

A GLOBAL LEADER IN METAL FLOW ENGINEERING

## 2016 Full Year Results

2 March 2017  
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Chief Executive

VESUVIUS PLC

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# Agenda

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- 2016 Strategic progress
- Steel and Foundry markets
- 2016 Group and Divisional performance
- Financial Review
- Outlook



# 2016 Summary



- Resilient performance showing progress despite broadly flat end markets
- Restructuring programme ahead of plan and delivered
  - £16.6m cost savings in 2016
  - Total annual programme benefits further increased to £35m by the end of 2017 at a cost of £45m
- Global steel and foundry markets showed continued signs of stabilisation, albeit mixed and at low levels
- Good progress in structural growth markets – China, India and Brazil
- Strong cashflow performance, with cash conversion of 94%
- Strong balance sheet, with c.£340m of available liquidity
- Increased the dividend by 1.7% to 16.55 pence per share





# 2016 Strategic Progress



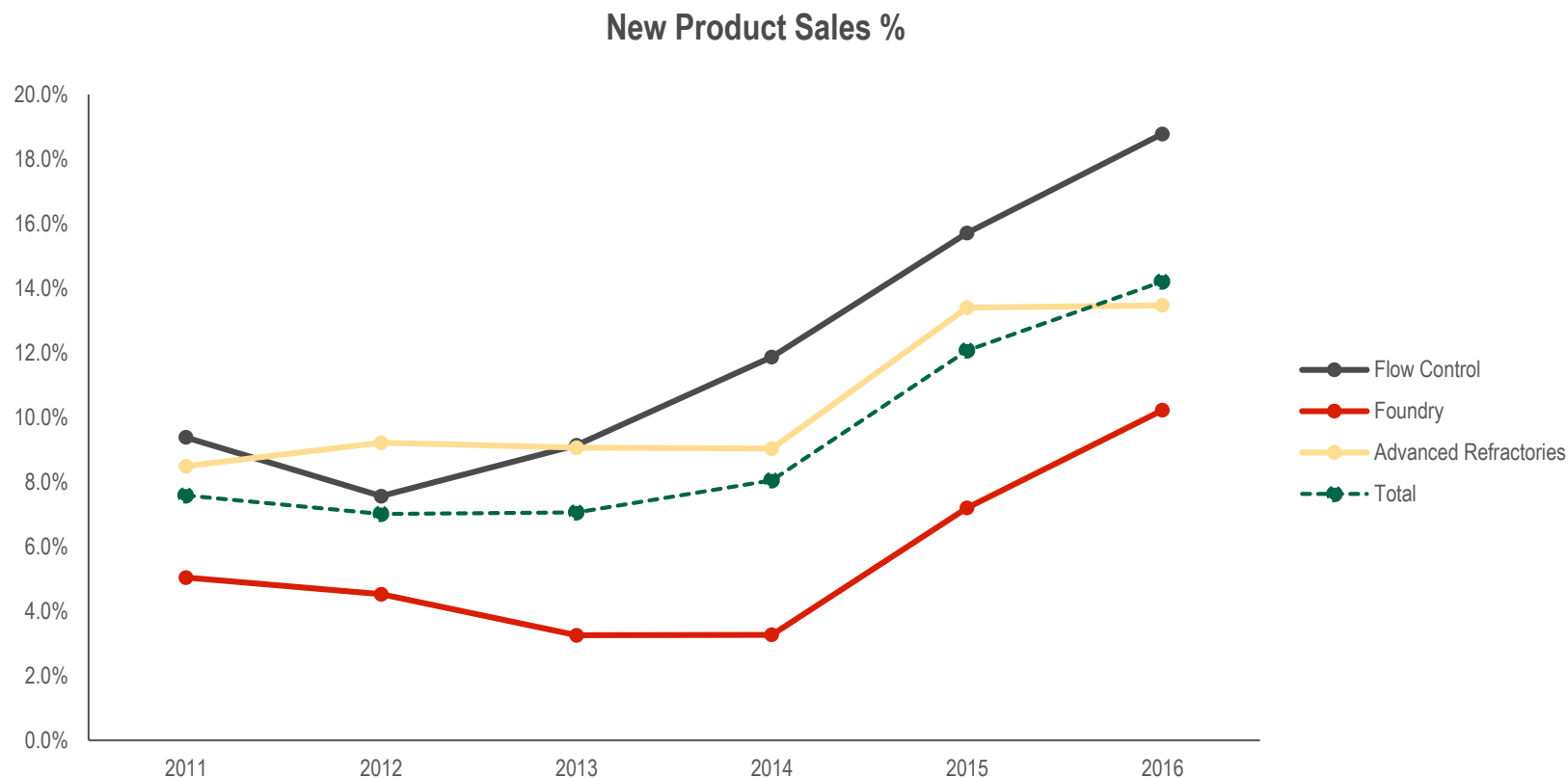
