

A photograph of laboratory glassware, including Erlenmeyer flasks, a graduated cylinder, and a beaker, arranged on a reflective surface. The glassware is partially filled with a clear liquid. The background is a soft, out-of-focus blue.

Market Update Chemicals

Q2 2016

Inside This Issue

Global Chemicals M&A Activity in 1H 2016

Chemicals Industry Momentum Improved in Q2 2016

Q2 2016 Market Commentary and Selected Transactions

Q2 2016 Key Chemicals Market Statistics

Highlighted Lincoln International Chemicals Transactions



Andrew Karlin is a New York-based Associate with Lincoln International's Global Chemicals practice. He is a graduate of Wharton Business School and the Lauder Institute for International Studies.

Global Chemicals M&A Activity in 1H 2016

After a record year of global deal activity in 2015, M&A activity in 1H 2016 slowed, particularly mega-deals, given political and macroeconomic uncertainty, as well as increased regulatory scrutiny. Based on surveys from *FT Remark*, *Mergermarket* and *Allen & Overy*, factors contributing to the M&A slowdown in 1H 2016 included concerns over interest rate movements, Brexit, stricter regulations around tax inversions, antitrust probes, China's economic slowdown and volatility in leveraged finance markets. Brexit will likely continue to reduce transaction activity in the months ahead as investors fully grasp the full implications. In addition, slower global economic growth in general, coupled with unrest in the Middle East and stricter regulatory regimes around the world will continue to negatively impact M&A appetite. That being said, the M&A outlook for 2H 2016 remains fairly positive and is expected to exceed 1H 2016 activity.

Worldwide deal volume in 1H 2016 decreased ~11.5% year-over-year, and transaction values fell ~19.1% compared to the previous year. In Q2 2016, global M&A deal transaction value decreased ~18.0% year-over-year, with nearly half of all deals terminated, resulting in ~\$312.0 billion of lost activity. In 1H 2016, the number of deals in the Americas declined ~10.0% over the prior year period to 2,866 transactions. In terms of deal value in the Americas, 1H 2016 fell to ~\$636 billion, a ~30.0% drop versus 1H 2015 and a ~46.0% drop on the blockbuster 2H 2015 period. Deal value in Europe dropped ~27.0% versus the prior year period to ~\$500 billion partly due to political instability ahead of the UK's vote to leave the EU. Deal volume in the UK decreased ~66.0% to ~\$68.0 billion, and in Italy, it fell ~44.0% to ~\$14.0 billion. Additionally, Asia Pacific M&A decreased ~24.0% year-over-year to ~\$440.0 billion, but M&A demand in China remained strong. According to data from *Thomson Reuters*, Chinese companies agreed to ~\$120.0 billion in cross-border deals in 1H 2016, surpassing the country's all-time record of ~\$111.0 billion set in 2015. China-based buyers are expected to remain active in 2H 2016. Moreover, global transaction multiples continued to increase. Thus far in 2016, the average reported transaction multiple across all industries has reached ~11.1x, representing the highest multiple since 2007. In the U.S., the median EBITDA multiple is at its highest point since the 1990s. Investors remain willing to pay premiums for high-quality assets with sustainable and profitable growth trajectories.

Despite lackluster M&A activity thus far this year, the chemicals sector has remained promising. According to a *Mergermarket* report, chemicals deal value for 1H 2016 was ~\$244.0 billion, and the chemicals sector was the only one that experienced growth versus 2Q 2015. This burst of chemicals M&A activity was due partly to continued consolidation in the agrochemicals space and stronger activity in emerging markets. Moreover, weaker organic growth and profitability has driven companies to re-scale assets, leverage core competencies and focus on end markets that drive the bottom line. With limited returns on organic growth, chemicals companies continue to aggressively re-evaluate their portfolios, divesting non-strategic holdings and targeting add-ons that bolster their competitive edge. The chemicals industry continues to globalize and search for new opportunities of scale across areas of core competencies. For 2H 2016, the chemicals M&A environment is expected to remain moderately strong as companies invest in emerging technologies and products.

Regulatory pressures may continue to hamper cross-border M&A appetite. That being said, the Committee on Foreign Investment in the U.S. (CFIUS) just gave the green light to ChemChina's proposed \$43.0 billion acquisition of Syngenta AG, which represents the largest outbound Chinese acquisition in history. Leading up to the decision, the U.S. National Farmers Union and a prominent food safety group had battled to get CFIUS to block the acquisition, arguing that the deal presented an "unacceptable national security risk." Regulatory approval from CFIUS on this deal bodes well for future cross-border transactions, as it indicates that CFIUS tends to evaluate deals on their own merits without being unduly swayed by outside entities.

