



Applied Value Pulp & Paper Report

Quarterly Analysis

Q3, 2019

Applied Value
Kungsgatan 2
111 43 Stockholm, Sweden
Phone: +46(0)8 562 787 00

www.Appliedvaluegroup.com

Applied Value Pulp & Paper Report

Executive Summary & Introduction

Financial Benchmarking

Market Trends

Applied Value Presentation



Average industry revenue declined -2.6 p.p. compared to last quarter mainly explained by lower prices and continued uncertain market conditions

Financial Benchmarking: Highlights in Q3 2019

Key takeaways

Top performers

Revenue Growth

- › Industry sales declined by -2.6 p.p. in Q3 '19 compared to last quarter where all markets suffered from significant price decreases and declining volumes
- › Europe, North America and Latin America reported a YoY average revenue growth of +3.0%, -3.9% and +26.5%, respectively
- › Despite declining prices, Europe had positive growth driven by production capacity investments in new mills and conversion of mills to produce more favorable product mixes
- › Essity and WestRock reported the highest YoY revenue growth of +9.8%, and Verso Corporation reported the highest QoQ revenue growth of +2.3%

Profitability & Costs

- › European average raw material cost over sales was 55.8% in Q3 '19 due to overall lower sales prices, where SCA had the lowest raw material cost over sales at 35.3%
- › American average COGS over sales of 78.7% in Q3 '19 was overall higher than last years' Q3 levels, where International Paper had the lowest COGS over sales of 67.7%
- › North American companies' SG&A cost over sales remained stable from last quarter while Latin American companies experienced a significant decrease
- › Industry average EBITDA margin growth (YoY) was -3.1 p.p. in Q3 '19 and -0.7 p.p. in LTM due to this quarters' low sales prices compared to Q3 '18, resulting in margins at 18.2% and 18.5%

Return On Invested Capital (ROIC)

- › ROIC performance continued to decrease in all regions resulting in a drop by -2.3 p.p. in industry average ROIC ending up at 6.5% in LTM
- › Europe continued to report the highest regional average ROIC in LTM at 7.7% with UPM (14.6%) and Södra (11.3%) as top performers
- › North American companies continued to show a negative ROIC development in LTM, affected by lower sales prices and volumes



Q3 2019 was characterized by continued uncertain market environments where prices reached the lowest levels in the past 24 months

Market Trends: Highlights in Q3 2019

Key takeaways

Industry News	› The overall market environments in all regions was still uncertain highly affected by lower prices and demand in all segments, where packaging paper has the most positive outlook for the next quarter with expected future increased demand › Geopolitical uncertainties related to trade wars and Brexit continued to prevail in the global market › In the third quarter trends in investing in increased production capacity and new products, especially in plastic-free materials, were identified in the European market › Ahlstrom-Munksjö announced an acquisition of the Chinese specialty paper manufacturer Minglian New Materials in Nov 2019
Pulp Prices	› Pulp prices continued to decrease in all regions in Q3 '19 and have now reached the lowest price levels since Oct '17. Prices in Northern Europe, US East, and Asia are down at approx. 650 USD/tonne, 490 USD/tonne and 500 USD/tonne respectively › The pricing pressure continued to increase in both wood and paper due to increased high supply from Central Europe
Graphic Paper & Packaging	› Graphic paper continued to decline in Q3 '19, especially in the categories newsprint and uncoated freesheet › Packaging paper prices also continued to decline in Q3 '19, however prices stabilized at the end of the quarter indicating that demand for sustainable packaging is expected to grow in the future
Commodities & Currencies	› Oil prices have been relatively stable at 58 USD/barrel in the end of June and 54 USD/barrel in the end of September › The US dollar continued to appreciate in Q3 '19, where USD compared to SEK, EUR, GBP, and BRL is down by -6.0 p.p., -2.1 p.p., -4.3 p.p., and -5.1 p.p. respectively in LTM, continuing to benefit European and Latin American export › Electricity prices have increased since the last quarter, with Germany and Europe around 37 EUR/MWh and US at 7.5 Cents/KWh

Note: WTI Spot Crude Oil prices are per 30 Sep 2019.

Source: RISI, Interim & Annual Results.



Applied Value's quarterly Pulp & Paper Report is focused on financial benchmarking and market trends affecting the industry

In this Pulp & Paper Report, Applied Value provides essential financial benchmarking focused on the latest quarter and 12-month period, while also offering a brief update on the latest market trends.

The report provides a clear, understandable and useful analysis of the relative performance of a selection of global Pulp & Paper companies. Moreover, it provides an overview of the industry and relevant market trends that occurred during the quarter.

Growth

Industry growth latest 4 quarters and LTM

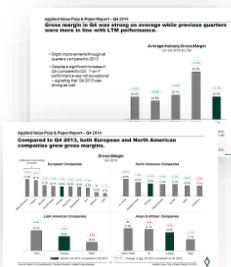
Growth in the latest quarter per company and region



EBITDA Margins

Average Industry EBITDA margin latest 4 quarters and LTM

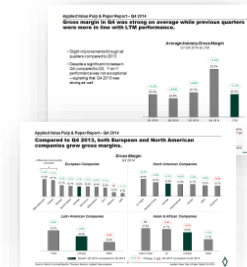
EBITDA margin for the latest quarter per company and region



ROIC

ROIC per region for the latest two 12-month periods

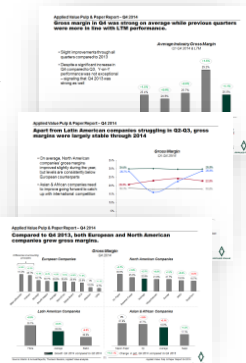
ROIC development per company and region for LTM



Operational Costs Breakdown

Operational Costs Breakdown latest quarter per company and region

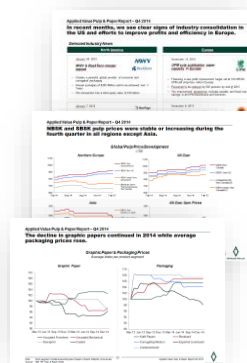
Operational Costs development YoY per company and region



Market Trends

Pulp & Papers market price movements

Commodity prices and currency movements



The report is based on the financial performance of 20 leading Pulp & Paper companies from Europe, North American, and Latin America

Companies included in Financial Benchmarking in the Q3 2019 report

Market	Company	Revenue LTM (MEUR)	Country	Packaging	Paper	Newsprint	Sanitary	Other
Europe	Essity	11,797	SE				✓	
	UPM	10,522	FI		✓	✓		✓
	Stora Enso	10,302	FI	✓	✓	✓		✓
	Metsä Group	5,609	FI	✓	✓			✓
	Ahlstrom-Munksjö	2,929	FI	✓	✓			✓
	BillerudKorsnäs	2,293	SE	✓	✓			✓
	Södra	2,237	SE					✓
	SCA	2,067	SE	✓	✓			✓
	Holmen	1,560	SE	✓	✓	✓		✓
North America	International Paper	20,936	US	✓	✓	✓		✓
	WestRock	16,773	US	✓	✓			✓
	Packaging Corp. of America	6,411	US	✓	✓			✓
	Graphic Packaging	5,634	US	✓				✓
	Sonoco	4,972	US	✓	✓			✓
	Domtar	4,921	CA	✓	✓	✓	✓	
	Cascades	3,440	CA	✓			✓	
	Resolute Forest	2,923	CA		✓	✓	✓	✓
	Verso Corporation	2,340	US	✓	✓	✓		✓
LAT AM	Suzano	4,885	BR		✓		✓	✓
	Klabin	2,279	BR	✓	✓			✓



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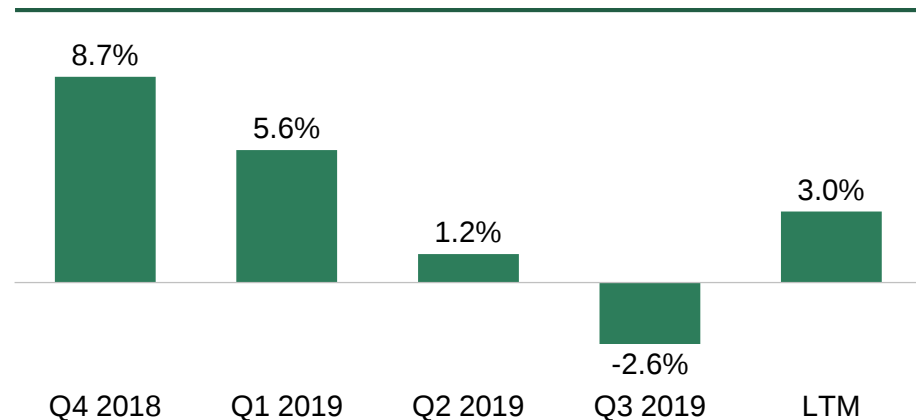
Return On Invested Capital (ROIC)

