 to 5 year period before collapsing. This specific risk profile, or "suspicious data pattern" if you will, defines, in combination with other parameters, the risk or probability of financial distress.

Score	Meaning	
10	Very high risk +	Too many identifiable signs of possible financial distress.
9	Very high risk	Many identifiable signs of possible financial distress.
8	High risk	Companies with elevated vulnerability to financial distress.
7	Medium risk +	Companies, already more susceptibale to the unexpected.
6	Medium risk	Good company with a moderate risk of financial distress.
5	Low risk ++	Good company, with still a low, but slghtly more risk.
4	Low risk +	High quality company, with still a low, but slightly more risk.
3	Low risk	High quality company, with a low risk of financial distress.
2	Very low risk +	High quality company with a very low risk of financial distress.
1	Very low risk	High quality company with almost zero risk of financial distress.

The end result is simple. The underlying algorithm is not. The Risk Rating Algorithm tries to identify these unusual risk profiles ("potential bankruptcy data footprints") and then, in combination with other parameters, assign a risk rating to that company. What I have in place as of today, is a first release of the algorithm, and as time passes by and more bankruptcies become available, there is opportunity to make the algorithm smarter, case by case. The purpose of these risk ratings is to provide investors, auditors, fund managers, short sellers and other external users with a simple system of graduation by which "the probability of financial distress of a company within 2 to 3 years" may be gauged.

The results of a back-test using historical financial data until 2017 are encouraging. Looking for European stocks with at least 500M Euro in sales, the algorithm assigned a risk rating of 1 to companies like Ferrari, Moncler and ASLM, meaning that these companies are companies of exceptional high quality. They all went up in stock price substantially since 1 june 2017.

A risk rating of 10 was assigned to companies like Astaldi Spa, Duro Felguer and Adveo Group, meaning that these companies are companies with too many identifiable signs of possible financial distress. The first two went down in stock price substantially since 1 june 2017. The latter one actually went bankrupt.

In the United States, a 10 rating was assigned to Sears and Toys R US, which both went bankrupt. And a 1 rating (very low risk) to Visa and Domino's Pizza, which showed strong gains in stock market price.

In China, a 10 rating was assigned to Lifan Industry and Guangdong Janus Intelligent Group. And a 1 rating was assigned to Kweichow Moutai. In India, a 10 rating was assigned to HCL Infosystems and Splendid Metal Products. In Japan, a 10 rating was assigned to Otsuka Kagu. In Canada, a 10 rating was assigned to Sears Canada. In England, a 10 rating was assigned to Interserve Plc. All these 10 ratings experienced a substantial decline in price during the first 30 months after buying the stock or actually went bankrupt.

What you hope for is that the algorithm may also act as good leading indicators or predictors of future stock price performance, but if that indeed will be the case is way too early to tell and remains to be seen. A high risk rating is a warning of potential distress, but not necessarily proof of wrong-doing. It's merely cause for suspicion. There are certainly firms with a very high risk rating, without doing anything wrong. These companies with a high risk profile may even outperform the markets "against all odds". The majority though, of the companies rated 10, experienced a substantial decline in stock market value.

Please note that risk ratings are statements of opinion and not statements of fact or recommendations to purchase, hold or sell any securities or make any investment decisions. It would be a huge mistake to use these risk ratings, or any other rating methodology, as a standalone tool for investment decisions. Always do your own in depth due diligence!

It would be very interesting though, to use e.g. the Moody's Credit Ratings together with The Value Firm® Risk Ratings. Or you might want to have a look at the S&P 600 Small Cap Index and skip the companies with risk ratings 8, 9 or 10. That just might turn out to be a very compelling and new lower risk small cap index.

In 1975, Philip Fisher published a book entitled "Conservative investors sleep well." As an investor you most certainly want to avoid the stocks with a risk rating of 9 or 10. And if you think about it, you might want to skip the 7 and 8 ratings as well. I am quite sure that if you find a great investment opportunity with a risk rating of 7 or higher, you will be able to find another opportunity with the same upward potential in the safer region of the 1 to 6 ratings.

And finally, if you are a short seller (not my cup of tea!), you might be interested in companies with 2 consecutive years of these very high risk ratings.

The Algorithm

The algorithm was designed one step at a time. Every moment I found a new insight or data pattern of importance, I just added new code to the algorithm. The end result is an algorithm that, at first sight, looks like a conglomerate of fuzzy logic. But that's fine with me, as long as I feel comfortable with the results.

For example, most of you will know the Altman Z score as an indicator of potential financial distress. A slightly modified version of the Altman Z score is used in the algorithm. The interesting part is how the Z score contributes to the final risk rating. The contribution of the Z score to the final rating of what I consider a low quality company is much higher than the contribution of the Z-score to the final risk rating of what I consider a high quality company.

Another example is the use of big changes, or "big delta's" if you will, in certain financial ratios, like the total liabilities to cash flow from operations ratio. You can set up many ratios to monitor for "big delta's", and than just count the number of "big delta's" as a measure of potential distress.

An interesting question from a developers perspective is if the algorithm has Artificial Intelligence characteristics. And the answer to that questions is "yes" and "no".

One of DeepMinds (nowadays Google) programs learned how to play 49 different Atari games from scratch just from seeing the pixels and score on the screen, and their AlphaGo program was the first to beat a professional player at the ancient game of Go, a feat experts described as a decade ahead of its time. My algorithm fits by no means in this category of highly advanced "from scratch developed" artificial intelligence.

On the other hand, e.g. the Beneish M-score and Dechow F-score models can be seen as approximations to using machine learning. Their approach is a classical supervised classification problem — developing a model by working out a relationship between input variables and the output — using probit and logit models on relevant financial ratios. Probit models the probability of manipulation as a normal distribution, while logit handles it as a logistic distribution: the logarithm of the odds.

And as stated earlier, each new bankruptcy offers opportunity to make the algorithm smarter, by adding new "suspicious data patterns", although I have to admit that these data patterns are not generated by a smart self-learning software module, but by using my own limited human convolutional neural network between the ears.

It will be very hard to use "AlphaGo lookalike" machine learning to develop such an algorithm. These type of algorithms need lots of datasets to start the actual learning process, and I am afraid there aren't enough bankruptcy datasets available. If you have a different view on this matter, let me know.

To use the algorithm, you need the historical financial data of the companies you want to assess. There are several high quality databases out there, but I don't know of any database without errors. So you have to make your own choice which dataset you want to use.

When I started my "journey of the quants" a few years ago, I had some serious doubts if there would be an algorithm that consistently could beat the markets. Nowadays, I would say that you should never underestimate the power of smart algorithms, either as a servant to the final human decision making, or as a full blown algorithmic investment operation, like Renaissance Technologies.

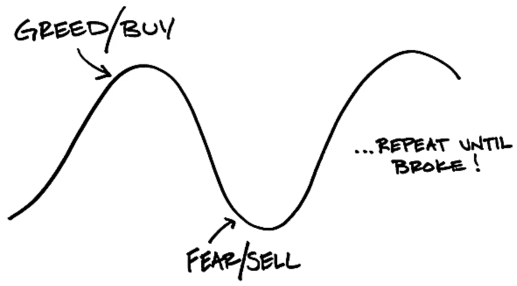
I'm quite certain that this risk rating algorithm can be put to good use for private companies as well. Here are The Value Firm® Risk Ratings 2018 for companies trading at the Amsterdam Stock Exchange.

8	Fugro NV
7	ASM International NV
7	Galapagos NV
7	Koninklijke Bam Groep NV
7	Oranjewoud NV
7	SBM Offshore NV

6	Alfen NV
6	Beter Bed Holding
6	Koninklijke Boskalis Westminster NV
6	Stern Groep NV
5	Accell Group NV
5	Basic-Fit NV
5	Heijmans NV
5	Lucas Bols NV
5	Neways Electronics International NV
5	OCI NV
5	Ordina
4	Aperam SA
4	Arcadis NV
4	ArcelorMittal SA
4	Brunel International NV
4	Coca-Cola European Partners PLC
4	DPA Group NV
4	Heineken NV
4	IMCD NV
4	Koninklijke VolkerWessels NV
4	Royal Philips NV
4	Signify NV
3	Aalberts Industries NV
3	AFC Ajax NV
3	Altice Europe NV
3	Batenburg Techniek NV
3	Corbion NV
3	Ctac NV
3	Fagron SA
3	Hydratec Industries NV
3	ICT Group NV
3	Kendrion NV
3	Koninklijke Vopak NV
3	Randstad NV
3	TKH Group NV
3	Wessanen NV
2	Adyen NV
2	Air France-KLM
2	Akzo Nobel NV
2	Amsterdam Commodities NV
2	B&S Group SA
2	BE Semiconductor Industries NV
2	Envipco Holding NV
2	ForFarmers NV
2	GrandVision NV
2	Heineken Holding NV
2	Holland Colours
2	Hunter Douglas NV
2	Koninklijke Ahold Delhaize NV
2	Koninklijke DSM NV
2	Koninklijke KPN NV
2	Nederlandsche Apparatenfabriek NEDAP
2	PostNL NV
2	RELX NV
2	Sif Holding NV
2	Sligro Food Group NV
2	TomTom NV
2	Unilever NV
2	Wolters Kluwer NV
1	ASML Holding NV

So here we are

Before I come to the final remark, let me share with you an educational picture on behavioral finance. It's from the book "The Behavior Gap: Simple Ways to Stop Doing Dumb Things with Money" by Carl Richards.



The message is obviously clear. The hard part though, is to imprint this message into your brain and act accordingly.

I started this Edition on Intelligent Cloning with a remark from Mohnish Pabrai, namely that you should look at the highest conviction ideas of great investors. Recently, Mohnish took a position in Graftech, a global leader of ultra-high-performance graphite electrodes.

Probably the most difficult part of a cloning strategy is actually doing nothing. Just sit there. Like a Zen Buddhist. Don't move. Don't act. Just read.

And every now and then, when a great idea comes along, you have a choice: further deepening your Buddhist Zen meditation, or get off your ass, adopt the idea and run with it!

Graftech, @12 USD, is the newest constituent of the Intelligent Cloning portfolio.

Peter

Peter Coenen
Founder & CEO
The Value Firm®
24 December 2019
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Intelligent Cloning

The Autumn 2019 Edition

"The basic reason for the cyclicality in our world is the involvement of humans. Mechanical things can go in a straight line. Time moves ahead continuously. So can a machine when it's adequately powered. But processes in fields like history and economics involve people, and when people are involved, the results are variable and cyclical. The main reason for this, I think, is that people are emotional and inconsistent, not steady and clinical."

– Howard Marks.

Recently, Howard Marks published a book, entitled "Mastering the Market Cycle". Carl Icahn wrote on the back cover of the book: "If you're uncertain as to wether there will be a correction in the market, or if you think there's no reason to worry because this time it's different, you have to read this book before you make a move."

In this edition on Intelligent Cloning we will reevaluate Allison Transmission, one of the constituents of the Intelligent Cloning Portfolio, and look at the long-term performance of this company through a different lens.

Allison Transmission

Allison Transmission (ALSN) is the world's largest manufacturer of commercial-duty automatic transmissions and a leader in electric hybrid propulsion systems. Their products are specified by more than 300 of the world's leading vehicle manufacturers and are used in a range of market sectors—from bus, refuse and emergency to construction, distribution and defense.

The company is a constituent of the Intelligent Cloning portfolio for three years now, and is up 62%. The idea was copied, or "cloned" from Lou Simpson.

Recently, Lou Simpson sold almost 54% of his position. Is it time to sell Allison Transmission?

First, let's try to understand the business of automatic transmissions a little bit better.

Commercial vehicles typically employ one of three transmission types: manual, automated manual or fully-automatic. Manual transmissions utilize a disconnect clutch causing power to be interrupted during each gear shift resulting in energy loss-related inefficiencies and less work being accomplished for a given amount of fuel consumed. In long-distance trucking, this power interruption is not a significant factor, as the manual transmission provides its highest degree of fuel economy during steady-state cruising. However, steady-state cruising is only one part of the duty cycle. When the duty cycle requires a high degree of "start and stop" activity or speed transients, as is common in many vocations as well as in urban environments, Allison believes manual transmissions result in reduced performance, lower fuel efficiency, lower average speed for a given amount of fuel consumed and inferior ride quality.

Moreover, the clutches must be replaced regularly, resulting in increased maintenance expense and vehicle downtime. Manual transmissions also require a skilled driver to operate the disconnect clutch when launching the vehicle and shifting gears.

Automated manual transmissions (AMTs) are manual transmissions that feature automated operation of the disconnect clutch. Fully-automatic transmissions utilize technology that smoothly shifts gears instead of a disconnect clutch, thereby delivering uninterrupted power to the wheels during gear shifts and requiring minimal driver input. These transmissions deliver superior acceleration, higher productivity, increased fuel efficiency, reduced operating costs, less driveline shock and smoother shifting relative to both manual transmissions and AMTs in vocations with a high degree of "start and stop" activity, as well as in urban environments.

Fuel efficiency, reduction in fuel consumption and reduced emissions are important considerations for commercial vehicles everywhere and they tend to go together. Allison believes fuel efficiency, the measure of work performed for a given amount of fuel consumed, is the best method to assess fuel consumption of commercial vehicles as compared to the more commonly-used fuel economy metric of miles-per-gallon

("MPG"). MPG is inadequate for commercial vehicles because it does not encompass two key elements of efficiency that Allison believes are important to vehicle owners and operators: payload and transport time.

Served markets	Competitors
North America On-Highway	BAE Systems plc, Ford Motor Company, ZF Friedrichshafen AG ("ZF") and Voith GmbH .
North America Off-Highway	Caterpillar Inc, Twin Disc, Inc, Komatsu Ltd., Volvo Group, and ZF.
Outside North America On-Highway	No companies specified.
Outside North America Off-Highway	Caterpillar, Volvo, ZF, Komatsu and Danyang Winstar Auto Parts Co.
Defense	L3 Technologies, Inc., Renk AG, ZF and Caterpillar.
Service Parts, Support Equipment and Other	No companies specified.

And let's have a look at a selection of the financial data:

In million USD	2014	2015	2016	2017	2018
Revenue	2127	1986	1840	2262	2713
Gross profit	976	934	864	1131	1422
Operating income	512	510	452	684	927
Net income	229	182	215	504	639
Shares (Dil.)	182	177	169	150	134
Assets	4656	4408	4219	4205	4237
Equity	1398	1189	1080	689	659
Operating cash flow	573	580	591	658	837
Capex	-64	-58	-71	-91	-100

This is a highly profitable, free cash flow generating company. So why did Lou Simpson sold part of his position in Allison Transmission? The great Leon Cooperman once came up with four criteria to sell a stock.