One other major regulatory development in the chemicals sector earlier this year was the approval by the U.S. Senate of a major overhaul to the country's Toxic Substances Control Act (TSCA), which governs the treatment of industrial chemicals. The law will require chemicals companies to undergo mandatory testing by the EPA and is expected to cost companies millions of dollars in testing payments. As a result, chemicals companies have begun to utilize and acquire technologies to improve efficiency in manufacturing, pricing and marketing. As the industry aims to enhance profitability, companies will need to secure such technologies and their corresponding benefits to survive and thrive.

Sources:

Bloomberg; *Capital IQ*;
Mergermarket; *FactSet MergerStat*;
Allen & Overy; *FT Remark*; *Thomson Reuters*; analyst reports; press releases; public filings



Richard O'Reilly, CFA, is a chemicals analyst who writes for Revere Associates. He previously served as Associate Director at S&P in its U.S. Equity Research – Chemicals Division.

Notes:

This section reflects the views of Richard O'Reilly, CFA, who writes for Revere Associates. Mr. O'Reilly is not employed or compensated by Lincoln International, and the views set forth in this section are those of Mr. O'Reilly and should not be assumed to reflect the views of Lincoln International.

Contact Details:

Richard O'Reilly, CFA
Managing Analyst
Revere Associates

+1 (732) 821-5043
reor11@verizon.net

Chemicals Industry Momentum Improved in Q2 2016

Guest Columnist

Based on economic and industry reports, business conditions for the U.S. chemicals industry improved during Q2 2016. The overall domestic economy continued to advance, as real GDP growth was greater than Q1 2016's sluggish 1.1% annual rate. Additionally, the expansion of the domestic manufacturing sector appears to have strengthened in Q2, while headwinds from a strong U.S. dollar have eased a bit during the quarter. The U.S. construction and automotive markets remained healthy, helping companies with exposure to those markets.

The chemicals industry reported solid, but mixed results, largely in part to unfavorable currency impacts. For example, makers of basic chemicals and plastics were limited by lower selling prices versus Q2 2015, although results have improved from Q1 2016. Moving forward, margins in Q2 2016 for downstream and specialty chemicals producers, such as paint makers, will benefit from increased demand and favorable materials cost. Fertilizers producers reported fairly weak earnings due to challenging markets and lower prices. However, companies that have undertaken major share buyback programs reported more favorable earnings.

The American Chemistry Council (ACC) in late June reported that its Chemicals Activity Barometer (CAB), a leading macroeconomic indicator based on chemicals industry data, on a three-month moving average basis, increased each month during Q2 2016. The report noted that June was 2.5% higher year-over-year. The ACC said the index was signaling higher U.S. business activity through the end of 2016. Additionally, according to the monthly worldwide PMI business surveys, the global manufacturing sector, the most important market for the chemicals industry, exhibited lackluster growth in Q2 2016. The U.S. manufacturing sector, however, appeared to have strengthened in Q2 2016, following sluggish growth in Q1 2016. According to the Institute for Supply Management's monthly reports for manufacturing activity, U.S. manufacturing activity in June expanded for the fourth consecutive month and at the fastest pace since early in 2015. According to the Association of American Railroads, railcar loadings suggest that the pace of growth of shipments slowed during the quarter for the chemicals industry. U.S. railroad carloads of chemicals increased 1.5% year-over-year, but

were down from the 3.2% growth reported in Q1 2016. This recent growth is a pick-up from the pace in 2015 when rail shipments increased only 0.4% for the full year. Railroads carry about 30.0% of industry shipments.

Selling prices for many key chemicals products stabilized during the latter half of Q2 2016 following a rebound from their declines earlier in the year. The domestic monthly contract prices for ethylene, the largest volume petrochemical monomer, bottomed to its lowest price since January 2003, but gradually increased for the next three months due to a greater amount of industry supply outages. In Q2 2016, contract prices for ethylene were 13.0% higher on average than Q1 2016; however, the selling price was 11.0% lower than in Q2 2015. Moving forward, U.S. contract ethylene margins are expected to widen despite higher average feedstock costs.

Domestic prices for derivative plastics increased in Q2 2016. Prices from polyethylene makers, including Dow Chemical, LyondellBasell and Westlake Chemical, held during the quarter after increases in both March and April. Polyvinyl chloride prices, which eased during Q4 2015, increased in March and April due to improving seasonal demand and higher ethylene costs. Contract prices for propylene, the second largest volume monomer, were relatively stable in Q2 2016 following declines for most of 2015. Prices, on average, were 5.0% to 6.0% higher in Q2 versus Q1, but about 22.0% less than in the year prior quarter. These lower prices for propylene are reducing prices for derivatives products for paint makers, including Sherwin-Williams, PPG Industries, Axalta and Valspar. Moving forward, prices in 3Q 2016 are expected to be relatively unchanged, which would result in modest unfavorable comparisons versus 3Q 2015.

Inorganic prices and caustic soda contract prices increased in 2Q 2016, breaking a trend of price weakness over the past year. Producers stated that prices will continue to increase in 3Q 2016. Additionally, chlorine prices rose during Q2 2016 as producers had success in price hikes announced early in 2016. Moving forward, major chlorine producers, including Olin Corp. and Axiall, will continue to benefit from rising prices for the remaining months of the year.

During Q2 2016, deal-making for the chemicals sector remained robust. Globally, there were 158 chemicals M&A transactions announced or closed in Q2 2016.

In terms of deals with disclosed values, there were 6 large-cap transactions, defined as those over \$500 million in TEV. Selected notable large-cap transactions announced or closed this past quarter are shown on the right.

There were 48 chemicals deals with disclosed values in the middle market, defined as transactions under \$500 million in TEV. Selected middle market chemicals transactions that were announced or closed this past quarter are shown on the right.

There were 104 chemicals deals for which transaction values were undisclosed.

Sources:

Bloomberg; Capital IQ; Mergermarket; FactSet MergerStat; Federal Reserve; analyst reports; press releases; public filings

Q2 2016 Market Commentary and Selected Transactions

Selected Large-Cap Transactions

- On May 5, 2016, **Evonik Industries AG (DB:EVK)** agreed to acquire **Air Products and Chemicals' Performance Materials Division** for \$3.8 billion. The division manufactures epoxy resins, printing ink resins, epoxy curing agents, accelerators surfactants, curatives and specialty additives.
- On May 18, 2016, **Bayer AG (ETR:BAYN)** signed a general agreement to acquire **Monsanto Company (NYSE:MON)** for \$62.0 billion, representing a 13.1x 2015 EBITDA and 4.1x revenue multiple. Monsanto is a U.S.-based chemicals company that provides agricultural products for farmers, including corn, soybean, cotton and canola seeds under various brand names. This transaction was the largest deal of 2Q 2016 across all industries.
- On June 10, 2016, **Westlake Chemical Corporation (NYSE:WLKP)** agreed to acquire **Axiall Corporation (NYSE:AXLL)** for \$3.6 billion, representing a 10.7x 2015 EBITDA and 1.1x revenue multiple. Axiall Corporation manufactures and markets chemicals and building products in the U.S. and internationally.

Selected Mid-Market Transactions

- On May 24, 2016, **Changhae Ethanol Co. (KOSDAQ:A004650)** agreed to acquire **Hite Jinro Ethanol Co.** for \$61.9 million. The Company manufactures commodity chemicals worldwide.
- On May 26, 2016, **EPC Groupe (ENXTPA:EXPL)** agreed to acquire **Nordex Explosives Ltd. (TSXV:NXX)** for \$7.4 million. Nordex Explosives manufactures and distributes explosive products for the mining, quarry and road construction industries in Canada.
- On June 1, 2016, **Ferro Corporation (NYSE:FOE)** signed a definitive agreement to acquire **Pinturas Benicarló, S.L.** for \$16.8 million. The Company manufactures and sells industrial paints, glass painting and plastic products across different industries.
- On June 6, 2016, **Chengdu Guibao Science & Technology Co., Ltd. (SZSE:300019)** agreed to acquire **Wuhan Huasen Plastic Ltd.** for \$121.9 million. The Company manufactures plastic and foam products in China.
- On June 7, 2016, **Ontario, Inc.** agreed to acquire **Migao Corporation (TSX:MGO)** for \$253.1 million, representing a 23.4x 2015 EBITDA multiple. Miago produces specialty fertilizers for agricultural markets.
- On June 8, 2016, **Dalian Rubber & Plastics Machinery Co. (SHSE:600346)** agreed to acquire **Yingkou Kanghui Petrochemical Co.** for \$97.2 million. The Company manufactures and sells polyester engineering plastics.

Of the 158 chemicals transactions in Q2 2016 globally, ~37% involved targets in North America, ~34% were in Europe, ~23% were in Asia Pacific, ~4% were in Latin America and <2% were in Africa and the Middle East. Bayer AG (DB:BAYN), Western Leadbank and BASF SE (DB:BAS) had the largest transaction values in North America, Asia Pacific and Europe respectively, with total value of ~\$65.0 billion. The most active buyers, by number of total transactions, were Axalta Coating Systems Ltd. (NYSE:AXTA) and BASF SE (DB:BAS), each with two closed or announced transactions in the quarter. Among deals with disclosed terms, the average TEV / EBITDA was 11.2x.

Notes:

(1) LI Specialty Chemicals Index includes A. Schulmn, Inc.; Air Liquide SA; Air Products and Chemicals, Inc.; Albemarle Corporation; Ashland Inc.; Cabot Corporation; Cambrex Corporation; Celanese Corporation; Chugoku Marine Paints, Ltd.; Clariant AG; Ecolab Inc.; Elementis plc; Evonik Industries AG; Ferro Corporation; Givaudan SA; H.B. Fuller Co.; Hitachi Chemical Co. Ltd.; International Flavors & Fragrances Inc.; Kansai Paint Co. Ltd.; Linde Aktiengesellschaft; NewMarket Corporation; Nippon Paint Holdings Co., Ltd.; Novozymes A/S; PolyOne Corporation; PPG Industries, Inc.; RPM International Inc.; Sanyo Chemical Industries Ltd.; Sensient Technologies Corporation; Shenzhen Capchem Technology Co., Ltd.; Symrise AG; The Valspar Corporation; Wacker Chemie AG; W.R. Grace & Co.; and Zhejiang Transfar Co., Ltd.

(2) LI Diversified Chemicals Index includes 3M Company; Akzo Nobel N.V.; Arkema S.A.; BASF SE; The Dow Chemical Company; E.I. du Pont de Nemours and Company; Eastman Chemical Co.; FMC Corp.; Hubei Yihua Chemical Industry Co., Ltd.; Huntsman Corporation; Kemira Oyj; Lanxess AG; Mitsubishi Chemical Holdings Corporation; Monsanto Company; Olin Corp.; Pidilite Industries Limited; SK Chemicals Co., Ltd.; Solvay SA; Tangshan Sanyou Chemical Industries Co., Ltd.; UPL Limited; and Xinjiang Zhongtai Chemical Co., Ltd.

(3) Large-cap group includes companies in the LI Specialty Chemicals Index with \$5.0 billion or greater in market capitalization

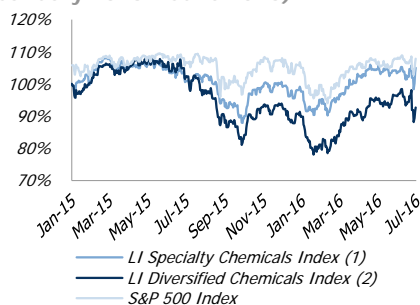
(4) Small-cap group includes companies in the LI Specialty Chemicals Index with less than \$5.0 billion in market capitalization

(5) LI Chemicals Index includes both the LI Specialty Chemicals and LI Diversified Chemicals indices; Lincoln estimates provided for chemicals companies in the index that have not yet published Q2 2016 results

Q2 2016 Key Chemicals Market Statistics

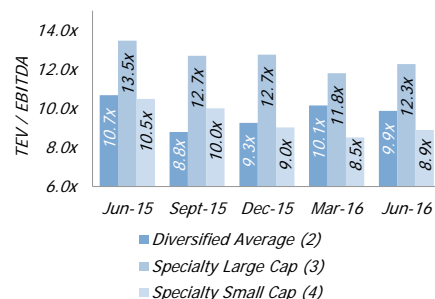
Chemicals Public Market Performance

(January 2015 – June 2016)



TEV / EBITDA Multiples

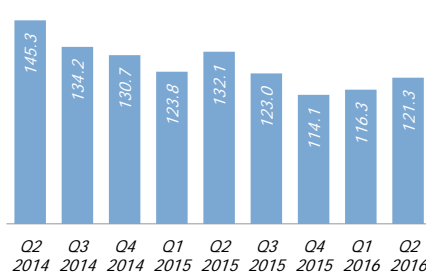
(Q2 2015 – Q2 2016)



LI Chemicals Index - Revenue ⁽⁵⁾

(Q2 2014 – Q2 2016)

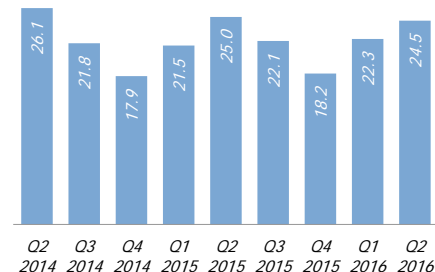
(\$ in billions)



LI Chemicals Index - EBITDA ⁽⁵⁾

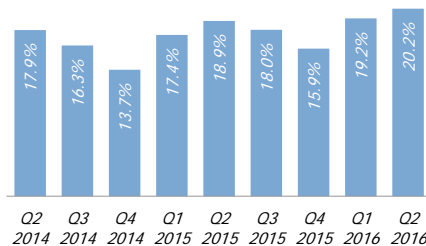
(Q2 2014 – Q2 2016)

(\$ in billions)



LI Chemicals Index - EBITDA Margins ⁽⁵⁾

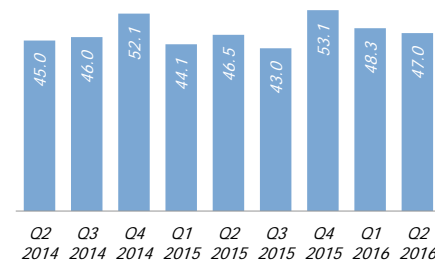
(Q1 2014 – Q2 2016)



LI Chemicals Index - Cash on Balance Sheet ⁽⁵⁾

(Q1 2014 – Q2 2016)

(\$ in billions)



Highlighted Lincoln International Chemicals Transactions



Lincoln International represents Quimipel in its sale to CHT R. Beitlich GmbH

Lincoln International, a leading global mid-market investment bank, represented Quimipel Industria Quimica Ltda (“Quimipel”) in its sale to CHT R. Beitlich GmbH (“CHT Group”), a Germany-based company that manufactures and supplies performance chemicals and additives for fiber production, pre-treatment, dyeing processes, textile printing, finishing and coating applications. CHT Group operates around the world, with turnover of more than €400.0 million (\$443.1 million) and with around 1,800 employees worldwide.

The acquisition of Quimipel offers CHT Group a significant increase in its existing paper business and opens up South America as a new market. Additionally, Quimipel’s products and know-how will complement CHT’s product range globally.

Lincoln International acted as the exclusive financial advisor to Quimipel and its shareholders. Lincoln International prepared multiple financial models, drafted the

marketing materials, advised on negotiations, coordinated due diligence activities, reviewed documentation and facilitated all steps until signing and closing of the transaction. Lincoln International was able to secure a successful outcome in the sale process by emphasizing the importance of Quimipel’s long-term customer relationships and hands-on product development.

About Quimipel

Founded in 1998, Quimipel is a leading Brazilian specialty chemicals supplier to the paper, pulp and water treatment markets. Its portfolio of products supplies every stage of the paper and pulp manufacturing process. It employs over 52 people and has facilities located in Brazil, Chile and Mexico. Quimipel has developed longstanding relationships with blue-chip customers, thus providing strong recurring revenue growth. More information about Quimipel can be obtained at www.quimipel.com.br.



Lincoln International represents nolax Airbag in its sale to Nitto Denko Corporation

Lincoln International, a leading global mid-market investment bank, represented nolax Airbag (the “Business”) in its sale to Nitto Denko Corporation (“Nitto”). nolax Airbag is an asset-light business developed and commercialized by nolax AG, a Switzerland-based adhesives incubator.

Nitto manufactures adhesive tapes, surface protective films, sealing materials and other related products in Japan and internationally. Nitto has a turnover of more than \$7.5 billion and around 30,000 employees worldwide.

Through this acquisition, Nitto gains a unique adhesive thin-film solution that delivers airtightness in side curtain airbags and outperforms conventional products in terms of weight and compactness. Moving forward, Nitto expects to continue expanding both its technological offerings and its share in the automotive safety industry. Lincoln International approached a carefully selected universe of strategic investors with tailored

presentations highlighting the Business’ unique positioning, key competitive advantages and significant growth potential. Lincoln International was able to highlight to multinational corporations the compelling value of the Business’ process capabilities and its strong patent portfolio.