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- › Europe continued to report the highest regional average ROIC in LTM at 7.7% with UPM (14.6%) and Södra (11.3%) as top performers
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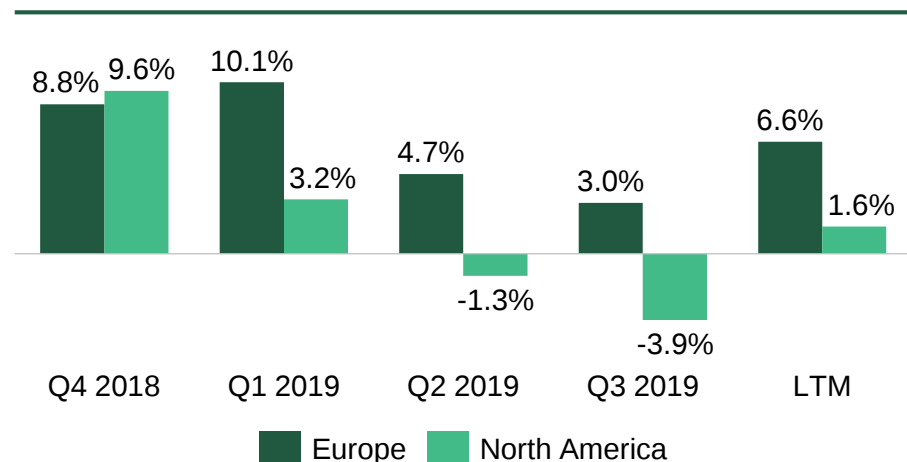


Average industry revenue growth declined by -2.6 p.p. in the third quarter compared to last quarter, indicating a continued negative trend

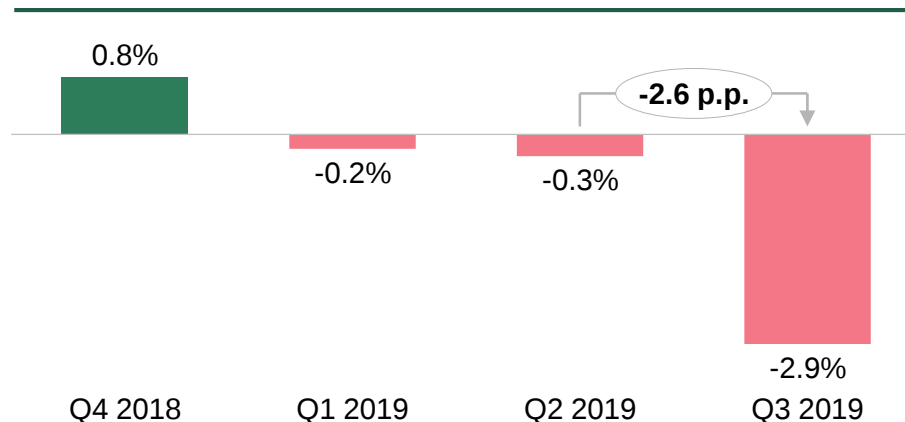
Average industry revenue growth, YoY, Q4 '18 – Q3 '19 & LTM



Average regional revenue growth, YoY, Q4 '18 – Q3 '19 & LTM



Average industry revenue Growth, QoQ, Q4 '18 – Q3 '19



Comments on revenue growth

- › The industry experienced a significant decrease in revenue growth in Q3 decreasing by -2.6 p.p. QoQ, mainly driven by decreasing prices
- › YoY revenue growth decreased by -2.6%, also due to declining sales prices compared to the all-time-high prices in Q3 '18
- › Europe reported a revenue growth of +3.0%, whereas North America had continued negative growth of -3.9%, where Resolute Forest sold off facilities that were still in use in Q3 2018

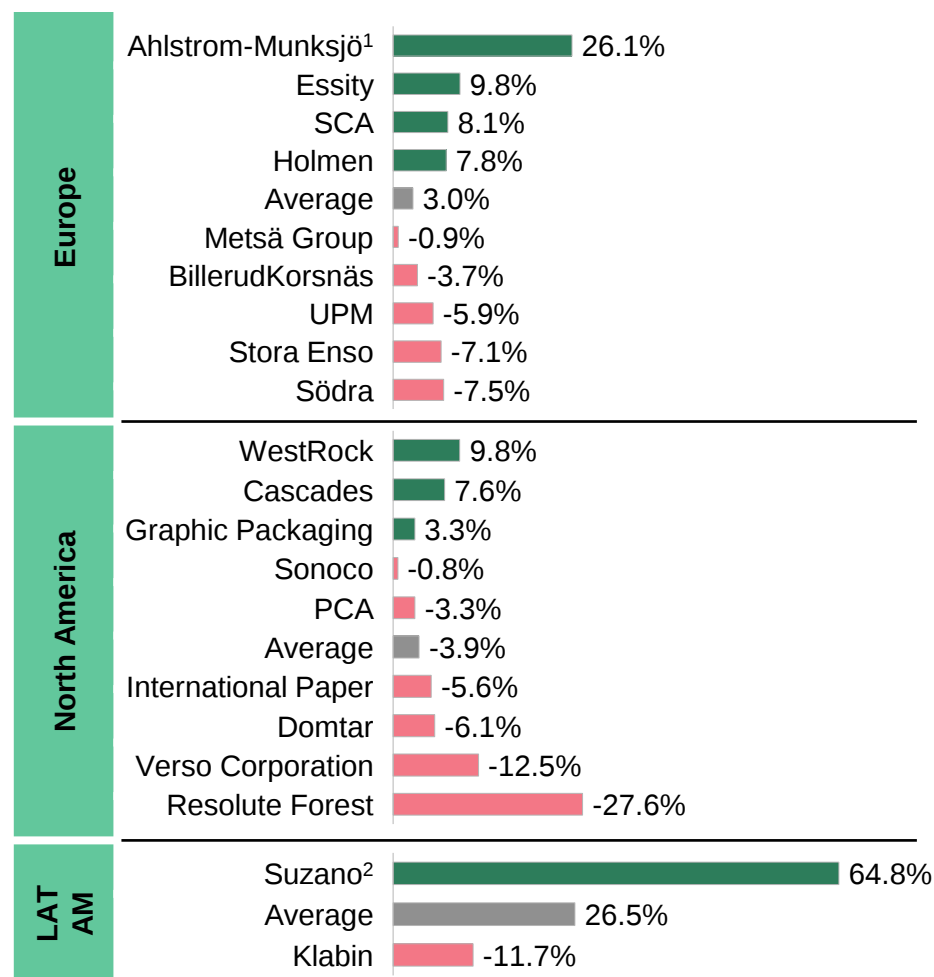
Note: Suzano and Alstrom-Munksjö are excluded in average industry revenue growth due to acquisitions, which affects the Q3 '19 report's numbers compared to previous quarterly reports. Latin America is excluded from the regional revenue growth due to acquisition activities.

Source: Interim & Annual Reports, Capital IQ, Applied Value analysis.

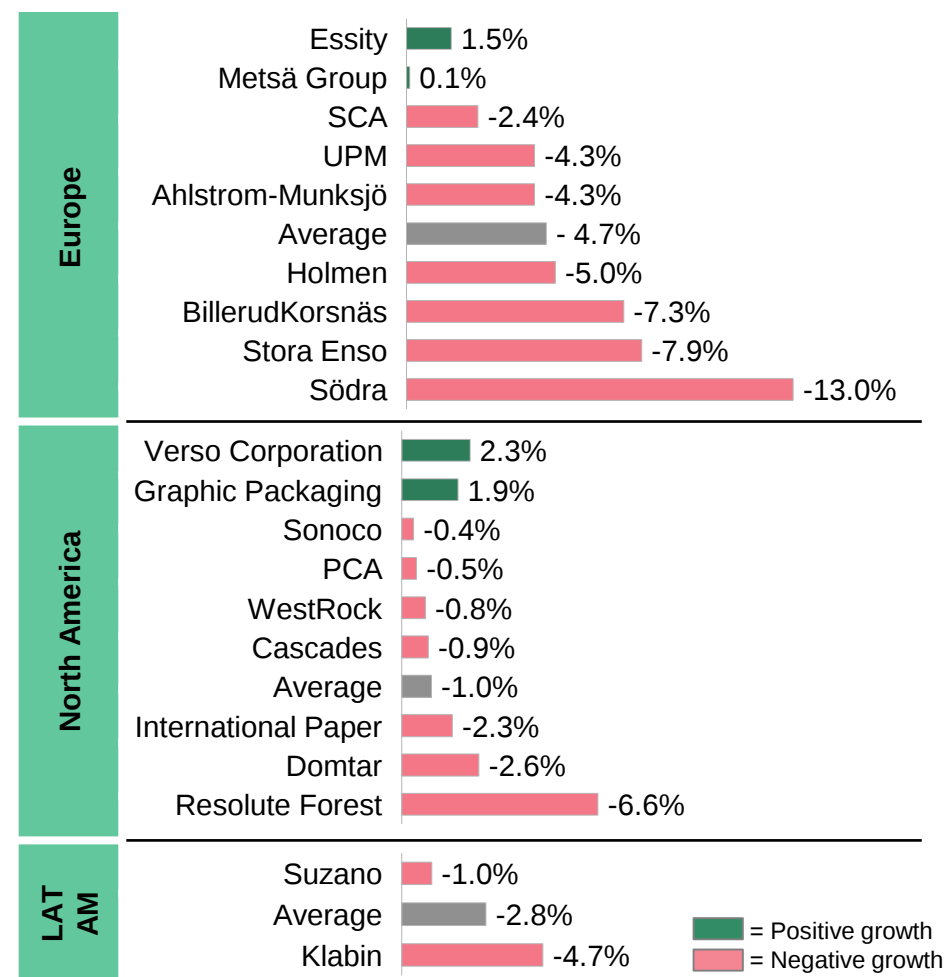


Top performing Essity and WestRock sustained YoY growth by production investments, and Verso increased paper sales volumes QoQ