- The first reason to sell a security is when you buy something with a price objective. When it appreciates to that price objective, and you think it's fully valued, you sell it.
- The second reason is when things are not moving along the originally anticipated lines, so you get out before you get murdered. It is very hard to make up for big losses, so you have to sell before you get creamed.
- A third reason to sell is when we find an idea that's more attractive than the idea we're acting on already. So we sell something to buy something that we think has a better risk/reward ratio.
- Finally, the fourth reason to sell is when the market outlook changes. This can be very hard, because a traditional value investor wants to buy more if the price of a stock goes down, but in practice Mr. Market doesn't care how smart you are as an investor and the stock might decline into much lower territory anyhow.

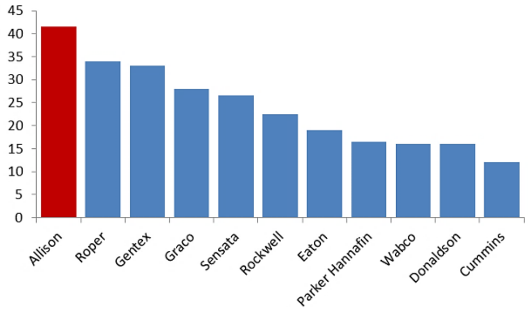
Allison Transmission is moving forward just as anticipated, although their 2019 sales guidance is slightly below the 2018 figure. What you look for when you reassess a company in your portfolio are exactly the same items you were looking for when you decided to invest in the first place. The only difference is the price. When you buy the stock, you want to buy it cheap, but when the company is already in your portfolio, you want to hold on to the company as long as the company remains a good company. The only reason to sell a good company is an extremely high price relative to the intrinsic value of the company. This rarely happens.

Allison Transmission still possesses the characteristics I am looking for:

- Safety in the balance sheet
- Growth in the per share figures
- Consistently high return on capital
- Substantial free cash flow
- Future areas of profitable growth

Value creation

Allison Transmission presented a peer-to-peer comparison, based upon the EBITDA margin (%).



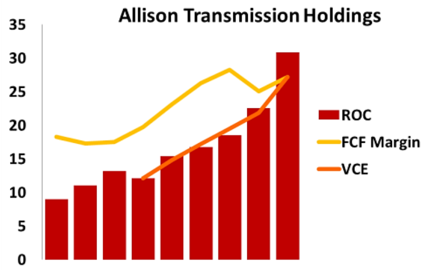
It illustrates the EBITDA margin of Allison Transmission, 41.6%, in relation to its peers. Many investors use EBITDA analysis. I try to avoid it and look at peer-to-peer comparison, or competitor analysis, through the lens of value creation (VCE). Let me explain.

There are exceptional companies out there that possess a kind of "kinetic energy", that drives future profitability. In physics, the kinetic energy of an object is the energy that it possesses due to its motion. It is defined as the work needed to accelerate a body of a given mass from rest to its stated velocity. Having gained this energy during its acceleration, the body maintains this kinetic energy unless its speed changes. In classical mechanics, the kinetic energy of a non-rotating object of mass m traveling at a speed v is: **½mv²**.

This equation reveals that the kinetic energy of an object is directly proportional to the square of its speed. That means that for a twofold increase in speed, the kinetic energy will increase by a factor of four.

The Value Creation Engine (VCE) is the kinetic energy of a company or the business flywheel, if you wish. It's the intrinsic business energy that once "on the move" lifts a company to a higher plateau of value creation. It is actually a return on capital measure (ROC), adjusted for growth. And the interesting aspect of this (new) measure is, I believe, that if you visualize it over time, you will find some differential insights.

I tend to believe that if you just focus on companies with a substantial free cash flow margin and a consistently high and/or increasing value creation engine (VCE), in other words companies that grow their intrinsic value, that you are fishing in the right pond.

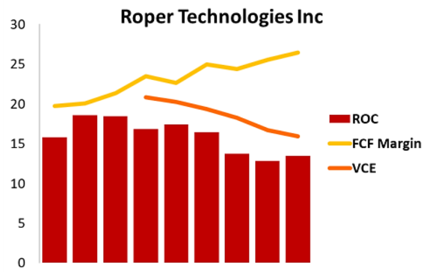


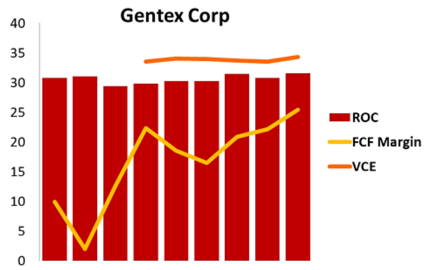
The orange line is the VCE over the last 6 years and the yellow one is the free cash flow margin (where free cash flow is defined as operational cash flow minus capex). Both show an upward trend, and I like what I see.

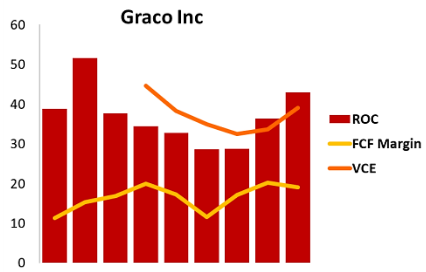
Currently, Allison trades at 8 times owner earnings per share. Not many people use owner earnings nowadays. Buffett uses it though. Some investors prefer free cash flow, but that's not the same as owner earnings. And I most certainly do not use GAAP Earnings per share as a metric for valuation.

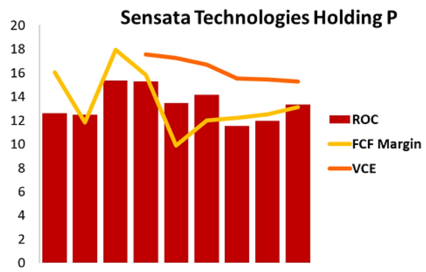
"We consider the owner earnings figure, not the GAAP earnings figure, to be the relevant item for valuation purposes, both for investors in buying stocks and for managers in buying entire businesses" – Warren Buffett.

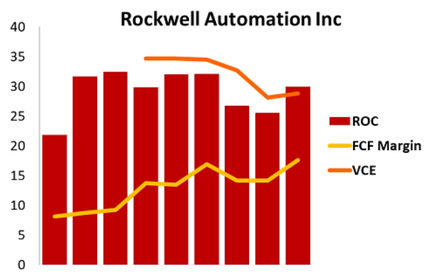
So how did the peer companies perform?

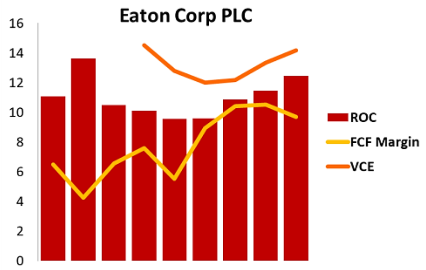


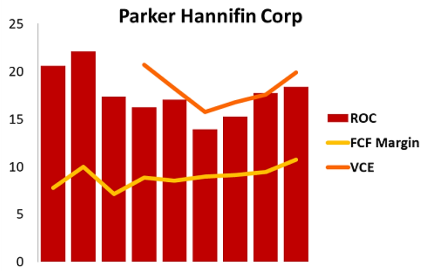


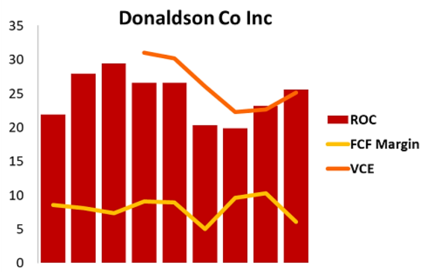


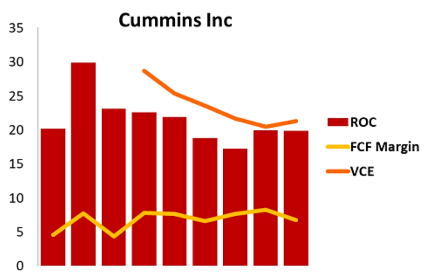












As long as the company growth is average, you can compare the VCE with the 3 year average ROC. But if the company experiences strong growth, the VCE will be a few basic points above the 3 year average ROC. That's the idea.

If I have a look at the VCE and free cash flow profiles of the peer companies, I would be interested in Gentex, Graco and Rockwell Automation. Unfortunately, these companies are not really cheap. I would rather prefer to buy more Allison Transmission stock.

Company	Owners earnings multiple
Allison Transmission	8
Roper Technologies	27
Gentex	15
Graco	24
Sensata Technologies	17
Rockwell Automation	18
Eaton	17
Parker Hannifin	15
Donaldson	35
Wabco	18
Cummins	14

Date: 18 september 2019

The maintenance capex for this group of companies varies between 55% and 85%. Owners earnings and maintenance capex are rough estimates, based upon historical financials. Despite that, Buffett considers owner earnings to be the relevant item for valuation purposes.

Profitable growth

Allison Transmission has a 60% global market share of fully-automatic transmissions. The Allison brand is associated with high quality, reliability, durability, vocational value and expertise, technological leadership, superior customer service and an attractive total lifecycle value. End users frequently request Allison Transmissions by name and pay a premium for them. That's kind of special.

The company is well positioned for revenue and earnings growth through further adoption outside North America, expanding the addressable market and funded growth opportunities in an asset light business model. It has a strong cash flow generation and a well-defined capital allocation policy.

Allison Transmission has over 50 years relationship with industry leading OEMs (original equipment manufacturers). It's often overlooked in company due diligence, but there is a lot of value in long-standing business relationships.

Future growth comes from opportunities in the developed markets, accelerated adoption in emerging markets, especially China, increased penetration of fully-automatic transmissions and from global off-highway growth opportunities. The penetration of fully-automatic transmissions in North America is 89%, but outside the US, that number is significantly lower, 5%, which offers tremendous business potential.

China is where a substantial part of the "new growth" will come from. Allison is already the #1 supplier of fully-automatic transmissions in China.

Now let's talk estimating future growth. There is this great quote in the classic book "Value Investing. From Graham to Buffett and beyond" by Bruce Greenwald, Judd Kahn, Paul Sonkin and Michael van Biema, and it goes like this:

"We should be struck here by a glaring inconsistency between the precision of the algebra [of a discounted cash flow analysis] and the gross uncertainties infecting the variables that drive the model. We estimate growth rates for 10 years and then another growth rate from the end of year 10 to forever. This is a heroic, not to say foolhardy exercise."

Yes indeed! Actually it is a foolhardy exercise, only to be applied to dominant companies where the long-term durability of their competitive strength and the opportunities for future growth are very certain. My believe is that Allison Transmission is such an exceptional company.

I anticipate a long-term growth of 10% owners earnings per share, based upon their revenue prospects and disciplined stock buy back program. If the current low interest rate environment prevails, and the stock trades at 15 times owners earnings per share 10 to 15 years from now, I anticipate a long term 15% CAGR of the price of the stock. Obviously, if the long-term treasury rate increases dramatically, the stock price CAGR will be much lower.

Acquisitions

Allison wants to grow, either via organic initiatives in their 6 end markets or via the execution on thoughtful and strategic acquisitions. In April 2019, Allison Transmission announced the completion of two acquisitions — Vantage Power, a small UK-based start-up in electrification, battery systems, and vehicle telematics, and AxleTech's electric vehicle systems division (EVS). These acquisitions not only complements, but will also accelerate their electrification strategy, and research and development in digitalization and connectivity.

Both of these acquisitions align with Allison's leading innovator position in propulsion technology, and will complement its existing capabilities to advance electrification adoption in commercial vehicles. The acquired AxleTech product lines are highly integrated, e-axle solutions, the first of their kind in the heavy-duty truck and bus markets. These differentiated products provide a substantial increase in power density and capability versus competitive products. Moving forward, their electrification strategy entails leveraging and growing current capabilities and technologies to provide a full range of electrification solutions.

Vantage Power was acquired for 9M USD, potentially to pay up to an additional approximately 8M USD over the next three years based on specific conditions being met. Vantage Power is an award-winning London-based technology company specializing in developing electrified propulsion and connected vehicle technologies for medium- and heavy-duty vehicle manufacturers and their suppliers. With particular focus on battery technology development, vehicle integration and control systems, as well as vehicle connectivity and telemetry, Vantage Power technologies have been deployed in a wide range of applications including complete electric hybrid repower systems for buses to grid energy storage. The acquisition benefits are:

- History of innovation in components and sub-systems complement Allison's strengths in electrified propulsion
- Highly skilled, experienced and specialized engineers and operational staff
- Complements Allison's integration expertise with battery systems, vehicle control systems and vehicle telematics

- Aligns with Allison's electric vehicle (EV) strategy to be the global leader in electrified propulsion for commercial vehicles

AxleTech was acquired for 123M USD. AxleTech is a leading technology company that designs, engineers, manufactures, sells and services axles and integrated electrified axle solutions for on- and off-highway heavy-duty commercial vehicles. With industrial roots established in 1919, the company's nearly 800 worldwide employees drive the company to develop advanced powertrain systems, axles, components and aftermarket parts for global customers. The EV systems division is located at AxleTech's headquarters in Troy, Michigan. The acquisition benefits are:

- Portfolio of highly integrated electric axles for medium- and heavy-duty truck and bus applications
- Global customer relationships and active OEM programs
- Talented, cross-functional and experienced engineering team
- Collaborative efforts facilitated thorough knowledge of the technology
- Aligns with Allison's EV strategy

Recently, Allison Transmission announced that it has acquired the assets and certain liabilities of Walker Die Casting located in Lewisburg, Tennessee and C&R Tool and Engineering located in Muscle Shoals, Alabama.

Walker's products are a critical component in the manufacture and quality of their on-highway transmissions. Walker produces aluminum castings and has been a supplier to Allison for 20 years. C&R Tool and Engineering is a leading supplier of metal working tools for use at Walker and other companies.

Allison paid approximately 103M USD in cash for the Walker Die Casting and C&R Tool and Engineering assets.

Leadership

David S. Graziosi, Director, President & Chief Executive Officer, has served as a director of Allison Transmission Holdings Inc. since May 2018.

Mr. Graziosi, age 52, joined Allison in November 2007. He currently serves as the President and Chief Executive Officer of Allison and has served in that capacity since June 2018. Prior to that, he served as President, Chief Financial Officer and Assistant Secretary from January 2016 to May 2018 and as Executive Vice President, Chief Financial Officer, Treasurer and Assistant Secretary from November 2007 to December 2015. Before joining Allison, between 2006 and 2007, he served as Executive Vice President and Chief Financial Officer of Covalence Specialty Materials Corporation. Prior to joining Covalence Specialty Materials Corporation, Mr. Graziosi held various positions in industry, including as Vice President of Finance Precursors and Epoxy Resins at Hexion Specialty Chemicals, Inc. from 2005 to 2006, Executive Vice President and Chief Financial Officer at Resolution Performance Products LLC from 2004 to 2005, and Vice President and Chief Financial Officer of General Chemical Industrial Products Inc. from 2000 to 2004. Prior to 2004, he served in various positions for Sun Chemical Group B.V, the Colgate-Palmolive Company and Arthur Andersen LLP. Mr. Graziosi is also a Certified Public Accountant and a Certified Information Systems Auditor (non-practicing). He earned a bachelor's degree in business economics from the State University of New York and a Master of Business Administration from Rutgers University.

