INVESTMENT INSIGHTS · GLOBAL EQUITIES
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Betting On Human Ingenuity

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In 1798, Thomas Malthus proposed that population growth left unchecked would outpace the earth's ability to provide subsistence for the population. Disease or famine would then ensue, reducing the population back to a level in balance with the earth's available resources. Malthus set forth his theory in a book titled "An Essay on the Principle of Population," in which he remarks that "It is an acknowledged truth in philosophy that a just theory will always be confirmed by experiment."

After collecting nearly two and a half centuries worth of data, we now know by experiment that Malthus and his theory on population growth were very, very wrong. In the 20th century alone, the world population increased four-fold from 1.5 billion to 6.1 billion. In that time, real average income per capita has increased, poverty and infant mortality rates have subsided, and life expectancy has continued to expand. Why? As economist Julian Simon suggests in his book "The Ultimate Resource," human ingenuity and creativity have allowed us to innovate our way out of scarcity and adversity. By using our own greatest resource, our intelligence, we have become more efficient, created additional supply, and developed new substitutes.

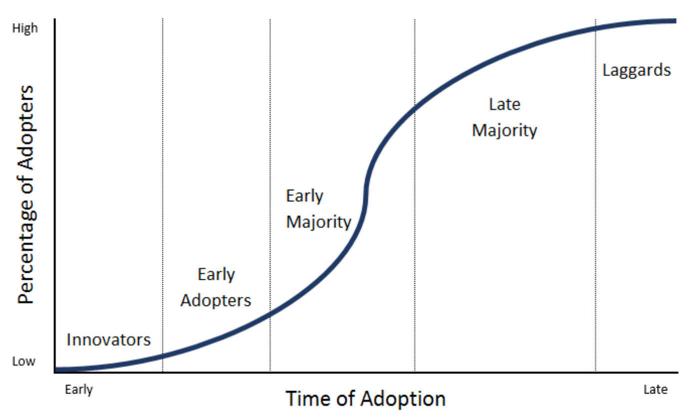
Interestingly, scarcity never seems to really go away, but rather presents itself in different forms. While Malthus was focused on the limitations of crop production, today we have different resources to worry about (think everything from water shortages in California, to labor in Japan, to the need for more time in daily life). As we continue to innovate solutions across such diverse fields as material science, medicine, computing, and communications, we are experiencing a world that is transforming at an accelerating pace via cross-industry influences. The societal push for the electrification of vehicles, for example, has had broad implications for several traditional industries, including autos, semiconductors, metals & mining, and energy. Looking into the future, we can see economic implications to autonomous driving, communications technology, and even the insurance industry.

Our research suggests that such innovation is driving many exciting new trends that can be exploited through the early recognition of growing end-markets and are investable through analysis of the supply chains driving the growth. We believe the opportunity is best captured through an unconstrained, opportunistic global strategy with a long-term focus that is driven by fundamental analysis. Such a strategy essentially sits at the intersection of top-down (trend analysis) and bottom-up (company analysis) research. Given the inherent risks of investing in nascent economic trends, we believe portfolio construction is best executed using a fundamental risk/reward analysis enabled by a thorough understanding of the thematic.

Our process is guided by a broad and deep examination of industry drivers, which are assessed by analysis of end-market potential. One of the primary goals of our research is to understand the drivers of growth for a specific product, service, or technology in order to have a good understanding of the adoption curve. We are specifically looking to determine (1) the shape and steepness of the curve, and (2) where the product or service currently sits on the adoption curve. Below is a graphic illustrating our analysis of growth potential based on adoption curves.

Using the adoption curve, we seek to identify the most attractive themes in which to invest. We then focus on areas within the thematic that either exhibit strong growth or could be bottlenecks within the supply chain. This analysis allows us to narrow the investment universe down to those companies that are well-exposed to the theme and have a strong and sustainable business model.

Exhibit 1: Adoption Curve at the Aggregate Level



Source: DuPont Capital

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The Importance of Stock Selection

It is not uncommon for the stock market to get wildly ahead of itself, or to significantly misjudge the risk of a stock. The 2001 tech bubble is an extreme case, but we have seen smaller bubbles as of late (cannabis, gene editing bio-techs, etc.). An investable top-down theme requires a group of stocks that not only provide exposure, but also offer a payoff that is proportionate to the risk. Old fashioned financial analysis can help us determine whether a thematic component is fully priced in or has been overshadowed by idiosyncratic risks.