Revenue growth YoY, Q3 2019



Revenue growth QoQ, Q3 2019



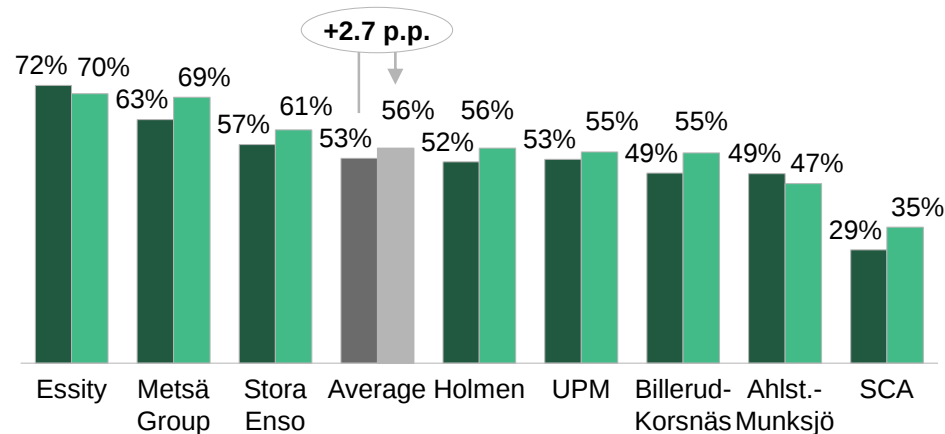
Note: 1) Ahlstrom-Munksjö's numbers incomparable due to acquisitions of Expera and Papéis Caieiras. 2) Suzano's numbers incomparable due to merge with Fibria.

Source: Interim & Annual Reports, Capital IQ, Applied Value analysis.

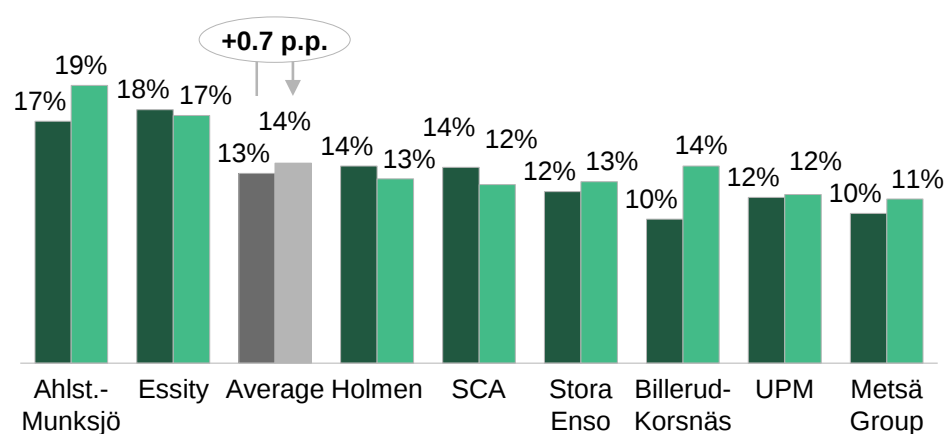


Average raw material and personnel costs over sales have increased for European companies in Q3 2019 compared to Q3 2018 by +2.7 and 0.7 p.p.

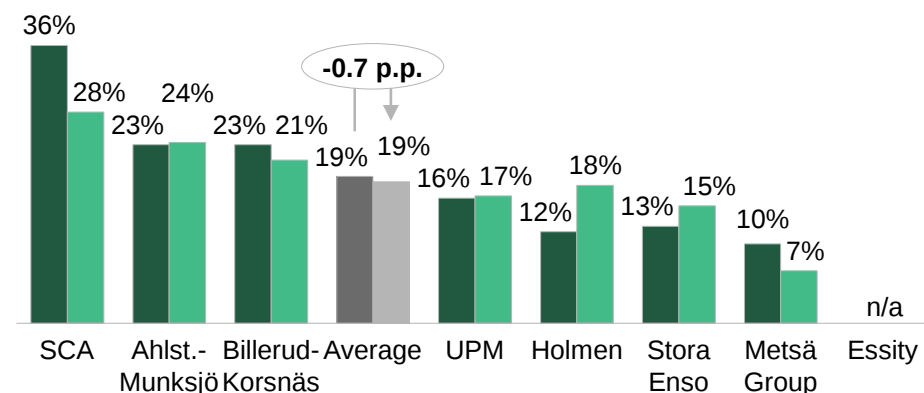
Raw material over sales, Q3 2018 & Q3 2019



Personnel cost over sales, Q3 2018 & Q3 2019



Other operating costs over sales, Q3 2018 & Q3 2019



Comments on operational cost breakdown

- › European companies have in general suffered from decreasing sales this quarter compared to the same quarter in 2018, impacting operational costs over sales negatively
- › Personnel cost over sales has increased for all companies supporting the expectations of a weakened market
- › Holmen's increased other operating costs was due to changes in value in biological assets

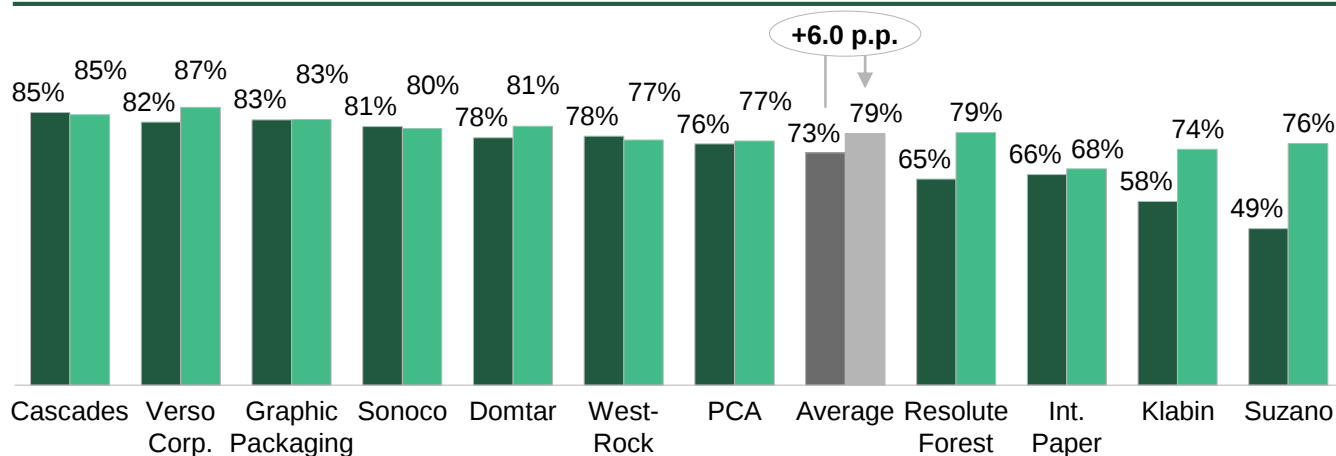
■ Q3 2018
 ■ Q3 2019
 ■ Avg Q3 2018
 ■ Avg Q3 2019

Note: Only companies reporting raw material or similar are included.

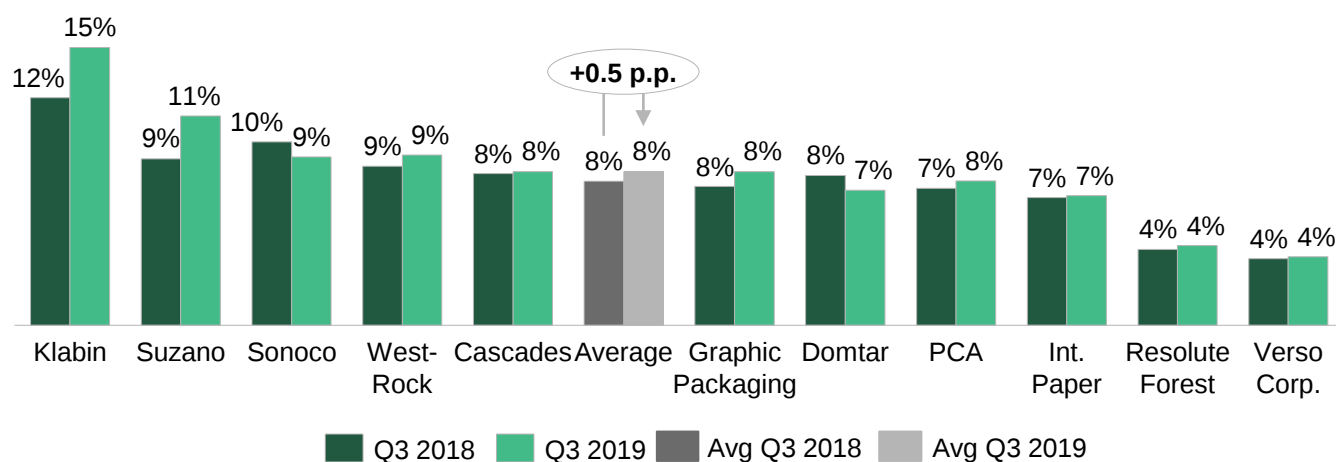


North American and Latin American companies' have increased average COGS over sales in Q3 2019 compared to last years third quarter by 6.0 p.p.