Lawrence E. Dewey, age 62, currently serves as Chair of the Board. Mr. Dewey served as Chair and Chief Executive Officer of Allison from January 2016 until his retirement as CEO in June 2018.

Prior to that, Mr. Dewey served as Chair, President and Chief Executive Officer since the sale of Allison in August 2007. Prior to the sale, Mr. Dewey served in various capacities at Allison, including as President of Allison, a role he assumed in 2000; worldwide Director of Marketing, Sales and Service, Managing Director of Allison Transmission Europe, B.V., based in The Netherlands; Central Region (U.S.) Sales Manager; Marketing Manager; Manager of Aftermarket Products; and Production Manager. From 2003 until 2007, concurrent with his role as President of Allison, he took on the responsibilities of Group Director of Marketing, Sales, Brand Management and Customer Support for General Motors Powertrain group. Before joining Allison, Mr. Dewey held several positions of increasing responsibility in General Motors' Diesel Equipment Division and Rochester Products Division. He began his career in 1974 as a General Motors co-op student at General Motors Institute (now Kettering University), graduating Suma Cum Laude. Mr. Dewey earned his Master in Business Administration with honors from the Harvard Graduate School of Business.

Risks

<u>Concentrated sales</u>

Their sales are concentrated among the top five OEM customers and the loss or consolidation of any one of these customers or the discontinuation of particular vehicle models for which they are a significant supplier could reduce their net sales and have a material adverse effect on their results of operations and financial condition. For the years ended December 31, 2018, 2017 and 2016, their top five OEM customers accounted for approximately 49%, 49% and 52% of their net sales, respectively. Their top two customers, Daimler and PACCAR accounted for approximately 18% and 10%, respectively, of their net sales during 2018. The top 3 in terms of % accounts receivables are Daimler (18%), Volvo Group (11%) and Kirby Corporation (9%).

Cyclicality

Some of the markets in which Allison Transmission operates, including energy, mining, construction, distribution and motorhomes, exhibit a high degree of cyclicality. Decisions to purchase their transmissions are largely a result of the performance of these and other industries they serve. If demand for output in these industries decreases, the demand for their products will likely decrease. Demand in these industries is impacted by numerous factors including prices of commodities, rates of infrastructure spending, housing starts, real estate equity values, interest rates,consumer spending, fuel costs, energy demands, municipal spending and commercial construction, among others. Increases or decreases in these variables globally may significantly impact the demand for their products, which could have a material adverse effect on their business, results of operations and financial condition.

US – China trade war

Substantial future growth will come from China. Over the past year, the world's two largest economies have imposed tariffs on billions of dollars worth of one another's goods. US President Donald Trump has long accused China of unfair trading practices and intellectual property theft. In China, there is a perception that the US is trying to curb its rise. Negotiations are ongoing but have proven difficult. The two sides remain far apart on issues including how to roll back tariffs and enforce a deal.

The Value Firm® risk rating of Allison Transmission is "very low". This (newly developed) risk rating represents the probability that some kind of unexpected financial distress will occur the upcoming 2 years.

Final thoughts

Allison is a wide-moat business with considerable barriers to entry, e.g. safety concerns, and the complexity of developing the technology for transmissions. Also patents and other proprietary rights are important. Allison relies upon trade secrets, know-how, continuing technological innovation and licensing opportunities to develop and maintain their competitive position. They protect their proprietary rights through a variety of methods, including confidentiality agreements and proprietary information agreements.

Allison's truck-maker customer base would rather not change suppliers. Allison believes that their existing OEM customers have chosen to purchase certain transmissions due to the quality, reliability and strong brand of their transmissions and in order to limit fixed costs, minimize production risks and maintain company focus on commercial vehicle design, production and marketing. As such, Allison has few competitors and lots of pricing power, which keep its profit margins high.

Allison Transmission possesses a solid balance sheet, with a long-term debt relative to EBIT ratio of 2,6. The company spent 2.3B USD on stock buybacks and consequently reduced the share count from 188M shares at the beginning of 2014 to 134M shares at the end of 2018, and is expected to continue to aggressively repurchase stock. And once again, Allison trades at 8 times owner earnings per share.

If I look back and forward, from the funding and building the Indianapolis Motor Speedway more than 100 years ago, to the selling of the company by General Motors to the private equity firms The Carlyle Group and Onex Corporation and the (if I may say so) debt overloaded IPO in 2012, I see Allison Transmission as a company that ultimately transformed into a world-class independent enterprise and one of the best industrial businesses in the world with great long term prospects. What a company!

Lou Simpson sold 54% of his position in Allison Transmission, perhaps to take some money of the table, or perhaps as a result of the Allison 2019 net sales guidance, which is slightly below the 2018 net sales figure. This guidance probably reflects a lower demand in the North America Off-Highway and Service Parts, Support Equipment & Other end markets.

Interestingly enough, if you review Mr. Simpson's 13f filings of Q1 2019, you will notice that similar proportions of all holdings were sold across his entire portfolio. Allison was not necessarily singled out. And that just might be the result of decreasing the AUM of his portfolio in general, returning money to outside shareholders. It has been reported that Mr. Simpson announced plans to convert into a family office, ceasing managing outside money.

Whatever the reason might be, I just leave Allison Transmission in my portfolio and if the company keeps performing as it does, it will be in my portfolio for a very long time.

A final warning. Normally I rely very much on the Morningstar data. It's a great database! But even great databases make mistakes. The capex data of Allison Transmission, and with that the free cash flow data, is not correct. You have to be so careful with these databases and the interpretation of screeners. Always do you own research and dubblecheck the results!

That's it for this edition on Intelligent Cloning. In the next edition, we will revisit the Mohnish Pabrai Free Lunch Portfolio, and travel all the way to Hogwarts in search of some Intelligent Magic.

If you think there's no reason to worry
because this time it's different…

Cordially,

Peter

Peter Coenen
Founder & CEO
The Value Firm®
30 September 2019
peter@thevaluefirm.com

Post scriptum. Howard Marks is wearing the classic Telly Savalas alias the New York City Police Department Detective Lieutenant Kojak hat.

Intelligent Cloning

The Spring 2019 edition

There is a reason why there is a select group of very exceptional investment professionals. These people work harder and smarter than everyone else. They dig deeper than everyone else and have a more holistic approach towards investing. They have better emotional control and behave differently. They have superior individual networks and better access to industry veterans and CEO's that helps them to gain better and differentiated insights. And often, these investors study companies for many, many years before making the final decision. There are those amongst us, who call all this "accumulated experience".

If you think you can beat these great investment teams, I tip my hat to you. For the most of us, just following what they do is a very compelling alternative. The idea is to ride the coattails of their expertise – without having to pay for it. Not many people do so, but it's interesting. And certainly not easy. It's called "cloning".

In the previous edition on Intelligent Cloning I announced some topics of interest for this edition, but I have a much better idea. Let's have a look @ quants.

The Perfect Quant

David Abrams, a protégé of Baupost's Seth Klarman, gave a rare public address at a conference in New York for Project Punch Card. He was critical of people who are "always looking for a short, easy solution" in investing. "I don't think there's a black box or easy answer or algorithm" for investing, he said.

Let's set the stage for some thoughts on algorithmic investing. I couldn't find a better framework than the memo of Howard Marks, entitled "Investing without People". Marks describes three ways in which the securities markets seem to be moving toward reducing the role of people:

- Index and other forms of passive investing
- Quantitative and algorithmic investing
- Artificial Intelligence and machine learning

It's important to understand the difference between the latter two. Quantitative (algorithmic) investing consists of establishing a set of rules and having a computer carry them out. Artificial Intelligence (AI) refers to the ability of machines to think, where you give machines access to data and let them learn for themselves (also known as "deep learning"). Let me assure you, I am not in the business of Artificial Intelligence. I am just scratching the surface of what is known as algorithmic investing.

Nevertheless, Artificial Intelligence (AI) is intriguing, so allow me to make some comments about it anyhow. If there is one person out there, who deserves the name of Mr. Artificial Intelligence, it is Demis Hassabis. He co-founded the company DeepMind, to build the world's most powerful Artificial Intelligence.

In 1997, after IBM's Deep Blue computer had beaten the chess grandmaster and world champion Garry Kasparov, Demis Hassabis met Masahiko Fujuwarea, a Japanese board-game master to discuss a computer program using artificial intelligence to beat the greatest human Go player. Confucius wrote about the ancient Chinese game of Go as one of the four great arts to any true scholarship master, along with poetry, calligraphy and music. In 2016, The DeepMind program, called AlphaGo defeated Ke Jie, the world's number one Go player and scored a victory in one of the most creative and complex games ever devised. The human champion, one of the most brilliant minds on the planet, no longer stood at the pinnacle of intelligence.

DeepMind also created artificial intelligence programs that play Atari games, using a combination of deep artificial neural networks and reinforcement learning. After presenting their initial results with the algorithm, Google almost immediately acquired the company for several hundred million dollars, hence the name Google DeepMind.

How does it work? An Atari Breakout player controls a bat that can be moved horizontally across the bottom of the screen, using it to bounce a ball against blocks that hover above it, destroying them on impact. The player wins when all blocks are obliterated or loses if the player misses the ball with the bat.

Like humans, the "artificial agents" learn for themselves. This learning by trial-and-error, solely from rewards or punishments, is known as "reinforcement learning". It involves an agent, a set of states S, and a set A of actions per state. By performing an action, the agent transitions from state to state. Executing an action in a specific state provides the agent with a reward (a numerical score).

The goal of the agent is to maximize its total (future) reward. It does this by adding the maximum reward attainable from future states to the reward for achieving its current state, effectively influencing the current action by the potential future reward.

The agents must continually make value judgements so as to select good actions over bad. This knowledge is assembled in a Q-network, where the Q stands for quality. Quality in this case represents how useful a given action is in gaining some future reward. The Q-network at its simplest stores data of states, actions and rewards in tables. It estimates the total reward that an agent can expect to receive after taking a particular action. The key idea is to use deep neural networks to represent the Q-network, and to train this Q-network to predict total reward.

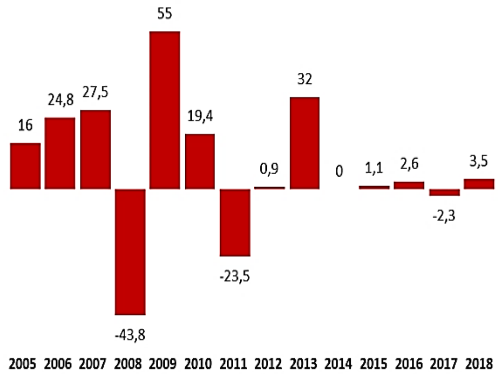
Here are two video tutorials by Siray Raval, V1 and V2. "So easy, a liberal art major could do it."

The model they used for the Atari's Breakout videogame is a convolutional neural network, trained with a variant of Q-learning, whose input is raw pixels and whose output is a value function estimating future rewards.

Without human instruction, DeepMind's program not only learned to play the game but also worked out how to cannon the ball into the space behind the blocks, taking advantage of rebounds to break even more blocks. It's interesting to read e.g. "DeepMind and Google: the battle to control artificial intelligence" by Hal Hodsonis.

Once again, I am not in the business of Artificial Intelligence. I am just scratching the surface of what is known as algorithmic investing.

Quants still have a long way to go. Joel Greenblatt published his "magic formula" in The Little Book That Beats The Market in 2005, in which he described a very simple stock selection system that in backtests showed 24% annual returns between 1994 and 2004 (page 153). But how has it fared since the book was published in 2005? InvestorsEdge ran some research, just to find out. The polite answer is "not that great".



The strategy would have returned just 5.3%. The culprit is the last four years where returns have barely broken even.

In comes Mohnish Pabrai. His "Free Lunch" Portfolio combines the power of Uber Cannibals, Shameless Cloning and Spinoffs. The Free Lunch Portfolio is a 15-stock, 12-month "set it and forget it" approach that, according to the 17 year backtest results, "beats the pants off the S&P 500".

The Free Lunch Portfolio was down 17% in 2018 and the more conservative version of the Free Lunch Portfolio was down 9.7% in 2018.

Conservative Free Lunch Portfolio.				**-9,7%**
Sleep Number	37,7	31,7		-15,9%
The Hackett Group	15,7	16,0	0,34	3,9%
Micron Technology	41,5	31,7		-23,6%
Synchrony Financial	38,8	23,5	0,72	-37,7%
GCP Applied Technologies	32,1	24,6		-23,4%
CSRA	29,9	41,3	0,20	38,6%

Let's see if we can improve this approach in hindsight. What I especially like about the Free Lunch Portfolio is the rationale behind it. The idea of a portfolio of Uber Cannibals, Shameless Cloning and Spinoffs is actually based upon Charlie Munger's 3 Rules on How to Become a Successful Investor.

- Munger's first rule is to carefully look at what the other great investors have done. The "cloneables" or "shameless cloning".
- The second rule is to pay close attention to "cannibals". These are businesses that are buying back huge amounts of their stock.
- And the last rule is to focus on "spinoffs". Successful investing is about finding situations of mispricing, or companies selling below their true worth. Spinoffs is the place to be.

Let's have a closer look at the backtest results. The "spinoffs" returned 13.4% on average over a 17 year period, the "cloneables" 16.1% and the "cannibals" 20.0%. If I had to manage a company with 3 business lines generating these returns respectively, and if my Board insisted on even better results, I would seriously consider spinning off the first business line. So let's spinoff "the spinoffs".

As a result, the conservative version of the Mohnish Pabrai Free Lunch Portfolio would consist of only 3 companies: Sleep Number, The Hackett Group and Micron Technology.

The next step is to carefully study how these stocks performed in 2018. And that led me to an insight I already knew for many years. It's a Seth Klarman insight: you should sell the stocks when the birds are chirping.

Were the birds chirping in 2018? Yes. The birds were chirping in 2018. Both The Hackett Group and Micron Technology were up more than 40% during the year. If you added a conditional sell order for all these three companies at the beginning of the year @ 40%, this is what the results would look like:

Conservative Free Lunch. No spinoffs. Sell @40%.				**21,7%**
Sleep Number	37,7	31,7		-15,9%
The Hackett Group	15,7	22,0	0,17	41,1%
Micron Technology	41,5	58,1		40,0%

Can we improve even further? Now we need a wizard! Let's forget about Mr Potter and let's turn to Mrs Hermione Granger for some Intelligent Magic.
She noticed the impact of the conditional sell order on the performance at the end of the year and suggested to look for the more volatile stocks in order to increase the chances that one or more stocks would actually be sold during the year @ 40%. "Just stick to high quality small cap stocks, trading @ attractive prices", she said.