About nolax AG

Founded in 2009, nolax AG manufactures adhesives and technical chemicals products worldwide. nolax AG also develops and sells start-ups related to the technology, construction, medical and automotive sector. The company currently has 60 engineering specialists from various industries and 12 active start-ups located in Europe and North America. nolax Ag operates as a subsidiary of Collano Holding AG, a holding company focused on adhesives and technical chemicals products. More information about nolax AG can be obtained at nolax.com/de/movie.

Global Industry Groups

Aerospace & Defense
Automotive & Truck
Building & Infrastructure
Business Services
Chemicals
Consumer
Distribution
Electronics
Energy & Power
Financial Institutions
Food & Beverage
Healthcare
Industrials
Packaging
Technology & Media

Global Locations

Amsterdam
Beijing
Chicago
Frankfurt
London
Los Angeles
Madrid
Milan
Moscow
Mumbai
New York
Paris
São Paulo
Tokyo
Vienna
Zurich

Advisory Services

Mergers & Acquisitions
Debt Advisory
Valuations & Opinions
Special Situations

About Lincoln International

Lincoln International specializes in merger & acquisition advisory services, debt advisory services, private capital raising and restructuring advice on mid-market transactions. Lincoln International also provides fairness opinions, valuations and pension advisory services on a wide range of transaction sizes. With sixteen offices in the Americas, Asia and Europe, Lincoln International has strong local knowledge and contacts in key global economies. The firm provides clients with senior-level attention, in-depth industry expertise and integrated resources. By being focused and independent, Lincoln International serves its clients without conflicts of interest. More information about Lincoln International can be obtained at www.lincolninternational.com.

Lincoln International's Global Chemicals Group

North America

Federico G.M. Mennella, CFA
Managing Director and Head of
Chemicals – Global (New York)
fmennella@lincolninternational.com
+1 (212) 277-8103

South America

James Sinclair
Managing Director (São Paulo)
jsinclair@lincolninternational.com
+55 (11) 3078-7579

Asia

Joe Chang
Managing Director (Beijing)
jchang@lincolninternational.com
+86 (10) 6535-0190

Takayuki Ishihara
Managing Director (Tokyo)
tishihara@lincolninternational.com
+81 (3) 5549-7684

Europe

Eric Wijs
Managing Director (Amsterdam)
e.wijs@lincolninternational.nl
+31 (20) 301-2266

Matilda Schillo
Director and Head of Chemicals –
DACH (Frankfurt)
m.schillo@lincolninternational.de
+49 (69) 9710-5477

Aamit Joshi
Managing Director and Head of
Chemicals – Europe and Asia
(London / Mumbai)
ajoshi@lincolninternational.com
+44 (77) 9619-9365
+91 (22) 3304-0669

Mark Barrow
Managing Director (London)
mbarrow@lincolninternational.com
+44 (020) 7632-5211

Iván Marina
Managing Director (Madrid)
i.marina@lincolninternational.com
+34 (91) 129-4996

Saverio Rondelli
Managing Director (Milan)
s.rondelli@lincolninternational.it
+39 (02) 3030-0703

Andrei Joosten
Managing Director (Moscow)
a.joosten@lincolninternational.ru
+7 (495) 705-9970

Jean-René Hartpence
Managing Director (Paris)
jr.hartpence@lincolninternational.fr
+33 (1) 5353-1821

Øyvind Bjordal
Managing Director (Zurich)
o.bjordal@lincolninternational.ch
+41 (44) 576-4313

Disclaimer

This document contains significant assumptions and has been prepared based on publicly available information, or additional information supplied by the owners and/or managers of the company(ies) described in this document, which has not been independently verified. Accuracy and completeness of the information provided has been presumed and, therefore, its content may or may not be accurate and complete. No representation or warranty, either express or implied, is provided in relation to the accuracy, completeness or reliability of the information or statements made in this document and Lincoln International, its affiliates, directors, officers, employees and representatives expressly disclaim any and all liability with regards thereto. This document has been prepared for informational purposes only, is not a research report (as such term is defined by applicable law and regulations) and is not to be relied on by any person for any purpose. In addition, it is not to be construed as an offer to buy or sell or a solicitation of an offer to buy or sell any financial instruments or to participate in any particular trading strategy. No part of this material may be copied or duplicated in any form, or redistributed, without the prior written consent of Lincoln International.