# Delivering on the strategy



- **Maintained technology leadership**
  - Sales of new products increased by 75% over three years
  - Creation of a new R&D centre for Advanced Refractories in India
- **Increased penetration of value creating solutions**
  - Successful start of the SST line at Hyundai
  - Growing sales of Metal Treatment System in Aluminum foundries
- **Captured growth in developing markets**
  - Growing ahead of underlying steel market in India and Brazil
  - Foundry sales and margins progressing in China
- **Improved cost leadership**
  - Margin improvement
  - Enhanced restructuring programme, savings increased further to £35m
- **Built Technical Services offering**
  - Sales of lasers, Accuoptix and Avemis progressed significantly towards the end of the year



# Technology leadership: sales of new products increased 75% in 3 years

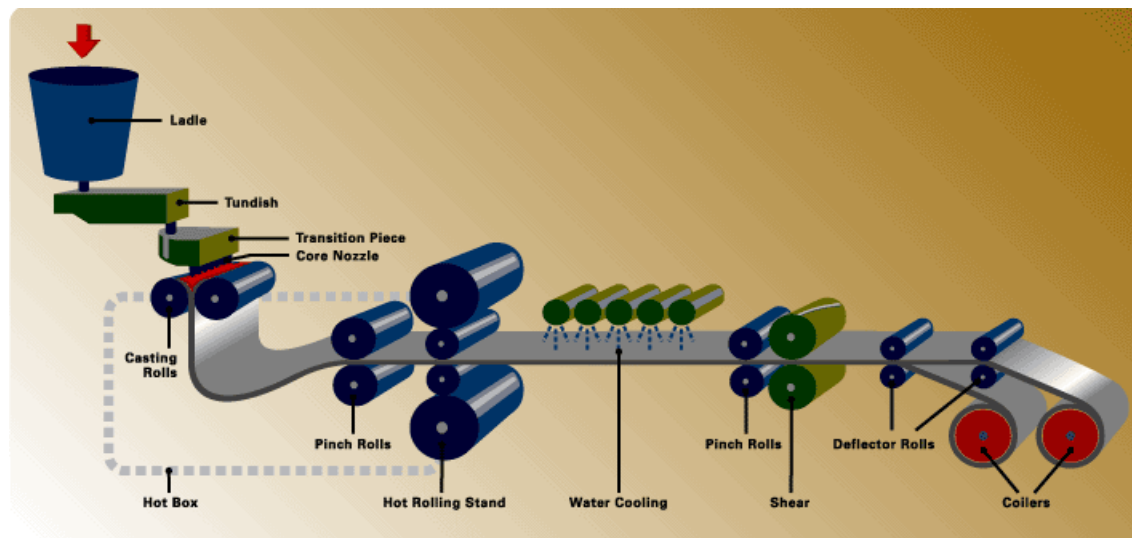


- Success of our R&D management plan launched in 2013
- Sales of new products growing to 14% from 8% since 2014 on average for the Group
  - New product sales increased to 19% from 9.5% in Flow Control