At the stock level, price targets are ultimately driven by valuations taking market and industry context into consideration, as well as idiosyncratic risks (both upside and downside). In our experience, valuations can be heavily influenced by the overall sector or industry, especially under extreme market conditions. As such, we follow the adage that the neighborhood is as important as the house when understanding the valuation and return profile of thematic and growth-oriented securities. We also use a variety of stock characteristics (Exhibit 2) to both determine the relative attractiveness of a stock and help pro-actively characterize buy and sell decisions under different scenarios.

The Importance of Diversification

Our portfolio is skewed towards secular growth areas as we tend to find our highest conviction ideas with valuation support in this arena. Once we identify companies with sound and sustainable business models that are well-exposed to attractive themes, we overweight those stocks with the most promising risk/reward profile on a relative basis as determined by our analysis. Given we want the portfolio to express a targeted theme at the aggregate level and avoid becoming a collection of idiosyncratic risks, we prefer to take relatively more, but smaller individual positions. This approach has the added benefit of limiting the effects of volatility, which is not uncommon among less-followed names. We also look to diversify risk across a wide breadth of investment themes and industries (Exhibit 2) to vary, or even offset, exposure to certain style or factor risks.

Portfolio Risks and Characteristics

Targeted growth areas tend to be concentrated within specific sectors, so an unconstrained approach is best suited to accommodate thematic exposure. As a result, the return stream can, and probably will, be much more volatile than a standard broadly diversified index. These strategies also tend to be overweight structural and nascent growth, with the most promising opportunities frequently found in smaller capitalization technology and healthcare spaces. The volatility and downside risk are the consequence of the long-duration nature of these growth

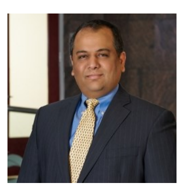
Exhibit 2: Theme Assessment and Portfolio Construction

Theme Characteristics	
• Relative & Absolute Valuation	• Price Momentum
• Sales & Earnings Growth	• Management & Balance Sheet Quality
• Estimate Revisions	
Secular and Long Term Growth Areas	
• Autonomous Cars	• Cloud Computing
• 3-D Printing	• Data Warehousing
• Robotics	• Solar/Wind Power
• Genomics	• Online Education
• Blockchain	• Artificial Intelligence
• Horizontal Drilling	• Mobile Computing

Source: DuPont Capital

assets (which makes them more sensitive to short-term assumptions) and the higher fail rates relative to a traditional company. In this way, such a strategy is akin to publicly-listed venture capital and private equity opportunities. A high conviction investment thesis built around the most sustainable trends allows the portfolio to weather, and even tactically exploit, volatility when the market misprices attractive opportunities.

While the success of the portfolio is based on skillful security selection, we find this success has a leveraged effect when price appreciation is experienced at not just the individual security level, but, more importantly, at the aggregate theme level. By sensibly diversifying the portfolio across a number of themes and individual securities, we believe that investors can minimize opaque idiosyncratic risks while benefiting from more visible and tangible, industry-level business trends.



Maneesh Jain, M.D., is the Portfolio Manager for the firm's Global Opportunities strategy and an Associate Portfolio Manager for the Global Core Equity and U.S. Core Equity strategies. His fundamental analysis focuses on the Health Care and part of the Information Technology sectors. Prior to joining DuPont Capital in 2006, Dr. Jain was a Senior Equity Research Analyst at Thomas Weisel Partners LLC, focusing on Small-Cap Biotech companies. Dr. Jain holds a B.A. in Biology and Religion/Classics, Cum Laude, from the university of Rochester; a Doctor of Medicine Degree from Stony Brook University School of Medicine, with postgraduate training in Internal Medicine completed at Tufts University; and an M.B.A. in Finance from Drexel University.

About our firm:

DuPont Capital has a long history of institutional asset management. Our parent company, DuPont (a wholly owned subsidiary of DowDuPont) established a retirement pension plan for employees in 1942, and in 1975 created a separate pension management division.

In 1993, DuPont Capital was established and became an SEC registered investment advisor. We share our parent company's history of innovation and, over the years, have been on the forefront of developing global investment opportunities in both traditional and alternative strategies across equity, fixed income, and alternative investments.

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Important Disclosures: