

November 23, 2018

**Dear clients and colleagues,**

An important reason for choosing Global Alpha and our global and international small cap strategies is that our investment universe is comprised of an incredibly diverse array of non-cyclical equities. We believe that long-term themes fuel the outperformance of these stocks and enable them to offer better stability during economic cycle rotations.

Following a period of synchronized global growth, today, global politics is impacting investor confidence, most notably the US trade dispute with China which has brought attention to China's economic accounts. The debate over whether or not China is in the midst of an economic slowdown is certainly a contributing factor to the muted advances of cyclical stocks. This is quite atypical for cyclicals, as they usually perform strongly in the later stages of a robust economic period. This situation exemplifies the complexity of predicting the direction of cyclical equities. Through the recent market volatility, our strategy remained unchanged. We remain focused on analyzing themes while continuing to monitor the themes and sub-themes we are already following.

The 3D printing market is one example of a monitored theme. Due to many false starts, the 3D printing market has not developed as quickly as originally anticipated. Market size has reached \$12 billion but is reserved to small commercial applications and prototyping. In promising fields such as metal alloys for the transportation industry, the leading technology providers, GE (General Electric) and Germany's SLM Solutions (a Global Alpha watch list company), are both experiencing only lukewarm growth in 3D printing. However, if we expand 3D printing to include 2D digital printing, which includes paper printing, the market explodes to \$180 billion, and entire new markets open up as digital printing allows for extreme customization and replaces very polluting processes. These new markets include ceramics, which is a \$7 billion total available market (TAM) and is 70% digitized; display graphics has a \$5 billion TAM and is 56% digitized; and textiles is a \$3 billion market that is less than 5% digitized. Finally, the largest opportunities are in corrugated cardboard, a \$6 billion market that is growing at 20% per year and digital market penetration is less than 1%.

The high price of digital printing inks and materials is a key limiting factor in shifting conventional manufacturing markets to digital production. GE targeted the aerospace industry to help it overcome its cost-of-goods issue — units are typically very expensive. However, it misevaluated the regulatory issues, the cost of switching to digital printing and the timeframe of changing manufacturing platforms in the industry. So although the corrugated cardboard digital printing market opportunity is very large, sensitivity around ink prices must diligently be followed.

The number of players in the digital printing space continues to grow, and Global Alpha is exposed to the digital manufacturing economy in many ways. In the past, we have invested in companies like Cimpress, a mass-customization company with roots in business card printing which we sold when it reached our valuation target.

Today, Global Alpha owns the following companies:

**Electronics for Imaging (EFII, Market cap: \$1.2B)**

Founded in 1989, EFII is a technology company that provides digital to analog imaging transformation services. EFII manufactures printers, inks and software for producing signage, packaging, textiles, ceramic tiles and personalized documents. The company serves commercial printers, central reprographic departments, creative agencies and colour professionals, ceramic tile manufacturers, label and packaging businesses and offices.

EFII is headquarter is in Fremont, California. It has 29 offices around the world and 1,229 of its 3,400 employees work in R&D. It generates 49% of its revenue in the Americas, 37% in EMEA countries and 14% in the Asia Pacific region. Recurring revenues are at 33%.

EFII is a leading player in the commercial printing market, and its business is well-balanced between hardware (industrial printers) and software (printing management and productivity). The company developed the leading technology for colour printing on cardboard boxes.

**Kornit Digital (KRNT, Market cap \$733M)**

Kornit Digital develops, manufactures and markets industrial digital printing technologies for the garment, apparel and textile industries. Kornit's technology enables web-to-print, on-demand and mass-customization concepts. It offers a complete line of direct-to-garment printing solutions to businesses with production levels ranging from commercial to mass-production. The company supplies digital textile printing machines to customers in more than 100 countries worldwide.

Domiciled in Israel, Kornit has six global offices in the US, Europe and Asia Pacific and 400 employees around the world. Manufacturing is mainly based in Israel.

Textile printing is highly complex as the materials are diverse and have challenging features such as wear, absorption, stretchability and weave unevenness. Kornit's printing process reduces the conventional six-step printing process to just two steps. This reduces the production time per garment by approximately seven minutes, which translates into a 35% reduction in cost.

Kornit is entering the fast fashion market as it moves online where efficient execution of design, production and delivery are key. Kornit is also working closely with Amazon to speed up the delivery time of personalized printed items.

**DMG MORI (6141 JP, ¥ 177.2B)**

DMG MORI is Japan's largest machine tool company. DMG MORI produces machining centres, multifunctional machine centres, lathes, laser cutting tools and laser sintering 3D printers. Its total manufacturing solutions business provides integrated tooling and robotics services with advanced IoT connectivity. The company has 15 production sites with a capacity of 15,000 units per year located in Japan (42%), Europe (50%), the US (3% and increasing) and China (5%). In 2017, 10,500 units were produced, and 2018 production is expected be 11,500 units. Sales by region are: EU excluding Germany 32%, Germany 26%, Japan 15%, the Americas 15% and 12% to Asia.

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Demand is increasing in several markets. In the automobile industry, with light weighting trends and increasing electronics, vehicles require more and more high-precision die and mold and hard-to-cut material. In the medical parts industry, an aging population is creating greater demand for complex devices and tailor-made parts. As well, artificial intelligence will become an important future market as it increases demand for semiconductor products that require ultra-precision machining and super-finished products.

Have a great weekend.

The Global Alpha team