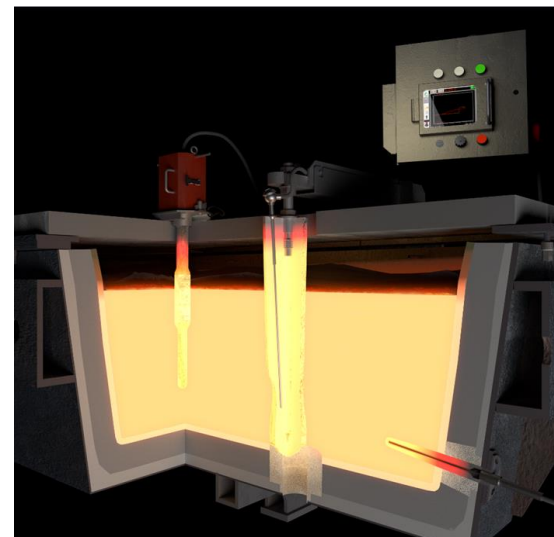
# New process technologies driving growth

- Robotics penetration success: We commissioned our first ladle handling robot for Hyundai in 2016
- Rapid penetration of foundry filter sales in China
- Laser sales coupled with total refractory management of ladles
- Shagang investing in cast strip lines with Nucor technology that we will equip with refractory solutions
- Accuoptix has demonstrated its ability to reduce ladle overheating

Cast strip process



Accuoptix

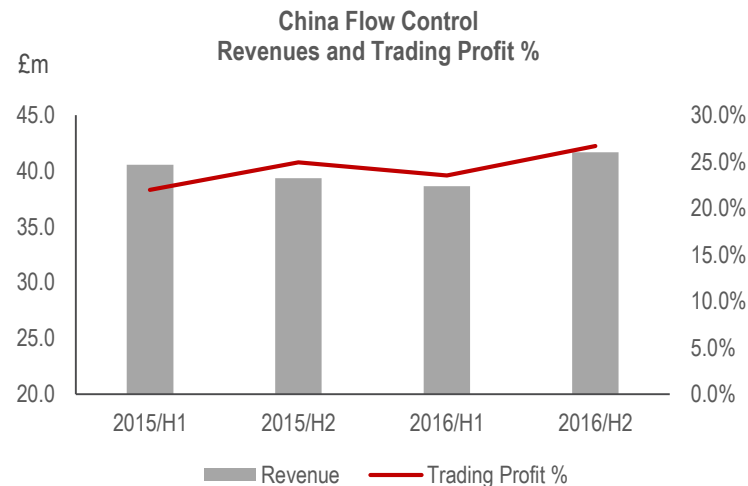




# Capturing growth in China

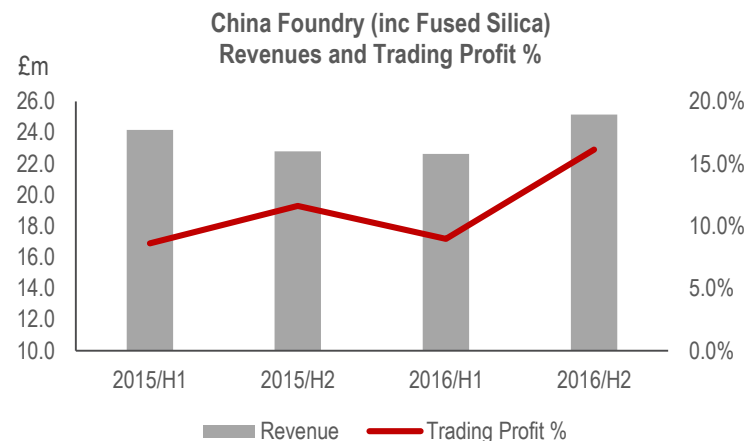
## Steel Flow Control

- Decline of sales during 2015 whilst exiting lower credit quality customers to minimise receivable growth
- Recovery in H2 2016 due to penetration in thin slab and private sector