Stick to the high quality small cap stocks. In the long run, from 1990 until now, the S&P 600 Small Cap Index, although more volatile, outperforms the S&P 500 Large Cap Index.

"Wingardium Leviosa!" And here are the results: AMAG Pharmaceuticals, Cardtronics and American Public Education. These stocks were up during the year more than 75%. A conditional sell order at the beginning of the year anywhere between 40% and 75%, would actually define your result for the year.

Many great investors indeed doubt if there ever will be a successful algorithm for investing. I am quite sure that if there is one (and I have my doubts as well), it will only be found by disciplined trial-and-error reinforcement learning. And if you don't mind, I will just stick to my own limited human convolutional neural network.

"Wingardium Leviosa!" Here are the 2019 constituents: Xperi Corp, DXP Enterprises and Vera Bradley. So the algorithm for picking three stocks for the Hermione Granger Portfolio is up and running, and yes, I will publish each years constituents upfront.

Here we have "the 6 quants under surveillance" for the upcoming 10 years:

- **Q1.** The Mohnish Pabrai Free Lunch Portfolio (FLP).
- **Q2.** The conservative version of the FLP.
- **Q3.** The conservative FLP, no spinoffs. Sell @ 40%.
- **Q4.** The Hermione Granger Portfolio. Sell @ 40%.
- **Q5.** The Hermione Granger Portfolio. Sell @ 50%.
- **Q6.** The Hermione Granger Portfolio. Sell @ 60%.

In my write-up of 9 april 2019, I added Express Inc as a constituent, but that was a "mistake of execution". By the way, I do expect that the final result will be quite satisfactory with Express Inc. as constituent as well.

	Q1	Q2	Q3	Q4	Q5	Q6
2018	-17,0%	-9,7%	21,7%	40,0%	50,0%	60,0%
2019						
2020						
2021						
2022						
2023						
2024						
2025						
2026						
2027						

Let me add some common sense to these results. It is very well possible that we will not see another 2018 any time soon. We saw a 20% decline from its 52 week high, with a devastating effect on Q1 and Q2. And we saw exceptional outcomes of the concentrated quants Q4, Q5 and Q6, as a result of the conditional selling orders.

Don't get too excited about Q4, Q5 and Q6. These results might be just as well the outcome of a statistical coincidence, rather than the conclusion of a smart algorithm. But it surely helps. The best performer of last year might turn out to be the worst performer of this year and vice versa. Every quant will have its fair share of good years and bad years. And hopefully more ups than downs. With the exception of Q1, there are no backtest results for these quants.

When I left Hogwarts, Professor Albus Percival Wulfric Brian Dumbledore handed me a special gift, not to be opened. "Great! What's in it?" I asked. "Q7", he said, with this mysterious Hogwarts smile on his face. "It's fully backtested, 2008 included, and the results are exceptional indeed. But don't reveal it. It's a secret."

That's it for this Edition on Intelligent Cloning. And if, after 10 years, it happens to be that all of these quants utterly failed… Well, then The Value Firm® just might invoke article 50.

Cordially,

Peter

Peter Coenen
Founder & CEO of The Value Firm®
28 April 2019

Postscript. Annual rebalancing and conditional selling do not belong to my normal investment routine. I am a notoriously long-term investor, and I like to hold on to stocks preferably for decades. And I won't change that. I was lured into this idea of rebalancing by the Free Lunch Portfolio, and also by the work of Joel Greenblatt. Anyhow, it was nice to do some thinking on this subject.

The final question obviously is, if Artificial Intelligence will be able to disrupt the long-term (value) investing industry. The AI believers contend that human intelligence is limited by the size of the skull that houses the brain and its power is restricted by the puny amount of energy that the body is able to provide.

I am skeptical though. Even the great Joel Greenblatt track record wasn't able to stand the test of time. If I look at some of my latest investments, Seritage Growth Properties, Veritiv and StoneCo, they all were found by exceptional business insights that were almost impossible to derive from available data. But I am perfectly ready to be proven wrong. And there are definitely interesting companies successfully pioneering Artificial Intelligence in Investing.

The flagship investment vehicles of Renaissance Technology, Two Sigma, Citadel and DE Shaw notched up hefty gains in 2018, where most money managers experienced their worst year since the financial crisis. But then again you could question if these companies really used "deep learning artificial intelligence algorithms" or "just computerized strategies". To be continued…

Everybody makes mistakes now and then. If you find any, let me know: peter@thevaluefirm.com. Always do your own research!

Intelligent Cloning

The Winter 2019 Edition

This is the second commandment of the Mohnish Pabrai 10 Commandments of Investment Management. I couldn't agree more. You don't need an expensive research department, since the best investment ideas on planet Earth are available for free.

13F filings, which have to be filed with the Securities and Exchange Commission within 45 days after the end of each calendar quarter, is the place to be and they give us a great snapshot into where exceptional investment minds like Mohnish Pabrai, Todd Combs, Ted Weschler or Stanley Druckenmiller, are finding value in the current market.

In the previous edition on Intelligent Cloning, I announced a few topics of interest for this edition, but I have a much better idea. Let's go fishing in Instanbul!

Istanbul

For more than three thousand years, the citizens of former Byzantium and Constantinople enjoy fishing in Instanbul. They just know that the first rule of fishing is to fish where the fish are.

Recently, Mohnish Pabrai mentioned that during his visit to Instanbul, he was actually swimming in cheap quality companies (companies with a forward P/E ratio of 1). And also Howard Marks, in a recent Podcast with Meb Faber, mentioned Turkey as one of the places to be for bargain hunting.

It doesn't make much sense to travel all the way to Istanbul to fish for mediocre fish. Lots of mediocre fish over here in my own country. So I only want the good fish. What is a good fish?

A good fish is a fish that earns a high rate of return on tangible assets. That's a good fish. The fisherman from Omaha also said that the best ones are the ones that earn a high rate of return on tangible assets and grow.

And there is another special type of fish with amazing talents. These fish earn an average return on equity of 20% in ten years, and no year worse than 15%.

When I go fishing abroad, I always bring my two fishing nets. The first net screens the fish based upon the latter idea. And the second net is a little bit more complicated, and screens for fish with an exceptional value creation engine (VCE), which is actually an adjusted return on capital (ROC) measure.

If you apply the second screen to the fish in Instanbul, and rank the results (first the highest VCE gets 1 point and the lowest VCE the highest number, then the highest margin of safety gets 1 point and the lowest margin of safety the highest number, add those two numbers and start the ranking with the lowest number), you will find exceptional fish,

1. Çimsa Cimento Sanayi Ve Ticaret AS
2. Migros Turk TAS
3. Bizim Toptan Satis Magazalari AS
4. Klimasan Klima Sanayi Ve Ticaret AS
5. Aksa Akrilik Kimya Sanayii AS

Çimsa

During his talk on "The Ten Commandments of Investment Management" to Prof. Arvind Navaratnam's class on Value Investing at the Carroll School of Management (Boston College), Mohnish talks about this cement company in Turkey. He didn't mention which company it was, but besides knowing that it is a cement company in Turkey, what do we know? Well…

Mohnish said that it is a cement company in Turkey that exports 8 – 9% of the cement to the east coast of the United States and the west coast of Africa.

The company Mohnish is talking about is, I believe, Çimsa. Perhaps I am wrong, but the reason why I think it's Çimsa comes from reading the message from their general manager Nevra Özhatay in their 2017 Annual Report:

"The markets where we grew the most in 2017 have been the Mediterranean Basin, West Africa and North America."

By the way, Mohnish also said that he probably won't make an investment in this company. Time will tell.

The Istanbul Basket

One of the most famous contrarian investors of all time was Sir John Templeton. A notable example of Templeton's against-the-tide investments is Japan in the 1960s when people thought the Japanese market was a mess and it would be crazy to invest there. He committed significant sums and years later earned big on this investment.

Turkish stocks currently trade @ the lowest multiples in 9 years. Why not set up an Istanbul basket of 5 stocks. Here are the companies that comprise "The Istanbul Basket":

Çimsa is a global pioneer in white cement, continuously growing by creating a difference in the industry and putting its mark on distinguished products and solutions in the (Turkish) cement sector for more than 40 years. Cimsa is a 1.0B TRY market cap company (the equivalent of 190M USD), trading @ 3.6 times cash flow (where cash flow equals 3 year average operational cash flow).

Migros is one of the biggest chains of supermarkets in Turkey. Together via Migros supermarkets, Şok discount stores, international Ramstore shopping centers, online shopping, wholesale stores, and mobile sales units, Migros serves an estimated 160 million customers. Migros is a 2.7B TRY market cap company (the equivalent of 510M USD), trading @ 3.5 times cash flow.

Klimasan offers a complete range of solutions for the plug-in commercial refrigeration market worldwide. Having a diverse portfolio of products and services and with its extensive expertise, Klimasan is currently one of the largest companies in the industry and continues to grow. They offer several products and custom-made designs under its brands Metalfrio, Klimasan and Şenocak. Klimasan is a 160M TRY market cap company (the equivalent of 30M USD), trading @ 3.1 times cash flow.

Bizim Toptan is engaged in the wholesale of fast-moving consumer goods. It has 106 stores in 54 provinces of Turkey selling over 7,000 different kinds of products. The Company's main customers are retailers; catering businesses, such as restaurants, patisseries and hotels, and corporations. Bizim Toptan is a 375M TRY market cap company (the equivalent of 70M USD), trading @ 3.6 times cash flow.

Aksa is the world's largest and Turkey's only acrylic fiber producer with premises of 502 thousand square meters and a capacity of 315,000 tons per year. The company is a global giant with approximately 300 customers in over 50 countries across 5 continents. With more than 1200 employees, Aksa is a 1.4B TRY market cap company (the equivalent of 265M USD), trading @ 4.1 times cash flow.

Let's revisit **The Instanbul Basket** once every few years and see what an initial investment of 100.000 USD in these 5 stocks will be worth a few decades from now. As of today 1 USD equals 5.29 TRY.

Remember to always do your own in depth due diligence! Anyone who invests in any strategy needs to do their own research and are themselves fully responsible for the outcome. Or in the words of good old Ben Graham:

"Quantitative data are useful only to the extent that they are supported by a qualitative survey of the enterprise".

The Intelligent Cloning Portfolio

I added two companies to the Intelligent Cloning portfolio: StoneCo and Veritiv. The 5 criteria I normally use for identifying the more conservative opportunities are not applicable for these two new additions though. You can find the full investment theses on my website: www.thevaluefirm.com.

The Intelligent Cloning portfolio, thus far:

2H '16	**Deere & Co** (Berkshire) @ 87 USD **Allison Transmission** (Simpson) @ 29 USD
1H '17	**Davita Inc.** (Berkshire) @ 65 USD **Verisign** (Berkshire) @ 83 USD
2H '17	**Tegna** (Einhorn) @ 13 USD **Monro** (Akre, Mecham) @ 47 USD
1H '18	**Sinclair Broadcast** (Cooperman) @ 30 USD **Esterline Corporation** (Witmer) @ 72 USD
2H '18	**StoneCo** (Berkshire) @ 17 USD **Veritiv** (Klarman) @ 24 USD

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Lunch for free

Finally, if you follow my writings, you know I came up with this idea of the conservative version of the Mohnish Pabrai Free Lunch Portfolio. Just after one year, I could already write many, many pages on the pros, cons and lessons learned.

The conservative Free Lunch Portfolio (Sleep Number, The Hackett Group, Micron Technology, Synchrony Financial, GCP Applied Technologies, CSRA) was down 9.9% (2 more trading days in 2018 to go).

In December 2018, stocks saw a 20% decline from its 52-week high. It reminded me of a quote from the German philosopher, Friedrich Nietzsche: “If it doesn’t kill you, it only makes you stronger.” And to quote Mohnish Pabrai: “Keep the faith and do not overreact to short-term negative performance. This is a long-term “set it and forget it” strategy. We don’t recommend putting more than 10-20% of your nest egg into this strategy. And we think it only makes sense if you follow it for a decade, or two, or longer.”

Here are the 2019 constituents of the conservative Free Lunch Portfolio: DXC Technologies, Discover Financial, Sleep Number, Lear Corp, Micron Technology, Delphi Technology.

That’s it for this edition on Intelligent Cloning. In the next edition, we try to touch base camp with some thoughts on the Berkshire Hathaway portfolio and the shareholders meeting.

> *“Thou shall not have an investment team.”*

Cordially,

Peter

Peter Coenen
Founder & CEO of The Value Firm®
28 December 2018
peter@thevaluefirm.com

Everybody makes mistakes now and then. If you find any, let me know: peter@thevaluefirm.com. Always do your own research!