COGS over sales, Q3 2018 & Q3 2019



SG&A over sales, Q3 2018 & Q3 2019



Comments on operational cost breakdown

North America

- › COGS over sales has in general increased mainly driven by declining sales due to lower sales volumes
- › SG&A over sales remained stable compared to the third quarter last year

Latin America

- › Klabin has suffered from decreasing sales due to challenging domestic and international environments resulting in increases in both COGS and SG&A over sales
- › Suzano's merger of Fibria resulted in significantly higher COGS

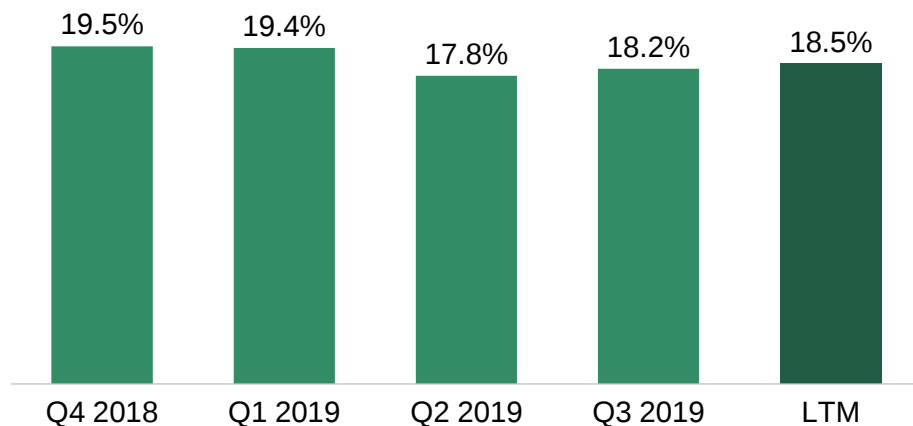
Note: Only companies reporting COGS or similar are included. Suzano's numbers incomparable due to acquisition of Fibria.

Source: Interim & Annual Reports, Capital IQ, Applied Value analysis.

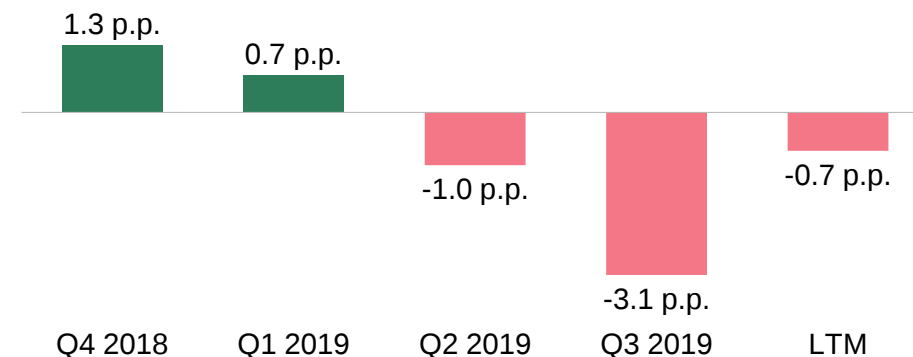


Average industry EBITDA margin declined by -3.1 p.p. (YoY) in Q3 '19 mainly driven by price decreases and historically high prices in previous year

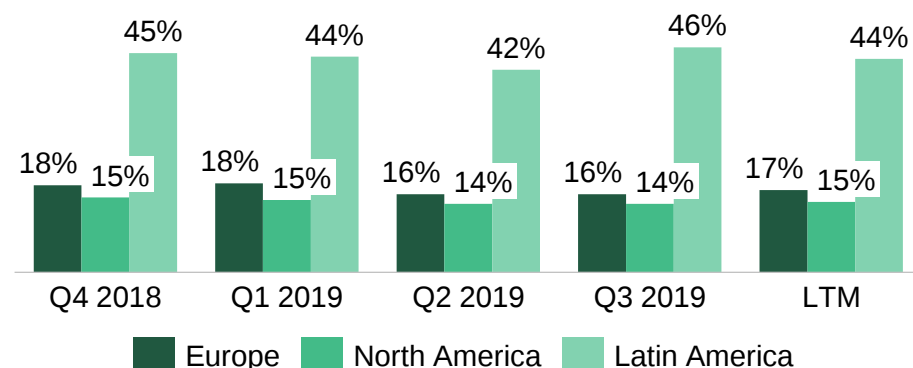
Average industry EBITDA margin, Q4 '18 – Q3 '19 & LTM



Change of avg. industry EBITDA mg., YoY, Q4 '18 – Q3 '19 & LTM



Average regional EBITDA margin, Q4 '18 – Q3 '19 & LTM



Comments on EBITDA margin development

- › Average industry EBITDA margin in Q3 was slightly higher compared to the previous quarter driven by increasing profitability in Latin America
- › European and North American companies' EBITDA margins have remained stable since Q2 '19
- › Latin American companies' EBITDA margin increased by 4 p.p. in the last quarter driven by higher sales volumes

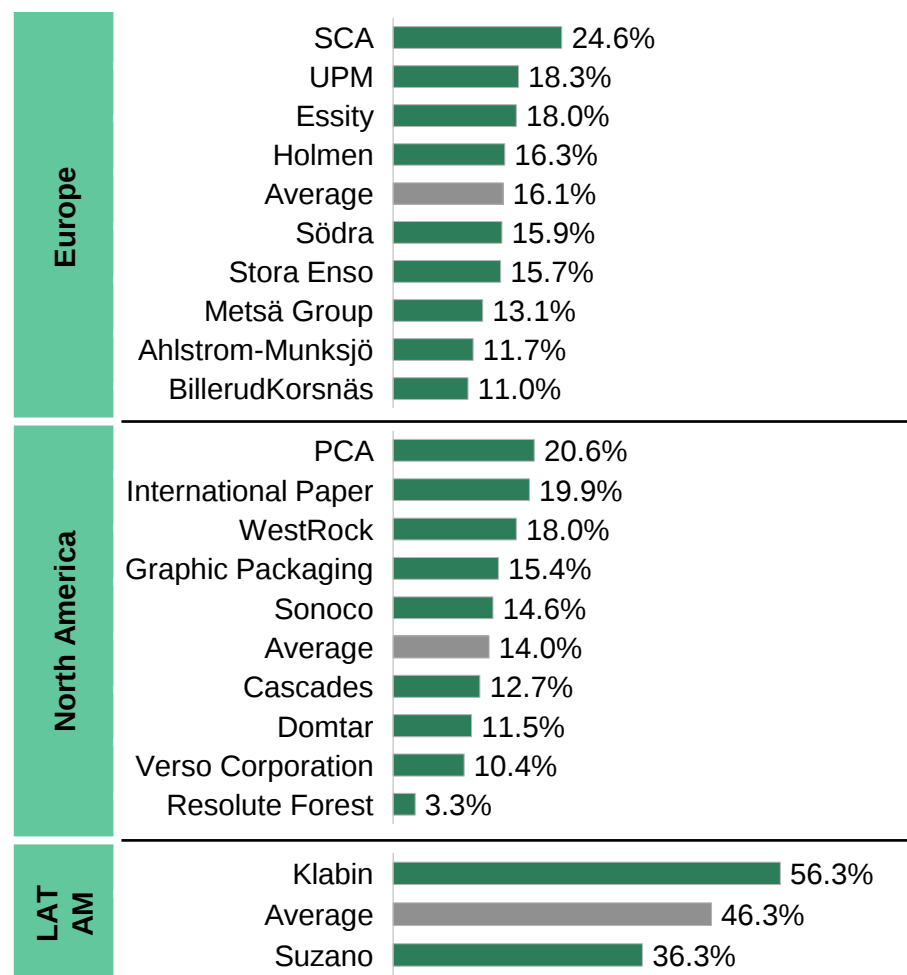
Note: EBITDA adjusted for unusual items (if reported). Differences in accounting principles can affect comparability. Mondi reports semi-annually and is therefore not included in this quarterly report which affected industry average EBITDA margin compared to previous quarterly reports.

Source: Interim & Annual Reports, Capital IQ, Applied Value analysis.

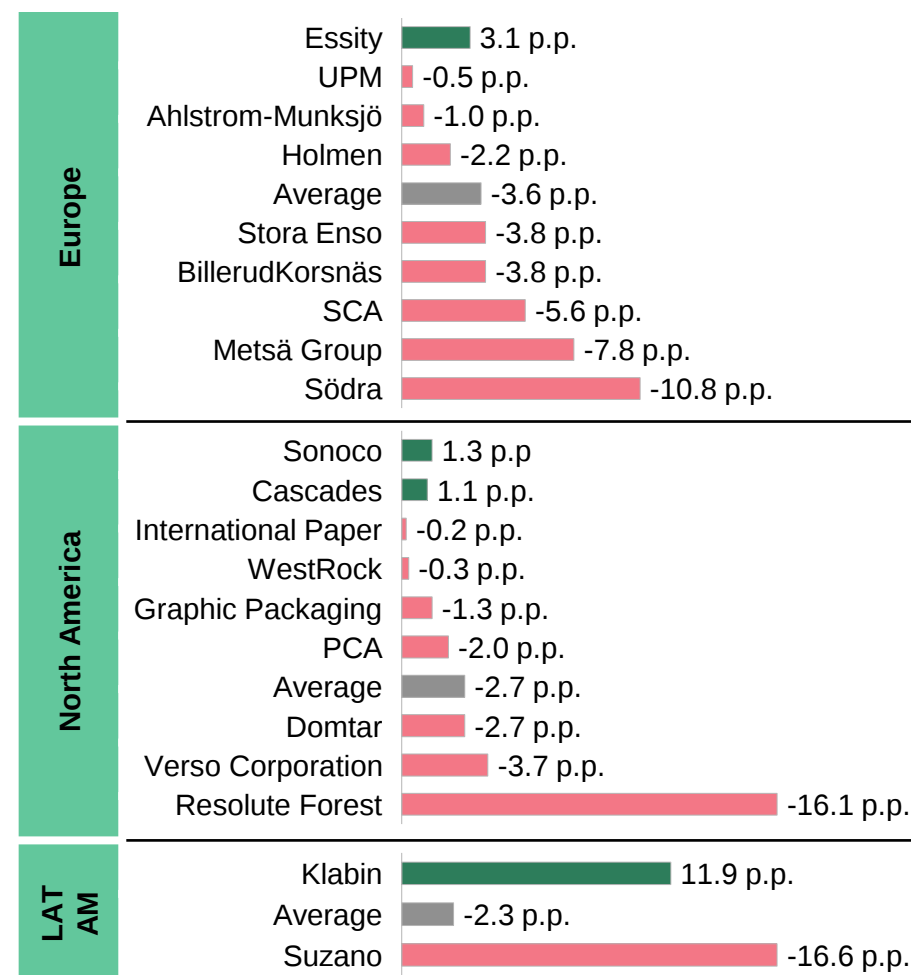


Klabin outperformed company peers reporting the highest EBITDA margin in Q3 '19 and largest YoY increase with 56.3% and 11.9 p.p. respectively

EBITDA margin, Q3 2019

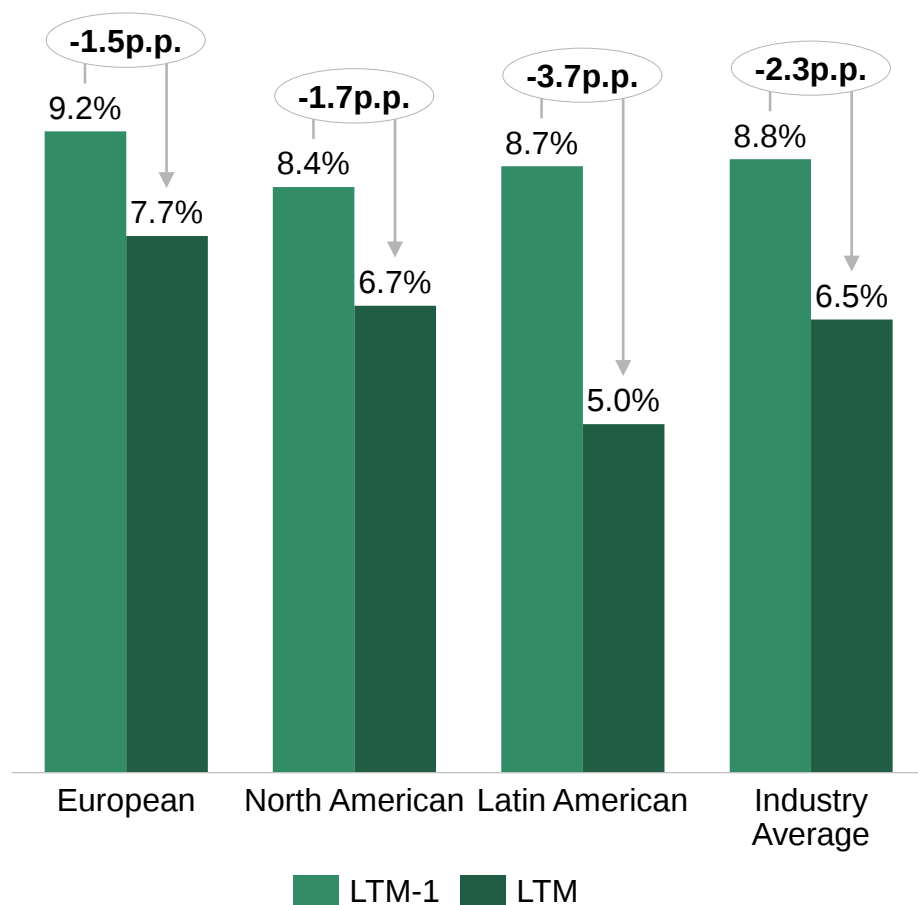


Change of EBITDA margin YoY, Q3 2019



In LTM average ROIC performance decreased in all regions resulting in a drop by -2.3 p.p., Latin America had the biggest decline by -3.7 p.p.

Average industry return on invested capital, LTM-1 & LTM



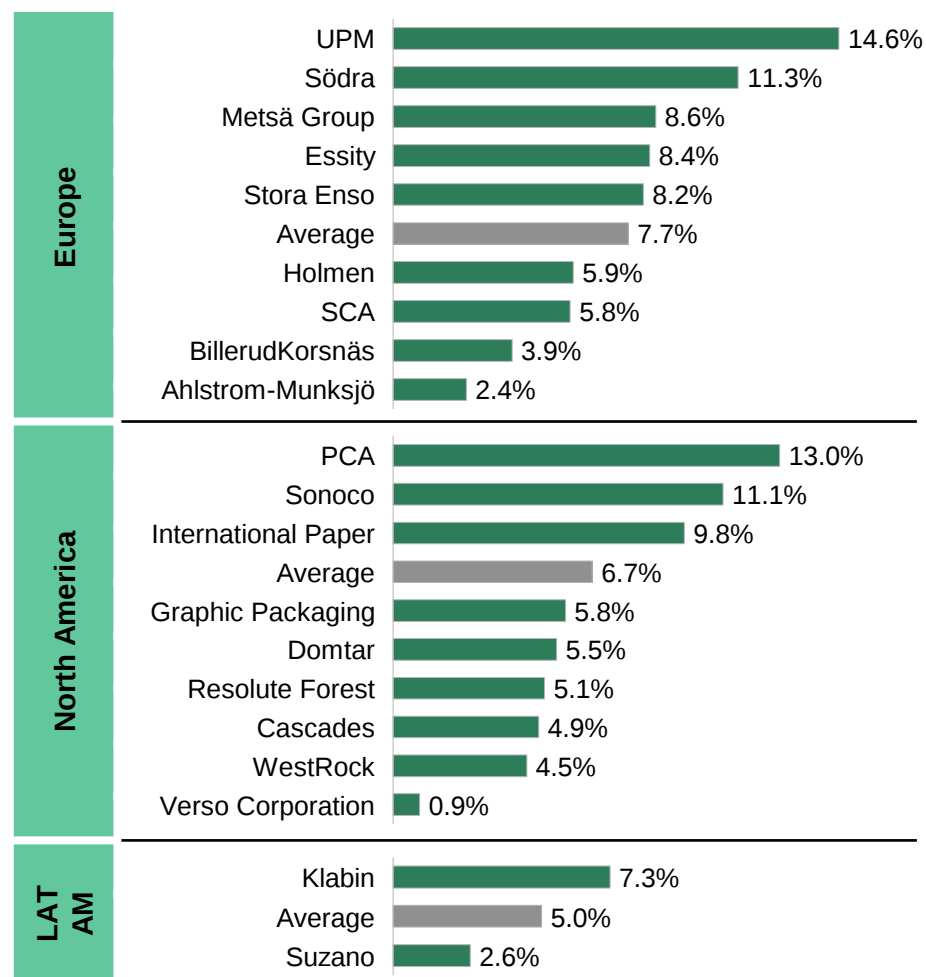
Comments on ROIC

- › All markets showed weak ROIC performances in LTM resulting in an industry average ROIC performance of 6.5%, a drop by -2.3 p.p. compared to LTM-1
- › Europe was the top performing market driven by strong profitability by UPM
- › North American companies reported an average decrease by -1.7 p.p. mainly due to negative price and exchange rate developments
- › LATAM experienced a big drop compared to LTM-1 affected by Suzano's acquisition of Fibria

