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ESG Thematic Investing

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Special Report

The Case for Sustainable Thematic Investing

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Introducing Global Thematic ESG Investing Framework

Driven by unprecedented technological innovations, industry structures and profit pools are shifting across value chains in many industries. This in turn should create significant opportunities for ESG and sustainable investors. While ESG has been traditionally viewed as a risk-management and screening tool, we provide several global ESG themes in this report that offer significant investment opportunities.

Still Early Days for ESG Thematic Investing

ESG investing has gained significant momentum over the past 3 years. Globally, $21 trillion of assets have been invested in ESG or sustainable strategies. As ESG investments continue to grow, we believe there is an emerging opportunity for thematic investing. This thematic opportunity was relatively small and concentrated in only a few areas of renewables 5 years ago. As a result, a number of SRI funds that were positively exposed to shrinking profitability and uncertain policies of renewables sector underperformed. We believe we are entering the new era of ESG thematic investing where the universe of companies and sectors affected has increased significantly and the level of innovation driving these sectors has also increased exponentially.

Beginning of ESG 2.0 Era

ESG 1.0 was all about SRI investing with a greater focus on renewable power generation where market growth was driven by increased competition and limited innovation. Companies were mostly concentrated in the power generation sector whereas companies in the transportation sector (early EV start-up, li-ion batteries, Biofuels) were not so successful. We expect this trend to change over the next 10 years with the transportation sector likely leading the charge in terms of technological innovation followed by agriculture and water. ESG 2.0 as we define it will be driven by industrial internet of things, electric vehicles, agriculture tech, auto tech and water tech. We expect the ESG 2.0 themes to directly/indirectly impact industries worth $11 trillion of market cap compared to ESG 1.0 which only impacted industries worth ~$3 trillion of market cap and in a mostly negatively fashion.

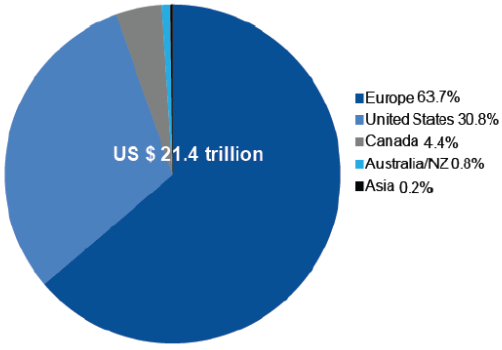
ESG Themes Driven by Technology Proliferation in Several Large Markets

Our selection criteria of global themes and theme-exposed stocks in this report is based on 1) ESG impact potential, 2) longer term growth outlook, 3) DB analyst view of stocks under coverage. ESG themes presented in this report are longer term in nature and this report should be considered as a framework, under which we expect to provide more thematic insights going forward. We also note that our list of ESG theme-exposed stocks is not comprehensive and we plan to update this list on a regular basis. In general our view is influenced by the fact that sectors such as autos, water, ag, energy and healthcare are likely to see increased proliferation of technology over the next 10 years. This should not only drive improved productivity and social well-being but also create positive environmental impact. Several end markets exposed to these themes have long-term industry growth rates exceeding 10%-20%.

The Emerging Case for Thematic ESG Investing

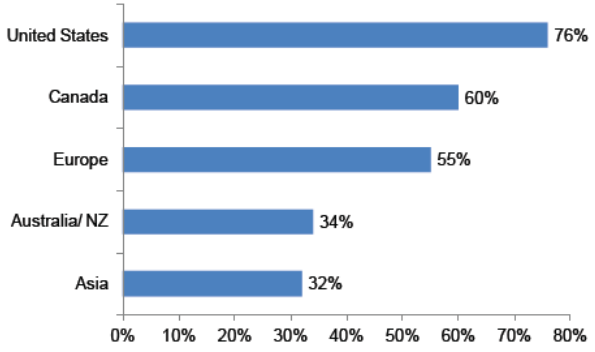
ESG investing has gained significant momentum over the past 3 years. Globally, $21 trillion of assets have been invested in ESG or sustainable strategies. The investing theme has gained significant momentum particularly in the U.S. However, our conversations with investors suggest that ESG investing is mostly considered as a risk management and exclusionary tool. Investors generally tend to look at ESG scores provided by external data providers and apply an additional screen to their investment process. As such, although there has been a lot of academic work done to show the positive relationship between ESG and financial/share price performance, most investors still remain skeptical. We expect this ESG integration process to evolve over the next few years as an increasing number of corporations start providing reliable data, sustainability standards get defined over time and increasing number of sell-side firms start integrating ESG in their fundamental research process. While we are confident that ESG will become a mainstream investing tool, we believe there is an emerging opportunity to view ESG as an alpha creating thematic tool. This thematic opportunity was relatively small and concentrated in only a few areas of renewables 5 years ago. As a result, a number of SRI funds that were positively exposed to shrinking margins of the renewables sector underperformed. We believe we are entering the new era of ESG thematic investing where the universe of companies and sectors affected has increased significantly and the level of innovation driving these sectors has also increased exponentially.

Figure 1: Proportion of Global ESG Assets by Region 2014



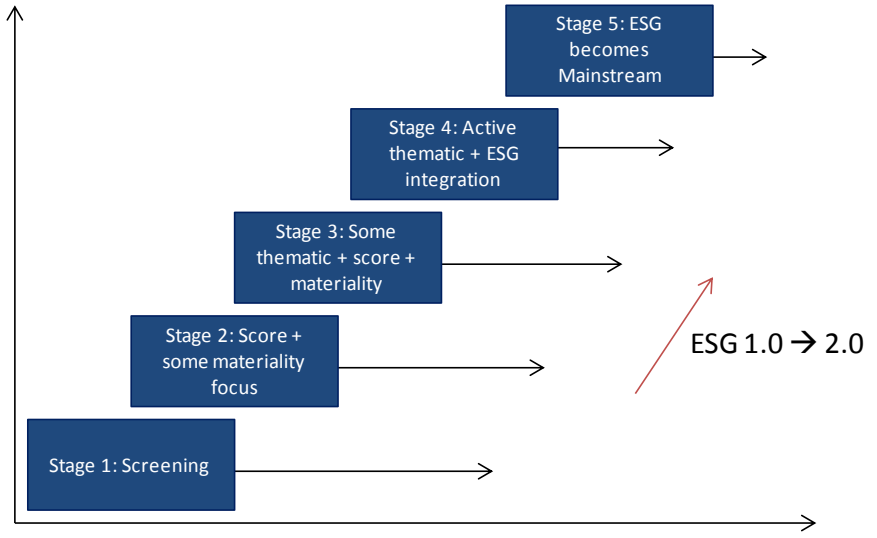
Source: GSIA

Figure 2: Growth of Global ESG Assets by Region (2012 – 2014)



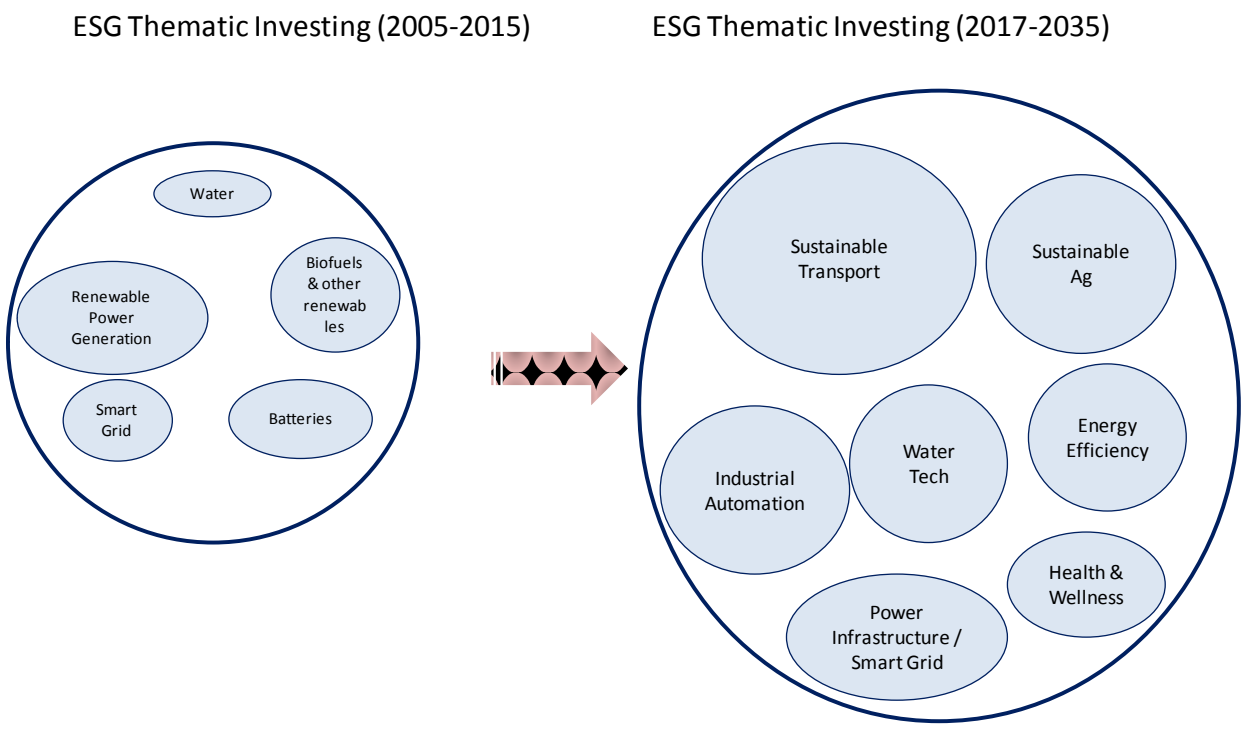
Source: GSIA

Figure 3: ESG Integration Process



Source: Deutsche Bank

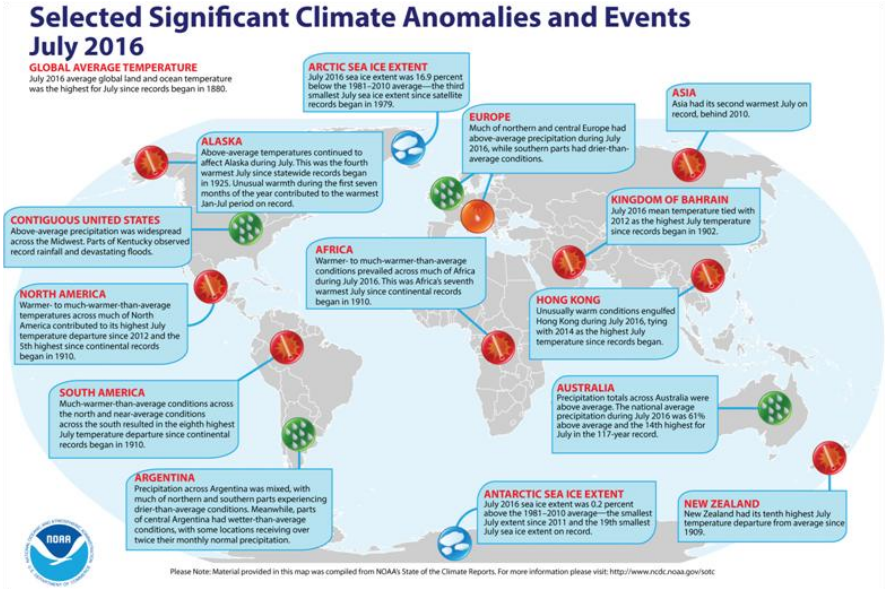
Figure 4: ESG Thematic Investing Evolution



Source: Deutsche Bank

Let's first consider some of the facts. 2016 was the 5th warmest summer in 122 years of record keeping in the U.S. July 2016 was the 379th consecutive month with temperatures at least nominally above the 20th century average. In 2014, nearly 87% of disasters were climate-related and over the past 20 years, climate related disasters have outnumbered geophysical disasters in the 10 most disaster-prone countries in the world. The financial impact of climate change has been equally significant. According to World Bank Report, the cost of environmental degradation in China is equivalent to 9.2% of GDP and one of the largest compared to other developing countries. Environmental and Climate Change issues are only going to become more important to investors over the next several decades. The UN expects the global population to increase from slightly under 7 billion in 2010 to 9 billion plus by the 2030 timeframe. Despite the 8% increase in total population, the middle class population is expected to increase by ~37%. More than half of the world population (54%) resides in urban areas and cities are responsible for more than 70% of the global CO2 emissions (according to 2016 World Cities report by UN-Habitat). Just to provide some context, between 1950 and 2005, the level of urbanization increased from 29% to 49%, while global carbon emissions from fossil-fuel burning increased by almost 500%. By 2025, urban population contribution to GDP would increase to 78% in China and 39% in India.

Figure 5: Selected Significant Climate Anomalies and Events July 2016

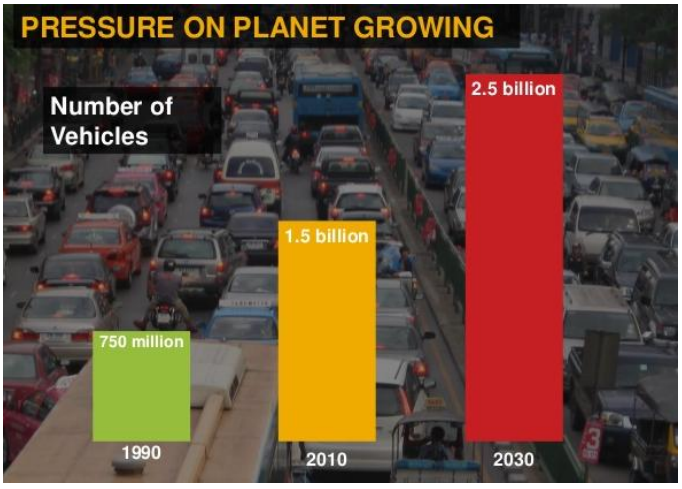


Source: NOAAk

We estimate nearly 3 billion people will be added by 2030 with 90% of growth coming from Asia (mainly China and India). By 2025, an estimated 930 million people would be living in cities in China compared to 530 million people in 2005. Similarly in India, an estimated 530 million people would be living in cities by 2025 compared to 315 million people in 2008. By 2025, urban population contribution to GDP would increase to 78% in China and 39% in India.

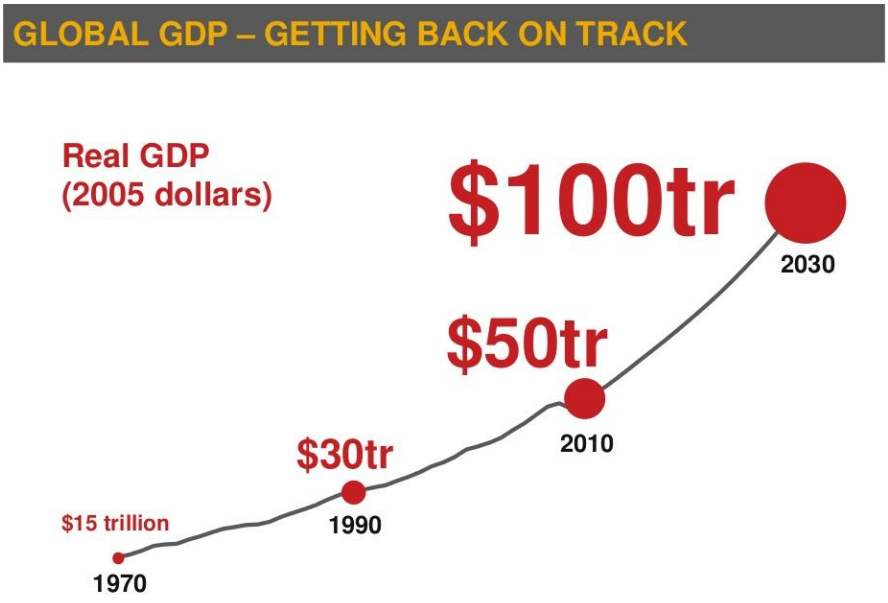
ADAS can reduce accidents by up to 90% and save $190 billion per annum in the U.S. alone

Figure 6: Global Vehicle Ownership Projections



Source: Sperling and Gordon 2009, World Resource Institute

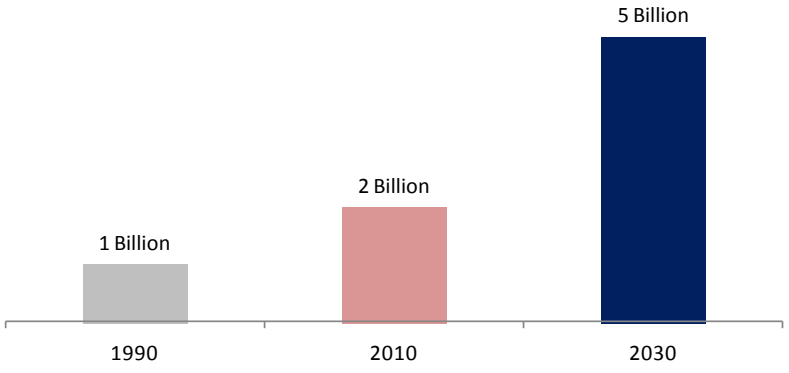
Figure 7: Global GDP Projection



Source: US Department of Agriculture, Economic Research Service, World Resources Institute

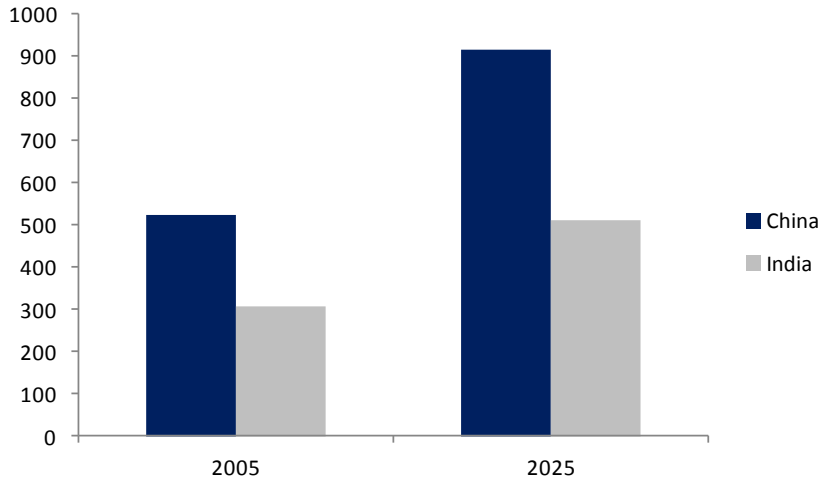
Issues such as human rights, child labor, diversity and women in workforce are also on the forefront of investors' consideration. An increasing number of investors are seeking transformation of corporate ESG policies - a record-breaking 433 social and environmental shareholder resolutions were filed in the 2015 and 2016 proxy seasons, with environmental and sustainable governance resolutions combined representing 40% of the total. Several studies have shown that incorporation of ESG issues into their portfolio helps investors better manage risks and generate higher returns. As a result, nearly $12 trillion of global assets under management incorporate some form of ESG consideration.

Figure 8: Explosion of the Global Middle Class



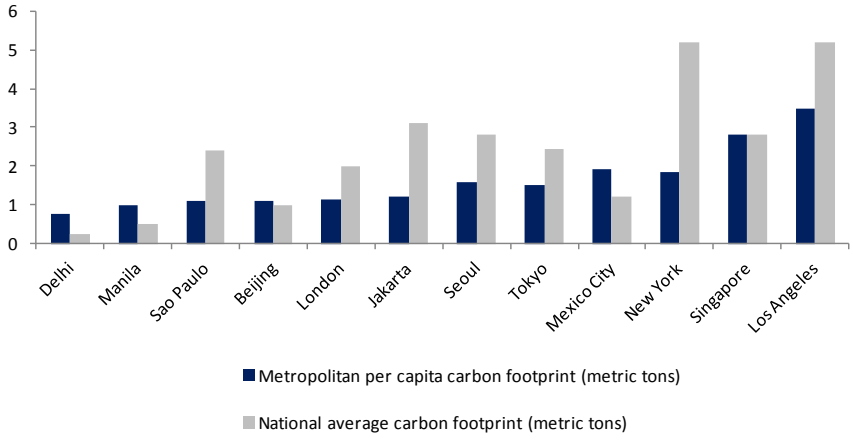
Source: Deutsche Bank, Reuters, OECD 2010, World Resources Institute

Figure 9: Urban Population Projections for India and China (millions)



Source: Deutsche Bank, McKinsey Global Institute

Figure 10: Comparison between individual city and national carbon footprints per capita

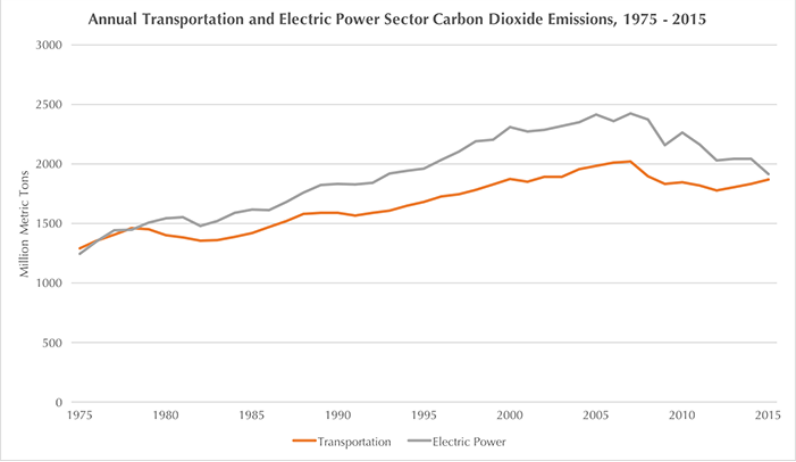


Source: Deutsche Bank, Sovacool and Brown, 2010, UN HABITAT World Cities Report 2016

Beginning of ESG 2.0 Era?