The Instanbul Fishing Pond

Aciselsan Acipayam Seluloz Sanayi ve Ticaret A S
Adana Cimento Sanayi TAS
Adel Kalemcilik Ticaret Ve Sanayi AS
Adese Alisveris Merkezleri Ticaret AS
AFM Uluslararasi Film Produksiyon AS
Afyon Cimento Sanayii TAS
Ag Anadolu Grubu Holding Anonim Sirketi
Ak-Al Gayrimenkul Gelistirme ve Tekstil Sanayii AS
Akbank TAS
Akcansa Cimento Sanayi Ve Ticaret AS
Akdeniz Guvenlik Hizmetleri AS
Akenrji Elektrik Uretim AS
Akfen Gayrimenkul Yatirim Ortakligi
Akfen Holding AS
Akin Tekstil AS
Akis Gayrimenkul Yatirim Ortakligi AS
Akmerkez Gayrimenkul Yatirim Ort AS
Aksa Akrilik Kimya Sanayii AS
Aksa Enerji Uretim AS
Aksel Yatirim Holding Anonim Sirketi
Aksigorta AS
Aksu Enerji Ve Ticaret AS Bearer Form
Akyurek Tuketim Urunleri Pazarlama Dagitim ve Ticaret AS
Alarko Carrier Sanayii Ve Ticaret AS
Alarko Gayrimenkul Yatirim Ortakligi AS
Alarko Holding AS
Albaraka Turk Katilim Bankasi AS
Alcatel Lucent Teletas Telekomunikasyon AS
Alkim Alkali Kimya AS
Alkim Kagit Sanayi ve Ticaret AS
Alternatif Yatirim Ortakligi AS
Alternatifbank AS
Altin Yunus Cesme AS
Altinyag Kombinalari AS
Anadolu Anonim Turk Sigorta Sirketi
Anadolu Cam Sanayii AS
Anadolu Efes Biracilik ve Malt Sanayi AS
Anadolu Hayat Emeklilik AS
Anadolu Isuzu Otomotiv Sanayi Ve Ticaret AS Class C
Anel Elektrik Proje Taahhut ve Ticaret AS
Anel Telekomunikasyon Elektronik Sistemleri Sanay ve Ticaret AS
Ar Tarim Organik Gida AS
Arbul Entegre Tekstil Isletmeleri AS
Arcelik AS
Arena Bilgisayar Sanayi Ve Ticaret AS
Armada Bilgisayar Sistemleri Sanayi ve Ticaret AS
Arsan Tekstil Ticaret ve Sanayi AS
Arti Yatirim Holding AS
Aselsan Elektronik Sanayi Ve Ticaret AS
Asil Celik Sanayi ve Ticaret AS
Aslan Cimento AS
Asya Katilim Bankasi AS B
Ata Gayrimenkul Yatirim Ortakligi Anonim Sirketi
Atac Insaat Ve Sanayi AS
Atakule Gayrimenkul Yatirim Ortakligi AS
Atlantik Petrol Urunleri Ticaret ve Sanayi AS
Atlantis Yatirim Holding AS
Atlas Menkul Kiymetler Yatirim Ortakligi AS
AvivaSA Emeklilik ve Hayat AS
AVOD Kurutulmus Gida ve Tarim Urunleri Sanayi Ticaret AS
Avrasya Gayrimenkul Yatirim Ortakligi AS
Avrasya Petrol ve Turistik Tesisler Yatirimlar AS
Avrupa Yatirim Holding AS
Is Yatirim Ortakligi AS
Isbir Holding AS
Isiklar Enerji ve Yapi Holding AS
Isiklar Yatirim Holding AS
Iskenderun Demir ve Celik AS Ordinary Shares
Ittifak Holding AS
Iz Hayvancilik Tarim ve Gida Sanayi Ticaret AS
Izmir Demir Celik Sanayi AS
Izmir Firca Sanayi ve Ticaret AS
Izocam Ticaret ve Sanayi AS
Jantsa Jant Sanayi ve Ticaret AS
Kafein Yazilim Hizmetleri Ticaret AS Ordinary Shares
Kapital Yatirim Holding AS
Kaplamin Ambalaj Sanayi Ve Ticaret AS
Karakas Atlantis Kiymetli Madenler Kuyumculuk Telekomunikasyon Sanayi
Kardemir Karabuk Demir Celik Sanayi ve Ticaret AS Class A
Karel Elektronik Sanayi ve Ticaret AS
Karsan Otomotiv Sanayii Ve Ticaret AS
Karsu Tekstil Sanayii Ve Ticaret AS
Karsusan Karadeniz Su Urunleri Sanayii AS
Kartonsan Karton Sanayi ve Ticaret AS
Kent Gida Maddeleri Sanayii Ve Ticaret AS
Kerevitas Gida Sanayi Ve Ticaret AS
Kervansaray Yatirim Holding AS
Kiler Alisveris Hizmetleri Gida Sanayi Ve Ticaret
Kiler Gayrimenkul Yatirim Ortakligi AS
Klimasan Klima Sanayi Ve Ticaret AS
Koc Holding AS
Konfrut Gida Sanayi ve Ticaret AS
Konya Cimento Sanayii AS
Kordsa Teknik Tekstil AS
Korfez Gayrimenkul Yatirim Ortakligi AS
Koza Altin Izletmeleri AS
Koza Anadolu Metal Madencilik Isletmeleri AS
Kristal Kola Ve Mesrubat Sanayii Ticaret AS
Kron Telekomunikasyon Hizmetleri AS
Kustur Kusadasi Turizm Endustrisi AS
Kutahya Porselen Sanayii AS
KUYAS Kuyumcukent Gayrimenkul Yatirimlari AS
Latek Lojistik Ticaret AS
Link Bilgisayar Systemleri Yazilimi ve Donanimi Sanayi ve Ticaret AS
Logo Yazilim Sanayi ve Ticaret AS
Lokman Hekim Engurusag Saglik Turizm Egitim Hizmetleri ve Insaat Taahhut AS
Luks Kadife Ticaret Ve Ssanayii AS
Makina Takim Endustrisi AS
Mango Gida Sanayi ve Ticaret AS
Mardin Cimento
Marka Yatirim Holding AS
Marmaris Altinyunus Turistik Tesisler AS
Marshall Boya VE Vernik Sanayii AS
Marti Gayrimenkul Yatirim Ortakligi AS
Marti Otel Isletmeleri AS
Mavi Giyim Sanayi ve Ticaret AS
Mazhar Zorlu Holding AS
MCT Danismanlik AS
Mega Polietilen Kopuk Sanayi ve Ticaret AS
Menba Holding A.S.
Menderes Tekstil Sanayi ve Ticaret AS
Mensa Sinai Ticari Mali Yatirimlar AS
Mepet Metro Petrol ve Tesisleri Sanayi Ticaret AS
Merit Turizm Yatirim ve Isletme AS
Merko Gida Sanayi Ve Ticaret AS Class A
Mert Gida Giyim Sanayi ve Ticaret AS

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Ayen Enerji AS
Ayes Akdeniz Yapi Elemanlari Sanayi ve Ticaret AS
Aygaz AS
Bagfas Bandirma Gubre Fabrikalari AS
Bak Ambalaj Sanayi Ve Ticaret AS
Balatacilar Balatacilik Sanayi ve Ticaret AS
Bantas Bandirma Ambalaj Sanayi ve Ticaret AS
Banvit Bandirma Vitaminli Yem Sanayii AS
Bastas Baskent Cimento Sanayi ve Ticaret AS
Baticim Bati Anadolu Cimento Sanayii AS
BatiSoke Soke Cimento Sanayii TAS
Bera Holding AS
Berkosan Yatilim Ve Tecrit Maddeleri Uretim Ve Ticaret AS
Besiktas Futbol Yatirimlari Sanayi Ve Ticaret AS
Beyaz Filo Oto Kiralama AS
Bilici Yatirim Sanayi Ve Ticaret AS
Bim Birlesik Magazalar AS
Bimeks Bilgi Islem Ve Dis Ticaret SA
Birko Birlesik Koyunlulular Mensucat ve Ticaret AS
Birlik Mensucat Ticaret Ve Sanayi AS
Bizim Toptan Satis Magazalari AS
Bolu Cimento Sanayi AS
Bomonti Elektrik Muhendislik Musavirlik Insaat Turizm ve Ticaret AS
Borusan Mannesmann Boru Sanayi ve Ticaret AS
Borusan Yatirim Pazarlama AS
Bosch Fren Sistemleri Sanayi ve Ticaret AS
Bossa Ticaret VE Sanayi Isletmeleri TAS
Boyner Buyuk Magazacilik AS
Boyner Perakende Ve Tekstil Yatirimlari AS
Brisa Bridgestone Sabanci Lastik San & Tic AS
BSH Ev Aletleri Sanayi ve Ticaret AS
Burcelik Bursa Celik Dokum Sanayi AS
Burcelik Vana Sanayi Ve Ticaret AS
Bursa Cimento Fabrikasi AS
CarrefourSA Carrefour Sabanci Ticaret Merkezi AS
CBS Boya Kimya Sanayi VE Ticaret AS
CBS Printas Oto Boya ve Gerecleri Sanayii AS
Celebi Hava Servisi AS
Celik Halat ve Tel Sanayii AS
Cemas Dokum Sanayi AS
Cemtas Celik Makina Sanayi Ve Ticaret AS
Cimbeton Hazirbeton ve Prefabrik Yapi Elemanlari Sanayi ve Ticaret AS
Cimentas Izmir Cimento Fabrikasi Turk AS
Cimsa Cimento Sanayi Ve Ticaret AS
CLK Holding AS
Coca Cola Icecek AS
Cosmos Yatirim Holding AS
Creditwest Faktoring AS
Cuhadaroglu Metal Sanayi Ve Pazarlama AS
Dagi Giyim Sanayi ve Ticaret AS
Dagi Yatirim Holding AS
Dardanel Onentas Gida Sanayi AS
Datagate Bilgisayar Malzeme leri Ticaret AS
Demisas Dokum Emaye Mamulleri Sanayi AS
Denge Yatirim Holding AS
Deniz Gayrimenkul Yatirim Ortakligi AS
Denizbank AS
Denizli Cam Sanayii Ve Ticaret AS
Dentas Ambalaj ve Kagit Sanayi AS
Derimod Konfeksiyon Ayakkabi Deri San Ve Tic AS
Desa Deri ve Sanayi Ticaret AS
Despec Bilgisayar Pazarlama ve Ticaret
Deva Holding AS
Diriteks Dirilis Tekstil Sanayi ve Ticaret AS
Ditas Dogan Yedek Parca Imalat Ve Teknik AS
Dogan Burda Dergi Yayincilik ve Pazarlama AS
Dogan Gazetecilik AS
Dogan Sirketler Grubu Holdings AS
Dogan Yayin Hldg AS
Dogtas Kelebek Mobilya Sanayi ve Ticaret AS
Metal Gayrimenkul AS
Metemtur Otelcilik ve Turizm AS
Metro Ticari ve Mali Yatirimlar AS
Migros Turk TAS
Milpa Ticari Ve Sinai Urunler Pazarlama Sanayi Ve Ticaret AS
Mish Dekorasyon Sanayi ve Ticaret AS
Mistral Gayrimenkul Yatirim Ortakligi AS
MLP Saglik Hizmetleri AS
MMC Sanayi Ve Ticari Yatirimlar AS
Mondi Tire Kutsan Kagit Ve Ambalaj Sanayii AS
Mutlu Aku ve Malzemeleri Sanayi AS
Net Holding AS
Net Turizm Ticaret ve Sanayi AS
Netas Telekomuenikasyon AS
Nigbas Nigde Beton Sanayi ve Ticarte AS
Nuh Cimento Sanayii AS
Nurol Gayrimenkul Yatirim Ortakligi AS
ODAS Elektrik Uretim Sanayi Ticaret AS
Olmuksan International Paper Ambalaj Sanayi Ve Ticaret AS
OMV Petrol Ofisi AS
Orge Enerji Elektrik Taahhut AS
Orma Orman Mahsulleri Integre Sanayi ve Ticaret AS
Osim Endustriyel Yatirimlar ve Isletme AS
Osmanli Menkul Degerler AS
Otokar Otobus Karoseri Sanayi AS
Oyak Yatirim Ortakligi AS
Oylum Sinai Yatirimlar AS
Ozak Gayrimenkul Yatirim Ortakligi
Ozbal Celik Boru
Ozderici Gayrimenkul Yatirim Ortakligi AS
Panora Gayrimenkul Yatirim Ortakligi AS
Park Elektrik Uretim Madencilik Sanayi ve Ticaret AS
Parsan Makina Parcalari Sanayii AS
Pegasus Hava Tasimaciligi AS
Penguen Gida AS
Pera Gayrimenkul Yatirim Ortakligi AS
Pergamon Status Dis Ticaret AS
Petkim Petrokimya Holding AS
Petrokent Turizm AS
Pimas Plastik Insaat Malzemeleri AS
Pinar Entegre ET ve Un Sanayi AS
Pinar Su Sanayi Ve Ticaret AS
Pinar Sut Mamulleri Sanayii AS
Plastikkart Akilli Kart Iletisim Sistemleri Sanayi Ve Ticaret AS
Polisan Holding AS
Politeknik Metal Sanayi ve Ticaret AS
Prizma Pres Matbaacilik Yayincilik Sanayi ve Ticaret AS
QNB Finans Finansal Kiralama AS
QNB Finansbank AS
Ral Yatirim Holding AS
Ran Lojistik Hizmetleri AS
Ray Sigorta AS
Reysas Gayrimenkul Yatirim Ortakligi AS
Reysas Tasimacilik ve Lojistik Ticaret AS
Rhea Girisim Sermayesi Yatirim Ortakligi AS Shs
Rodrigo Tekstil Sanayi ve Ticaret AS
Royal Hali Iplik Tekstil Mobilya Sanayi ve Ticaret AS
RTA Laboratuvarlari Biyolojik Urunler Ilac ve Makina Sanayi Ticaret AS
Saf Gayrimenkul Yatirim Ortakligi AS
Safkar Ege Sogutmacilik Klima Soguk Hava Tesisleri Ihracat Ithalat AS
Salix Yatirim Holding AS
San-El Muhendislik Elektrik Taahhut Sanayi ve Ticaret AS
Sanifoam Sunger Sanayi ve Ticaret AS
Sanko Pazarlama Ithalat Ihracat AS
Saray Matbaacilik Kagitcilik Kirtasiyecilik Ticaret ve Sanayi AS
Sarkuysan Elektrolitik Bakir Sanayi AS
Sasa Polyester Sanayi AS
Say Reklamcilik Yapi Dekorasyon Proje Taahhut Sanayi ve Ticaret AS
Seker Finansal Kiralama AS
Seker Pilic Ve Yem Sanayii Ticaret AS