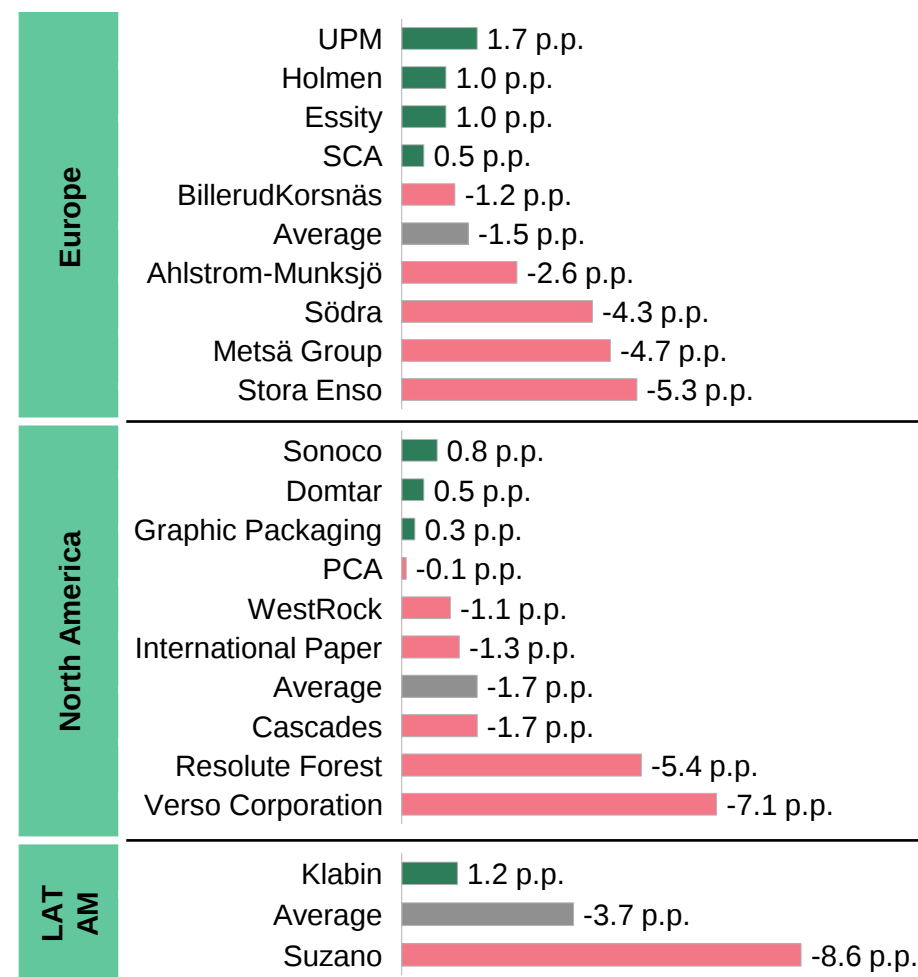


Top regional ROIC change were UPM (+1.7 p.p.), Sonoco (+0.8 p.p.), and Klabin (+1.2 p.p.), all showing positive developmet in LTM compared to LTM-1

ROIC, LTM



Change in ROIC, LTM vs. LTM-1



Note: 1) Suzano's numbers incomparable due to merge with Fibria.

Source: Interim & Annual Reports, Capital IQ, Applied Value analysis.

■ = Positive growth
■ = Negative growth



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Key takeaways

Industry News	› The overall market environments in all regions was still uncertain highly affected by lower prices and demand in all segments, where packaging paper has the most positive outlook for the next quarter with expected future increased demand › Geopolitical uncertainties related to trade wars and Brexit continued to prevail in the global market › In the third quarter trends in investing in increased production capacity and new products, especially in plastic-free materials, were identified in the European market › Ahlstrom-Munksjö announced an acquisition of the Chinese specialty paper manufacturer Minglian New Materials in Nov 2019
Pulp Prices	› Pulp prices continued to decrease in all regions in Q3 '19 and have now reached the lowest price levels since Oct '17. Prices in Northern Europe, US East, and Asia are down at approx. 650 USD/tonne, 490 USD/tonne and 500 USD/tonne respectively › The pricing pressure continued to increase in both wood and paper due to increased high supply from Central Europe
Graphic Paper & Packaging	› Graphic paper continued to decline in Q3 '19, especially in the categories newsprint and uncoated freesheet › Packaging paper prices also continued to decline in Q3 '19, however prices stabilized at the end of the quarter indicating that demand for sustainable packaging is expected to grow in the future
Commodities & Currencies	› Oil prices have been relatively stable at 58 USD/barrel in the end of June and 54 USD/barrel in the end of September › The US dollar continued to appreciate in Q3 '19, where USD compared to SEK, EUR, GBP, and BRL is down by -6.0 p.p., -2.1 p.p., -4.3 p.p., and -5.1 p.p. respectively in LTM, continuing to benefit European and Latin American export › Electricity prices have increased since the last quarter, with Germany and Europe around 37 EUR/MWh and US at 7.5 Cents/KWh

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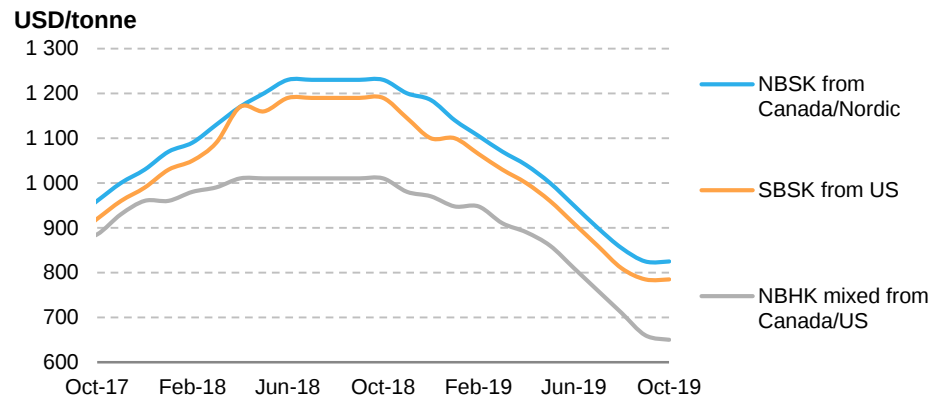
Source: RISI, Interim & Annual Results.



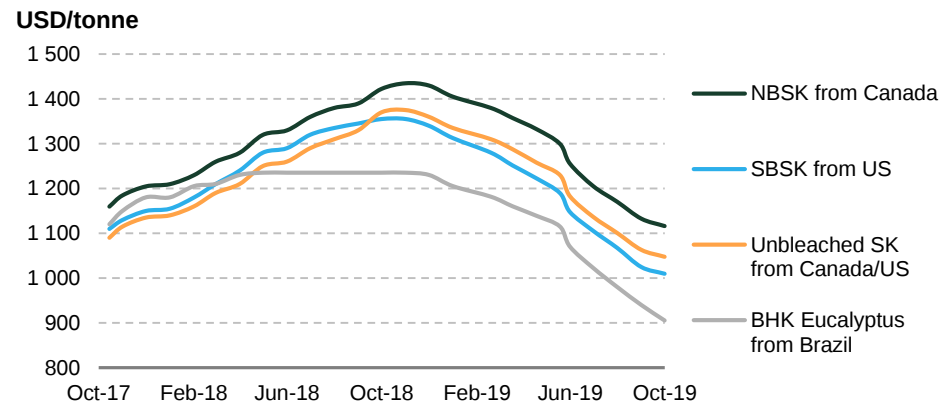
Global pulp prices continued to decrease across all regions in Q3 '19 where Europe has experienced the biggest price decline by ~ -15.0%