As can be seen from the chart below, the electricity sector, which accounts for about a third of U.S emissions, is no longer the greatest source of carbon emissions. Transportation has taken over recently as electricity sector emissions have been declining for the past 10 years due to various reasons: growth of renewables, increased energy efficiency measures impacting the overall growth of energy demand and shift from coal to gas based electricity generation. Meanwhile, emissions from the transportation sector have been generally flat since the early 2000s and have been actually increasing recently as the total number of vehicle miles traveled continues to increase even as vehicles become more energy efficient.

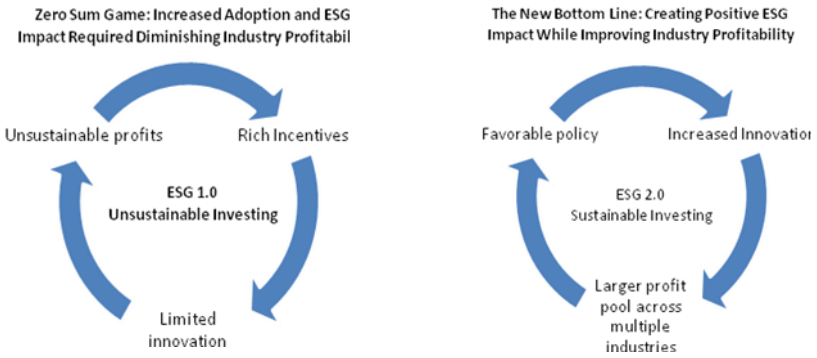
Figure 11: Transport & Electric Power Sector CO2 Stats



Source: Deutsche Bank

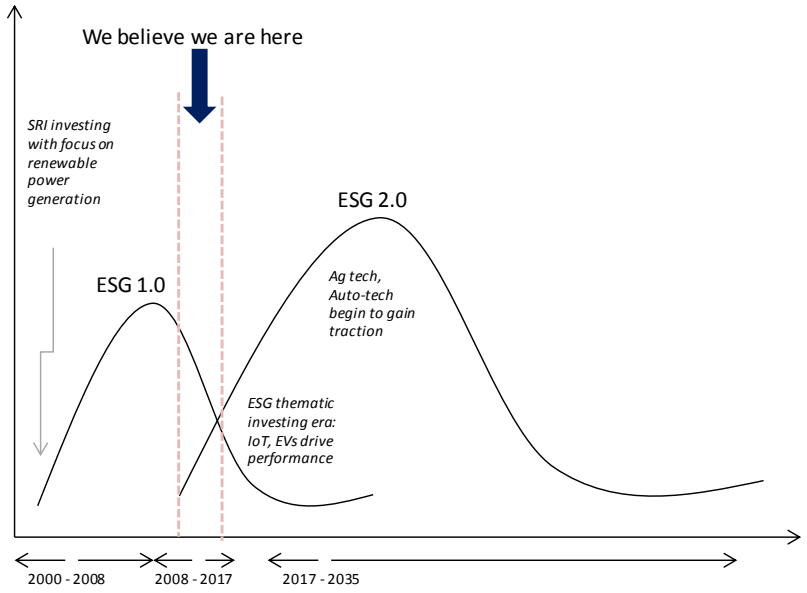
Ten years ago, most of the SRI companies that were looking to create societal change and have a positive impact on environment saw a significant compression of industry profitability and failed to deliver on the innovation theme. Companies were mostly concentrated in the power generation sector whereas companies in the transportation sector were not so successful. We expect this trend to change over the next 10 years with the transportation sector likely leading the charge in terms of technological innovation followed by agriculture and water.

Figure 12: ESG 1.0 to ESG 2.0



Source: Deutsche Bank

Figure 13: Where we are in the ESG cycle today



Source: Deutsche Bank

ESG thematic investing could have worked 10 years ago as well. In hindsight, there were more losers and some winners from the ESG themes of the last decade - oil & gas companies, coal companies, and companies with poor governance for example were all affected by ESG.

The European utility stocks saw significant reduction in overall market cap due to the growth of renewable generation and general reduction in power demand driven by energy efficiency measures. Similarly, the proliferation of gas/renewables resulted in declining share of coal power generation which led to over $800 billion loss of market cap and triggered several bankruptcies. ESG themes also had some lateral impact on the machinery and industrials sectors. Companies with exposure to coal and energy efficiency theme were significantly impacted. Joy Global, which had huge exposure to coal sector, saw a sharp deterioration in fundamentals and significant reduction in market cap. Cummins on the other hand was a clear winner of the ESG theme during the last decade. Water sector has been by far the biggest beneficiary of ESG theme over the past 10 years. As we highlight in figure 24, water sector has outperformed the S&P over the past 5, 10 and 15 years. Outside of the water and select industrial companies, however the ESG impact on stocks has been generally mixed or negative. Sectors such as renewable power generation, smart grid, batteries and advanced biofuels required technological innovation (which several companies were not able to deliver) and significant price/profitability reduction to generate volume growth. Consequently, even though we saw strong industry volumes in sectors such as solar, LED, investor returns were relatively poor. Global themes during the ESG 1.0 era positively/negatively impacted sectors with $3.3 trillion of market cap in our view. Since most ESG thematic investors have a long-only bias, thematic ESG funds did not perform that well during the past 10 years.

Figure 14: ESG 1.0 impacted $3.3 trillion of market cap: What worked and what did not work?

Theme/sector affected	Peak market cap ($, billion)	Market cap change (billion)	Long/short	Did it work or not?	Select stocks affected	Comments
European utilities	1,500	700	Short	Yes	NGG, EDF-FR, EDP-PT	Growth of renewables negatively impacted traditional utility demand
Coal	1,200	700-800	Short	Yes	RIO, GLEN, VALE	Proliferation of gas/renewables resulted in declining share of coal power
Machinery/Industrials	300	200	Long/Short	Yes	CMI, JOY, CAT, JCI	Companies with exposure to coal and vehicle efficiency were impacted
Renewables	150	100	Long	No	FSLR, SPWR, RUN	Renewable power growth was offset by increased competition
Water	50	25	Long	Yes	AWK, XYL, AOS	Water stocks were positive impacted by robust fundamentals
LED	70	20	Long	No	AYI, VECO, CREE	LED price competition and declining margins offset positive volume story
Smart grid	10-15	5-10	Long	Somewhat	ITRI, ELON, ENOC	Smart meters penetration within utilities was slower than expected
Alternate/biofuels	10-15	10	Long	No	AMRS, KIOR	Second gen biofuels were not able to compete as oil prices declined
Batteries	15	3	Long	No	AONE, private cos	First gen low cost li-ion start-ups were not able to scale cost-effectively
Yieldcos	20	5	Long	Somewhat	CAFD, BEP, PEGI, TERP	Rising interest rates impacted growth although operating assets held value

Source: Deutsche Bank;

We expect the next decade to provide significant opportunities for thematic investors. First, the investment opportunities are driven by the transportation theme which has a significant greater potential compared to the power generation theme over the past decade. Second, we believe the level of innovation and technology penetration across multiple industries impacted by ESG themes will be significantly greater than the past 10 years. The high degree of innovation along with favorable policy and demographic trends create a very positive backdrop for ESG investors over the next 10 years, in our view. Within the autos sector, for example, stringent emission standards, technology innovation as well as on-demand mobility have the potential to create winners and losers. Similarly, electrification of the power train, ADAS as well as industrial automation have the potential to drive semi content growth/complexity significantly. Declining costs of li-ion batteries as well as improving energy density is creating an opportunity for companies in the li-ion sector. We also expect tremendous growth opportunities with the industrial automation/IOT sector, driven mainly by machine vision, connected factory and collaborative robots. For companies in the power infrastructure sector, we believe ageing infrastructure along with rising EV and renewable energy penetration are the main demand drivers. Similarly, we believe demographic trends are positively impacting the water and ag tech sectors. Finally, we expect increased consumer awareness on nutrition as well as fitness to drive significant growth opportunities within the consumer/nutrition sector.

Figure 15: ESG 2.0 could impact $11 trillion of market cap: What could work?

Theme/sector affected	Current market cap ($, billion)	Market cap change (billion)	Long/short	Has it work or not?	Select stocks affected	Comments
Auto and auto parts	1,800	1,000	Long/Short	Yes	TSLA, VOW	Stringent emission standards, tech innovation, on-demand mobility can create winners and loosers
Semiconductors	1,000	500	Long	Yes	NVDA, IFX.DE	Electrification of powertrain, ADAS, industrial automation can drive semi content/complexity substaintially
Spec Chem/Mining	1,260	500	Long	Yes	ALB	Improving energy density, declining prices is creating new opportunities
Industrials/IIoT	1,000	500	Long	Somewhat	ROK, CGNX	Machine vision, connected factory, collaborative robots are driving growth
Power Infrastructure	600	200	Long	Yes	PWR	Aging infrastructure, rising renewable,EV penetration are driving demand
U.S. Utilities	1,000	800	Long/Short	Somewhat	PCG	Regulation, increasing grid complexity with higher renewable and EV penetration will create winners and loosers
Integrated Oil & Gas	2,000	1,000	Short	Somewhat	XOM	Increased climate change, carbon asset and stranded asset risk
Machinery/Precision Ag	1000	100	Long	Not Yet	DE	Early days for precision ag to be a meaningful value driver
Water	130	100	Long	Yes	AOS, AWK, XYL	Aging infrastructure and scarcity will continue to drive demand for water
Healthcare/Medical Devi	400	100	Long	Not Yet	ABT, MDT, BDX	Aging population, extending management cycle of chronic health issues
Consumer/Nutrition/Fitn	500	100	Long	Somewhat	KR, NKE	Increased consumer awareness on nutrition and fitness drive opportunity

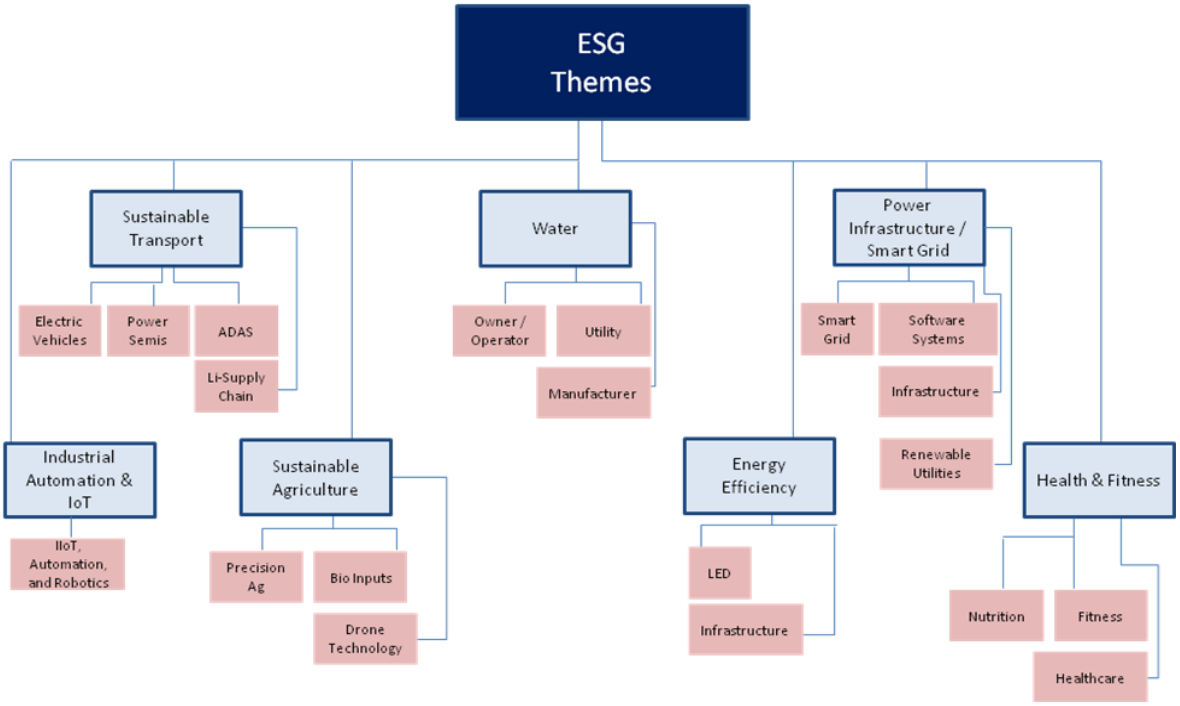
Source: Deutsche Bank

Our ESG Thematic Investing Approach

ESG 2.0: Significantly Large Universe for Thematic Investors

In the chart below we highlight sectors across 7 major global ESG themes. We note that our list of ESG themes and theme-exposed stocks is not comprehensive and we plan to continue to update this list on a regular basis. We will refer to the list as "ESG Thematic Universe" in this report.

Figure16: ESG Thematic Universe



Source: Deutsche Bank

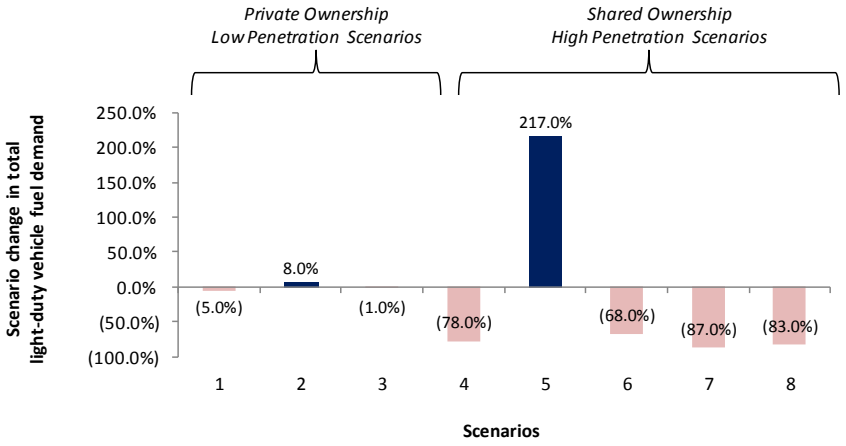
Each of the sub-themes has unique ESG characteristics. Our first theme – Industrial Automation and Internet of Things – should see significant growth opportunities. The Industrial IOT revolution is still in the early stages and potential benefits across multiple sectors are quite significant. In fact, according to GE, efficiency gains of as small as 1% could empower the world's oil & gas, power, healthcare, aviation and rail industries to achieve estimated benefits exceeding $250 billion over 15 years.

Sustainable Transportation Theme Influenced by EV and ADAS

The ESG impact of sustainable transportation theme is quite obvious. The electric power train is 4 times more energy efficient compared to the internal combustion engine and a 10-12% EV US new-car sales penetration has the potential of reducing US gasoline demand by ~3% or ~350,000 barrels per day. Social impacts of sustainable transportation are also very significant, in our view. Globally, 1.24 million people are killed in road crashes every year and up to 50 million are seriously injured. Low and middle income countries are most affected with 1-3% of GDP lost through road traffic crashes. Pedestrians and cyclists are often involved in these accidents. A McKinsey report estimated the overall annual cost of roadway crashes to the U.S. economy was $212 billion in 2012. Advanced Driving Assistant System (ADAS) and Autonomous Vehicles (AV) can reduce accidents by up to 90%. Taking the 2012 McKinsey estimate as an example, they have the potential to positively impact millions of lives and save $190 billion per annum in the U.S. alone. DB Auto Research Team's analysis suggests that up to 8.2% of U.S. households (up to 61% of those living in dense urban cities) will find on-demand autonomous vehicles to be cheaper and potentially more convenient than privately owned cars.

Self driving cars stand to have meaningful ESG impacts. First, according to a study done by the DOE, AVs have the potential to reduce energy consumption in transportation by as much as 90% or by more than 200% depending on whether policies enable shared vehicles or whether vehicle use increases. The biggest potential downside is that automation could significantly increase the number of miles traveled by vehicles as AVs would likely encourage car owners to make extra trips. Commuters would likely not mind staying a few extra miles away from work as the commute would likely be a lot more productive. AVs can also safely drive faster than human driven cars which in turn could reduce fuel economy. On the positive note however, vehicle automation would enable car companies to reduce the safety equipment that increase the weight of the car and reduce fuel economy. AVs should be able to drive emissions down as computers have a much faster and smoother response to the instructions such as accelerate/brake.

Figure 17: Total Scenario Impact

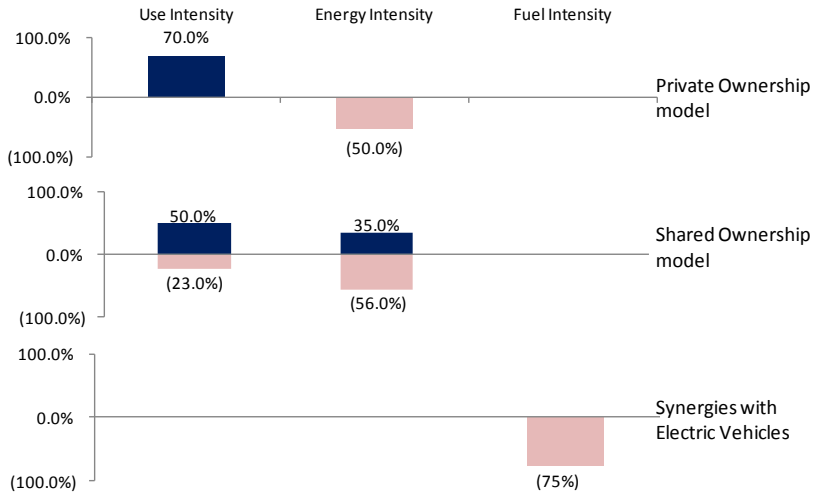


Scenario Number	Name	Active Effects
1	Private Ownership, Fuel Savings Only	a, b, c
2	Private Ownership, Fuel Use Increase Only	d
3	Private Ownership, Combined Effects	a, b, c, d
4	Shared Vehicles, Fuel Savings Only	(Scenario 1) + e, h, I, j
5	All Identified Potential Fuel Use Increases	(Scenario 2) + f, g
6	Vehicle Electrification	k
7	All Identified Potential Fuel Savings	(Scenario 4) + (Scenario 6)
8	All Effects	All

Active Effects	Definitions
a	Platooning
b	Efficient driving
c	Efficient routing
d	Travel by underserved populations
e	Further efficient driving
f	Faster travel
g	More travel
h	Lighter vehicles
i	Less time looking for parking
j	Higher occupancy
k	Electrification

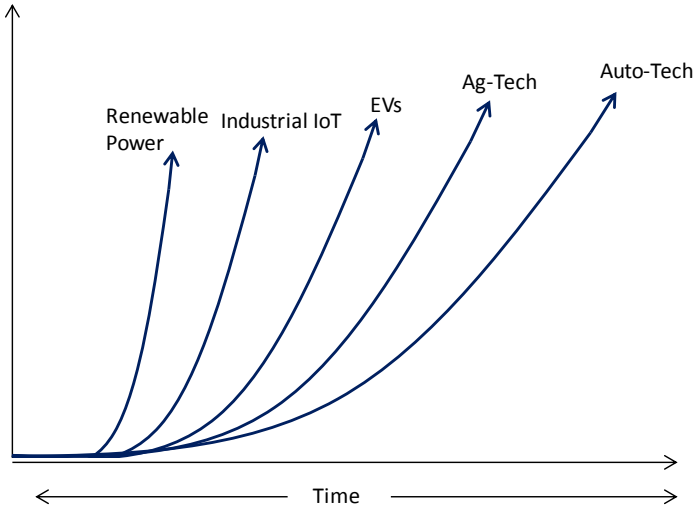
Source: Deutsche Bank

Figure 18: Fuel Use Impact Ranges (per vehicle) vs. Current State



Source: Deutsche Bank

Figure 19: Thematic Inflection Point



Source: Deutsche Bank

The next important theme in our view is sustainable agriculture. Feeding people in the future without putting strain on the soils and oceans is one of the biggest sustainability questions facing the world today. Between now and 2050 the global population is likely to rise from 7.3 billion to 9.7 billion and at the same time, the middle class is expected to double by 2030. In order to meet the demand for food, fuel and fiber from a growing and increasingly affluent population, global crop production would need to double over the next 35 years. If agriculture is to continue to feed the world, it needs to become more like manufacturing and farms would need to become more like factories – sustainable ag solutions are expected to be the main driver of this transition, which we expect to occur over the next 20 years. Ag is also a large emitter of greenhouse gases – emissions have increased by 75% since 1990 and ag sector now accounts for ~30% of GHG emissions. Sustainable Agriculture is the key pathway to meet the dual imperative of increasing food demand by 30-80% and reducing GHG emissions by 50-80% by 2050.

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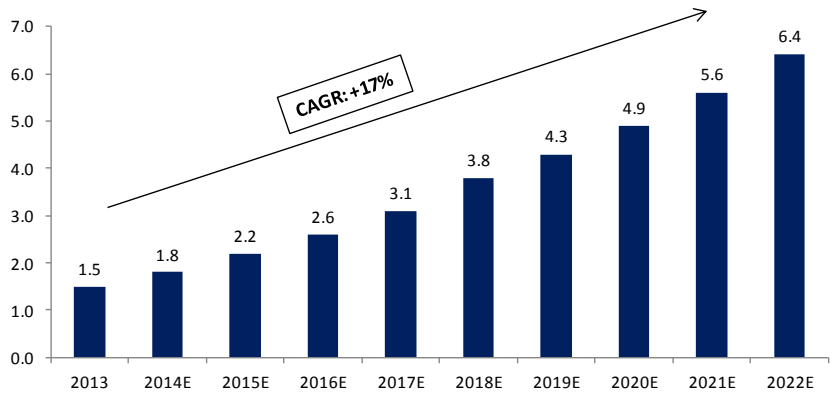
Figure 20: The US Precision Agriculture market is set to grow ($B)



Source: RobecoSAM estimates, Trimble Navigation, DB estimates

Water Should Continue to Dominate Thematic ESG Investing

Water as a sustainability theme has been around for some time now and in fact, investor returns in this sector have also been very impressive. The World Economic Forum's Global Risks 2015 ranked "water crises" as the world's top impact risk. Supply is already scarce and becoming scarcer. More than 10% of the world population still lacks access to drinking water sources and 2.5 billion people lack access to appropriate sanitation sources. By 2030, the global population is estimated to reach 9 billion and the world will require 30 to 45% more water than it does today. A significant percentage of the world's water is used in business and agricultural supply chains—making water a central component of all economic activity. Without an adequate water supply, sustainable growth is not possible. With 85% of the world's population living in the driest half of the planet and up to 8 million people dying from the consequences of water-related disasters and diseases each year, closing the gap between water supply and demand has never been so urgent. Agriculture already accounts for, on average, 70% of total water consumption and, according to the World Bank, food production will need to increase by 50% by 2030 as the population grows and dietary habits change. The International Energy Agency further projects water consumption to meet the needs of energy generation and production to increase by 85% by 2035.