DOGUS Gayrimenkul Yatirim Ortakligi AS
Dogus Otomotiv Servis Ve Tic AS
Dogusan Boru Sanayi ve Ticaret AS
Doktas Dokumculuk Ticaret Ve Sanayi AS
DP Eurasia NV
Duran Dogan Basim ve Ambalaj Sanayi AS
Dyo Boya Fabrikalari Sanayi ve Ticaret AS
Eczacibasi Yapi Gerecleri Sanayi Ve Ticaret AS
Eczacibasi Yatirim Holding Ortakligi AS
Edip Gayrimenkul Yatirim Sanayi ve Ticaret AS
Ege Endustri ve Ticaret AS
Ege Guebre Sanayii AS
Ege Profil Ticaret Ve Sanayi AS
Ege Seramik Sanayi ve Ticaret AS
Egeli & Co Enerji Yatirimlari AS
Egeli & Co Tarim Girisim Sermayesi Yatirim Ortakligi AS
Egeli & Co Yatirim Holding Anonim Sirketi
Egeplast Ege Plastik Ticaret Ve Sanayi AS
EGS Gayrimenkul Yatirim Ortakligi AS
EIS Eczacibasi Ilac ve Sinai ve Finansal Yatirimlar Sanayi ve Ticaret AS
Ekiz Kimya Sanayi ve Ticaret AS
Emek Elektrik Endustrisi AS
Eminis Ambalaj Sanayi Ve Ticaret AS
Emlak Konut Gayrimenkul Yatirim Ortakligi AS
Enerjisa Enerji AS
Erbosan Erciyas Boru Sanayii ve Ticaret AS
Eregli Demir Ve Celik Fabrikalari TAS
Ericom Telekomunikasyon ve Enerji Teknolojileri AS
Ersu Meyve ve Gida Sanayi AS
Escort Teknoloji Yatirim AS
Esem Spor Giyim Sanayi ve Ticaret AS
Etiler Gida ve Ticari Yatirimlar Sanayi ve Tica ret AS
Euro Kapital Yatirim Ortakligi
Euro Menkul Kiymet Yatirim Ortakligi AS
Euro Trend Yatirim Ortakligi AS
Euro Yatirim Holding AS
Favori Dinlemne Yerleri AS
Federal-Mogul Izmit Piston ve Pim Uretim Tesisleri AS
Fenerbahce Futbol Anonim Sirketi
Fenis Aluminyum Ve Ticaret AS
Finans Yatirin Ortakligi AS
Flap Kongre Toplanti Hizmetleri Otomotiv ve Turizm AS
Fonet Bilgi Teknolojileri AS
Ford Otomotiv Sanayi AS
Formet Celik Kapi Sanayi ve Ticaret AS
Frigo Pak Gida Maddeleri San Ve Ticaret AS
Galatasaray Sportif Sinai Veticari Yatirimlar AS
Garanti Faktoring AS
Garanti Yatirim Ortakligi AS
Gedik Yatirim Holding AS
Gedik Yatirim Menkul Degerler AS
Gediz Ambalaj Sanayi ve Ticaret AS
Gen Yatirim Holding AS
Genpower Holding AS
Gentas Clenel Metal Sanayi Ve Ticaret AS
Gersan Electric Ticaret ve Sanayi AS
Gimsan Gediz Iplik Ve Mensucat Sanayi AS
Global Menkul Degerler AS
Global Yatirim Holding AS
Goldas Kuyumculuk Sanayii Ithalat Ve Ihracat AS
Goltas Goller Bolgesi Cimento Sanayi ve Ticaret AS
Good Year Lastikleri TAS
Gozde Girisim Sermayesi Yatirim Ortakligi AS
GSD Denizcilik Gayrimenkul Insaat Sanayi Ve Ticaret AS Bearer form
GSD Holding AS
Gubre Fabrikalari TAS
Guler Yatirim Holding AS
Gunes Sigorta AS
Haci Omer Sabanci Holding AS
Halk Gayrimenkul Yatirim Ortakligi AS
Sekerbank TAS
Sekuro Plastik Ambalaj Sanayi AS
Selcuk Ecza Deposu Ticaret ve Sanayi AS
Selcuk Gida Endustri Ihracat Ve Ithalat AS
Senkron Guvenlik Ve Iletisim sistemleri AS
Serve Kirtasiye Sanayii Vi Ticaret AS
Servet Gayrimenkul Yatirim Ortakligi AS
Seyitler Kimya Sanayi AS
Silverline Endustri ve Ticaret AS
Sinpas Gayrimenkul Yatirim Ortakligi AS
Soda Sanayii AS
Sodas Sodyum Sanayii AS
Sok Marketler Ticaret AS
Soktas Tekstil Sanayi ve Ticaret AS
Sonmez Filament Sentetik Iplik Ve Elyaf Sanayi AS
Sonmez Pamuklu Sanayii AS
Sumas Suni Tahta VE Mobilya Sanayi AS Ordinary Shares
T Tuborg Bira Ve Malt Sanayii AS
Tac Tarim Urunleri Hayvancilik Gida Sanayi ve Ticaret AS
Taraf Gazetecilik Sanayi ve Ticaret AS
Tat Gida Sanayi A.S
Taze Kuru Gida Sanayi ve Ticaret AS
TEK-ART Turizm Zigana AS
Tekfen Holding AS
Teknosa Ic ve Dis Ticaret AS
Te-mapol Polimer Plastik ve Insaat Sanayi Ticaret AS
Tesco Kipa Kitle Pazarlama Ticaret Lojistik ve Gida Sanayi AS
TGS Dis Ticaret AS
Tofas Turk Otomobil Fabrikasi AS
Torunlar Gayrimenkul Yatirim Ortakligi AS
Trabzonspor Sportif Yatirim Ve Futbol Isletmeciligi Ticaret AS
Trakya Cam Sanayii AS
Transturk Holding AS
TSKB Gayrimenkul Yatirim Ortakligi AS
Tugcelik Aluminyum ve Metal Mamulleri Sanayi ve Ticaret AS
Tukas Turgutlu Konservecilik AS
Tumosan Motor ve Traktor Sanayi AS
Tupras-Turkiye Petrol Rafineleri AS
Turcas Petrol AS
Turk Demir Dokum Fabrikalari AS
Turk Ekonomi Bankasi AS
Turk Prysmian Kablo ve Sistemleri AS
Turk Telekomunikasyon AS
Turk Traktor ve Ziraat Makineleri AS
Turkcell Iletisim Hizmetleri AS
Turker Proje Gayrimenkul ve Yatirim Gelistirme AS
Turkiye Garanti Bankasi AS
Turkiye Halk Bankasi AS
Turkiye Is Bankasi AS Class A
Turkiye Kalkinma Bankasi AS
Turkiye Sinai Kalkinma Bankasi AS
Turkiye Sise ve Cam Fabrikalari AS
Turkiye Vakiflar Bankasi TAO
Ufuk Yatirim Yonetim Ve Gayrimenkul AS
Ulaslar Turizm Yatirimlari ve Dayanikli Tuketim Mallari Ticaret Pazarlama
Ulker Biskuvi Sanayi AS
Ulusoy Elektrik Imalat Taahhut ve Ticaret AS
Ulusoy Un Sanayi ve Ticaret AS
Umpas Holding AS
Unico Sigorta AS
Unye Cimento Sanayi Ve Ticaret AS
Usak Seramik Sanayii AS
USAS Yatirimlar Holdings AS
Utopya Turizm Insaat Isletmecilik Ticaret AS
Uyum Gida ve Ihtiyac Maddeleri Sanayi ve Ticaret AS
Uzertas Boya Sanayi Ticaret ve Yatirim AS
Vakif Finansal Kiralama AS
Vakif Gayrimenkul Yatirim Ortakligi AS
Vakif Menkul Kiymet Yatirim Ortakligi AS
Vakko Tekstil ve Hazir Giyim Sanayi Isletmeleri AS

Hateks Hatay Tekstil Isletmeleri AS
Haznedar Refrakter Sanayii AS
Hedef Girisim Sermayesi Yati Ortak
Hektas Ticaret AS
Hitit Holding AS
Hurriyet Gazetecilik ve Matbaacilik AS
ICBC Turkey Bank AS
Idealist Gayrimenkul Yatirim Ortakligi AS
Ihlas Ev Aletleri Imalat Sanayi Ve Ticaret AS
Ihlas Gayrimenkul Proje Gelistirme ve Ticaret AS
Ihlas Gazetecilik AS
Ihlas Holding AS
Ihlas Yayin Holding
Indeks Bilgisayar Sistemelri Muhendislik Sanayi Ve Ticaret AS
Info Yatirim AS
Intema Insaat Ve Tesisat Malz Yat Ve Paz AS
Ipek Dogal Enerji Kaynaklari Arastirma ve Uretim AS
Is Finansal Kiralama AS
Is Gayrimenkul Yatirim Ortakligi AS
IS Yatirim Menkul Degerler AS
Vanet Gida Sanayi Ic ve Dis Ticaret AS
Verusa Holding AS
Verusaturk Girisim Sermayesi Yatirim Ortakligi AS
Vestel Beyaz Esa Ticaret Sanayi AS
Vestel Elektronik Sanayi Ve Ticaret AS
Viking Kagit Ve Seluloz AS
Yapi Kredi Koray Gayrimenkul Yatirim Ortakligi AS B
Yapi Kredi Sigorta AS
Yapi Kredi Yatirim Ortakligi AS
Yapi Ve Kredi Bankasi AS
Yaprak Sut ve Besi Ciftikleri Sanayi Ve Ticaret AS
Yayla Enerji Uretim Turizm ve Insaat Ticaret A. S.
Yeni Gimat Gayrimenkul Yatirim Ortakligi AS
Yesil Gayrimenkul Yatirim Ortakligi AS
Yesil Yapi Endustrisi AS
Yesil Yatirim Holding AS
Yibitas Yozgat Isci Birligi Insaat Malzemeleri Ticaret ve Sanayi AS
Yonga Mobilya Sanayi ve Ticaret AS
Yunsa Yunlu Sanayi Ve Ticaret AS
Zorlu Enerji Elektrik Uretim AS

The Value Firm®

Intelligent Cloning

The Autumn 2018 Edition

During the Graham & Dodd Luncheon Symposium, October 2, 2008, @ the Heilbrunn Center for Graham & Dodd investing (Columbia Business School), chaired by Seth Klarman, David Abrams, who actually worked for Seth Klarman's Baupost Group for 10 years, made it obviously clear:

"We just try to steal good ideas from other people. A lot of my best ideas have been stolen."

And that's what you try to do: steal, copy or clone great investment ideas. The question obviously is, whether we can in any case still discover ideas that are "cloneable". I mean, we are right now amidst the longest positively trending market in history since World War II.

In this Autumn 2018 edition on Intelligent Cloning we will look back @ all the stocks covered thus far in my write-ups and rank them once again, to see if there is still some value out there. Furthermore, we will examine the portfolios of two fascinating value investors not covered thus far: Bob Robotti and Francisco García Paramés. Both of them showed up @ the London Latticework Conference 2018. It was a treat to be present at this motivating session.

Looking back

Just a quick reminder. The Joel Greenblatt Magic Formula approach shows that stocks that rank well on both Return on Invested Capital (ROIC) and cheapness do much better than the market over time. This approach makes a lot of sense to me, though I have to admit that I use a slightly different approach in calculating ROIC and cheapness (margin of safety).

Intelligent Cloning means copying great investors while avoiding their "too risky" investments. And to identify the "cloneables" I use 5 criteria, very straight forward: a "balanced" balance sheet; consistency in the per-share figures; substantial free cash flow; consistently high return on capital and a margin of safety. Without further ado, here are 3 compelling ideas from the past that meet the criteria:

Sinclair Broadcast Group Inc. (Seth Klarman, Leon Cooperman, Ruane Cunniff) is a 2.9B USD market cap company, trading @ 6.1 times cash flow (where cash flow equals the 3 year average operational cash flow). The company is one of the largest and most diversified television broadcasting companies in the United States.

Sinclair owns and operates, programs or provides sales services to more television stations than anyone and has affiliations with all the major networks. In addition, Sinclair is the leading local news provider in the country, as well as a producer of sports content. Sinclair owns a multicast network, four radio stations and a cable network. Sinclair's broadcast content is delivered via multiple-platforms, including over-the-air, multi-channel video program distributors, and digital platforms. Sinclair, either directly or through its venture subsidiaries, makes equity investments in strategic companies.

Spectrum Brands Holdings (Leon Cooperman, Bruce Berkowitz, Jeremy Grantham) is a 3.7B USD market cap company, trading @ 5.5 times cash flow. The company completed its previously announced merger with HRG Group, Inc. on Friday, July 13, 2018. Following the closing, Spectrum Brands continued as the successor to HRG Group under the name Spectrum Brands Holdings, Inc.

Spectrum Brands Holdings is a global and diversified consumer products company and a leading supplier of consumer batteries, residential locksets, residential builders' hardware, plumbing, shaving and grooming products, personal care products, small household appliances, specialty pet supplies, lawn and garden and home pest control products, personal insect repellents, and auto care products. Helping to meet the needs of consumers worldwide, the company offers a broad portfolio of market-leading, well-known and widely trusted brands. Spectrum Brands' products are sold in approximately 160 countries.

Fiat Chrysler Automobiles (Mohnish Pabrai, Guy Spier, Bill Miller, Bill Nygren, Steven Cohen) is a 23.4B EUR market cap company, trading @ 2.3 times cash flow. The company designs, engineers, manufactures and sells vehicles and related parts and services, components and production systems worldwide through 159 manufacturing facilities, 87 R&D centers, and dealers and distributors in more than 140 countries.

Its stable of brands includes Abarth, Alfa Romeo, Chrysler, Dodge, Fiat, Fiat Professional, Jeep, Lancia, Ram, Maserati and Mopar, the parts and service brand. The Group's businesses also include Comau (production systems), Magneti Marelli (components) and Teksid (iron and castings).

Cloning Robotti & Paramés

Francisco Garcia Paramés seeks to invest in easy-to-understand companies and is "willing to wait as long as necessary for the market to finally recognize true value." Value investing to him means in-depth analysis, picking quality companies at attractive prices, and being patient for them to rise in value. Very patient.

The current portfolio of investments is, I believe, a treasure of "cloning opportunities" and the companies I would like to highlight are Dixons Carphone and Aryzta.

Dixons Carphone is a 1.8B GBP market cap company, trading @ 5.0 times cash flow. The company is Europe's leading specialist electrical and telecommunications retailer and services company. The company has built an unrivalled offer for the connected world.

As mobile, electrical and connectivity increasingly integrate, Dixons now has a unique position in the UK&I and Nordic markets to grow the business; through a relentless execution within core multi-channel retail; via the expansion of its existing consumer services Team Knowhow division; and by developing existing and entering new agreements with other businesses through Connected World Services.

Aryzta AG is a 975M CHF market cap company, trading @ 2.4 times cash flow. Aryzta is a Switzerland-based company engaged in food business. It is primarily focused on specialty baking.

The company's products include artisan breads, sweet baked goods and morning goods, as well as an array of other savoury items, such as pizza, tarts and pies. The company's customer channels consist of a mix of retail, convenience and independent retail Quick Serve Restaurants.

The company is now planning a share sale to raise as much as 800 million euros as the firm struggles to lower its debt after multiple profit warnings. Always do your own due diligence!

Robotti & Company focuses its research to identify companies which for various reasons are trading at significant discounts to intrinsic value. A particular area of focus is on cyclical businesses which at depressed times in their cycles can be dramatically discounted. Once identified, Robotti's investment team focuses on deep primary industry and company research to identify investments through the lens of a long-term business owner.

Also this portfolio is very unique and interesting for a professional cloner like me. **Spectrum Brands Holdings**, as discussed before, also popped up in the Robotti portfolio and the other company I would like to highlight is Ensco (which is actually also a Paramés holding).

Ensco PLC is a 3.7B USD market cap company, trading @ 3.7 times cash flow. The company provides offshore contract drilling services to national and international oil companies as well as independent operators. It operates its business in U.S. Gulf of Mexico, Mexico, Brazil, the Mediterranean, and the North Sea. Ensco owns one of the newest jackup and deep-water fleets in the contract drilling industry. The firm is based in London, but its rigs drill around the world for national and international oil companies, as well as independents.