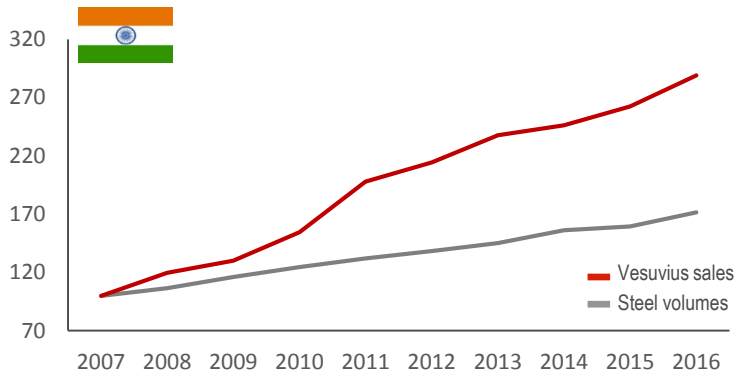


## Foundry

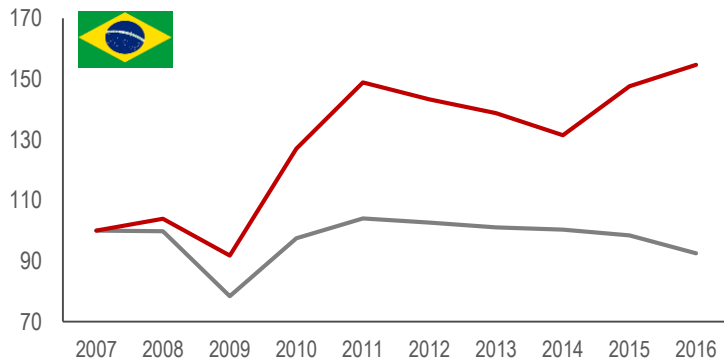
- Growth of sales in 2016 post ramp-up of new plant
- Margin increase in H2 2016 due to penetration in coatings and feeding systems



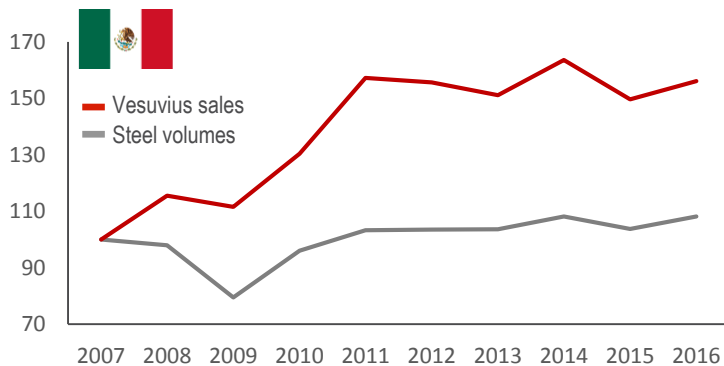
# Growing in India, Brazil and Mexico



- Growth in India exceeded our expectations in 2016
  - Steel volumes: +7.4%
  - Vesuvius sales: +14.4%