More than 10% of the world population still lacks access to drinking water sources and 2.5 billion people lack access to appropriate sanitation sources. By 2030, the global population is estimated to reach 9 billion and the world will require 30 to 45% more water than it does today.

Figure 21: Expected Sub-Sector CAGRs

Overview of selected areas	Expected annual growth CAGR 2014-2018
Pumps	6.6%
Valves / fittings	6.9%
Screening / grit removal	5.6%
Agitation / mixing / settling	6.1%
Aeration	6.9%
Non membrane filtration	6.4%
Disinfection systems	6.1%
Chemical feed systems	6.4%
Ion exchange	7.9%
Sludge thickening / dewatering	6.0%
Anaerobic digestion	10.2%
Sludge drying / thermal processes / other sludge stabilization	6.2%
Microfiltration / ultra filtration	13.6%
Reverse osmosis / nano filtration	15.1%
Desalination	12.0%
Micro-irrigation	10.0%

Source: RobecoSAM

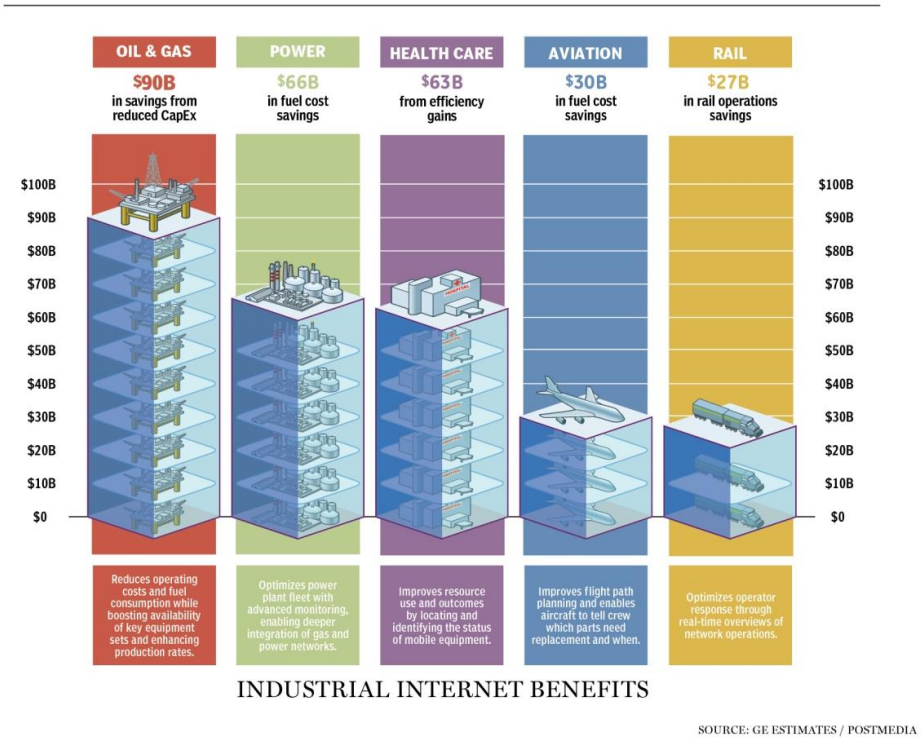
Energy efficiency as a sustainable theme also has a lot of potential. In non-residential buildings, a 37% improvement was achieved globally in energy consumption per square meter during the period 2000-15. In residential

buildings, energy efficiency improvements of 26% were made, primarily in space heating, cooking and water heating. Still, several factors put upward pressure on energy use, including population growth, increase in the size of dwellings and a reduction in the number of occupants per home, often associated with rising income.

Despite the common anxiety over human jobs lost to machines, we believe automation offers significant positive social impact with dramatically improved output, more affordable goods and services, and more jobs. ARK Research estimates that by 2035, automation and robotics can generate over $12 trillion real GDP in the U.S. alone – more than double per worker.

By 2035, automation and robotics can generate over $12 trillion real GDP in the U.S. alone – more than double per worker.

Figure 22: Industrial Internet Benefits - The Power of 1%



Source: GE Estimates / POSTMEDIA

The electricity sector is on the verge of a structural revolution that will put information technology at its center and this creates significant opportunities for sustainable investors. With a focus on entering Solar 3.0, which incorporates intermittent resources + storage, power infrastructure and smart grid players will find their importance increasing. Electric vehicles have the highest impact of becoming the preeminent disruptive force for the electric grid. When millions of cars are connected to the grid (parked) 70% of the time, they represent a massive battery capacity that can be used for grid services such as "spinning reserves", solar and wind integration, and peak shaving. Although Tesla has been a first mover with both electric cars and battery storage, many technologies will be needed to move the market, with many opportunities for winners.

Public health investment is a critical need in the developing world. Nearly 15 million people die each year from infectious diseases and nutritional deficiencies. Interventions such as innovative diagnostics, vaccines, and treatments could save and improve millions of lives every year. In the developed countries, healthcare systems are coming under intense pressure faced with aging populations and a sharp increase in chronic diseases. Preventive healthcare, early diagnosis and targeted treatments offer sustainable solutions to this challenge. Digital tech innovations in healthcare and fitness that empower consumers can reduce costs and improve outcomes to change people's lives for the better.

Nearly 15 million people die each year from infectious diseases and nutritional deficiencies.

ESG 2.0 Thematic Investing: The Investment Case

We believe we are still in the early innings for most of these themes and in particular, some of these themes could be at an inflection point.

Cumulative investments in automation and robotics are estimated to reach $4 trillion by 2035

Cumulative investments in automation and robotics are estimated to reach $4 trillion by 2035 according to several industry sources. Moreover, deep learning combined with computer vision is enabling a new generation of nimbler robots to learn new tasks on the job and work safely alongside humans, which can drive global robotic volume by ten-fold. Worldwide IoT spending is also expected to reach $1.29 trillion in 2020, representing a 2015-2020E CAGR of more than 15% driven by continued investments on connectivity, hardware, software, and services according to IDC. The enormous potential for efficiency gains, as well as energy and material savings is attracting billion-dollar investments into the space. With the use of net-worked machines, data-collecting sensors, cloud platforms, and machine learning software, dramatic improvements can be gained in manufacturing, logistics, mining, oil, utilities and agriculture processes. Eyeing the opportunity, large industrial tech companies such as GE, IBM, Intel and Cisco have not only invested heavily in internal R&D, but also startups through corporate venture arms.

EV sales can reach 16 million units and the autonomous car global market is estimated to reach $42 billion by 2025

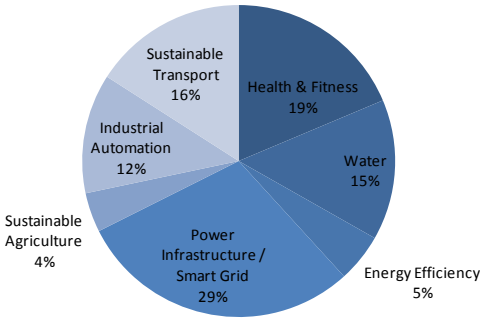
Within the sustainable transportation sector, Electric Vehicle (EV) adoption is accelerating with declining cost and improving performance. According to our autos research team, global EV sales can reach 16 million units by 2025. However this only represents less than 5% of the installed base – indicating an even bigger growth runway. Separately, the autonomous car global market is estimated to reach $42 billion by 2025, according to Boston Consulting Group. Our auto research team believes that Automation will represent a $120bn+ opportunity for suppliers of vehicle software and electronics by 2030. Increased utilization (i.e. up to 70,000 miles per year for an Autonomous On-Demand Vehicle and up to 28,000 miles per year for a Privately Owned Autonomous Vehicle) should have other knock on effects, such as improving the economics of advanced power train technologies (i.e. electrification).

Average semiconductor content per car can increase to $1000 from ~$350 today

Not only will the ADAS and EV market growth impact autos, but also the semiconductor industry. The moves to Advanced Driver Assistance Systems (ADAS) and long-term autonomous driving will substantially increase the amount of semiconductor content per car over the coming years. Current average semiconductor content per car is ~$350 according to industry sources and Deutsche Bank estimates, and we see an expansion by up to $600 ($400 from semi-autonomous or Level 3 automation) as the auto industry adopts high-end ADAS and increasingly autonomous features over time. Fully autonomous driving requires an even higher content of up to $1000 in the long-term, in our auto and semi analysts' view. Finally, the EV sector will also have an impact on lithium/mining companies. Global lithium demand was 184kt in 2015, based on DB analysis, global lithium demand can increase to 534kt by 2025, with batteries accounting for 45% compared to 14% in 2015.

The stationary energy storage market is roughly a 1GW, or $4 billion, market today and we expect it to increase to over 40GW or $25 billion by 2022. Global battery consumption was 70GWh in 2015 with 35% of demand from EVs and less than 5% from the energy storage sector. However, due to a number of positive policy shifts as well as the emergence of new applications, we believe the energy storage market could grow to ~80GWh by 2025 in a reasonably constructive scenario or at least 50GWh in a more conservative scenario.

Figure 23: Estimated Current Market Cap Mix



Source: Deutsche Bank

Sustainable Ag: When Silicon Valley Meets Central Valley

The smart ag market is estimated to grow at a 14% CAGR between 2016 and 2022 and reach ~$18.5B by 2022

Sustainable Ag presents significant growth opportunities. Agricultural production has increased significantly in the recent years, and aggregate agricultural consumption is estimated to increase by 70% from 2010 to 2050. Since most land suitable for farming is already farmed, this growth must come from higher yields. However, the yields of important crops such as rice and wheat have stopped rising in several parts of the world and improving yields in future would require technological advances such as precision farming and genomics. A recent MarketsandMarkets report suggests that the smart ag market should grow at a 14% CAGR between 2016 and 2022 and reach ~$18.5B by 2022. Connected technologies such as cloud computing, wireless sensor networks, and solutions that help in enhancing the production and yield are becoming an integral part of the ag sector and have helped reduce farming costs. The biomaterials segment, where fertilizers, pesticides and other ag inputs are made through biological means as opposed to more traditional chemistry, was responsible for some of AgTech's first venture capital exits (Bayer acquired AgraQuest for $425 million and BASF acquired Becker Underwood for $1 billion). Momentum in this sector has been slow as biological products have not delivered on the high industry expectations. We do not expect bio-pesticides and bio-fertilizers to completely replace their chemical counterparts. However, we expect these products to reduce the amount of chemicals needed and thereby reduce costs.

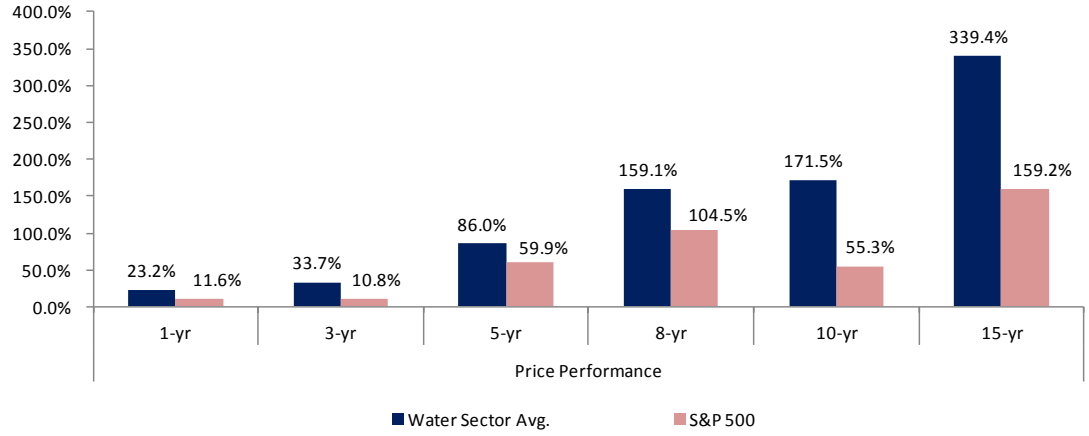
Drone market can reach $3.7B in the next 5 years and 80% will be used in some form of agricultural applications

The field of robotics is developing rapidly and the control systems needed to run such machines are getting better and cheaper by the day. Drones are a part of this and are seen as having huge potential to help farmers monitor their fields, make timely decisions to avoid yield losses, and even help with applying inputs onto the land. Many farmers were quick to purchase drones, but few have found them more than a nice-to-have. The challenges include: limited battery life, inability to analyze the imagery data in real-time to provide real decision-making benefits, time-consuming and labor-intensive to launch and fly under regulations, and lack of clear customer base. There is significant innovation in this space to bring better sensors, analysis, and flight tools. The impact of drone technology on ag sector is a question of when and not if. In 2015, investment in drones and robotics startups totaled $389 million across 42 deals, representing a 237% increase on 2014 figures. Recently, RnR Market Research estimated the drone market to reach $3.7B in the next 5 years, and DroneDeploy, a cloud-based software company, broke news that agriculture is the largest commercial sector across its 2 million acres of worldwide coverage. Further supporting this notion is the prediction by The Association for Unmanned Vehicle Systems International that 80% of the $3.7B drone market will be used in some form of agricultural application. Since the Federal Aviation Authority modestly deregulated restrictions on commercial drone operation, the sector has taken off.

Water tech remains another significant growth opportunity. While manufacturers will continue to focus on the more infrastructural aspect of the

water value chain, we believe filtration should offer significant opportunities for investors.

Figure 24: Water Sector Performance



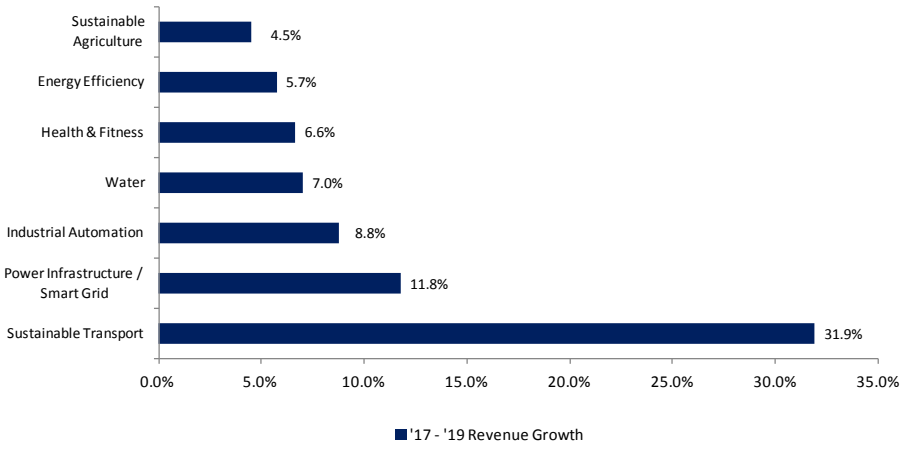
Source: Deutsche Bank, Factset; Stocks included are AEGN, AOS, AWK, ECL, ERII, IEX, LNN, MSEX, PNR, WTR, XYL, YORW

Finally, the health and wellness sector is something a lot of ESG investors have not focused on until now, but could start to become an important part of overall portfolio mix. Healthcare and wellness is a long-term investable theme globally and include investments that include developed and developing market opportunities. The World Health Organization estimated global expenditures for health totaled $6.5 trillion in 2010 and we estimate that global spending today is likely in the range of $7.5-$8.0 trillion. While most of the healthcare spending in dollars today are within developed countries, the greatest growth is coming from developing economies. In the developed countries, healthcare systems are implementing cost containment efforts as the aging populations are putting strain on the system. Conversely, in developing economies, governments are looking to boost healthcare spending and the growing middle class is increasing the demand for such. While sportswear accounted for ~16% of global apparel & footwear in 2014, we expect the share to grow driven by global middle class emergence, government and corporate promotion of sports, and athletic preference shift. The total market size outside of North America can increase 4x to 5x through 2030.

The sportswear market size outside of North America can increase 4x to 5x through 2030.

End markets exposed to each of the 7 global themes are expected to have a longer term industry growth of at least 10-20%, in our view.

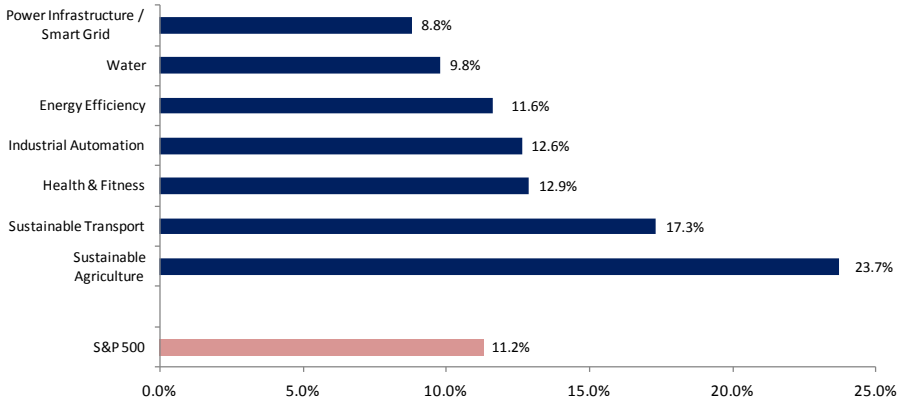
Figure 25: ESG Thematic Universe: 2017E-2019E Revenue CAGR by Theme



Source: Deutsche Bank, Factset; Full list of stocks included in each Theme are found at the end of Theme Sections

Companies under our ESG thematic universe have on average stronger earnings growth relative to the S&P. For example the ESG thematic universe of 70 stocks has 15% and 16% earnings growth in 2017 and 2018 compared to S&P earnings growth of 11% and 12% respectively.

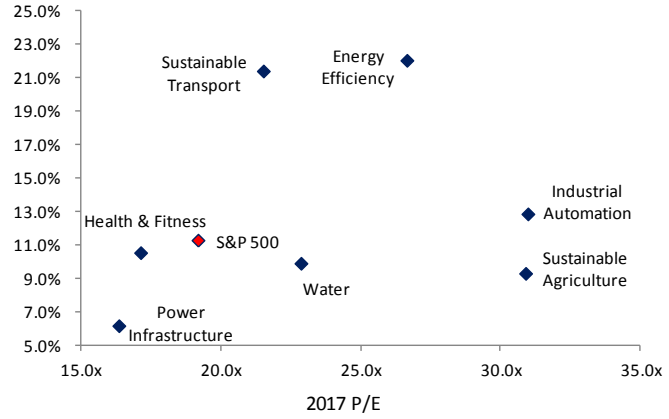
Figure 26: ESG Thematic Universe: 2017E-2019E Earnings Growth by Theme



Source: Deutsche Bank, Factset; Full list of stocks included in each Theme are found at the end of Theme Sections

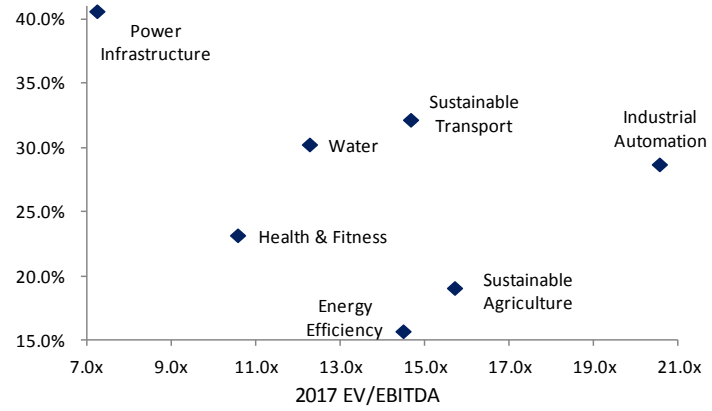
Relative to valuation and investor expectations, Water, Sustainable Transport and Energy Efficiency themes offer the most upside followed by Industrial Automation, Power Infrastructure / Smart Grid, Sustainable Agriculture and Health & Wellness themes. Stocks in the Water theme are trading at 1.4x relative to the market multiple compared to historical average range of 1.4x-1.6x. Similarly, stocks in the Sustainable Transport theme in 2014 were trading at 20x the S&P 500, and now trade at 1.5x. Energy Efficiency has historically traded at a premium of 30% to the S&P 500, but is now trading at a 10% discount.

Figure 27: 2017E P/E vs. '17E-'19E EPS Growth CAGR



Source: Deutsche Bank, Factset; For stocks included see Figure 34

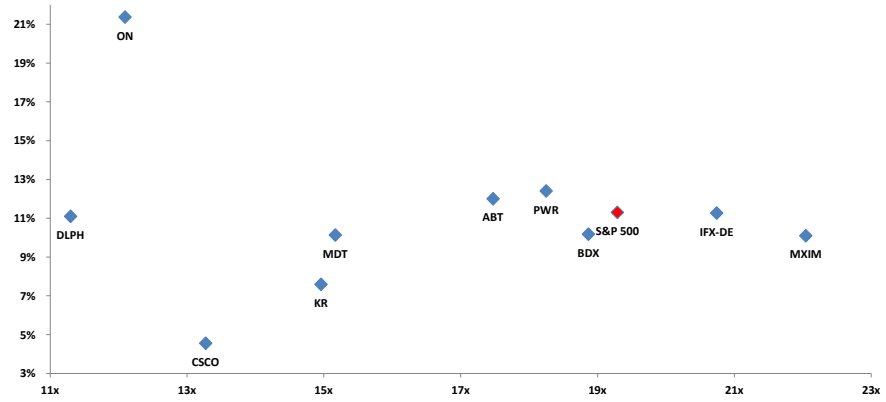
Figure 28: 2017E EV/EBITDA vs. 2017E-2018E Avg. EBITDA Margin



Source: Deutsche Bank, Factset; For stocks included see Figure 34

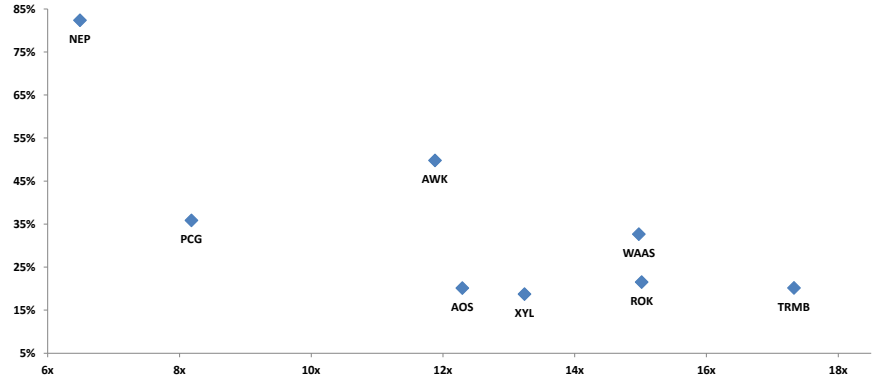
Our universe of 70 ESG theme-exposed stocks has generally outperformed the S&P index over the past 1, 3 and 5 year timeframe. Certain themes such as water, sustainable transportation and industrial automation stand out. These stocks have significantly outperformed during the above timeframe relatively to the broader indices.

Figure 29: 2017E P/E vs. '17E-'19E EPS Growth CAGR



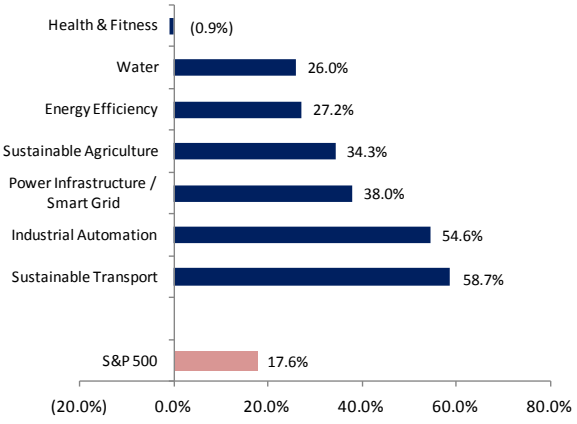
Source: Deutsche Bank, Factset;

Figure 30: 2017E EV/EBITDA vs. 2017E-2018E Avg. EBITDA Margin



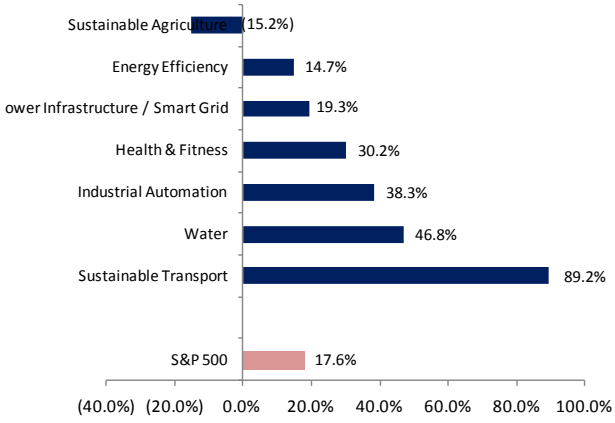
Source: Deutsche Bank, Factset;

Figure 31: 1-Yr Price Performance



Source: Deutsche Bank, Factset; Full list of stocks included in each Theme are found at the end of Theme Section

Figure 32: 3-Yr Price Performance



Source: Deutsche Bank, Factset; Full list of stocks included in each Theme are found at the end of Theme Section

Figure 33: ESG Theme Executive Summary

ESG Theme / Sub-Themes	Industry Growth Drivers	ESG Impact
Sustainable Transport		
— EVs — Power Semis — ADAS — Li-Supply Chain	— According to DB Research, by 2025, global EV sales can reach 16 million units. However this only represents less than 5% of the installed base – indicating an even bigger growth runway. ~700K units were sold in 2014, implying a ***'14-'25 CAGR of ~33%*** — Current average semiconductor content per car is ~$350 according to industry sources and Deutsche Bank estimates, and we see an expansion by up to $600 due to ADAS adoption, representing a ***6% '15-'30 CAGR*** — We expect to see global lithium demand ***growth of 11% CAGR from '15-'25***	**High**
Industrial Automation & IoT		
— IIoT, Automation & Robotics	— Industrial Automation: ***'15-'20 CAGR ~ 16%***	**High**
Power Infrastructure / Smart Grid		
— Smart Grid — Software Systems — Infrastructure — Renewable Utilities	— Stationary energy storage market is roughly 1GW or $4 billion market today and is estimated to increase to over 40GW or $25 billion by 2022, a ***CAGR of 44% from '17-'22*** — Global battery consumption was 70GWh in 2015 with 35% of demand from EVs and less than 5% from the energy storage sector. However, due to a number of positive policy shifts as well as emergence of new applications, the energy storage market could grow to ~80GWh by 2025 in the reasonably constructive scenario or at least 50GWh in a more conservative scenario	**High**
Water		
— Owner / Operator — Utility — Manufacturer	— By 2030, the global population is estimated to reach 9 billion and the world will require 30 to 45% more water than it does today — Expected ***'14-'18 CAGR's for Desalination, Water Pumps, Utilities and Disinfection Systems are 12%, 7%, 4.5% and 6% respectively***	**High**
Energy Efficiency		
— LED — Infrastructure	— China is the largest market, between 2006 and 2014, where investment in energy efficiency in totaled $370 billion — However, global investment of $221 billion in 2015 is less than 14% of the $1.6 trillion spent globally on energy supply investments — ***LED Industry CAGR of 15-20% 2017-2022***	**High**
Sustainable Agriculture		
— Precision Ag — Bio Inputs — Drone Technology	— Agricultural production has increased significantly in the recent years, and aggregate agricultural consumption is estimated to increase by 70% from 2010 to 2050 — The Smart Ag market is estimated to grow at a ***14% CAGR between 2016 and 2022*** and reach ~$18.5B by 2022 , while US Precision Ag is estimated to grow at a ***17% CAGR through 2023 – 2021, and Drone Tech at***	**Medium**
Health & Fitness		
— Nutrition — Fitness — Healthcare	— In 2013, the Vitamins, Minerals and Supplements sub-market saw $32B in revenue, and is expected to be $60B in 2021, a ***CAGR of 9%*** — While sportswear accounted for 15.4% of global apparel & footwear in 2014, DB expects the share to grow driven by global middle class emergence, government and corporate promotion of sports, and athletic preference shift. The total market size outside of North America can ***increase 4x to 5x through 2030***	**Low**

Source: Deutsche Bank

Figure 34: Select Stocks with ESG Thematic Exposure

	Company	Rating	Analyst	Price Target	Implied Upside / (Downside)	Price	Market Cap (USD M)	Hist. P / E 2015	Hist. P / E 2016	Hist. EV / EBITDA 2015	Hist. EV / EBITDA 2016	2017E P / E	2017E EV / EBITDA	Price Performance 1yr	Price Performance 3yr	Price Performance 5yr	ESG Exposure
	S&P 500					$2,281		17.5x	18.8x					18%	27%	74%	
	Industrial Automation																
1	Rockwell Automation*	Buy	John G. Inch	$173.0	14%	$151.5	$19,476	23.8x	25.7x	13.7x	15.7x	24.1x	14.6x	59%	35%	89%	High
2	Cognex*	Buy	Karen Lau	$74.0	10%	$67.1	$5,744	31.6x	43.4x	40.4x	33.2x	38.1x	26.7x	108%	74%	223%	High
	Sustainable Transport																
3	Mobileye*	Buy	Rod Lache	$72.0	66%	$43.5	$9,534	89.5x	60.2x	72.0x	49.1x	41.6x	33.0x	60%	NA	NA	High
4	Delphi Automotive*	Buy	Rod Lache	$88.0	26%	$69.7	$18,878	13.4x	11.5x	9.0x	7.7x	10.8x	7.6x	7%	14%	157%	High
5	Infineon Technologies*	Buy	Johannes Schaller	€ 21.00	23%	€ 17.05	$20,668	30.3x	23.2x	13.4x	11.2x	20.9x	10.8x	39%	122%	147%	Medium
6	Maxim Integrated*	Buy	Ross Seymore	$50.0	11%	$45.0	$12,750	29.3x	27.3x	14.0x	13.7x	22.2x	13.2x	35%	49%	66%	Low
7	ON Semiconductor*	Buy	Ross Seymore	$20.0	45%	$13.8	$5,733	16.0x	15.7x	8.7x	11.4x	11.9x	8.8x	61%	61%	56%	Medium
8	Syrah Resources*	Buy	Mathew Hocking	$6.3	92%	$3.3	$654	NA	NA	NA	NA	NA	NA	(14%)	30%	949%	High
9	Orocobre*	Buy	Mathew Hocking	$4.5	17%	$3.8	$620	NA	NA	NA	NA	30.8x	NA	54%	73%	101%	High
	Sustainable Agriculture																
10	Trimble Navigation*	NA	NA	NA	NA	$29.3	$7,352	26.1x	25.2x	19.4x	19.1x	21.8x	15.7x	52%	(11%)	26%	High
11	Raven Industries*	NA	NA	NA	NA	$24.7	$891	62.1x	57.8x	NA	NA	40.0x	NA	64%	(35%)	(24%)	High
	Water																
12	AquaVenture*	Buy	Vish Shah	$27.0	36%	$19.9	$507	NA	NA	NA	17.8x	NA	14.7x	NA	NA	NA	High
13	Xylem*	NA	NA	NA	NA	$49.5	$8,880	26.6x	24.3x	15.6x	15.8x	21.4x	11.6x	38%	48%	91%	High
14	A.O. Smith*	NA	NA	NA	NA	$48.5	$7,156	30.9x	26.6x	17.5x	15.6x	23.5x	11.5x	39%	103%	356%	High
15	American Water Works*	NA	NA	NA	NA	$73.2	$13,033	27.6x	25.6x	12.8x	12.4x	24.1x	11.4x	13%	68%	116%	High
	Energy Efficiency																
16	Acuity Brands*	Buy	Vish Shah	$280.0	37%	$204.9	$9,032	38.4x	26.4x	20.1x	15.9x	23.3x	13.3x	12%	61%	248%	High
17	Veeco Instruments*	Buy	Vish Shah	$32.0	21%	$26.4	$1,070	47.6x	NA	17.3x	99.7x	29.9x	15.7x	50%	(30%)	9%	High
	Power Infrastructure / Smart Grid																
18	Quanta Services*	Buy	Chad Dillard	$42.0	15%	$36.6	$5,292	32.3x	23.4x	10.7x	10.1x	18.1x	8.5x	109%	18%	68%	High
19	Cisco Systems*	Buy	Vijay Bhagavath	$37.0	20%	$30.8	$154,759	13.9x	13.0x	7.3x	6.9x	13.0x	7.0x	30%	40%	58%	Low
20	PG&E Corp*	Buy	Jonathan Arnold	$67.0	11%	$60.6	$30,708	19.8x	16.7x	9.5x	8.3x	16.5x	7.5x	10%	44%	50%	High
21	NextEra Energy Partners*	Buy	Jonathan Arnold	$33.0	6%	$31.0	$1,684	68.4x	15.4x	20.2x	13.2x	17.7x	5.9x	15%	NA	NA	High
	Health & Fitness																
22	Abbott Laboratories*	Buy	Kristen Stewart	$49.0	19%	$41.0	$70,583	19.3x	18.9x	14.7x	13.1x	16.9x	NA	8%	12%	57%	Medium
23	Medtronic*	Buy	Kristen Stewart	$96.0	29%	$74.7	$102,525	17.3x	16.5x	13.1x	13.5x	14.9x	12.2x	(2%)	31%	92%	High
24	Becton Dickinson*	Buy	Kristen Stewart	$197.0	13%	$174.8	$37,277	24.7x	20.6x	17.4x	13.9x	18.5x	12.0x	20%	62%	121%	Medium
25	Kroger*	Buy	Shane Higgins	$39.0	16%	$33.6	$31,521	16.4x	16.1x	7.7x	7.6x	15.0x	7.1x	(13%)	85%	179%	High

Source: Deutsche Bank; FactSet consensus, the list of stocks above does not represent our top picks and is not comprehensive

ESG Themes

Theme 1: Sustainable Transportation

Overview and Impact Potential

Advancements in battery technology, the computational power of semiconductors, new artificial intelligence development tools, improvements to sensor technologies, innovations in 3D road mapping, wide dissemination of GPS equipped smart phones, new tools for efficient deployment/dispatching of vehicles, changing consumer preferences, and (in many cases) government support are converging to set the stage for dramatic changes for the Auto Industry. Meanwhile, airlines are incentivized economically to reduce fuel costs and sustainable alternative fuels are being adopted. We believe significant positive environmental and social impact can be realized in the next decade.

Environmental Impact

1. Fuel and Energy Efficiency

The electric power train is 4 times more efficient than an internal combustion engine (ICE). The ICE generally runs at about 20% efficiency - 80% of the energy content of the fuel is wasted in heat loss and mechanical friction. EVs on the other hand, run about 80% efficient.

2. Pollutant and GHG Emissions Reduction

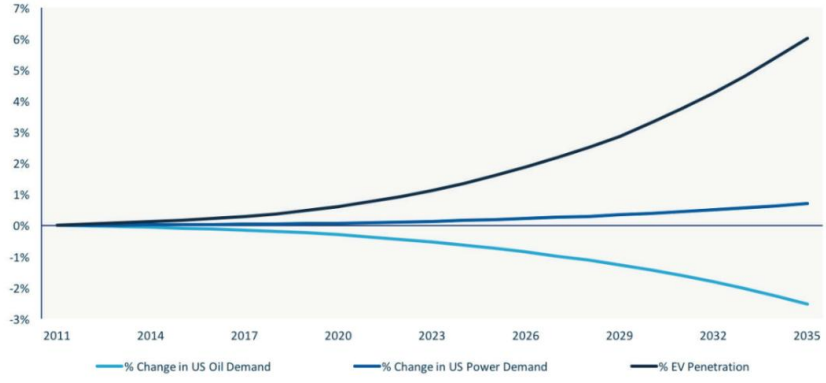
EVs have no tail pipe and emit no polluting gasses when driven. CO2 emissions of EV are dependent on the electricity source. The aviation industry has established a plan for reducing emissions. Sustainable aviation fuels are an important part of that plan and, as you will have seen in this publication, the industry and its partners have made significant progress. There is confidence that alternative fuels can be a very significant part of every airline's future.

Social Impact

1. Oil Dependency Reduction

A Wood Mackenzie report estimated by 2035, EV can account for 12% of new-car sales in the U.S. (or ~16 million vehicles per annum), gasoline demand would be reduced by 350,000 barrels per day.

Figure 35: Sector Demand Impacts of EV Adoption (Base Case)



Source: Wood Mackenzie

2. Dramatically Enhance Road Safety

Globally, 1.24 million people are killed in road crashes every year and up to 50 million are seriously injured. Low and middle income countries are most affected with 1-3% of GDP lost through road traffic crashes. Pedestrians and cyclists are often involved in these accidents. A McKinsey report estimated the

overall annual cost of roadway crashes to the U.S. economy was $212 billion in 2012. Advanced Driving Assistant System (ADAS) and Autonomous Vehicles (AV) can reduce accidents by up to 90%. Taking the 2012 McKinsey estimate as an example, they have the potential to positively impact millions of lives and save $190 billion per annum in the U.S. alone.

3. Free up Parking Spaces and Improve Cityscapes

AVs could change the mobility behavior of consumers, potentially reducing the need for parking space in the United States by more than 5.7 billion square meters. Multiple factors would contribute to the reduction in parking infrastructure. For example, self-parking AVs do not require open-door space for dropping off passengers when parked, allowing them to occupy parking spaces that are 15 percent tighter. Imagine acres of parking decks converted to parks.

4. Promote Affordability and Access

DB Auto Research Team's analysis suggests that in the U.S. alone, up to 8.2% of households (up to 61% of those living in dense urban cities) will find on-demand autonomous vehicles to be cheaper and potentially more convenient than privately owned cars.

Market Opportunity

Electric Vehicle (EV) adoption is accelerating with declining cost and improving performance. According to DB Research, by 2025, global EV sales can reach 16 million units. However this only represents less than 5% of the installed base – indicating an even bigger growth runway.

The autonomous car global market can reach $42 billion by 2025, according to Boston Consulting Group. DB analysts believe that Automation will represent a $120bn+ opportunity for suppliers of vehicle software and electronics by 2030. Increased utilization (i.e. up to 70,000 miles per year for an Autonomous On-Demand Vehicle and up to 28,000 miles per year for a Privately Owned Autonomous Vehicle) should have other knock on effects, such as improving to the economics of advanced powertrain technologies (i.e. electrification)

The moves to Advanced Driver Assistance Systems (ADAS) and long-term autonomous driving will substantially increase the amount of semiconductor content per car over the coming years. Current average semiconductor content per car is ~$350 according to industry sources and Deutsche Bank estimates, and we see an expansion by up to $600 ($400 from semi-autonomous or Level 3 automation, as shown in Figure below) as the auto industry adopts high-end ADAS and increasingly autonomous features over time. Fully autonomous driving requires an even higher content of up to $1000 in the long-term, in our view.

Excerpts from DB Research FITT Report: Pricing the Car of Tomorrow Part II, 28 March 2016

Global lithium demand was 184kt in 2015, based on DB analysis, global lithium demand can increase to 534kt by 2025, with batteries accounting for 45% compared to 14% in 2015.

Excerpts from DB Research FITT Report: Welcome to the Lithium-ion Age, 9 May 2016

Challenges and Laggards

Shipping is a fast-growing source of greenhouse gases, projected to account for 17% of global emissions by 2050, however, the industry has long been omitted from international agreements on climate change. For a while, companies and ship-owners have categorized fuel consumption data as a competitive resource, blocking it from public access. What is even more damaging is that shipping fuel tends to be heavier, and thicker than aircraft fuel, which yields higher GHG content. As mentioned earlier, airlines have economic incentive to use lighter fuel which can include biofuels born from

plants, something JetBlue has made progress in this past year. We expect that the condemnation and swift current against GHG emission, and pro ESG investment theses should result in a headwind for select companies that are already cost squeezed. If the heavier, thicker, and of course cheaper fuel comes under fire, then these companies will need to adapt accordingly.

EV/ADAS Supply Chain

Mobileye (MBLY, Buy – Price Target $72, DB Analyst: Rod Lache)

- Market Cap: $9.52B
- Theme Exposure: Mobileye has emerged as the market leader in the development of complex algorithms and proprietary chip designs used to interpret the visual world; a capability that is playing a critical role in the burgeoning market for "Active Safety" features such as Autonomous Emergency Braking and Lane Departure Warning.
- Investment Thesis: We continue to believe that the advent of Advanced Driver Assistance Systems (ADAS) represents one of the most compelling growth themes in the Global Auto Industry. And we continue to believe that Mobileye's IP offers leading functionality, accuracy, and cost, which positions them to sustainably lead this market. And we see significant upside for MBLY shares following the recent pullback.

Delphi Automotive (DLPH, Buy – Price Target $88, DB Analyst: Rod Lache)

- Market Cap:19.6B
- Theme Exposure: Delphi's Active Safety business accounted for ~$350 MM of the company's $3.05 bn Electronics and Safety division (~20% of Delphi's revenue) in 2016. Within this business, the company provides technology and expertise in radar, lidar, vision (through a partnership with Mobileye), sensor fusion, and system integration. Major Automakers that appear to have preference for Delphi's Active Safety technologies include Ford, Renault, Audi, and Volvo. Based on contract awards, Delphi believes that they will be the second largest player, with ~15% market share in the Active Safety market by 2017.
- Investment Thesis: We believe that DLPH's organic growth performance likely needs to accelerate further in order to achieve the multiple re-rating that we believe the company deserves. We are nonetheless confident that this is going to occur. And we note that DLPH investors should benefit from strong growth (12-13% EBIT CAGR and use of the company's 5-6% free cash flow yield) even if the multiple does not achieve its deserved levels.

Orocobre (ORE.AX, Buy – Price Target AUD 4.5, DB Analyst: Mathew Hocking)

- Market Cap: USD 620 million
- Theme Exposure: EV Battery Supply Chain Exposure with Lithium
- Investment Thesis: Orocobre (ORE) is an ASX- and TSX-listed mining company with mineral assets in Argentina. ORE has a 66.5% equity interest in the Olaroz lithium project. The operation should achieve 17.5ktpa nameplate capacity by the end of 2016 in our view. We model a 25-year mine life, but note that this only exploits c.10-15% of the known resource at Olaroz. Further plant expansions are anticipated, with a 17.5ktpa Phase II expansion currently in study-stage; based on our global lithium supply and demand analysis, we include an expansion in our numbers. ORE also operates the Borax Argentina business which produces c.40ktpa of boron-based products and mineral concentrates. The stock is trading below our DCF based valuation, we therefore rate it a Buy.

Syrah Resources (SYR.AX, Buy – Price Target AUD 6.3, DB Analyst: Mathew Hocking)

- Market Cap: USD 654 million
- Theme Exposure: EV Battery Supply Chain Exposure with Graphite
- Investment Thesis: Syrah Resources owns 100% of the high grade Balama graphite deposit in Mozambique. The Balama Definitive Feasibility Study suggests a 2Mtpa processing plant producing 313ktpa graphite concentrate over a 42 year mine life. Initial capital expenditure is expected to be US$175m, plus US$47m working capital. SYR has now locked c.60% of its expected annual output into sales agreements across North America, China, Japan, Korea and Taiwan. Along with traditional graphite markets, SYR is reviewing options to produce downstream graphite products exposed to the rapidly growing lithium-ion battery markets. SYR recently raised A$194m to complete funding of Balama development and partial funding of a downstream battery-grade graphite facility. The stock is trading at a discount to our DCF based valuation, we therefore rate the stock a Buy.

Semiconductors

The electrification of vehicle powertrains represents an inflection point for the semiconductor industry. The key applications using semiconductors in EV/HEV are the inverters, battery converters, and control units. Each complex employs a variety of analog and digital ICs and plays a key role in the safety and efficiency of the vehicle. The semi conductor opportunity extends beyond the vehicle to the charging stations and battery pack replacement.

The moves to Advanced Driver Assistance Systems (ADAS) and long-term autonomous driving will substantially increase the amount of semiconductor content per car over the coming years.

Infineon Technologies (IFX.DE, Buy – Price Target €21, DB Analyst: Johannes Schaller)

- Market Cap: $19.8 billion
- Theme Exposure: High, Automotive Rev 41%. IFX is well positioned to benefit from the electrification of the vehicle powertrain. Infineon offers a broad variety of products, including IGBTs, MCUs and high voltage analog ICs. The company is unique in that it can address both the high content opportunity with IGBTs and the higher margins opportunity in 32-bit MCUs and analog ICs. IFX also has renewable exposure in wind and solar (mid single digit % revs) and strong exposure (~60% of revs) in power semis - critical for the energy efficiency theme.
- Investment Thesis: Upcoming launches of hybrid/electric models by German OEMs, combined with the rise of advanced driving assistance systems (ADAS), should drive continuous strong growth in Infineon's Automotive division (40% of revenues) for the coming years. We believe the business is best positioned to benefit from the rapid (up to 5x) rise in power semi content with electrification as the global No. 1 in this segment and with a strong presence in sensors for ADAS. With continued share gains and growth in its other more diversified divisions remaining healthy, Infineon should continue to see strong earnings growth in 2017/18e. With peers growing in the high single-digits to low teens' and valued at ~19x CY18e P/E, we view Infineon's valuation below that (on CY18e P/E) with a low- to mid-teens growth profile as compelling and rate the stock Buy.

Maxim Integrated (MXIM, Buy – Price Target $50, DB Analyst: Ross Seymore)

- Market Cap: USD 11.5 billion
- Theme Exposure: High, supplies high performance analog semiconductors, focusing on power management solutions. The company's battery management system targets to double effective life of EV/HEV battery packs. Additionally, the company's SerDes products enable high speed networking of ADAS/Safety data between sensors and processors within vehicles. The Automotive end market generates roughly 20% of MXIM's revenue and has grown at a 3yr CAGR of over 20%.
- Investment Thesis: Maxim has reduced its concentration risk with Samsung, and should benefit from positive seasonality in its core Industrial, Comms and Auto business and upcoming product launch catalysts. With concentration risk lowered, cost structure improved and bolstered by a 3% dividend yield, we believe MXIM's valuation discount vs HPA peers will shrink. We see a favorable risk/reward to our P/T with the dividend yield adding to returns: Buy

ON Semiconductor (ON, Buy – Price Target $20, DB Analyst: Ross Seymore)

- Market Cap: USD 5.7 billion
- Theme Exposure: ON supplies powertrain semiconductors as it is a leading provider of MOSFETs, discrete, protection ICs and ASICs. ON also provides semiconductor solutions for battery management systems and on-board chargers. The Sanyo acquisition brought with it high voltage expertise and relationships with tier-one OEMs. Finally, ON's acquisition of Aptina in 2014 led to its leading position in Automotive CMOS image sensors (prerequisite for vision-based ADAS systems). The Automotive end market generates roughly 30% of ON's revenue.
- Investment Thesis: We believe ON Semi is well positioned to outperform the semiconductor industry in 2017 due in large part to its recently closed Fairchild acquisition, ability to capture cost synergies, and modest share gains. Although the company carries significant levels of debt, liquidity is solid and should continue to improve. We therefore rate the shares Buy.

Figure 36: Sustainable Transport Thematic Universe

			Price	Implied Upside /		Market Cap	Hist. P / E		Hist. EV / EBITDA		2017E		Price Performance			ESG Theme
Company	Rating	Analyst	Target	(Downside)	Price	(USD M)	2015	2016	2015	2016	P / E	EV / EBITDA	1yr	3yr	5yr	Exposure
Sustainable Transport																
Tesla	Hold	Rod Lache	$215.0	(14%)	$250.6	$40,374	NA	NA	216.3x	60.0x	NA	35.0x	31%	37%	748%	High
Mobileye*	Buy	Rod Lache	$72.0	66%	$43.5	$9,534	89.5x	60.2x	72.0x	49.1x	41.6x	33.0x	60%	NA	NA	High
Delphi Automotive*	Buy	Rod Lache	$88.0	26%	$69.7	$18,878	13.4x	11.5x	9.0x	7.7x	10.8x	7.6x	7%	14%	157%	High
NVIDIA	Hold	Ross Seymore	$105.0	(5%)	$110.0	$59,301	101.2x	45.1x	46.5x	24.2x	40.8x	22.7x	276%	600%	643%	Low
Infineon Technologies*	Buy	Johannes Schaller	€ 21.00	23%	€ 17.05	$20,668	30.3x	23.2x	13.4x	11.2x	20.9x	10.8x	39%	122%	147%	Medium
Maxim Integrated*	Buy	Ross Seymore	$50.0	11%	$45.0	$12,750	29.3x	27.3x	14.0x	13.7x	22.2x	13.2x	35%	49%	66%	Low
Linear Technology	Hold	Ross Seymore	$63.0	(1%)	$63.4	$15,246	29.8x	31.2x	18.9x	19.5x	28.4x	NA	48%	42%	91%	Low
Texas Instruments	Hold	Ross Seymore	$73.0	(6%)	$77.9	$77,860	26.8x	21.7x	14.3x	13.2x	21.3x	12.7x	47%	82%	142%	Low
ON Semiconductor*	Buy	Ross Seymore	$20.0	45%	$13.8	$5,733	16.0x	15.7x	8.7x	11.4x	11.9x	8.8x	61%	61%	56%	Medium
Intel	Buy	Ross Seymore	$43.0	15%	$37.4	$177,333	15.8x	13.5x	7.6x	8.0x	13.4x	7.4x	21%	51%	40%	Low
Syrah Resources*	Buy	Mathew Hocking	$6.3	92%	$3.3	$654	NA	NA	NA	NA	NA	NA	(14%)	30%	949%	High
Albemarle	Buy	David Begleiter	$95.0	0%	$94.6	$10,637	23.5x	26.0x	14.4x	14.8x	23.3x	17.3x	80%	46%	49%	Medium
BYD	Buy	Vincent Ha	$52.6	22%	$43.2	$17,925	32.1x	20.1x	15.5x	10.0x	19.0x	1.6x	23%	17%	78%	High
SQM	Buy	Chris Terry	$34.0	1%	$33.6	$9,188	38.8x	28.8x	13.3x	13.0x	22.8x	11.4x	113%	24%	(42%)	High
Orocobre*	Buy	Mathew Hocking	$4.5	17%	$3.8	$620	NA	NA	NA	NA	30.8x	NA	54%	73%	101%	High
S&P 500					$2,281		17.5x	18.8x					18%	27%	74%	
Average							37.2x	27.0x	35.7x	19.7x	23.6x	15.1x	59%	89%	230%	

Source: Deutsche Bank, Factset

Theme 2: Sustainable Agriculture

Overview and Impact Potential

We expect sustainable agriculture to become an increasingly important sector, in both the near and long-term, especially in a resource constrained environment. There has been a lag in technological innovation within the agricultural sector. Rates of yield increases for major crops have been trending negatively during the time when population growth, prosperity and globalization are putting increasing pressure on the supply-and-demand situation of the agriculture system. Feeding people in the future without putting strain on the soils and oceans is one of the biggest sustainability questions facing the world today. Between now and 2050 the global population is likely to rise from 7.3 billion to 9.7 billion and at the same time, the middle class is expected to double by 2030. History suggests that as incomes rise people spend more on food and eat more animal protein (8 pounds of grains are needed for 1 pound of beef). In order to meet the demand for food, fuel and fiber from a growing and increasingly affluent population, industry estimates suggest that global crop production would need to double over the next 35 years. If agriculture is to continue to feed the world, it needs to become more like manufacturing and farms would need to become more like factories – sustainable ag solutions are expected to be the main driver of this transition, which we expect to occur over the next 20 years. Ag is also a large emitter of greenhouse gases – emissions have increased by 75% since 1990 and ag sector now accounts for ~30% of GHG emissions. Finally, a convergence of software and hardware solutions is creating growth opportunities for the sustainable ag market.

Market Opportunity

Agricultural production has increased significantly in the recent years, and aggregate agricultural consumption is estimated to increase by 70% from 2010 to 2050. Since most land suitable for farming is already farmed, this growth must come from higher yields. However, the yields of important crops such as rice and wheat have stopped rising in several parts of the world and improving yields in future would require technological advances such as precision farming and genomics. The smart ag market is estimated to grow at a 14% CAGR between 2016 and 2022 and reach ~$18.5B by 2022. Connected technologies such as cloud computing, wireless sensor networks, and solutions that help in enhancing the production and yield are becoming an integral part of the ag sector and have helped reduce farming costs.

Sub-Categories

Sustainable Ag sector can be divided in several ways – companies that impact "on farm productivity" vs. companies that impact "supply chain after the farm". Companies within the "on the farm" category include: precision agriculture (drones & robotics, big data, smart equipment & sensors and farm management software); input technologies (fertilizers, pesticides, soil amendments, genetics, seeds and feed); new production and new business models (indoor or controlled environment agriculture, cellular agriculture, input and asset sharing). And the technologies looking to disrupt the supply chain after the farm-gate include: traceability and packaging; processing technologies; waste reducing technologies such as biotechnologies producing biomaterials from food and agricultural waste; farm-to-consumer distribution; e-grocers; and food nutrition transparency.

Sensors

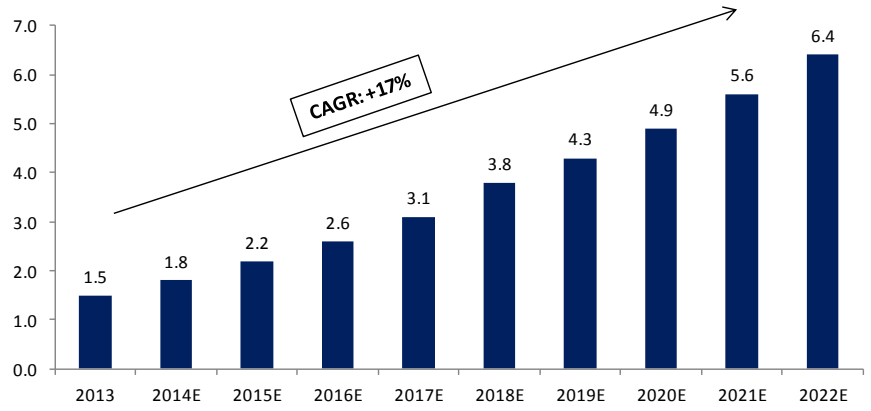
Companies producing sensors were the first wave of agtech start-ups, mostly offering farmers insights on the level of moisture in their soils. This sector,

however has now become commoditized and is not as attractive for new investors. This sub-sector could likely go through a wave of consolidation.

I. Precision Ag/Farm management software

Companies involved in collecting, integrating and analyzing data from the farm (using sensors, drones, machinery, or imagery) stand to see significant growth in demand for their products. This precision ag space is gaining a lot of momentum.

Figure 37: The US Precision Agriculture market is set to grow (USD billions)



Source: RobecoSAM estimates, Trimble Navigation, DB estimates

Deere & Company (DE – Hold, Price Target: $106, DB Analyst: Nicole DeBlase)

- Market Cap: $33.3B
- Theme Exposure: DE has made significant investments in precision agriculture, including the 2016 acquisition of Monosem (European leader in precision planters) and the majority stake in Hagie Manufacturing (US market leader in high-clearance sprayers).
- Investment Thesis: Remaining bearish on the outlook for NA Ag equipment sales, particularly large Ag, Deere's most important profit driver. This is because crop prices remain depressed, dealer inventory remains elevated, and the installed base of equipment is historically young. While we do give Deere credit for cost savings, we believe the company's mid-cycle earnings bar seems a bit aggressive.

Private Companies

- *Amber Agriculture:* Automates farmers' grain storage through wireless sensors and IOT
- *FarmLogs:* Provides decision support and ERP software tool for farmers. Offers a range of free and premium services including soil mapping, crop health monitoring, etc.

II. Bio Inputs & Basic Materials

The biomaterials segment, where fertilizers, pesticides and other ag inputs are made through biological means as opposed to more traditional chemistry, was responsible for some of agtech's first venture capital exits (Bayer acquired AgraQuest for $425 million and BASF acquired Becker Underwood for $1 billion). However, momentum in this sector has been slow as biological products have not delivered to the high industry expectations. We do not expect bio-pesticides and bio-fertilizers to completely replace their chemical counterparts. However, we expect these products to reduce the amount of chemicals needed and thereby reduce costs.

Monsanto (MON – Buy, Price Target $128, DB Analyst: David Begleiter)

- Market Cap: $47.2B
- Theme Exposure: High, robust R&D pipeline focusing on innovation in agriculture. The company's 2013 acquisition of The Climate Corporation, a leading provider of agriculture analytics and risk management for farmers, has strengthened Monsanto's integrated farmer solutions capabilities. Climate's FieldView digital Ag platform enhances and enables farmer decision-making to optimize productivity and increase crop yields. Farmer response to FieldView continues to build, with >92MM acres on the platform (vs estimate of 90MM) and <14MM acres of paid services in '16 (vs estimate of >12MM). Monsanto is targeting 300-400MM of acres on the platform by 2025.
- Investment Thesis: We believe risk/reward remains attractive following Bayer's agreement to purchase MON for $128/shr. Due to regulatory risk from the creation of the world's largest ag company (by a factor of 2x), MON shares are trading at a discount to the purchase price. As such, we see upside outweigh downside risk when the deal is expected is close. However with i) limited product overlap between Monsanto, primarily a seed and trait company, and Bayer, primarily a crop chemical company, and ii) muted US farmer pushback on the transaction, we continue to believe there is a >50% chance the deal will be approved.

Private Companies

- *Clear Labs:* Clear Labs is creating a backstop for Ag companies that hope to catch foodborne illness outbreaks before they reach the consumer level. Playing off the IoT concept, Clear Labs utilizes big data to index the world's agriculture, and assist in quality control and safety. The company utilizes genomic testing, and integrates modern non-DNA testing to give a complete view on the crop or food contents. Its platform supports comprehensive authenticity testing, GMO testing, WGS pathogen strain detection, and microbiome testing. With cutting edge next-generation sequencing and unique data analytics platform, Clear Labs built powerful and accessible tests for the food industry. From fraud detection to preventive supply chain monitoring to brand differentiation, it works with global brands to deliver a new standard in food safety and quality. It offers a pretty compelling value chain, in our view, depicted below. With constant and costly recalls for a variety of consumer brands, not to mention the subsequent brand damage, it is safe to say that transparency in the food chain has become a lasting trend.
- *Indigo Agriculture:* Microbiome seed company, designed to help crop yields when grown under water stress
- *Recombinetics:* Animal science and biotech firm aiming achieve gene-edited traits for livestock
- *Algama:* French foodtech company, aiming to create sustainable food products from microalgae

III. Drone Technology

In our view, drone technology is probably the front runner for having the most impact in the near term. With pure plays in the public market (i.e. TRMB, RAVN), there are a host of private companies that have focused on drone tech, but not until recently has the agricultural angle been a prominent driver in the start-up world. Robots are an important solution to the labor shortages on the farm. What's more important is that the field of robotics is developing rapidly and the control systems needed to run such machines are getting better and cheaper by the day. Drones are a part of this and are seen as having huge

potential to help farmers monitor their fields, make timely decisions to avoid yield losses, and even help with applying inputs onto the land. Many farmers were quick to purchase drones, but few have found them more than a nice-to-have. The challenges include: limited battery life, inability to analyze the imagery data in real-time to provide real decision-making benefits, time-consuming and labor-intensive to launch and fly under regulations, and lack of clear customer base. There is significant innovation in this space to bring better sensors, analysis, and flight tools. The impact of drone technology on ag sector is a question of when and not if.

In 2015, investment in drones and robotics startups totaled $389 million across 42 deals, representing a 237% increase on 2014 figures. Recently, RnR Market Research estimated the drone market to reach $3.7B in the next 5 years, and DroneDeploy, a cloud-based software company, broke news that agriculture is the largest commercial sector across its 2 million acres of worldwide coverage. Further supporting this notion is the prediction by The Association for Unmanned Vehicle Systems International that 80% of the $3.7B drone market will be used in some form of agricultural application. When the Federal Aviation Authority modestly deregulated restrictions on commercial drone operation, the sector has taken off.

Trimble Navigation (TRMB) – Not Covered

- Market Cap: $7.7B
- Theme Exposure: Trimble is a first mover with its Field Solutions platform that allows for guidance, positioning and automated application systems, all in the pursuit of collecting field data. A few months ago, TRMB launched its proprietary streamlining software service for land development in the agriculture space.

Raven Industries (RAVN) – Not Covered

- Market Cap: $958M
- Theme Exposure: Through its Applied Technology segment, Raven manufactures precision agriculture products and info management solutions to aid in enhanced crop yields. With its recent partnership to be the exclusive distributor for AgEagle Aerial Systems, an agriculture drone company, Raven should continue to capture on the early stages of the AgTech theme.

Private Companies

- *Raptor Maps:* Raptor Maps creates a drone-enabled tech platform tailored to farmers. Raptor Maps utilizes drones and tractor-mounted sensors and software to offer precision mapping, analysis and quality measurement of crops throughout the growing season. The company reports that some specialty crop growers in the US have already begun using its products. There is an R&D type component to the Ag industry, as farmers need to experiment with variously updated chemicals, fertilizer regimens, seed types and techniques. The Raptor Map tech allows the farmer to quantify and analyze its new approaches.
- *Agrinotix:* Drone-enabled agricultural intelligence company
- *AgEagle:* Pioneer in the agricultural drone sector

Figure 38: Sustainable Agriculture Thematic Universe

Company	Rating	Analyst	Price Target	Implied Upside / (Downside)	Price	Market Cap (USD M)	Hist. P / E 2015	Hist. P / E 2016	Hist. EV / EBITDA 2015	Hist. EV / EBITDA 2016	2017E P / E	2017E EV / EBITDA	Price Performance 1yr	Price Performance 3yr	Price Performance 5yr	ESG Theme Exposure
Sustainable Agriculture																
Deere & Company	Hold	Nicole DeBlase	$106.0	(1%)	$107.1	$34,104	18.6x	22.3x	18.2x	21.2x	23.8x	22.6x	39%	24%	22%	Low
Trimble Navigation*	NA	NA	NA	NA	$29.3	$7,352	26.1x	25.2x	19.4x	19.1x	21.8x	15.7x	52%	(11%)	26%	High
Raven Industries*	NA	NA	NA	NA	$24.7	$891	62.1x	57.8x	NA	NA	40.0x	NA	64%	(35%)	(24%)	High
Potash Corporation	NA	NA	NA	NA	$18.5	$15,574	12.2x	46.5x	7.6x	15.1x	34.0x	13.6x	14%	(41%)	(61%)	High
CF Industries	NA	NA	NA	NA	$35.4	$8,250	9.1x	46.6x	7.4x	13.1x	60.3x	9.6x	18%	(24%)	(0%)	High
Mosaic	Hold	David Begleiter	$48.0	55%	$31.0	$10,846	10.8x	46.3x	6.6x	13.3x	34.6x	11.2x	29%	(31%)	(45%)	High
Archer-Daniels-Midland	NA	NA	NA	NA	$44.1	$25,392	17.4x	20.0x	9.0x	10.5x	15.2x	9.0x	25%	12%	49%	High
Monsanto	Buy	David Begleiter	$128.0	19%	$107.7	$47,212	18.8x	24.0x	11.1x	15.0x	22.8x	13.4x	24%	(2%)	38%	High
S&P 500					$2,281		17.5x	18.8x					18%	27%	74%	
Average							21.9x	36.1x	11.3x	15.3x	31.5x	13.6x	33%	(14%)	1%	

Source: Deutsche Bank, Factset

Theme 3: Water

Overview and Impact Potential

The World Economic Forum's Global Risks 2015 ranked "water crises" as the world's top impact risk. Supply is already scarce, and becoming scarcer. More than 10% of the world population still lacks access to people drinking water sources, 2.5 billion people pack access to appropriate sanitation sources, and by 2050 another 2.5 billion people will be added to the world's population. Nearly 90% of that incremental 2.5 billion will be in Asia and Africa, where water infrastructure is already a severe problem. Freshwater is only 2.5% of the earth's water, with over two thirds of the supply unable to be accessed as it lies in glaciers, and another 30% remains underground.

Water supply scarcity and subsequent surge in demand for water purifying, infrastructural, and service products is likely to continue for the following reasons in our view:

- *Uneven Distribution*: Less than ten countries contain 60% of the world's freshwater supply (Brazil, Russia, China, Canada, Indonesia, United States, India, Colombia and the Democratic Republic of Congo).

However, water supply doesn't equate to supply-demand balance. China has 7% of world's water resource, a large number on an absolute basis, but an imbalance when considering China houses 21% of the world's population

- *Climate Change*: The US once had a high rate of water resource replenishment. However, it also has the highest annual water footprint per capita (2,842 m3 vs. global average of 1,385 m3). Coupled with increased extreme weather events has yielded severe droughts. Since 2012, 95% of California has been in severe drought. In 2014, California's economy lost an estimated $2.2bn due to the drought. In April 2015, State Governor Brown mandated 25% reduction in statewide water usage.
- *Deteriorating Water Infrastructure and Inefficiencies*: American Water Works Association estimates that a $1 trillion investment is needed to maintain water infrastructure for next 20 years at current US population projections. Most of current installed base was done so over 100 years ago, materially exceeding the 60 to 80 year recommended useful life. Utilization as a result has diminished, with leaking pipes losing 17% of treated water in US, and some European areas losing over half of treated water as a result.

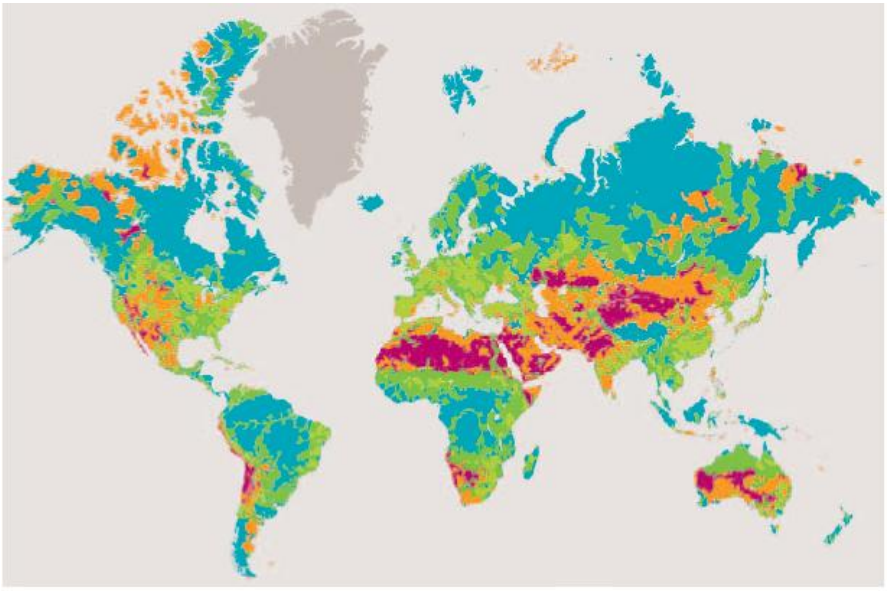
Moreover, we expect demand to increase by over half in 2050 when the world population shifts from 7 billion to over 9 billion. The following are key demand side catalysts to look out for:

- *Agriculture:* Over the last five years, agriculture has accounted for 70% of global water consumption (90% in less developed nations). Food production must increase by 60% to keep pace with population growth, thus this consumption pattern is only going to worsen. With a shift in health and food consciousness, as higher protein diets become backed by governmental policy, water usage will increase accordingly. Food and Agriculture Organization estimates 1 kg of protein requires five to twenty times more water than amount needed for single grain.
- *Industry:* Energy sector accounts for 75% of industrial water usage, and 15% of total water usage. Energy companies feel impact more acutely, as water scarcity mixed with unpredictable weather has lead

to operational inefficiencies and higher costs. In manufacturing, purified water demand has increased driven by development in the BRICS region. Currently, manufacturing accounts for 7% of water demand, and by 2050 could compromise 22% of water demand.

- *Residential/Municipal:* This is the smallest driver to keep an eye on, but could stand to see significant growth as a result of urbanization and higher standards of living are reached globally. Over 50% of population now lives in cities. Developed nations consume much more water than less developed. US annual water consumption per capita for resi/muni is 215 m3 vs. 32 m3 in China and 4m3 in West Africa.

Figure 39: Global Physical Water Risk 2013



Source: RobecoSAM

Market Opportunity

Around 1.6 billion people currently live in countries where water is scarce resource. By 2025, that number will grow to 2.5 billion, with climate change expected to increase water stress. By 2030, the global population is estimated to reach 9 billion and the world will require 30 to 45% more water than it does today. A significant percentage of the world's water is used in business and agricultural supply chains—making water a central component of all economic activity. Without an adequate water supply, sustainable growth is not possible. More than 780 million people do not have access to clean water and almost 2.5 billion do not have access to adequate sanitation. With 85% of the world's population living in the driest half of the planet and up to 8 million people dying from the consequences of water-related disasters and diseases each year, closing the gap between water supply and demand has never been so urgent. Agriculture already accounts for on average 70% of total water consumption and, according to the World Bank, food production will need to increase by 50% by 2030 as the population grows and dietary habits change. The International Energy Agency further projects water consumption to meet the needs of energy generation and production to increase by 85% by 2035.

Sub-Categories

We look at Water as one of the more prominent themes in ESG investing. The category can be broken into 3 sub-segments: Owner/Operator, Equipment

Manufacturer, and Utility. Below, we provide an overview of public companies and some private companies that we keep an eye on. Additionally, below are growth estimates for various sub-sectors within water at a more granular level.

Figure 40: Expected Sub-Sector CAGRs

Overview of selected areas	Expected annual growth CAGR 2014-2018
Pumps	6.6%
Valves / fittings	6.9%
Screening / grit removal	5.6%
Agitation / mixing / settling	6.1%
Aeration	6.9%
Non membrane filtration	6.4%
Disinfection systems	6.1%
Chemical feed systems	6.4%
Ion exchange	7.9%
Sludge thickening / dewatering	6.0%
Anaerobic digestion	10.2%
Sludge drying / thermal processes / other sludge stabilization	6.2%
Microfiltration / ultra filtration	13.6%
Reverse osmosis / nano filtration	15.1%
Desalination	12.0%
Micro-irrigation	10.0%

Source: RobecoSAM

I. Owner / Operator

Aquaventure (WAAS, Buy – Price Target $27, DB Analyst: Vishal Shah)

- Market Cap: $505M
- Theme Exposure: Aquaventure is a recently IPO'd company that acts a consolidator in a fragmented water landscape. It has two main segments, Seven Seas which owns and operates water treatment plants in the Caribbean, and Quench, a POU water provider to the C&I space.
- Investment Thesis: Aquaventure's water as a service business model allows customers to outsource a non-core activity to water experts. Municipalities and industrial players alike get access to fresh water sources with limited upfront capital, enhanced quality, reliability and predictable lifecycle costs. The company's ability to offer long-term contracts and willingness to pass cost efficiencies through to customers further enhances its overall value to the customer, and in our view acts as a meaningful retention tool and barrier to competitors.

Ecolab (ECL, Hold – Price Target $120, DB Analyst: David Begleiter)

- Market Cap: $34.6B
- Theme Exposure: Ecolab is a global leader in water treatment technologies and services. Ecolab's Water business (within its Global Institutional segment, which represents 35% of '17E sales) serves light and heavy manufacturing end markets as well as higher-growth healthcare (hospitals, pharmaceuticals) and consumer end markets (commercial buildings and hotels).
- Investment Thesis: Following a stellar 4-year run, we believe there is modest upside to our price target. Given a more cautious macro view (energy, lodging) and a lower and more volatile earnings growth profile we rate the shares Hold. In addition, with ~50% of Ecolab's sales outside the U.S. and the US dollar continuing to strengthen, particularly vs the Euro, Canadian dollar, Brazilian Real, and Argentine

Peso, Ecolab expects currency to be a $0.23-0.28 headwind in '16 vs '15.

II. Equipment Manufacturer

Xylem (XYL – Not Covered)

- Market Cap: $8.7B
- Theme Exposure: Xylem is a pure play in the water space, as it designs and manufactures high quality tech for the water industry. Operating through two segments, Water Infrastructure and Applied Water, the former focuses on transport and treatment of water while the latter produces equipment for the C&I, resi and agricultural markets.

A.O. Smith (AOS– Not Covered)

- Market Cap: $7.1B
- Theme Exposure: Within in North American segment, AOS manufactures commercial water heating equipment, and water system tanks. On the global front, it manufactures water treatment products in territories most afflicted, specifically China, and India.

Energy Recovery (ERII – Not Covered)

- Market Cap: $557M
- Theme Exposure: Energy Recovery develops and manufacturers industrial equipment for C&I water usage. The company's goal is to be the leading energy recovery solutions for desalination, and increase its affordability globally.

Private Companies

With reverse osmosis still being the technology of choice for desalination plants, owners and operators are stuck using a very old process. We expect that although reliable, the water industry is due for a technological revolution in how it can produce clean water. While manufacturers will continue to focus on the more infrastructural aspect of the water value chain, we also look to smaller private companies that are moving the needle within the filtration space.

Water Planet: Technological and engineering company, focusing on filtration membrane products

Water Business: A premier manufacture & distributor of high quality water purification and storage equipment, as well as bottling & bagging equipment for the Resi and C&I space

III. Utility

Public Company

American Water Works (AWK – Not Covered)

- Market Cap: $13.2B
- Theme Exposure: The largest and most geographically diverse publicly traded U.S. water and wastewater utility company, AWK treats and delivers 1 billion gallons of water daily.

York Water (YORW– Not Covered)

- Market Cap: $506M
- Theme Exposure: More of a regional player, York operates entirely within the franchised territories amidst Pennsylvania. The company owns its distribution network, and supplies its water from the Codorus Creek, and owns two reservoirs. Currently, average daily consumption is 20 million gallons.

Aqua America (WTR – Not Covered)

- Market Cap: $5.5B
- Theme Exposure: A force in the industry, Aqua America has over 12,500 miles of water mains, 20 surface water filtration plants, 183 wastewater treatment plants, over 3,000 wells, and over 860 water storage tanks.

Private Companies

Global Water Resources: Water resource management and recycled water utility company that operates predominantly in Phoenix, Arizona.

Figure 41: Water Thematic Universe

							Hist. P / E		Hist. EV / EBITDA		2017E		Price Performance			ESG Theme
Company	Rating	Analyst	Price Target	Implied Upside / (Downside)	Price	Market Cap (USD M)	2015	2016	2015	2016	P / E	EV / EBITDA	1yr	3yr	5yr	Exposure
Water																
AquaVenture*	Buy	Vish Shah	$27.0	36%	$19.9	$507	NA	NA	NA	17.8x	NA	14.7x	NA	NA	NA	High
Ecolab	Hold	David Begleiter	$120.0	(1%)	$121.5	$35,421	27.5x	27.3x	14.3x	14.3x	24.8x	13.6x	13%	20%	102%	High
Xylem*	NA	NA	NA	NA	$49.5	$8,880	26.6x	24.3x	15.6x	15.8x	21.4x	11.6x	38%	48%	91%	High
A.O. Smith*	NA	NA	NA	NA	$48.5	$7,156	30.9x	26.6x	17.5x	15.6x	23.5x	11.5x	39%	103%	356%	High
Energy Recovery	NA	NA	NA	NA	$10.1	$529	NA	NA	NA	81.1x	15.0x	8.5x	63%	128%	293%	High
American Water Works*	NA	NA	NA	NA	$73.2	$13,033	27.6x	25.6x	12.8x	12.4x	24.1x	11.4x	13%	68%	116%	High
York Water	NA	NA	NA	NA	$35.4	$455	36.9x	37.7x	NA	NA	34.4x	17.1x	33%	72%	98%	High
Aqua America	NA	NA	NA	NA	$29.9	$5,298	24.0x	22.9x	16.2x	15.8x	21.6x	14.3x	(5%)	25%	70%	High
Pentar	NA	NA	NA	NA	$60.8	$11,043	14.9x	19.3x	13.1x	15.6x	17.8x	15.5x	29%	(19%)	64%	High
IDEX	NA	NA	NA	NA	$92.0	$7,016	25.4x	24.1x	14.4x	14.6x	22.6x	13.9x	27%	27%	130%	High
Lindsay Corp	NA	NA	NA	NA	$76.8	$816	23.8x	28.7x	10.9x	12.2x	36.5x	15.3x	9%	(9%)	24%	High
Middlesex Water	NA	NA	NA	NA	$37.3	$608	31.0x	NA	NA	NA	NA	NA	29%	87%	97%	High
Aegion	NA	NA	NA	NA	$23.2	$788	18.2x	23.0x	NA	5.8x	15.1x	7.2x	29%	10%	35%	High
S&P 500					$2,281		17.5x	18.8x					18%	27%	74%	
Average							26.1x	25.9x	14.3x	20.1x	23.3x	12.9x	26%	47%	123%	

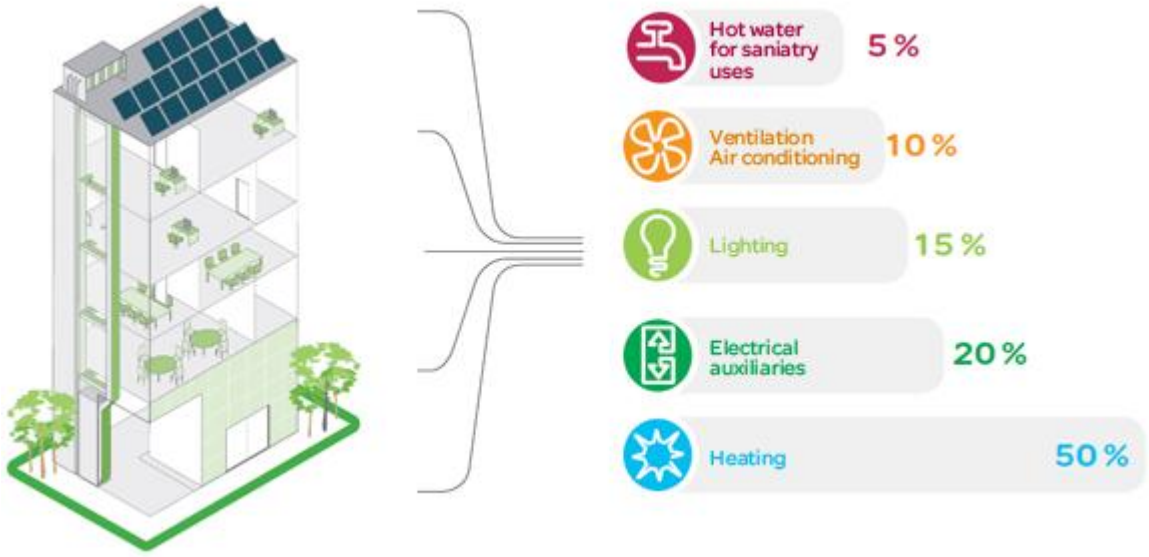
Source: Deutsche Bank, Factset

Theme 4: Energy Efficiency

Overview and Impact Potential

The IEA estimates that global investment in energy efficiency was $211 billion in 2015. Energy services companies (ESCOs), whose primary business model is delivering energy efficiency solutions, had a total turnover of $24 billion in 2015. In non-residential buildings, a 37% improvement was achieved globally in energy consumption per square meter during the period 2000-15. In residential buildings, energy efficiency improvements of 26% were made, primarily in space heating, cooking and water heating. Still, several factors put upward pressure on energy use, including population growth, increase in the size of dwellings and a reduction in the number of occupants per home, often associated with rising income.

Figure 42: Building Energy Saving Potential



Source: Schneider Electric

Market Opportunity

China is the largest market, between 2006 and 2014, where investment in energy efficiency totaled $370 billion. However, the global investment of $221 billion in 2015 is less than 14% of the $1.6 trillion spent globally on energy supply investments. Increased total spending on energy efficient products and services is a good indicator that the economy as a whole is becoming more energy efficient. Changes in incremental investment are less straightforward. In some cases, spending is an unambiguous sign of energy efficiency improvement, such as energy retrofits of existing buildings or investment in industrial processes that would otherwise not have been funded. In other cases, such as with appliances or vehicles, a gradual decline in incremental spending may be a sign that more efficient products are becoming cheaper to produce (as the market share of efficient products increases, their prices may decline).

LEDs are revolutionizing the lighting market due to their energy efficiency, lifetime, versatility, superior color quality, and ever improving cost competitiveness. Due to the progression in the LED technology, LEDs have become a broader part of the lighting market, entering markets once held by traditional fixture products. Going forward, LED technology is expected to

continue to improve, with increasing efficacy and decreasing prices as well as enabling new opportunities for lighting design and energy savings. The North American lighting market was $14.5B in 2015, and is split into two categories: Indoor Lighting, and Outdoor Lighting.

Indoor Lighting Market

Residential, commercial, and industrial lighting employ many of the same lighting technologies in their indoor lighting applications. There are many similarities between the commercial and industrial sectors in terms of lighting technology and use trends, as lighting applications in these sectors are characterized by long operating hours (often greater than 10 hours per day) and higher lumen output requirements compared to the residential sector. Commercial and industrial lighting consumers are typically facility managers who are highly concerned with the lifetime costs of a lighting product. Therefore, technologies with high efficacy and long lifetime are more popular in these sectors, despite higher initial costs. For this reason, we see the prevalence of LED only increasing as it satisfied the initial C&I needs more effectively than other technologies today. Combined, the linear fixture and low and high bay submarkets represent 80% and 92% of the 2015 general illumination energy consumption in the commercial and industrial sectors, respectively. Lighting in the residential sector typically operates for less than 2 hours per day, and energy costs remain low. Therefore residential consumers place a high priority on low first cost when purchasing lighting products.

Outdoor Lighting Market

The general illumination submarkets in the outdoor sector consist of area and roadway, parking, and exterior building lighting. These lighting systems serve multiple purposes, such as providing proper illumination for pedestrian and automotive traffic, creating a sense of personal security, and attracting attention to business and spaces. HID and linear fluorescent lamps have historically been the predominant lighting technology used in the outdoor sector, but because of the importance of durability and lifetime, LEDs are a particularly attractive option. Acuity interestingly enough has 31% of Indoor Lighting SKUs using LED technology, while the Outdoor segment has 63% SKUs utilizing LED, further proving the trend in LED tech as a go-to across all the major lighting sectors.

LED – An Energy Saver

If LED lamps and luminaires continue to receive the current levels of investment and effort from DOE and industry stakeholders, the U.S. lighting stock would consume 3.7 quads annually by 2035, representing a 55% reduction. This energy savings opportunity is driven largely by the linear fixture, outdoor, and low and high bay submarkets. These applications, characterized by high light output and long operating hours, are where increased controllability and networked capabilities will have the greatest value to customers. With these three submarkets leading the charge, LEDs installed with traditional control strategies as well as connected capabilities will contribute to a significant portion of the forecasted energy savings. Of the total 5.1 quads in annual energy savings by 2035, one-third is made possible by the penetration of connected-LEDs. While the decrease in energy consumption from 55% to 75% in 2035 may seem small, additional cumulative energy saving of 20 quads is equivalent to the amount of energy needed to power 90% of US homes for an entire year.

Lighting Controls – The Next Phase

In recent years, lighting controls have garnered increased attention as a potential method of more intelligently operating lighting systems to save energy. Lighting controls, which include various dimming and sensor technologies used separately or in conjunction with other systems such as timers and daylighting, can, if used properly, yield significant energy savings,

as they use feedback from the lit environment to provide adequate lighting levels only when needed. The DOE defines connected lighting as "LED-based lighting system with integrated sensors and controllers that are networked (either wired or wireless), enabling lighting products within the system to communicate with each other and transmit data".

Federal Government Driving Efficiency Market

Although the pace of federal projects has outpaced previous expectations, there still may be sufficient runway in this area left further propelling efficiency projects. FEMP stands for "Federal Energy Management Program", and is influential in acting as the market making influence for federal efficiency projects. FEMP's goals include helping agencies reduce GHG emissions by 40% by fiscal year 2025 compared to fiscal year 2008 and ensure that at least 30% of federal electricity consumption is generated from renewable sources by 2025. This is an aggressive mandate, and has driven much of the business. Upon completing channel checks with DOE officials within FEMP, we remain unphased by the appointment of Rick Perry, as DOE Secretaries historically have minimal dialogue and exposure with the group. It is at the Assistant Secretary level within each agency that energy efficiency plans are conducted. Additionally, the role of Chief Sustainability Officer for each agency was formalized in March 2015 according to Executive Order 13693, and mandates reporting back to the White House on progress. Since 1975, the federal government has decreased the energy intensity of its buildings by more than 40%, solidifying its purpose of actual value. FEMPs mechanisms include project financing incentives, directly handled via Energy-saving performance contracts (ESPCs). In an ESPC, a contractor pays the up-front cost of improvements and is repaid through a portion of the energy savings. Since the inception of ESPCs in 1998, more than $4 billion has been invested in federal energy efficiency and renewable energy improvements. This has resulted in more than 400 trillion but in life cycle energy savings and more than $9 billion in cumulative energy cost savings for the federal government, $4B of which has been completed in the past 5 years. It is for this reason that we believe the new presidential regime is not in danger of dismantling or handicapping the program.

In June of 2017, each government agency must make a commitment of performance contracts for the year. Strategic Sustainability Performance Plans (SSPP), required by the government, identifies $2B worth of ESPCs to be commissioned over the next 3 years. The DoD comprises 2/3 of all federal efficiency projects. With the federal government spending ~$27B / year on energy, majority of which is spent on jet fuel, the remaining fleet vehicles and building projects have a market size of $7B according to our contacts in FEMP, a sizable pipeline

I. LED

Veeco Instruments (VECO – Buy, Price Target $32, DB Analyst: Vishal Shah)

- Market Cap: $1.1B
- Theme Exposure: As the MOCVD market has shown meaningful improvement, LED as a form of outfitting buildings to garner energy efficiencies has been increasingly popular. As a leader in a quickly improving space, we like VECO's outlook.
- Investment Thesis: Strong cash generation on improving profitability along with continued positive revenue/bookings momentum were the key highlights of Q3 results. We continue to view VECO's non-MOCVD earnings power to be in the $0.65-0.70 range with overall earnings likely reaching $1.50-2.00 if the current MOCVD recovery continues.

Acuity Brands (AYI – Buy, Price Target $280, DB Analyst: Vishal Shah)

- Market Cap: $9.5B
- Theme Exposure: Lighting controls can, if used properly, yield significant energy savings, as they use feedback from the lit environment to provide adequate lighting levels only when needed. In our view, AYI is poised to capture on this growth with the significant growth and investment in Tier 3 and 4 solutions, and with well over 50% of revenues coming from the LED segment.
- Investment Thesis: As a market leader in lighting solutions and technology leader in building automation, AYI is well positioned to benefit from strong secular and cyclical growth trends in the resi/commercial lighting segment. Not only is the market expected to grow in the mid-to-upper single-digit range in the near term, but given potential for market share gains, acquisitions and additional growth from new faster growth market segments such as building management/IoT solutions, we expect AYI revenues to grow at an above market rate over the next few years.

II. Infrastructure

Johnson Controls (JCI) – Not Covered

- Market Cap: $41.0B
- Theme Exposure: A creator of intelligent buildings, efficient energy solutions, integrated infrastructure and next generation transportation systems that work together to deliver on the advent on smart cities and communities.

Eaton Corporation (ETN – Hold, Price Target $70, DB Analyst: John Inch)

- Market Cap: $30.8B
- Theme Exposure: A diversified power management company that provides energy-efficient solutions for electrical, hydraulic and mechanical power. An M&A heavy company, it was transformed in late 2012 with its acquisition of Cooper Industries which provided it with material exposure to the global electric market.
- Investment Thesis: Today, after $1.5 billion of mostly automotive divestitures coupled with 65 acquisitions, Eaton has been transformed into a less volatile multi-industry company. However, the abundance of disappointing guidance (cuts) over the past 1-2 years has likely raised pressure for management to pursue more aggressive strategies to transform the company. With options such as Vehicle spin and accelerated share repurchase off the table, M&A appears to be a more likely alternative, although the debt paydown schedule and CEO transition likely complicate the timing of potential (large) deals, at least for the rest of this year.

Figure 43: Energy Efficiency Thematic Universe

Company	Rating	Analyst	Price Target	Implied Upside / (Downside)	Price	Market Cap (USD M)	Hist. P / E		Hist. EV / EBITDA		2017E		Price Performance			ESG Theme Exposure
							2015	2016	2015	2016	P / E	EV / EBITDA	1yr	3yr	5yr	
Energy Efficiency																
Acuity Brands*	Buy	Vish Shah	$280.0	37%	$204.9	$9,032	38.4x	26.4x	20.1x	15.9x	23.3x	13.3x	12%	61%	248%	High
Veeco Instruments*	Buy	Vish Shah	$32.0	21%	$26.4	$1,070	47.6x	NA	17.3x	99.7x	29.9x	15.7x	50%	(30%)	9%	High
Johnson Controls	NA	NA	NA	NA	$43.8	$41,087	18.9x	11.1x	29.2x	12.2x	16.3x	11.3x	36%	18%	94%	High
Eaton Corp	Hold	John G. Inch	$70.0	(1%)	$70.4	$31,804	16.5x	16.9x	12.0x	12.3x	16.1x	11.6x	39%	(5%)	42%	High
Hannon Armstrong	NA	NA	NA	NA	$18.5	$866	17.6x	15.0x	23.2x	13.4x	13.3x	18.9x	3%	42%	NA	High
Hubbell	NA	NA	NA	NA	$117.8	$6,519	24.1x	23.3x	12.6x	12.7x	20.9x	11.7x	30%	0%	62%	Medium
Osram	Buy	Uwe Schupp	$66.0	24%	$53.2	$5,949	33.7x	16.2x	8.2x	7.9x	18.0x	8.6x	29%	20%	NA	High
Philips Lighting	Buy	Gael De-Bray	$32.0	34%	$23.9	$3,825	8.7x	12.1x	4.8x	5.4x	10.4x	5.4x	NA	NA	NA	High
Schneider Electric	None	Gael De-Bray	$73.0	8%	$67.3	$42,631	18.8x	18.3x	11.6x	11.2x	17.0x	NA	37%	12%	44%	High
S&P 500					$2,281		17.5x	18.8x					18%	27%	74%	
Average							24.9x	17.4x	15.5x	21.2x	18.4x	12.1x	30%	15%	83%	

Source: Deutsche Bank, Factset

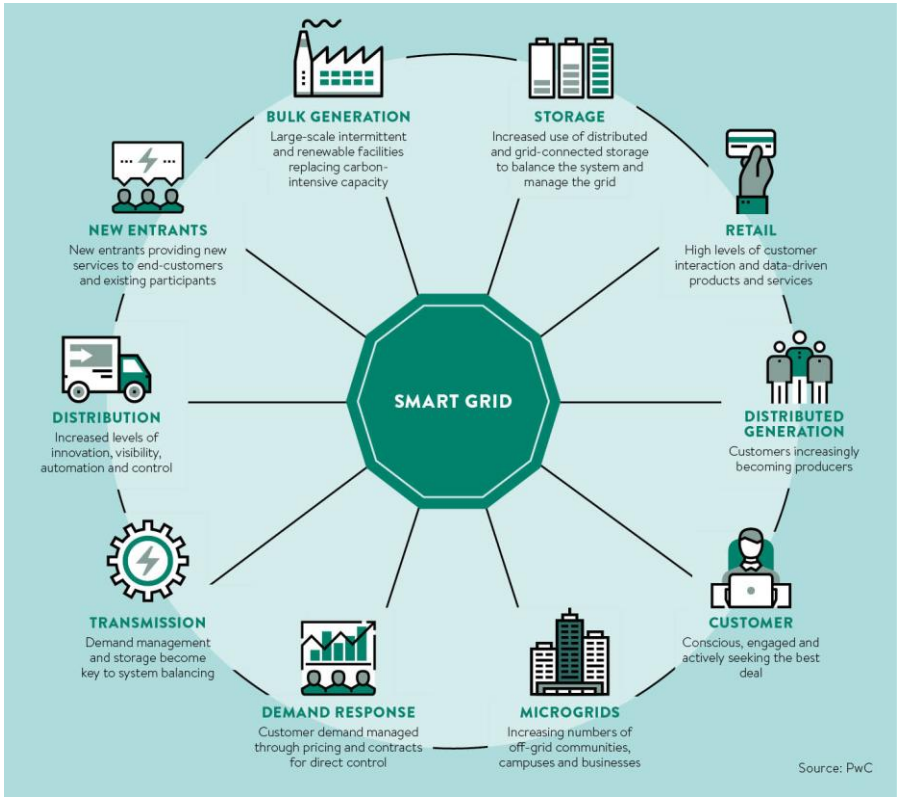
Theme 5: Power Infrastructure / Smart Grid

Overview and Impact Potential

The electricity sector is on the verge of a structural revolution that will put information technology at its center. The EU-27 has not seen electricity demand growth since 2003, coupled with historically low pricing. Meanwhile, a cleaner and smarter next-generation grid in the developed world can further optimize energy resources and potentially reduce carbon footprint dramatically. In the developing world, a modernized power infrastructure is critical in supporting sustainable economic and population growth.

Besides falling costs and growing availabilities of capital for renewable energy generation worldwide, rapid reduction in battery costs and the growth of distributed generation (DG) are also expected to be major catalysts. Between 2014 and 2023, different forms of distributed generation (DG) are expected to displace the need for more than 320 GW of new large-scale power plants globally. Moreover, new DG capacity additions are expected to exceed new centralized generation capacity additions by as early as 2018. This increased penetration of distributed generation would require intelligent distribution networks, such as nanogrids, microgrids and virtual power plants (VPPs). CA, for example would need 15GW of additional storage to reach 50% solar penetration by 2050.

Figure 44: Catalysts for the Smart Grid



Source: PwC

Market Opportunity

Stationary energy storage market is roughly 1GW or $4 billion market today and is estimated to increase to over 40GW or $25 billion by 2022. Global battery consumption was 70GWh in 2015 with 35% of demand from EVs and less than 5% from the energy storage sector. However, due to a number of positive policy shifts as well as emergence of new applications, the energy

storage market could grow to ~80GWh by 2025 in the reasonably constructive scenario or at least 50GWh in a more conservative scenario. Electric vehicles have the highest impact of becoming the preeminent disruptive force for the electric grid. When millions of cars are connected to the grid (parked) 70% of the time, they represent a massive battery capacity that can be used for grid services such as "spinning reserves", solar and wind integration, and peak shaving. Although Tesla has been a first mover with both electric cars and battery storage, many technologies will be needed to move the market, with many opportunities for winners.

- I. Infrastructure

Given the age of the national electric grid, some existing transmission and distribution lines must be replaced or upgraded. New lines will also need to be constructed to maintain the electrical system's overall reliability with increasing intermittent renewable penetration. Expected deregulation and tax reform with the new administration would be impactful tailwinds.

Quanta Services (PWR – Buy, Price Target $42, DB Analyst: Chad Dillard)

- Market Cap: $5.0B
- Theme Exposure: The majority of revenue comes from the Electric Power Infrastructure segment, and in the last quarter, it was up 3.3% YoY. We see Quanta as reaching an earnings inflection point in this segment, and its on a path to expand operating margin by 250 bps by FY2017.
- Investment Thesis: We see Quanta as one of the top picks for 2017. 1) PWR is well positioned to benefit from the pro-growth policies of the incoming Administration including tax reform (could drive incremental 15% EPS to our 2018 estimates and the implementation of border tax adjustments could extend the pipeline cycle) and deregulation (faster FERC approval process could theoretically result in a 40% increase in award throughput); 2) We expect the rebound in large transmission spending to continue gathering momentum in 2017; 3) Street underestimates the duration of the pipeline cycle - Well positioned in Canada for 2018+ awards, Keystone XL could start construction in the next 12 months (Trump campaigned on promise of a project approval); 4) The street under appreciates the operating leverage in PWR's business model; 5) stock is well-positioned for upward earnings revisions in 2017 - we expect management to guide 2017 EPS conservatively (~$2.00 range, in line with street) but believe PWR could exit the year at $2.20, setting up a beat and raise scenario. 6) Despite many of these positives, PWR underperformed peers in the post-election rally.

II. Software Systems

We view software systems combined with distributed resources (e.g. on-premise solar and storage) being potentially disruptive to the grid landscape – unlocking tremendous value. Sunverge (Private) – which has hundreds of active units in Canada, the U.S., Australia, New Zealand and South Korea–has created a robust platform – the Solar Integration System – for those assets located at the edge of the grid, with the ability to roll them up and aggregate them. Under this approach, the storage assets provide value for both the end customer and the utility that can dispatch the storage assets remotely and create value and stability on the grid. Demand charge reduction has been a major driver of C&I energy storage as the monthly peak charges can represent nearly half of an electric bill in CA. German-based Sonnen (Private) has a similar value proposition with a business model more focused on consumers and communities, and is gaining strong momentum in Germany, Czech Republic, UK and Italy.

Cisco Systems (CSCO – Buy, Price Target $40, DB Analyst: Vijay Bhagavath)

- Market Cap: $150.5B
- Theme Exposure: In 2009, CEO John Chambers suggested the smart grid would become a bigger business than the Internet, and since then, they have ramped up their solution offerings for utilities and grid modernization.
- Investment Thesis: we remain with our longer-term positive outlook on CSCO. FY18+ could see stronger than expected growth (plus a modest multiple rerating), as CSCO "doubles down" on M&A and new product launches in Security, Internet of Things, Optical, and Cloud + Service Provider Software Networking.

IV. Utilities and Yieldcos

We prefer utilities that are leaders in renewable generation, and positioned to benefit from environmental friendly policies as well as Yieldcos owning significant operating renewable assets.

PG&E Corp (PCG– Buy, Price Target $67, DB Analyst: Jonathan Arnold)

- Market Cap: $31.0B
- Theme Exposure: Poised to be a significant beneficiary of CA state carbon and associated renewable policies, while being insulated from changes in federal polices which could potentially impact competitors.
- Investment Thesis: PCG is our preferred way to invest in the constructive California regulatory environment. We view PCG as an attractive value opportunity relative to utility peers with most of the legacy overhangs in the past and management beginning to focus more squarely on future earnings and dividend growth. A recent settlement on cost with the current adjustment mechanism due to sunset in 2018 is a catalyst and removes a key impediment to a premium valuation.

NextEra Energy Partners (NEP – Buy, Price Target $33, DB Analyst: Jonathan Arnold)

- Market Cap: $4.3B
- Theme Exposure: NEP is one of the largest renewable yieldcos with a significant pipeline of projects to be dropped down from parent NextEra Energy (NEE) the US market-leader in utility-scale development.
- Investment Thesis: NextEra Energy Partners (NEP) is a high-growth alternative income vehicle. The partnership owns operating wind and solar farms in the U.S. as well as contracted gas pipelines. We rate the stock a Buy as we see NEP's impressive and high-quality distribution growth as achievable and incrementally so in light of support from sponsor NEE with the recent IDR rights reset.

Figure 45: Power Infrastructure / Smart Grid Thematic Universe

Company	Rating	Analyst	Price Target	Implied Upside / (Downside)	Price	Market Cap (USD M)	Hist. P / E		Hist. EV / EBITDA		2017E		Price Performance			ESG Theme Exposure
							2015	2016	2015	2016	P / E	EV / EBITDA	1yr	3yr	5yr	
Power Infrastructure / Smart Grid																
Quanta Services*	Buy	Chad Dillard	$42.0	15%	$36.6	$5,292	32.3x	23.4x	10.7x	10.1x	18.1x	8.5x	109%	18%	68%	High
Cisco Systems*	Buy	Vijay Bhagavath	$40.0	30%	$30.8	$154,759	13.9x	13.0x	7.3x	6.9x	13.0x	7.0x	30%	40%	58%	Low
PG&E Corp*	Buy	Jonathan Arnold	$67.0	11%	$60.6	$30,708	19.8x	16.7x	9.5x	8.3x	16.5x	7.5x	10%	44%	50%	High
NextEra Energy Partners	Buy	Jonathan Arnold	$33.0	6%	$31.0	$1,684	68.4x	15.4x	20.2x	13.2x	17.7x	5.9x	15%	NA	NA	High
Xcel Energy	Hold	Jonathan Arnold	$44.0	8%	$40.7	$20,689	19.7x	18.7x	10.6x	10.2x	17.6x	9.5x	7%	42%	53%	High
Enphase Energy	Sell	Vish Shah	$1.1	(26%)	$1.5	$93	NA	NA	NA	NA	NA	-9.7x	(22%)	(80%)	NA	High
MasTec	Hold	Chad Dillard	$37.0	(4%)	$38.4	$3,164	58.2x	21.6x	13.3x	8.9x	18.4x	8.0x	197%	7%	133%	Low
Fluor Corp	Buy	Chad Dillard	$63.0	12%	$56.2	$7,820	19.7x	24.3x	6.1x	9.7x	19.3x	8.3x	25%	(26%)	(0%)	Low
EMCOR Group	NA	NA	NA	NA	$70.2	$4,259	25.6x	21.8x	NA	10.3x	19.9x	10.1x	54%	62%	146%	High
Woodward	NA	NA	NA	NA	$70.0	$4,323	25.3x	24.4x	14.8x	15.3x	22.1x	13.5x	52%	62%	65%	Medium
WABCO	Hold	Nicole DeBlase	$129.0	19%	$108.0	$5,947	19.4x	18.8x	13.0x	12.3x	17.9x	11.7x	20%	24%	108%	High
S&P 500					$2,281		17.5x	18.8x					18%	27%	74%	
Average							30.2x	19.8x	11.7x	10.5x	18.0x	7.3x	45%	19%	76%	

Source: Deutsche Bank, Factset

Theme 6: Health & Wellness

Overview and Impact Potential

Public health investment is a critical need in the developing world. Nearly 15 million people die each year from infectious diseases and nutritional deficiencies. In the developed countries, healthcare systems are coming under intense pressure faced with aging populations and increase in chronic diseases Digital tech innovations in healthcare and fitness that empower consumers can reduce costs and improve outcomes in the longer term.

Market Opportunity

In our view, healthcare and wellness is a long-term investable theme globally and include investments that include developed and developing market opportunities. The World Health Organization estimated global expenditures for health totaled $6.5 trillion in 2010 and we estimate that global spending today is likely in the range of $7.5-$8.0 trillion.

While most of the healthcare spending dollars today are within developed countries, the greatest growth is coming from developing economies. In the developed countries, healthcare systems are implementing cost containment efforts as the aging populations are putting strain on the system. Conversely, in developing economies, governments are looking to boost healthcare spending and the growing middle class is increasing the demand for such.

For fitness, while sportswear accounted for 15.4% of global apparel & footwear in 2014, DB expects the share to grow driven by global middle class emergence, government and corporate promotion of sports, and athletic preference shift. The total market size outside of North America can increase 4x to 5x through 2030.

Sub-Categories

- Healthcare
- Nutrition
- Fitness

Healthcare

In the past, investing in the Medical Supplies & Devices sector has traditionally turned on new product development--R&D productivity. The dynamics have significantly changed. It is no longer good enough to have just regulatory approval to reach commercial success. While clinical has been important, economic and comparative effectiveness data has become increasingly important in the United States as it traditionally has been in more government funded developed healthcare systems. In developing economies, healthcare companies must increasingly manufacture products with the local market in mind, not only with regards to cost but also with regards to product features.

Below we list a few health and wellness themes that we see as investable opportunities across the Medical Supplies & Devices space:

Increasing emerging market spend: As previously mentioned, the rate of healthcare spending is greater (an estimated 2-3x) in emerging markets than that of developed economies. This is due to governments increasing desire to spend on their country's healthcare infrastructure as well as the rise in economic status and increase in the middle class's ability to spend on healthcare.

Aging population/increase in life expectancy: The increase life expectancy rates and population globally have also contributed to increasing healthcare spending. According to the World Health Organization, globally life expectancy rates have been improving at a rate of more than 3 years per decade since 1950 with the exception being in the 1990s due to the stall in life expectancy due to the rising HIV epidemic in Africa and in Europe due to the increased mortality following the collapse of the Soviet Union. However between 2000 and 2015, then there has been a global increase of 5.0 years in life expectancy. The increase in life expectancy rates have been due to improvements in healthcare--whether it be improvement in infant mortality rates or improvements in all major causes of deaths. An individual's healthcare expenditure's typically increase at the end of their life. The percent of the global population that is expected to be over the age of 65 is forecasted to increase from 8.5% in 2015 to 12.0% in 2030 and 16.7% in 2050 according to the U.S. Census Bureau's "An Aging World: 2015" report.

Obesity: According to the World Health Organization, obesity has more than doubled since 1980 and in 2014 more than 1.9 billion adults (defined as 18 years and older) were overweight while 600 million of these were considered obese. 41 million children under the age of 5 were overweight or obese in 2014. Obesity is not just a high-income and developed market issue, rather obesity is rising in low-and middle income countries particularly in urban centers. Obesity is a major risk factor for diseases including cardiovascular diseases, diabetes, musculoskeletal disorders, and some cancers.

Chronic disease management is a more an investable theme within the context of developed markets. Preventive healthcare, early diagnosis and targeted treatments offer sustainable solutions to this challenge. Chronic diseases include Diabetes, obesity, and cardiovascular. Diabetes is a chronic disease characterized by the body's inability to produce or effectively use insulin. The International Diabetes Federation (IDF) estimates there are 415 million adults with diabetes worldwide with the population expected to increase 55% to 642 million by 2040.

Infectious diseases: Nearly 15 million people die each year from infectious diseases and nutritional deficiencies. Interventions such as innovative diagnostics, vaccines, and treatments could save and improve millions of lives every year.

Improving healthcare efficiency: As healthcare systems in the developed markets are increasing focused on reducing costs, we see opportunities to invest in companies that are focused on improving the efficiency of healthcare. For example, over the past several years in the United States, the government reimbursement system has provided incentives for hospitals to improve their infection rates, adoption healthcare IT systems (which in turn is aimed to improve efficiency and reduce errors), and improve the quality of outcomes. Digital tech innovations in healthcare and fitness that empower consumers can reduce costs and improve outcomes to change people's lives for the better.

Abbott Laboratories (ABT, Buy – Price Target $49, DB Analyst: Kristen Stewart)

- Market Cap (as of Feb 14, 2017): USD $75.1 billion
- Theme Exposure: Abbott is a global healthcare products company with broad exposure to a number of health issues throughout each of its product segments. The company's has four operating divisions including Nutritionals, Established Pharmaceuticals, and Medical Devices. The businesses cross each of the sustainable themes above. The company has a significant amount of sales in emerging markets and thus it has leverage to faster growing markets. Within Nutritionals, Abbott can drive enhanced growth through the increase

in births, the rise in the number of women working and rise in the middle class, as well as increase in nutritional needs. In Diagnostics, the company has a host of products that can detect infectious diseases. The Established Pharmaceuticals business is exclusively branded generics in emerging markets. Medical Devices includes cardiovascular and diabetes products. The January 2017 acquisition of St. Jude Medical strengthens Abbott's ability to provide solutions in cardiovascular.

- Investment Thesis: On January 4, 2017, Abbott completed its acquisition of St. Jude Medical. The deal strengthens Abbott's existing medical device franchise and provides access to other high growth, high margin markets. While St. Jude has faced growth challenges of late, we believe growth should reaccelerate upon new product approvals. We continue to model mid single digit top line and double digit bottom line growth. We view the valuation as attractive and believe as product milestones are achieved and the company delivers on the integration and growth targets, the PE multiple should expand to that of its peers and historical values. We reiterate our Buy rating.

Medtronic Inc. (MDT, Buy – Price Target $96, DB Analyst: Kristen Stewart)

- Market Cap (as of Feb 14, 2017): USD $105.8 billion
- Theme Exposure: Medtronic has material exposure to several chronic health issues such as cardiovascular diseases, diabetes, and obesity. Medtronic's strategy has also shifted over the past six years into not only being a provider of medical devices but medical technology solutions as the company is focused on being a partner with healthcare systems and governments in helping to improve access and cost to healthcare. Emerging markets represent approximately 13% of total sales and represent an opportunity for growth.
- Investment Thesis: We believe Medtronic is well positioned for the current and future healthcare environment. We believe it has the appropriate strategic focus, as well as a number of new products in the pipeline that should help accelerate growth along with continued emerging market performance. We also believe it will benefit longer term from its size and scale. We see many strategic financial and operational benefits from its acquisition of Covidien. Given our outlook and the valuation, we rate MDT a Buy.

Becton Dickinson (BDX, Buy – Price Target $197, DB Analyst: Kristen Stewart)

- Market Cap (as of Feb 14, 2017): USD $38.0 billion
- Theme Exposure: BD provides innovative solutions that help advance medical research and genomics, enhance the diagnosis of infectious disease and cancer, improve medication management, promote infection prevention, equip surgical and interventional procedures, optimize respiratory care and support the management of diabetes.
- Investment Thesis: We believe the CareFusion integration is going well and longer term the acquisition brings not only financial benefits but also strategic and operational benefits. Becton is well positioned to continue to grow its sales and EPS growth in the mid-single and double digits, respectively. We believe Becton has low risks from a reimbursement perspective. Given all this and the stock's valuation, we rate BDX a Buy.

Nutrition

Within the Health & Wellness theme, nutrition is playing an ever important role, and is one of the longer established sub-themes identified. Companies like White Wave (WWAV) have played on the "better-for-you" trend with organic products, while Kroger (KR) has been a leader with strong financial performance that also maintains one of the largest organic offerings in the food retail sector. Additionally, United Natural Foods (UNFI) set out to capitalize on the shifting consumer preferences, and is the largest distributor of natural and organic foods in the U.S. In our view, nutritional importance is a theme with ample runway.

Kroger Co. (KR, Buy – Price Target $39, DB Analyst: Shane Higgins)

- Market Cap: USD 32 billion
- Theme Exposure: When Kroger announced its "meaningful stake" in natural foods grocer Lucky Market, it further cemented its strategic vision of providing wholesome and organic foods to its customers. Kroger has been producing annual sustainability reports for 10 years and announced ambitious 2020 goals including 100% sustainable seafood and to meet and exceed EPA's "zero waste" threshold.
- Investment Thesis: We have a Buy on KR due to its key competitive advantages, including 1) its scale as the second largest grocer in the U.S., 2) its strong local market share positions (#1 or #2 in most of its major markets), and 3) its ability to analyze its large loyalty card database to provide targeted promotions and other offers. With these advantages, KR has realized an impressive run of 50 consecutive quarters of positive non-fuel identical store sales and earnings growth. We believe that KR is very well positioned to drive continued share gains and to achieve its +8-11% long-term EPS growth target (+ growing dividend) given ongoing investments in its Customer 1st strategy.

Fitness

While sportswear accounted for 15.4% of global apparel & footwear in 2014, DB expects the share to grow driven by global middle class emergence, government and corporate promotion of sports, and athletic preference shift. The total market size outside of North America can increase 4x to 5x through 2030.

Figure 46: Health & Fitness Thematic Universe

			Price	Implied Upside /		Market Cap	Hist. P / E		Hist. EV / EBITDA		2017E		Price Performance			ESG Theme
Company	Rating	Analyst	Target	(Downside)	Price	(USD M)	2015	2016	2015	2016	P / E	EV / EBITDA	1yr	3yr	5yr	Exposure
Health & Fitness																
Abbott Laboratories*	Buy	Kristen Stewart	$49.0	19%	$41.0	$70,583	19.3x	18.9x	14.7x	13.1x	16.9x	NA	8%	12%	57%	Medium
Medtronic*	Buy	Kristen Stewart	$96.0	29%	$74.7	$102,525	17.3x	16.5x	13.1x	13.5x	14.9x	12.2x	(2%)	31%	92%	High
Becton Dickinson*	Buy	Kristen Stewart	$197.0	13%	$174.8	$37,277	24.7x	20.6x	17.4x	13.9x	18.5x	12.0x	20%	62%	121%	Medium
Kroger*	Buy	Shane Higgins	$39.0	16%	$33.6	$31,521	16.4x	16.1x	7.7x	7.6x	15.0x	7.1x	(13%)	85%	179%	High
United Natural Foods	Hold	Shane Higgins	$46.0	0%	$46.0	$2,326	16.2x	17.8x	9.0x	9.5x	18.0x	9.0x	31%	(33%)	5%	High
Nike*	Buy	Paul Trussell	$65.0	22%	$53.1	$70,343	24.5x	22.6x	16.2x	15.6x	20.2x	11.0x	(14%)	44%	105%	High
Fitbit	Hold	Sherri Scribner	$6.0	(1%)	$6.1	$1,031	5.6x	NM	1.9x	11.4x	14.2x	2.1x	(63%)	NA	NA	High
Under Armour	Hold	Paul Trussell	$32.0	28%	$25.1	$10,824	35.5x	33.2x	18.7x	16.2x	36.4x	16.2x	NA	NA	NA	High
CVS	Hold	George Hill	$88.0	12%	$78.7	$83,907	15.3x	13.6x	9.3x	8.4x	13.4x	8.5x	(19%)	16%	88%	High
Zoetis	Buy	Gregg Gilbert	$62.0	14%	$54.3	$26,800	31.0x	28.3x	21.3x	17.7x	23.3x	15.4x	26%	77%	NA	High
Thermo Fisher Scientific	Buy	Dan Leonard	$163.0	14%	$143.3	$56,603	20.6x	18.4x	17.2x	16.5x	15.8x	14.4x	9%	25%	173%	Low
S&P 500					$2,281		17.5x	18.8x					18%	27%	74%	
Average							20.6x	20.6x	13.3x	13.0x	18.8x	10.8x	(2%)	35%	103%	

Source: Deutsche Bank, Factset

Theme 7: Industrial Automation

Overview and Impact Potential

Advancements in sensors, mechanical systems, wireless communication, computing, and cameras among others are enabling industrial IoT, advanced robotics and automation systems. The 2016 World Economic Forum's theme – The Fourth Industrial Revolution – focused on the fusion of these technologies that is blurring the lines between the physical and digital spheres.

According to data from Dell, the benefits reported by manufacturing executives who deployed Industrial Internet of Things applications are clear:

- 53% of manufacturing executives utilizing IIoT reported an improvement in business innovation.
- 50% of manufacturing leaders increased their competitive edge.
- 50% also says to have reduced total cost of ownership (TCO).

While within the Industrial Internet of Things market, strong growth sub-sectors include healthcare / medical device IIoT and utility IIoT, the bulk will come from the manufacturing segment. According to a recent survey by 200 delegates the Industry of Things World conference in Berlin, IIoT is about advancing production processes, introducing new forms of cooperation in the supply chain, and delivering innovative ways of commercializing products and services. Among the survey, about 2/3s of respondents said as manufacturers, the main concern is with vertical integration, allowing for increased efficiencies and flexibility in production.

Predictive maintenance, self-optimizing production, and automated inventory management are the three top uses cases driving IoT market growth through 2020. Business leaders are asking how IoT can help their companies increase customer satisfaction, improve quality, support new business models (such as data-driven services), and reduce costs. In response to this, BCG completed an extensive analysis of use cases. They found the ten most valuable use cases include the ability to use sensors to predict when machinery will need to be repaired, self-optimizing production, automated inventory management, remote patient monitoring, smart meters, track and trace, connected cards, distributed generation and storage, fleet management and demand response.

According to new research by Frost & Sullivan, driven by IIoT, the global market for robotics in manufacturing is steadily growing. The report contends that since the "industrial cloud" is in a nascent stage, manufacturing companies remain unclear about its benefits. However, digitization and human-robot collaboration are set to transform manufacturing business models. Major contenders in the industry are investing in intuitive large robots for factory operations, and as a result, the adoption of industrial robots in factories will see a CAGR of ~14% between 2016 and 2023.

Despite the common anxiety over human jobs lost to machines, we believe automation offers significant positive social impact with dramatically improved output, more affordable goods and services, and more jobs. ARK Research estimates that by 2035, automation and robotics can generate over $12 trillion real GDP in the U.S. alone – more than double per worker. There are many historical examples. During the industrial revolution, when certain weaving processes were automated, workers were prompted to focus on the things machines could not do such as operating a machine, and tending multiple machines; this caused output to grow explosively (by a factor of 50), which

made products cheaper and increased demand, which in turn created more jobs for weavers (quadrupled between 1830 and 1900).

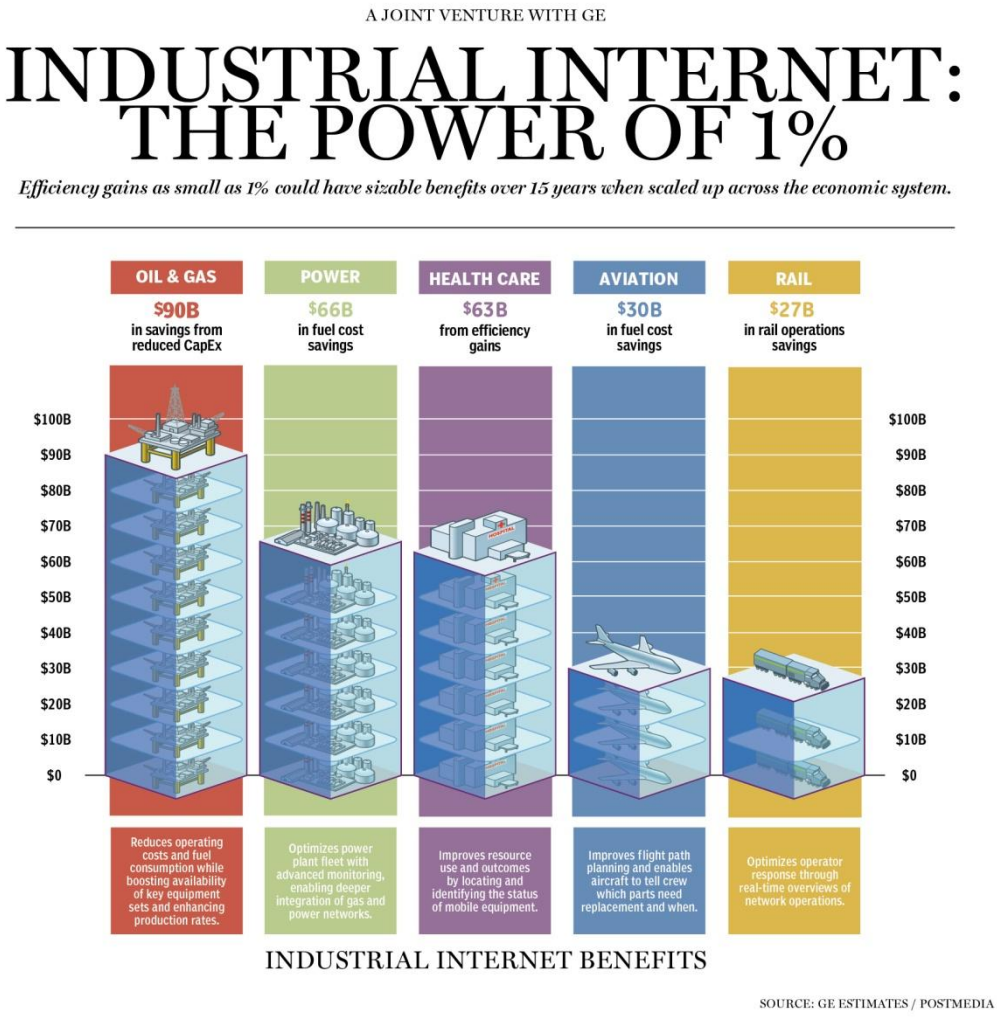
On the environmental front, industrial automation which includes process control, robotics, laser and software can make manufacturing processes more efficient, safer and less polluting. IoT that enables smart buildings, smart cities and autonomous electric vehicles (AEVs) can revolutionize urban planning, and give back free and green space to global cities as parking becomes obsolete.

Market Opportunity

Industrial IoT: Worldwide IoT spending is expected to reach $1.29 trillion in 2020, representing a 2015-2020E CAGR of 15.6% driven by continued investments on connectivity, hardware, software, and services according to IDC. Gartner forecasts 30% annual growth from 2015 to 2020 to 25 billion connected things. Specifically, the IoT market is expected to reach a TAM of $267B by 2020, and 50% of spending is expected to be driven by manufacturing spend. This estimate is from a recent Boston Consulting Group report, stating that between 2015 to 2020, revenue from all layers of the IoT technology stack will attain a least a 20% CAGR.

Automation & Robotics: ARK Research estimated that by 2035, cumulative investments in automation and robotics could reach $4 trillion, and generate over $12 trillion additional real GDP in the U.S. – more than double real GDP per U.S. worker. In 2015, global unit sales of industrial robots were only ~250,000, ARK estimates that the cost will be cut in half to ~$100,000 in the next ten years. Moreover, deep learning combined with computer vision is enabling a new generation of nimbler robots to learn new tasks on the job and work safely alongside humans, which can drive global robotic volume by ten-fold. City infrastructure will be retrofitted with sensors and communications protocols that will enable Autonomous Electric Vehicles (AEVs).

Figure 47: Industrial Internet Benefits



Source: GE Estimates / POSTMEDIA

Rockwell Automation (ROK, Buy- Price Target $173, DB Analyst: John G. Inch)

- Market Cap: USD 18 billion
- Theme Exposure: ROK provides automation solutions for a broad range of industries. It is positively exposed to the growing consumer economy in EM and EV manufacturing. Automation equipment demand appears to have meaningfully picked up since the US election, with robust order/quoting activity underway.
- Investment Thesis: We view Rockwell as one of the most cyclical multi-industry companies. In turn, we view the current period to be proportionately a mid-cycle pause rather than the beginning of a US recession. Consequently, we believe future sentiment toward ROK can turn up. We also see the company as one of the more obvious beneficiaries of China's transition toward a consumer economy. Additionally, we believe there is a growing likelihood that Rockwell accelerates share repurchase in the coming months. These attributes support our Buy rating.

Cognex (CGNX, Buy – Price Target $74, DB Analyst: Karen Lau)

- Market Cap: USD 5.6 billion
- Theme Exposure: We consider Cognex to be a focused play on the secular factory automation theme. Cognex is the market leader in machine vision and industrial identification (ID), as well as an emerging player in the logistics ID and mobile computing space. The company's machine vision products help end users detect, measure and inspect products, while also providing information to guide machines and robots.
- Investment Thesis: The machine vision industry has been growing at an average high single to low double-digit rate over the years. Cognex product sales for factory automation applications have exceeded that market growth rate and realized mid-teens CAGR over the past 10 years. We attribute Cognex's capacity to outgrow its market to the company's ability to identify new applications and markets for its technologies. Going forward, we expect further penetration into the logistics ID and mobile computing, on-going adoption of machine vision in the consumer electronics assembly lines, rising adoption of 3D, as well as strong automation investments in China to contribute significantly to Cognex's growth.

Private Companies

While consumer gadgets IoT has been a tech trend for many years, industrial IoT (IIoT) is reaching critical mass in recent years. The enormous potential for efficiency gains, as well as energy and material savings is attracting billion-dollar investments into the space. With the use of net-worked machines, data-collecting sensors, cloud platforms, and machine learning software, dramatic improvements can be gained in manufacturing, logistics, mining, oil, utilities and agriculture processes. Eyeing the opportunity, large industrial tech companies such as GE, IBM, Intel and Cisco have not only invested heavily in internal R&D, but also startups through corporate venture arms. Below we provide a brief overview of the startup landscape.

Manufacturing & Supply Chain

- CargoSense
- Momentum Machines
- Rethink Robotics
- Robo CV

Extraction & Heavy Industry

- Groundsensing
- Tachyus
- Aptomar
- Skycatch

Network Infrastructure & Sensor Developers

- Samsara
- DorsaVi
- SigFox

Utilities & Smart Grid

- Trilliant
- Tendril

- BluePillar

Cloud Platforms

- Meshify
- TempoIQ

IIoT Cybersecurity

- Bastille

Figure 48: Industrial Automation Thematic Universe

Company	Rating	Analyst	Price Target	Implied Upside / (Downside)	Price	Market Cap (USD M)	Hist. P / E 2015	Hist. P / E 2016	Hist. EV / EBITDA 2015	Hist. EV / EBITDA 2016	2017E P / E	2017E EV / EBITDA	Price Performance 1yr	Price Performance 3yr	Price Performance 5yr	ESG Theme Exposure
Industrial Automation																
Rockwell Automation*	Buy	John G. Inch	$173.0	14%	$151.5	$19,476	23.8x	25.7x	13.7x	15.7x	24.1x	14.6x	59%	35%	89%	High
Cognex*	Buy	Karen Lau	$74.0	10%	$67.1	$5,744	31.6x	43.4x	40.4x	33.2x	38.1x	26.7x	108%	74%	223%	High
Xilinx	Hold	Ross Seymore	$57.0	(4%)	$59.1	$14,923	28.3x	25.4x	18.1x	18.2x	24.5x	16.4x	18%	26%	65%	Medium
Teradyne	Buy	Sidney Ho	$30.0	4%	$28.8	$5,795	22.3x	18.8x	10.7x	11.3x	17.4x	10.6x	48%	51%	74%	Low
Fanuc	Buy	Takeshi Kitaura	¥ 24,000	7%	¥ 22,470	$40,282	27.1x	36.9x	16.0x	20.9x	31.5x	NA	42%	34%	77%	High
Omron Corp	Hold	Takeshi Kitaura	¥ 4,600	(4%)	¥ 4,790	$9,003	21.2x	23.4x	9.7x	10.0x	20.8x	0.1x	55%	15%	214%	Medium
S&P 500					$2,281		17.5x	18.8x			19.2x		18%	27%	74%	
Average							25.7x	29.0x	18.1x	18.2x	26.0x	13.7x	55%	39%	124%	

Source: Deutsche Bank, Factset

Appendix 1

Important Disclosures

*Other information available upon request

Disclosure checklist

Company	Ticker	Recent price*	Disclosure
Acuity Brands	AYI.N	220.29 (USD) 17 Feb 17	NA
Aquaventure	WAAS.N	17.06 (USD) 17 Feb 17	1,2,7,8

Prices are current as of the end of the previous trading session unless otherwise indicated and are sourced from local exchanges via Reuters, Bloomberg and other vendors . Other information is sourced from Deutsche Bank, subject companies, and other sources. For disclosures pertaining to recommendations or estimates made on securities other than the primary subject of this research, please see the most recently published company report or visit our global disclosure look-up page on our website at http://gm.db.com/ger/disclosure/DisclosureDirectory.eqsr. Aside from within this report, important conflict disclosures can also be found at https://gm.db.com/equities under the "Disclosures Lookup" and "Legal" tabs. Investors are strongly encouraged to review this information before investing.

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1. Within the past year, Deutsche Bank and/or its affiliate(s) has managed or co-managed a public or private offering for this company, for which it received fees.
2. Deutsche Bank and/or its affiliate(s) makes a market in equity securities issued by this company.
7. Deutsche Bank and/or its affiliate(s) has received compensation from this company for the provision of investment banking or financial advisory services within the past year.

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Analyst Certification

The views expressed in this report accurately reflect the personal views of the undersigned lead analyst about the subject issuers and the securities of those issuers. In addition, the undersigned lead analyst has not and will not receive any compensation for providing a specific recommendation or view in this report. Vishal Shah

Historical recommendations and target price: Acuity Brands (AYI.N)

(as of 2/17/2017)

1. 11/21/2016: Upgrade to Buy, Target Price Change USD300.00 Vish 2. 01/09/2017: Buy, Target Price Change USD280.00 Vish Shah Shah

Historical recommendations and target price: Aquaventure (WAAS.N)

(as of 2/17/2017)

1. 10/30/2016: Upgrade to Buy, Target Price Change USD27.00 Tyler Goldman

Equity rating key

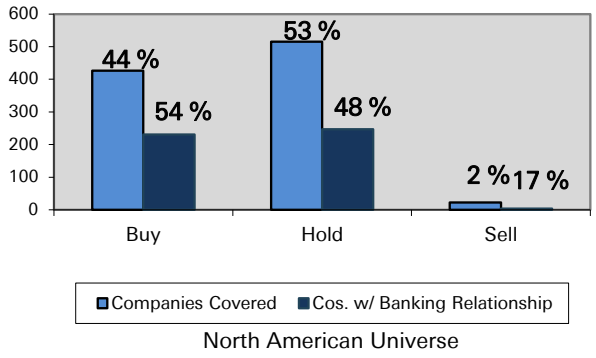
Buy: Based on a current 12- month view of total share-holder return (TSR = percentage change in share price from current price to projected target price plus pro-jected dividend yield) , we recommend that investors buy the stock.

Sell: Based on a current 12-month view of total share-holder return, we recommend that investors sell the stock

Hold: We take a neutral view on the stock 12-months out and, based on this time horizon, do not recommend either a Buy or Sell.

Newly issued research recommendations and target prices supersede previously published research.

Equity rating dispersion and banking relationships



North American Universe

Additional Information

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