Global Pulp Price Development, Last 24 Months

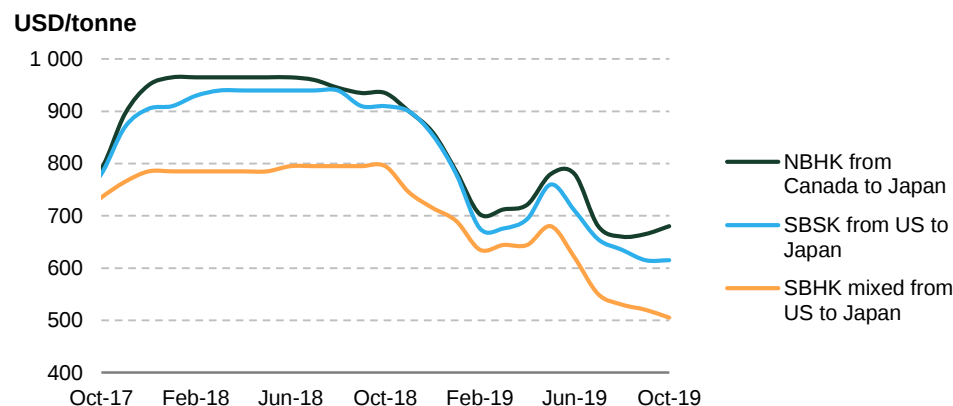
Northern Europe



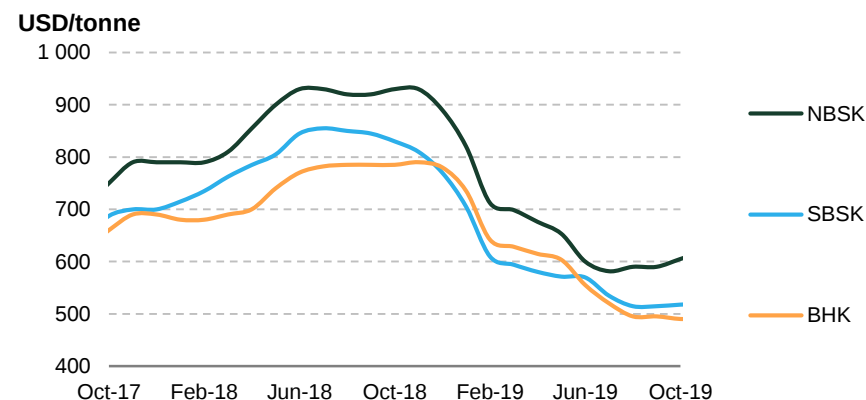
US East



Asia



US East spot prices

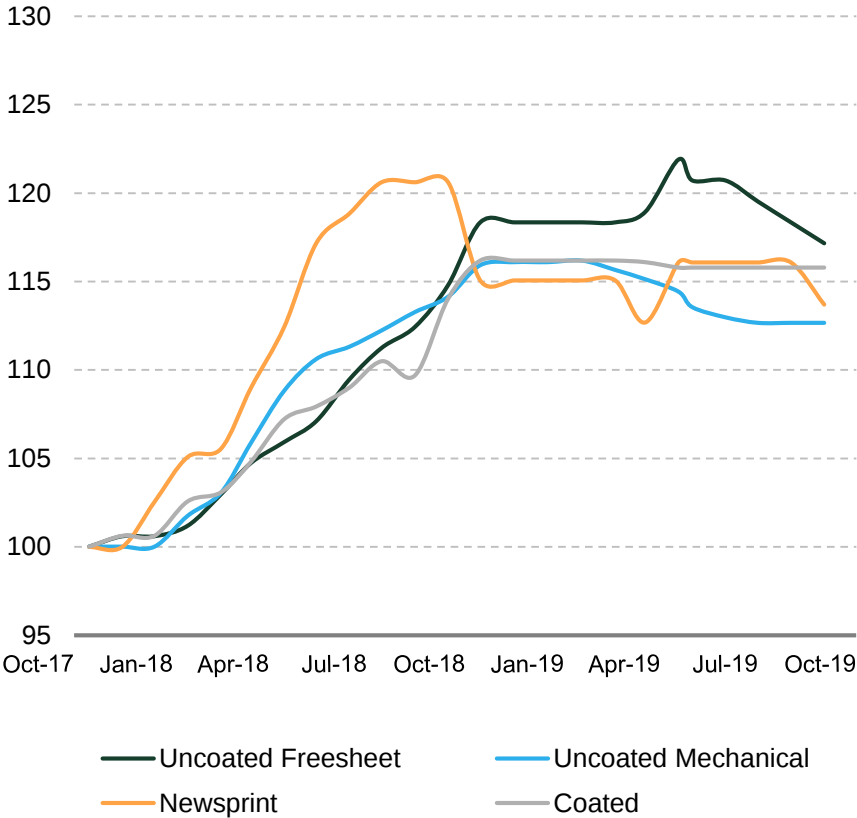


Note: Midpoint price levels.
Source: RISI PPI Pulp & Paper Week.

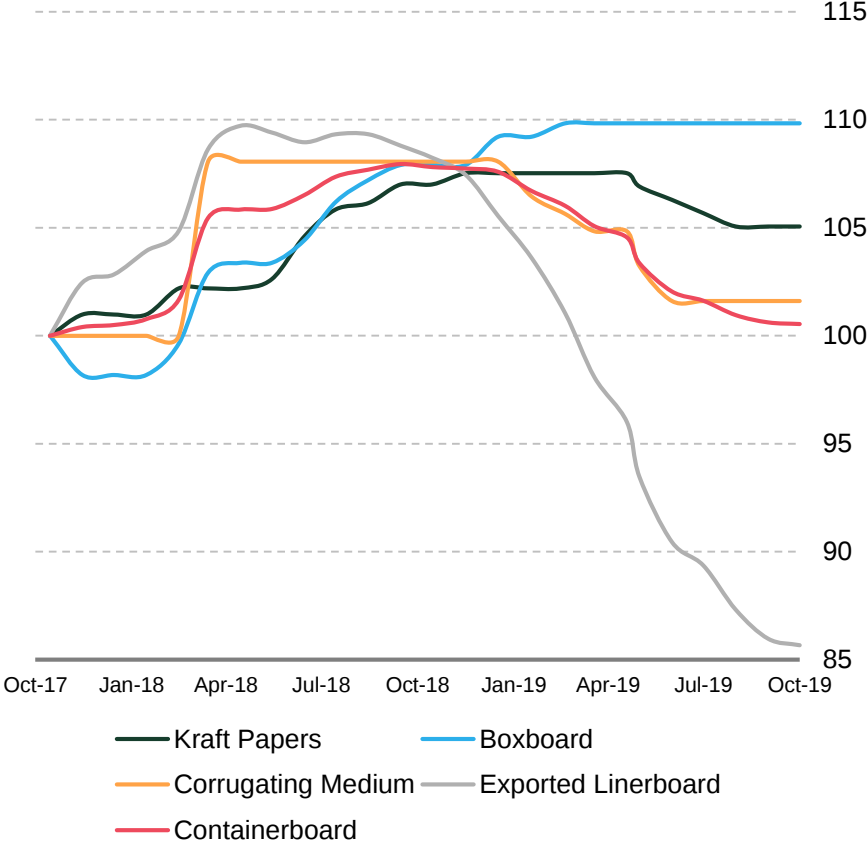


Newsprint prices started to decline in Q3 '19 and packaging prices started to stabilize in the end of the quarter indicating future demand for packaging

Graphic paper prices
Average indexed price per product segment, USD/ton



Packaging paper prices
Average indexed price per product segment, USD/ton



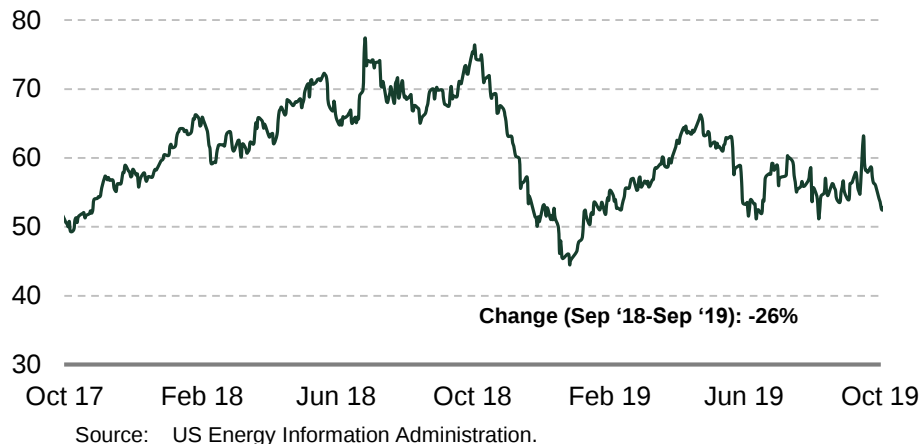
Source: RISI PPI Pulp & Paper Week.



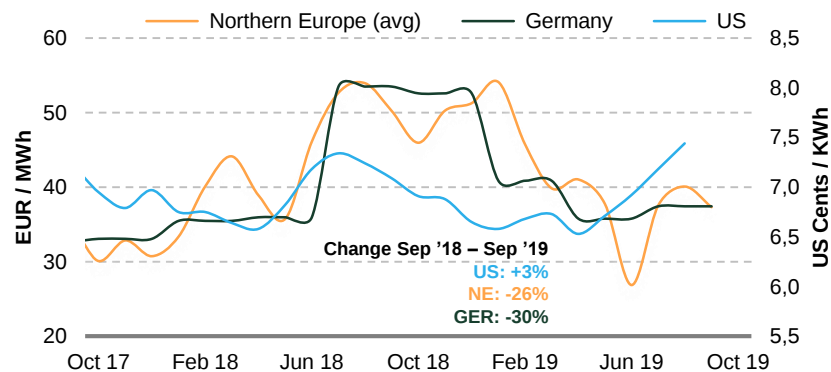
The European export has continued to benefit from exchange rate effects as USD kept appreciate against EUR, GBP, and SEK in the third quarter

Commodity & Currency Price Development, Last 24 months

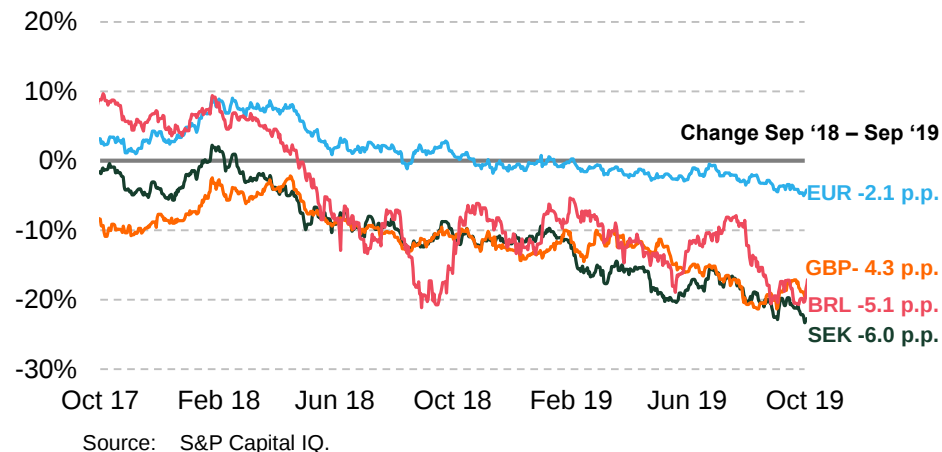
WTI Spot Crude Oil, USD/Barrel



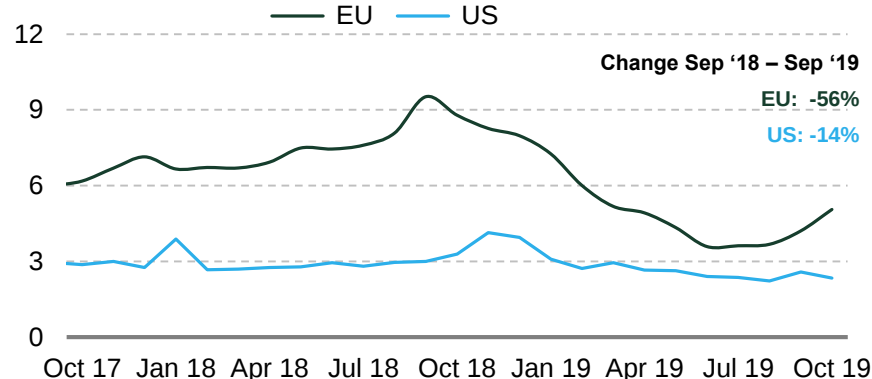
Electricity



Currency appreciation against USD



Natural Gas, USD/mmbtu



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Applied Value is a management consulting & investment firm founded on the principles of lean growth and entrepreneurship

1997

Background as an internal change agent in the **Kinnevik Group**...