Shenanigans

Have you read the awesome book on Financial Shenanigans by Howard Schilit? You should. Because of his track record in detecting the manipulation of financial results, Howard Schilit has been called the Sherlock Holmes of accounting. Whereas most forensic accountants come in after the fact for the investigation and litigation, Schilit is the rare exception who comes in to detect accounting manipulation before it is widely discovered.

Additionally, in case you welcome that stuff, you should start examining the Journal of Forensic and Investigative Accounting. They contend that that there are six well stablished fraud or earnings manipulation detection tools and ratios: The New Fraud Model (Dechow, Ge, Larson, and Sloan 2007); The Old Fraud Model (Beneish 1999); The Quality of Earnings (Schilit 2010); The Quality of Revenues (Schilit 2010); The Altman Bankruptcy Model (Altman 2005); The Sloan Accrual (Sloan 2012).

Exceptionally intriguing for sure, but allow me to give you some simple ideas that might turn out to be valuable as well. With the following 5 red flag questions you would have avoided business failures like Valeant, Enron, Toshiba, SunEdison, Royal Ahold and Royal Imtech. Actually, just the first 2 questions would do.

1. **Does the company generate free cash flow?** Ahold, Enron, SunEdison and Toshiba did not generate any substantial free cash flow at all over a 3 to 5 year period before collapsing. Huge red flag.
2. **What about debt?** Just try to use the total liabilities relative to EBIT and relative to operational cash flow. You would have found terrible results for Valeant, Enron, Imtech, SunEdison and Toshiba. Huge red flag.
3. **Is the company profitable?** Before crashing, Valeant was not (GAAP) profitable at all for 3 out of 5 years and SunEdison for 5 out of 5 years. That's a huge red flag.
4. **Does operational cash flow lag way behind net income?** With this simple "quality of earnings" test you would have identified Royal Imtech easily. Red flag.
5. **And what about financing future growth?** If the cash flow from investing substantially exceeds the cash flow from operations, that's not a good sign. Imtech, Valeant, Enron, SunEdison and Ahold used way too much debt to finance future growth. Huge red flag.

"It takes a very special type of ineptitude to fail on such a massive scale." – Quote Eric Wesoff on SunEdison.

In the end only Royal Ahold and Valeant were able to raise from the ashes. Valeant, nowadays known as Bausch Health, still does not make the grade of a safe investment. The debt is still way too high and the cumulative net income over the last 3 and 5 years is still negative. But Royal Ahold, nowadays known as Royal Ahold Delhaize, does make the grade of a safe investment and actually, it is trading at what I consider an attractive price for a very long term investor.

And what about Lehman Brothers and AIG? Leverage is the no. 1 reason why financial companies fail. In 2007 the leverage ratio (total assets relative to equity) of AIG was approximately 11, while the leverage ratio of more conservative insurance operation like Berkshire Hathaway was just 2. And in the banking sector Lehman Brothers hit the jackpot with a leverage ratio above 30, while e.g. J.P. Morgan levered up only 10 times then, and now.

I am not in the business of predicting bankruptcies, but over the last 4 years Tesla's operating income, net income, operational cash flow and free cash flow were negative. In 2017 Tesla generated a negative free cash flow of 4B USD and @ the end of the second quarter 2018 their net debt position (total debt minus cash & cash equivalents) was almost 11B USD!

That's it for this edition on Intelligent Cloning. As always, one must be prepared for the unexpected, including sudden, sharp downward swings in markets and the economy. Whatever adverse scenario you can contemplate, reality can be far worse.

In the Winter edition, we will revisit the Mohnish Pabrai Free Lunch Portfolio, have a look at the portfolios of Allan Mecham and Leucadia and disclose the latest additions to the Intelligent Cloning Portfolio.

"We just try to steal good ideas from other people."
David Abrams

Cordially,

Peter

Peter Coenen
Founder & CEO of The Value Firm®
6 October 2018

Intelligent Cloning

The Spring 2018 Edition

"Most everything I've done I've copied from somebody else". This quote is from Sam Walton, best known for founding the retailers Walmart and Sam's Club, from his book "Made in America". Mohnish Pabrai calls Sam Walton the "King of Cloning" or in more modern language the "Uber Cloner". And cloning, copying the best ideas of super investors, is what I am fanatical about. I tend to believe that if you just copy successful investors, and do that intelligently, in the long run you will do fine.

Looking back

In the winter 2018 edition on Intelligent Cloning I described the more conservative version of the 2018 Mohnish Pabrai free lunch portfolio. Let's just have a first look at one of the exciting companies in this conservative free lunch portfolio.

As the leader in sleep innovation, **Sleep Number Corporation** delivers the best quality sleep through effortless, adjustable comfort and biometric sleep tracking. Sleep Number is a visionary in health and wellness, proving the connection between quality sleep and wellbeing. With its powerful SleepIQ® technology platform, powering one of the most comprehensive databases of biometric consumer sleep data in the world, Sleep Number is fundamentally changing the way we monitor and manage health.

Actually all of the companies in the 2018 edition of the conservative free lunch portfolio are worth a more closer look.

In the winter 2018 edition on Intelligent Cloning I also identified three companies of interest to me, namely **Express Scripts** (a Seth Klarman stock), **Allison Transmission** (a Lou Simpson stock) and **Centene** (a David Tepper stock). What I would like to do next, is to have a look at the stock picks of Meryl Witmer, Bill Miller and Leon Cooperman to see if that leads to some new ideas and then, in the end, make my final choices for the companies to add to my Intelligent Cloning Portfolio.

Cloning Witmer, Miller & Cooperman

So let's have a look @ some of the stock picks from Meryl Witmer (Barron's Round Table) and the portfolios of Bill Miller and Leon Cooperman.

If I look @ the 3 to 12B USD market cap companies and sort them according to a Joel Greenblatt type of ranking system, I end up with this list of investment ideas:

1. Gamestop (Bill Miller)
2. Foot Locker (Bill Miller)
3. AMC Networks (Leon Cooperman)
4. Sinclair Broadcast (Leon Cooperman)
5. Spectrum Brands (Meryl Witmer)
6. GNC Holdings (Bill Miller)
7. Fossil Group (Bill Miller)
8. Linamar Corp (Meryl Witmer)
9. Trinity Industries (Leon Cooperman)
10. Supervalu (Bill Miller)

And if I look at the companies with a market cap below 3B USD, same ranking methodology, I end up with these investment opportunities:

1. Altisource Portfolio (Leon Cooperman)
2. Endurance International (Bill Miller)
3. Greenhill (Bill Miller)
4. MDC Partners (Leon Cooperman)
5. National Cinemedia (Bill Miller)
6. Express, Inc (Bill Miller)
7. Orion Engineered Carbons (Meryl Witmer)
8. Esterline Technologies (Meryl Witmer)
9. Dart Group PLC (Meryl Witmer)

The companies I like most from both the winter edition on Intelligent Cloning and this spring edition are Sinclair Broadcast (Leon Cooperman) and Esterline Technologies (Meryl Witmer). Keep in mind that this is a 2014 Barron's Roundtable stock pick, and still very compelling.

Sinclair Broadcast Group is one of the largest and most diversified television broadcasting companies in the United States. Sinclair owns and operates, programs or provides sales services to more television stations than anyone and has affiliations with all the major networks. In addition, Sinclair is the leading local news provider in the United States, as well as a producer of sports content.

Esterline Technologies is a specialized manufacturing company serving principally aerospace and defense markets. Approximately 70% of total revenues are generated from aerospace & defense markets. The remaining 30% is from the application of these technologies in adjacent markets. The three business segments are Avionics & Controls, Sensors & Systems, and Advanced Materials.

The Intelligent Cloning Portfolio

I started this approach in 2016. In 2017 I introduced the approach during The Zürich Project and I will continue using this approach probably for many, many years and I will optimize it, if necessary, as I move forward.

My guess is that this approach will end up as a very compelling methodology for those that want to avoid too much risk, like pension funds, endowments and family offices looking for a risk averse approach.

So here are the stock picks of the Intelligent Cloning Portfolio thus far.

2H '16	**Deere & Co** (Berkshire) @ 87 USD **Allison Transmission** (Simpson) @ 29 USD
1H '17	**Davita Inc.** (Berkshire) @ 65 USD **Verisign** (Berkshire) @ 83 USD
2H '17	**Tegna** (Einhorn) @ 13 USD **Monro** (Akre, Mecham) @ 47 USD
1H '18	**Sinclair Broadcast** (Cooperman) @ 30 USD **Esterline Corporation** (Witmer) @ 72 USD

These stocks are selected with the idea to hold on to these companies for many, many years. Preferably decades, as long as the company remains a good company. And to sleep well let's agree we start looking at the results only after a 3 year holding period. And if that doesn't help, you might want to add some powerful SleepIQ® technology of the Sleep Number Corporation.

Cloning Exor?

Have you read the latest Exor Letter to Shareholders? Thomas Russo talks a lot about the advantages of investing in family owned businesses, and now we have John Elkann, CEO of EXOR, talking about the advantages of investing in family owned businesses. Here are his thoughts:

There are a number of characteristics of family-owned businesses which give them enduring strength:

- They tend to be prudent in how they are run, particularly in relation to financial matters, which means they remain robust when they face downturns, crises and unexpected events;
- They have the patience not to act when action is unnecessary and resist the pressure to do so. As Charlie Munger says, "Success means being very patient, but aggressive when it's time";
- They are aware of changes in the world and are able to adapt when those changes require it;
- They have strong cultures, clearly defined purposes and a sense of responsibility. Their cultures, rather than pay, help them to retain talent and to grow leaders internally.

And also very interesting to read is that Matteo Scolari is going to lead EXOR and PartnerRe's financial investments. Matteo already started investing in a concentrated portfolio of high conviction stocks based on deep fundamental research. His two largest positions are **RWE** and **Ocado**. The latter one, a UK-based technology company focused on food e-commerce, has been on my "to do list" for quite some time now and this might be the trigger to start my in depth due diligence on this company.

When the birds are chirping…

There are many great value investors out there that believe that stocks are expensive. So you have to decide if you want to buy stock right now at all. And if you still believe it's prudent to buy stocks, this idea on when to sell the stock might be of help.

There is this old Dutch saying that you should sell your stock when the birds are chirping. Well…to be honest, that's just not so. Actually it's Seth Klarman who once said that the intelligent investor has to sell when the birds are chirping. Klarman would sell just before a stock reached fair value to make sure he could lock in the gains.

My approach to selling a stock in markets that look expensive is to sell 50% of the position when the stock price is up 50%. By doing so, you just take 75% of the initial investment of the table. So nobody, and that includes our good old friend Mr. Market, can take that profit away from you anymore.

That's it for this edition on Intelligent Cloning. In the summer, I will write my annual letter to investors and I will be back with another edition on Intelligent Cloning in the autumn of 2018.

"Most everything I've done
I've copied from somebody else…"

Sam Walton

Cordially,

Peter

Peter Coenen
Founder & CEO of The Value Firm®
15 April 2018

Everybody makes mistakes now and then. If you find any, let me know: peter@thevaluefirm.com. Always do your own research!

Intelligent Cloning

The winter 2018 edition

There are some great investment minds out there. Don't even think about trying to beat these guys. Just copy and profit from them. I mean, these ideas made it through the exhaustive due diligence process of one of the best investors on the planet. It's called "cloning".

If you are unfamiliar with that, 13F filings are the portfolio reports that institutional-size investors (anyone with a portfolio of over 100 million dollar) have to make to the SEC each quarter. They're public, and include any long US equity positions, so they give great insight into the portfolios of large and successful investors.

In this winter 2018 edition on Intelligent Cloning, let's dig a little bit deeper in the autumn 2017 results, have a look at the current portfolios of Seth Klarman, David Tepper and Lou Simpson and finally enjoy lunch for free.

Looking back

In the previous edition on Intelligent Cloning I identified 10 companies with a market cap below 5B USD. These are companies that have their Value Creation Engine (VCE) up and running and are trading at a price that makes sense. The next step is the "quick fit".

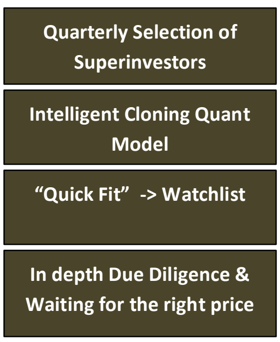

Figure 1: The process of intelligent cloning

During the "quick fit" phase I look at the business activities of the company and then decide if there is a fit between my investment experience (circle of competence) and the company. Here are my "quick fit" considerations.

DSW Inc., **Dillard's** and **AutoNation** are retailers. DSW Inc. is a footwear retailer. Dillard's is a retailer of fashion apparel, cosmetics and home furnishing. AutoNation is an automotive retailer. I don't want to touch the retail sector right now. It's one of the scarier ones to be in, I think. The fear, perhaps unjustified, is that these companies will be "amazoned". Let me put it like this: I do not have the expertise to identify the retailers that will not be "amazoned". So I just skip this sector.

Emcor is a leading specialty construction, building and industrial services provider, with significant expertise in project execution and delivery and excellence in managing skilled labour. It's a very impressive diversified group, but it is not the exceptional niche player I prefer to look at. The same holds for **MSC Industrial**.

A company I like more is **Tegna**. Tegna has spun-off Car.com and sold Career Builder to focus on its TV-Stations, moves that could appeal to a buyer. Its streamlined focus on TV-stations may invite activist interest. David Einhorn's Greenlight Capital Inc. recently acquired a 1.1% stake in the media company, heightening speculation that activists may be scrutinizing Tegna for a takeover.

USG Corporation is a manufacturer and distributor of building materials. It's a Berkshire Hathaway holding and Warren Buffett himself stated that USG overall has been disappointing because the gypsum business has been disappointing. "Just put that one down as not one of our brilliant ideas" (quote Warren Buffett).

The Boston Beer Company is a craft brewer in the United States. Although the competition is intense, keep an eye on Boston Beer. It has, I think, a lot of staying power, but it also could turn out to be a great take-over target. I was really surprised to find out that Allan Mecham sold this stock after just one quarter. I still like it though. I mean, in this world nothing can be said to be certain, except death, taxes and drinking beer.

Monro is the largest chain of company-operated automotive car facilities, with 1,136 stores across 27 states. There is a long runway with the company only operating in 27 states. I like the company, because of their customer loyalty. And there isn't an industry riper for consolidation than the car care industry. I mean, who doesn't like a good roll-up strategy?

And then there is **Valmont**. They are stewards of agricultural and economic growth around the world: from equipping Ag producers in third-world countries to expand their production to fabricating and installing some of the world's most complex steel structures. It is an interesting company to watch. Allan Mecham recently sold part of his Valmont holdings and that makes it less attractive for now.