- Success of our “Win with the winners” strategy in Brazil

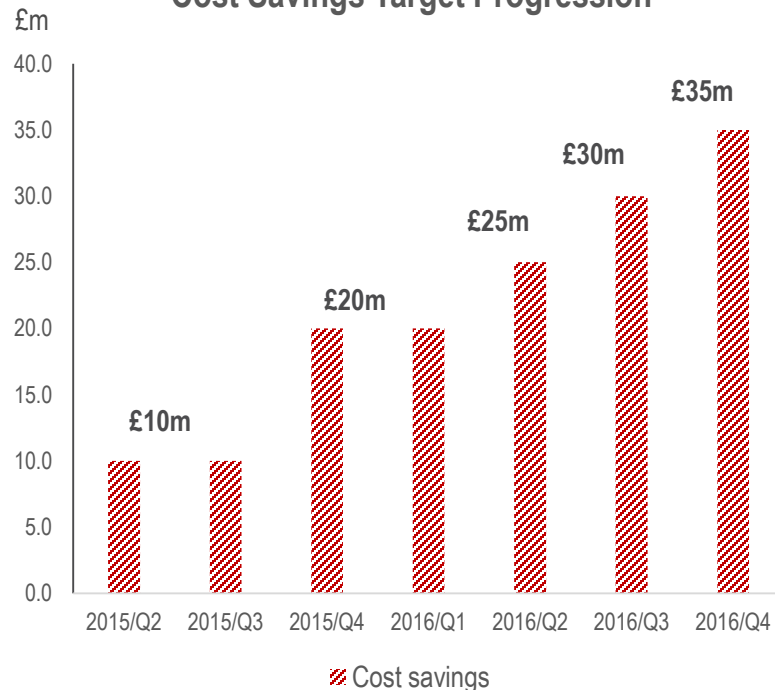


- Consolidation of our position in Mexico

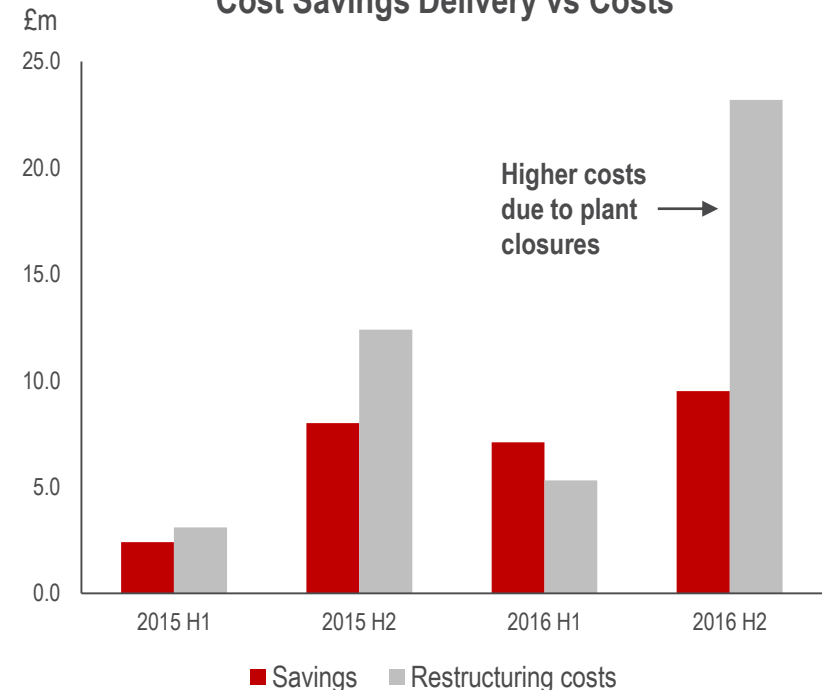
# Improved cost leadership through restructuring

- Restructuring program increased further to £35m savings (£27m delivered by end 2016) after being initiated with target of £10m in Q2 2015
- Total cost of £45m (£44.1m spent and provisioned at end 2016)

### Cost Savings Target Progression

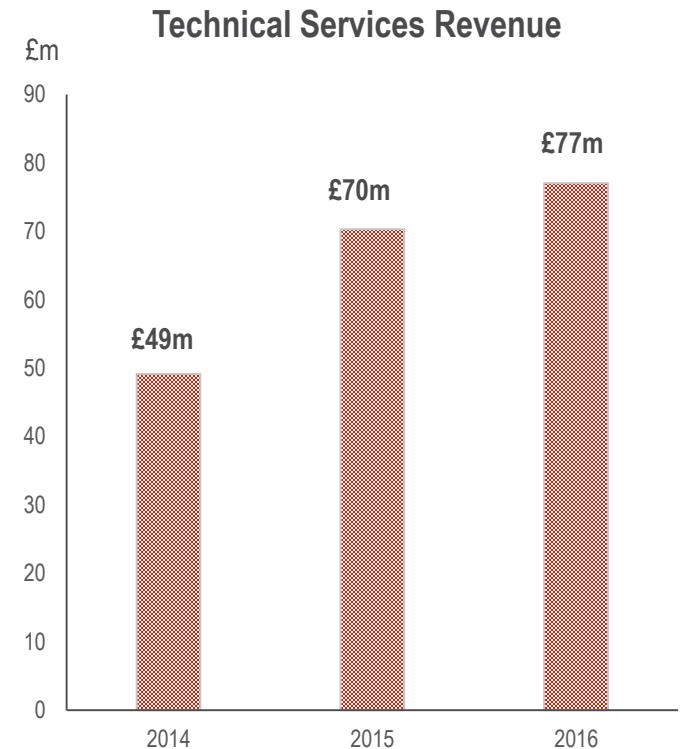


### Cost Savings Delivery vs Costs



# Technical services development

- Technical services is a group strategy – developments are taking place in all divisions
- Transformation from sales of equipment into sales of a service over time has a short term negative impact on sales
- A portion of the sales are recorded in the other BUs as we operate through the global Vesuvius sales network
- Significant progress across key product lines:
  - Accuoptix demand growing rapidly due to confirmation it enables reduction of steel overheat by 10°C minimum
  - Laser orders growing with total refractory management contracts for ladles and converters
  - Value-added SERT and Avemis solutions aiding sales of Flow Control products