K I N N E V I K

...today, a hands-on consultancy supporting clients **across industries**

2019

Industries of Expertise

- Telecom & Media
- Chemicals & Process
- Industrials & Engineering
- Consumer Goods
- Automotive



Lean Growth Principles



Investments



Management Consulting



Social Responsibility

Selected portfolio companies





APPLIED VALUE





ROI driven



Fact-based



Practical over theoretical



Hands-On



Global perspectives

Applied Value challenges and supports repeat global clients across industries from three offices

Selected clients



Applied Value offices and footprint

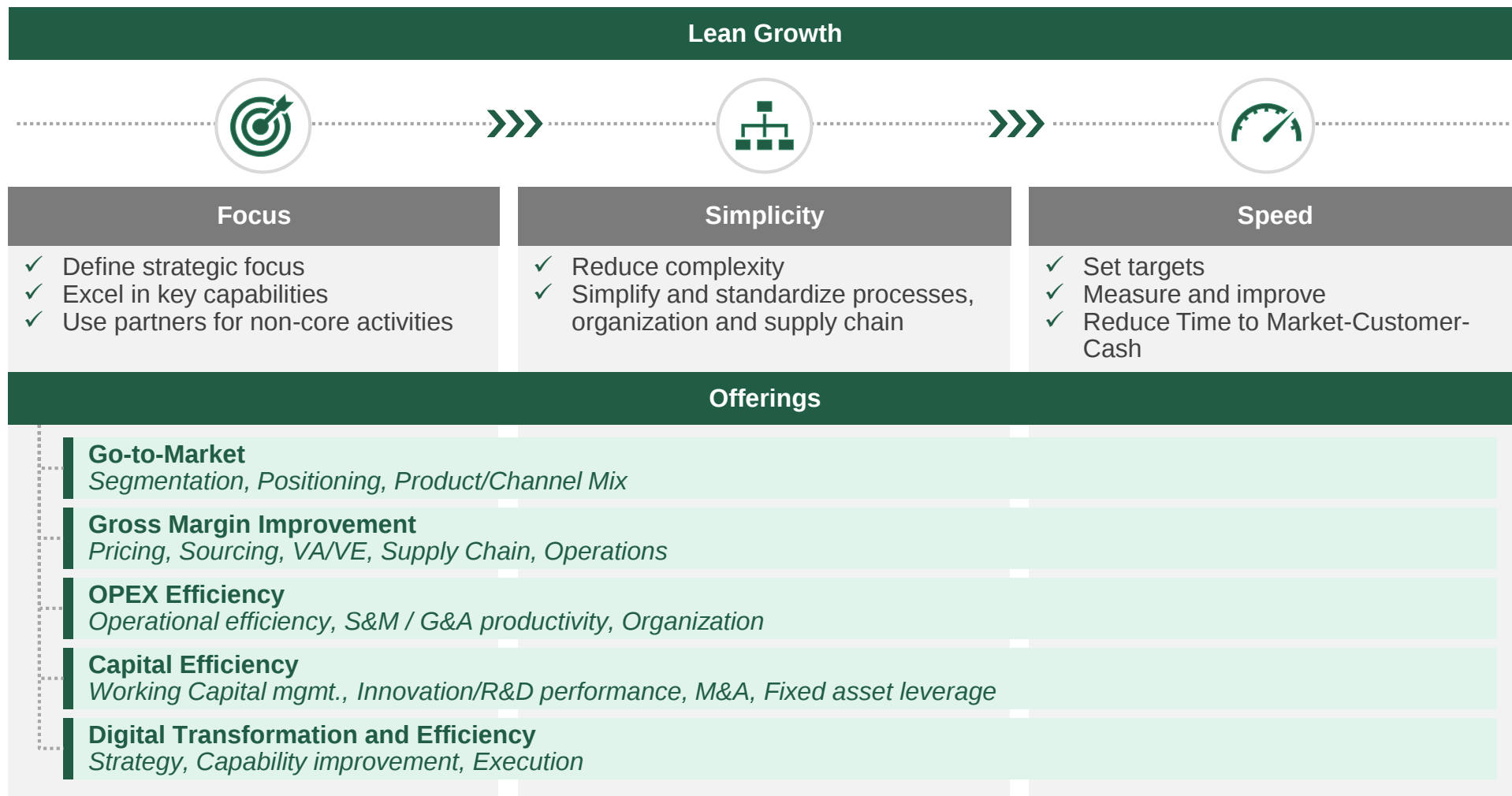


Countries where Applied Value has performed case work over the last ten years

New York Empire State Building 350 Fifth Ave. Suite 5400 New York, NY 10118 USA Phone: +1 646 336 4971 newyork@Appliedvalue.com	Stockholm Kungsgatan 2, PO Box 5047 111 43 Stockholm Sweden Phone: +46 8 562 787 00 stockholm@Appliedvalue.com	Shanghai Room 1504, Tower A, NA Plaza No. 518 Kunming Road, Shanghai, 200041 P.R. China Phone: +86 21 5213 6390 shanghai@Appliedvalue.com
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Our Lean Growth framework is based on Focus, Simplicity, Speed – guiding principles to raise client performance



Pulp & Paper is one of our three main client industries

Industry	Examples of Applied Value Engagements		Client results
Pulp & Paper	› Turnkey engagement to improve margins and capital turnover over a five-year period › Engagements included: staff optimization, product mixture optimization, capital rationalization, sourcing, and other key areas		› EBIT improved from 4% to 20% over a 4-year period › Capital Turnover Ratio was improved from 0.55 to 0.9
Telecom	› More than 200 engagements carried out in close collaboration with clients for over 10+ years › Acted as key advisor in major turnaround › Prime focus on organizational and sourcing efficiency in an industry with continuous cost pressure		› Operating expenses cut by more than 60% during turnaround › Clients have consistently outperformed industry
Automotive	› Consecutive work for 10+ years within Sourcing across multiple commodities, including more than 200 fact-based negotiations supported for 50+ commodities › Hands on strategy and implementation support of steel purchasing for 8+ years		› Continuous return of 8-12 times fee to client › Clients have consistently managed to buy steel below market prices



Our Pulp & Paper practice has been serving world leading organizations since our founding

Overview of Applied Value's Pulp & Paper Experience

Applied Value has continuously advised global market leaders in the Pulp & Paper industry:

- › Key advisor to top executives during several successful turnarounds using our lean growth framework
- › Improving business performance of Pulp & Paper and Chemicals companies, as well as equipment & services providers

We have conducted 50+ engagements improving Cost & Capital efficiency and Revenue Growth for our Pulp & Paper clients:

- › EBIT improvement program from 4% to 20% over a 4-year period for an Integrated Pulp & Paper Company
- › Sourcing Improvement Program covering Services / Chemicals / Logistics / MRO for a Global Packaging Company
- › External Distribution System Optimization for European Manufacturer of Liquid Paperboard and Sack Paper
- › Product Strategy for an Integrated Pulp & Paper Company
- › Operations Improvement Program to improve Unit Output and Labor Efficiency for an Integrated Pulp & Paper Company
- › SG&A efficiency for an Integrated Pulp & Paper Company

We are known for **creating immediate impact** and **driving change** for our clients



Applied Value has strong expertise in several areas relevant for driving improvements in the Pulp & Paper industry

Applied Value's Pulp & Paper Expertise

Applied Value Expertise	Improvement levers	Typical results
Commercial Excellence	› Product and customer focus › Pricing › Sales process and organization › People, culture, and incentives	› 20-30% reduction of SG&A costs › Improved customer and product profitability › Top line growth
Process Speed	› Complexity reduction › Change of policies › Elimination of low-value add activities › Streamline Ways-of-Working	› “Order-to-Cash” lead time reductions of 20-40%
Mill Efficiency	› Operational benchmarking › Maintenance efficiency › Operator and production overhead efficiency › OEE improvements	› 5-30% cost reduction, depending on category
Sourcing Excellence	› Commercial strategy › Value Analysis / Value Engineering › Consumption strategy	› 4-12% reduction of COGS in long-term Sourcing Programs › 15-25% reduction of spend in selected categories (mainly indirect material)





Johan Lindqvist

Partner

Kungsgatan 2
111 43 Stockholm
Sweden

+46 704 26 92 52
Johan.Lindqvist@Appliedvalue.com



APPLIED VALUE GROUP