The two companies I like most from the autumn 2017 edition are **Tegna** and **Monro**. The latter one doesn't look cheap from a traditional P/E multiple valuation. In this case I prefer to focus on the (certainty of the) future free cash flows, in combination with the current low 2.4% risk-free yield on the ten-year treasury rates. That makes it attractive, even at this high P/E multiple. And sure, I would applaude a lower stock price. For now, I add both companies to my watch list and start the in-depth due diligence.

Cloning Klarman, Tepper & Simpson

There are two ways to calculate the Value Creation Engine (VCE). In the autumn edition on intelligent cloning I used the more conservative approach, which is actually an adjusted ROC version. In this winter edition I use the more aggressive version of the VCE, which is ROC times GROWTH.

If I do just that and then rank the stock from the portfolios of Klarman, Tepper & Simpson with a Joel Greenblatt type of ranking system, I end up with the following companies.

1. Apple (David Tepper ↑)
2. Express Scripts (Seth Klarman)
3. AmerisourceBergen (Seth Klarman ↑)
4. Allison Transmission (Lou Simpson ↑)
5. Centene (David Tepper ↑)
6. McKesson (Seth Klarman ↑)
7. Avis Budget (Seth Klarman ↓)
8. HCA Healthcare (David Tepper ↑)
9. CBS Corp (David Tepper ↑)
10. Twenty-First Century Fox (Seth Klarman ↑)

If I had to pick just one stock from each of these super investors, my choice would be Express Scripts, Allison Transmission and Centene.

Express Scripts believes in practicing pharmacy smarter. They put medicine within reach of tens of millions of people by aligning with their customers, taking bold action and delivering patient-centered care to make better health more affordable and accessible.

Allison Transmission is the world's largest manufacturer of fully automatic transmissions for medium- and heavy-duty commercial vehicles and is a leader in hybrid-propulsion systems for city buses.

Centene is committed to improving the health of the community through health insurance solutions for the under-insured and uninsured, and through specialty services that align with their focus on whole health.

Lunch for free!

Have you read the Forbes article "The 15-Stock 'Free Lunch' Portfolio" by Mohnish Pabrai?

In my initial write up on Intelligent Cloning I wrote that you can probably boost the returns of the "shameless cloning approach" even further by using a specified set of 5 criteria. Let's do just that. Mohnish came up with 15 stocks in the Free Lunch Portfolio. Thank you, Mohnish!

If I use the first 4 criteria I end up with the following list of companies: Lowe's, NVR, Sleep Number, The Hacket Group, Alibaba, British American Tobacco, Fiat Chrysler, Micron Technology, Lamb Weston Holdings, GCP Applied Technologies, Synchrony Financial and CSRA.

I don't like the tobacco company, so I just skip that one. And if I apply the fifth criterion, an attractive price, I end up with these companies (random order):

1. Sleep Number
2. The Hacket Group
3. Micron Technology
4. Synchrony Financial
5. GCP Applied Technologies
6. CSRA

I guess that makes the 2018 conservative Free Lunch Portfolio.

In January, 2019, I will publish the updated "conservative Free Lunch Portfolio". The idea is to sell the companies that do not make the new year's picks and invest the proceeds equally in the "newbies".

It has been 10 years now since the publication of "The Dhando Investor" by Mohnish Pabrai. And Mohnish is sharing all his knowledge and experiences with us. For free. If you are a believer in the Free Lunch Portfolio, as I am, why not send Mohnish a "thank you gift". No costs involved.

Here is how it works. Just start an account with e.g. Interactive Brokers and make your pick which strategy you want to follow: the Free Lunch Portfolio or the more conservative version of the Free Lunch Portfolio that I just described. Both approaches will do fine in the long run. For the next 30, 40 or 50 years I want you to follow that approach and then wire the money to the Dakshana Foundation. Even if you take out “your initial capital adjusted for inflation times two” just before wiring, I am quite sure Mohnish will be pleased with this small gift for his foundation. On 8 January 2068 I have some “wiring” to do.

That’s it for this edition on Intelligent Cloning. In the spring 2018 edition we will have a look at the portfolios of Bill Miller, Leon Cooperman and some of the Barron’s Roundtable stock picks of Meryl Witmer.

Cordially,

Peter

Peter Coenen
Founder & CEO of The Value Firm®
29 December 2017

Intelligent Cloning
The Autumn 2017 Edition

During the Zürich Project 2017 I introduced the idea of Intelligent Cloning. It's all about combining the Ben Graham thinking on risk aversion with the Charlie Munger rule nr. 1 on how to become a successful investor: carefully look at what other great investors have done. You can find the initial write-up on intelligent cloning on my website.

So I introduced 5 criteria to avoid the too risky stocks and then rank the remaining investment ideas according to a Joel Greenblatt type of ranking system. In this autumn edition on intelligent cloning I elaborate a little bit more on this "Joel Greenblatt type of ranking system" and what I mean by that. And then we will have a look at the autumn 2017 results. Enjoy!

Ranking the stocks

If you use the original Joel Greenblatt ranking system, you rank e.g. 10 candidates by ROC. The highest gets 1 point and the lowest 10 points. And then you rank them by margin of safety. The highest gets 1 point and the lowest 10. You add the numbers and choose the lowest number.

If you have two companies with identical ROC and company A grows e.g. with 3% free cash flow per share and company B with 6%, both companies are treated equally. I tend to believe that there is value in adding additional weight to company B.

The question is how to do that. During the Zürich Project 2017 I introduced the Value Creation Engine. The more aggressive definition of this Value Creation Engine is ROC times GROWTH. A more conservative approach is to add just a few extra points to the ROC for company B. In the latter case you could argue that the Value Creation Engine is a sort of adjusted ROC.

This might seem a simple idea, but in reality it is not. There are many ways to calculate ROC and GROWTH. You have to decide for yourself what suits you best.

The same holds for the third variable, Margin of Safety. Joel Greenblatt used the Earnings Yield, which is EBIT/Enterprise Value, but there are many other ways of calculating the Margin of Safety and once again, it depends on your personal preferences.

The Autumn 2017 results

If I apply the conservative approach of the Value Creation Engine (VCE) with the preferences I have for Margin of Safety and then rank the stocks, first according to VCE (the highest VCE gets 1 point, the lowest 10 points) and then according to Margin of Safety (the highest gets 1 point, the lowest 10 points), add the two numbers (the lowest number comes first) and do just that for the portfolios of Berkshire Hathaway, Sequoia Fund, Chuck Akre, David Einhorn and Allan Mecham, I end up with the following results:

1. Apple (Berkshire Hathaway ↑, David Einhorn ↓)
2. Verisign (Berkshire Hathaway)
3. IBM (Berkshire Hathaway ↓)
4. Delta Air Lines (Berkshire Hathaway ↓)
5. Emcor Group (Sequoia Fund)
6. Omnicom Group (Sequoia Fund ↑)
7. PVH Corp (David Einhorn ↓)
8. Liberty SiriusXM Group (Berkshire Hathaway ↑)
9. Jacobs Engineering Group (Sequoia Fund)
10. Davita (Berkshire Hathaway)

The arrows indicate if there has been some recent activity in buying/increase the position ↑ or selling/decrease the position ↓. No arrow means no specific recent action.

Obviously, there are some limitations to this approach. Most of the financial companies and spinoffs are automatically excluded. And you might want to ask yourself the question if it is wise to "clone" the Berkshire Hathaway portfolio. Berkshire Hathaway has a limited investment universe, because of its size. They only look for "the big elephants". It might be much more interesting to look for companies that are at the beginning of their competitive lifecycle (small and midcap stocks).

If I exclude the companies with a market cap above 5 billion USD I end up with the following ranking:

1. Emcor Group (Sequoia Fund)
2. Tegna (David Einhorn ↑)
3. DSW (David Einhorn ↑)
4. Dillard's (David Einhorn ↑)
5. MSC Industrial (Allan Mecham ↑)
6. USG Corp (Berkshire Hathaway)
7. Boston Beer Company (Allan Mecham ↑)
8. AutoNation (Allan Mecham ↑)
9. Monro (Chuck Akre ↑, Allan Mecham ↑)
10. Valmont Industries (Allan Mecham ↓)

By the way, if I move the benchmark for VCE just a little bit higher, and I might do that next time, Valmont Industries would not be on this list.

Some final remarks. You could argue that intelligent cloning is a new quant approach, a sort of algorithmic overlay on top of all the intensive research and decision making of these super investors. But there is no such thing as an investment without your own investment analysis. I always reengineer the investment thesis and do my own due diligence and I advise you to do the same. Intelligent cloning is a great way of prioritizing your research efforts.

The greatest advocate of "cloning" in the investment world is obviously Mohnish Pabrai. He introduced "shameless cloning" in an article in Forbes entitled "Beyond Buffett: How to Build Wealth Copying 9 Other Value Stock Pickers". So is "intelligent cloning" more intelligent than "shameless cloning"? I don't think so. It's just a matter of words. "Shameless cloning" is highly intelligent and "intelligent cloning" is just as shameless. Intelligent cloning is a more risk averse, conservative approach towards cloning.

Next time, the winter 2017/2018 edition on intelligent cloning, I will include the portfolios of David Tepper and Seth Klarman. Should be quite interesting!

Cordially,

Peter

Peter Coenen, 5 October 2017
Founder & CEO of The Value Firm®

Intelligent Cloning

Initial write-up

The idea of "Intelligent Cloning" is all about combining Ben Graham thinking on risk aversion with the Munger rule nr. 1 on how to become a successful investor. And to remind you. Mungers first rule is to carefully look at what the other great investors have done. The second rule is to pay close attention to cannibal companies (companies buying back huge amounts of stock) and the third rule is to focus on spinoffs.

If there is one investor out there that takes these simple Munger ideas very seriously it has to be Mohnish Pabrai. Recently he wrote an article in Forbes entitled "Beyond Buffett: How To Build Wealth Copying 9 Other Value Stock Pickers", where he talks about "Shameless Cloning". Actually he wrote it together with Fei Li and you can find the article on his wonderful website Chai with Pabrai.

Shameless Cloning. Isn't that great. You know that there are some great investment minds out here. Don't try to compete against these guys. Instead copy their best ideas and profit from them. I love it! Mohnish Pabrai is not just a great investor, he is a great communicator as well. I like the way he puts forward his ideas. Let me just quote from his article. Here it is:

"Santa knocks on all our doors not once, but four times a year. During his off-season, he reliably shows up bearing profitable gifts on February 14, May 15, August 14 and November 14. These are the deadlines for 13-F filings".

Think about that. Four times a year you get probably the greatest stock picks on the planet on your doormat. For free! Mohnish describes a method to pick 5 stocks and rebalance the portfolio once every year. So, how did this 5-stock portfolio perform over the last 17+ years? It beats the S&P 500 by 10.7% annualized! That's amazing!

A slightly different road

I toke a slightly different road. Not necessarily better, but different. First of all I am a long term investor and hold stocks as long as the company remains a good company. So I will avoid annual rebalancing. And secondly I make an extra effort and try to avoid the investing mistakes of these great value investors. Does anybody know how many mistakes great value investors make? It has been said that George Soros made money on fewer than 30% of his trades.

Now think about this for a moment. Suppose you run a concentrated portfolio of 10 stocks. And you joined the merry band of shameless cloners. So you picked for instance Valeant (Bill Ackman/Sequoia), SunEdison (David Einhorn), Horsehead Holdings (Mohnish Pabrai) and Royal Imtech (for many years the stock market darling of the Dutch stock exchange). These are all companies that went bankrupt or had to raise from the ashes. I mean, the result would have been devastating.

In comes Ben Graham. When investors make mistakes it is usually because they forget the inherent simplicity of the Ben Graham value investing system. I truly believe an investor can make better decisions by keeping things simple. So why not apply the Graham criteria for the defensive and enterprising investor to avoid mistakes? Now you might argue that these criteria are outdated and rightfully so. When Graham wrote them down he didn't had access for instance to cashflow statements. Well. Then let's rewrite them with the knowledge and insights we have right now.

What you want to do is to avoid the "too risky" investments. And to identify these I use 5 criteria. Very straight forward:

- A "balanced" balance sheet. So you try to avoid too much debt, too much leverage and too much goodwill/intangibles.
- Consistency in the per-share figures. I just don't like companies that show a consistently growing earnings-per-share (which is good) in combination with a highly fluctuating operational cashflow per share.
- Substantial free cash flow. As a company, if you don't have free cash flow, you don't have anything. Management could choose to reinvest in the business, buy other businesses, reduce debt loads, buy back stock, or pay out dividends.

- Consistently high return on capital. You probably all know Joel Greenblatts Magic Formula. There are many ways to calculate ROC, so you have to figure out what suits you best and why.
- Margin of safety. There is no such thing as a company that's worth an infinite price. So you want a price that makes sense. I believe it was Chuck Akre who once said that he is willing to pay up to 20 times free cash flow for a high quality company. You might want to figure out what Warren Buffett paid for Precision Castparts.

By using this simple set of criteria you would have avoided Valeant, SunEdison, Horsehead Holdings and Royal Imtech. Instead you would have probably invested in John Deere (Team Berkshire) and Allison Transmission (Lou Simpson). As of recently team Berkshire sold John Deere. Probably not because it is a bad investment, but just to free up money to invest elsewhere. I will keep John Deere in my portfolio as long as the company remains a good company.

You might argue that team Buffett found better opportunities, so why not follow them for example into airlines. Well. That's not who I am. If I find a low-risk solid-return opportunity I buy it and forget it. The same for Heineken. It's not trading at an attractive price right now, but if the markets would go way down and I could buy Heineken below 55 euro, I buy it and forget it. And it makes life a lot easier, you know. If you continually keep hunting for "the best opportunity", eventually that will drive you mad. In Value Investing your worst enemy is probably your own brain.

One final twist. Dependent on how many great value investors you want to follow you very well might end up with more than one investment opportunity. So which one to choose? You might want to use a simple Joel Greenblatt ranking system. So you rank e.g. 10 candidates by ROC. The highest gets 1 point and the lowest 10 points. And then you rank them by margin of safety. The highest gets 1 point and the lowest 10. You add the numbers and choose the lowest number.

Now let's go back to Mohnish. He beats the the S&P 500 with 10.7% annualized over the last 17+ years. That's like indexing on steroids and you can probably boost returns even further by using the above set of criteria. But you have to be very rational and unemotional to successfully implement a long-term cloning strategy. And most people unfortunately are impulsive and irrational. The average investor is probably too restless and the smart investor too smart to just follow a simple strategy. For most of us investing periodically in a low cost index fund probably remains the best low-risk solid-return proposition on the planet.

Mohnish and Fei end the article with the hope we will join the merry band of shameless cloners. Well. Just count me in.

Happy Santa Claus!

Cordially,

Peter

Peter Coenen, 11 March 2017
Founder & CEO of The Value Firm®