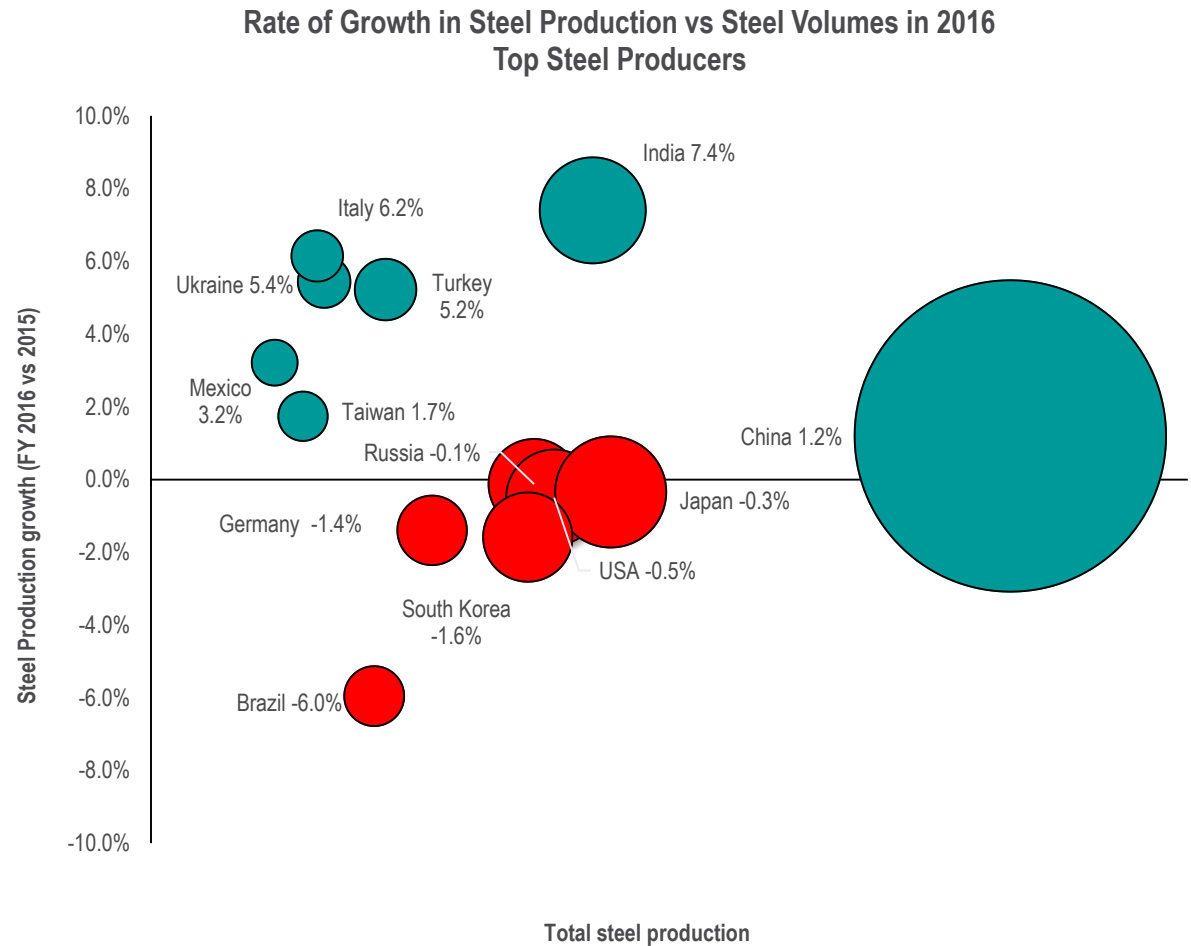


# Steel and Foundry Markets



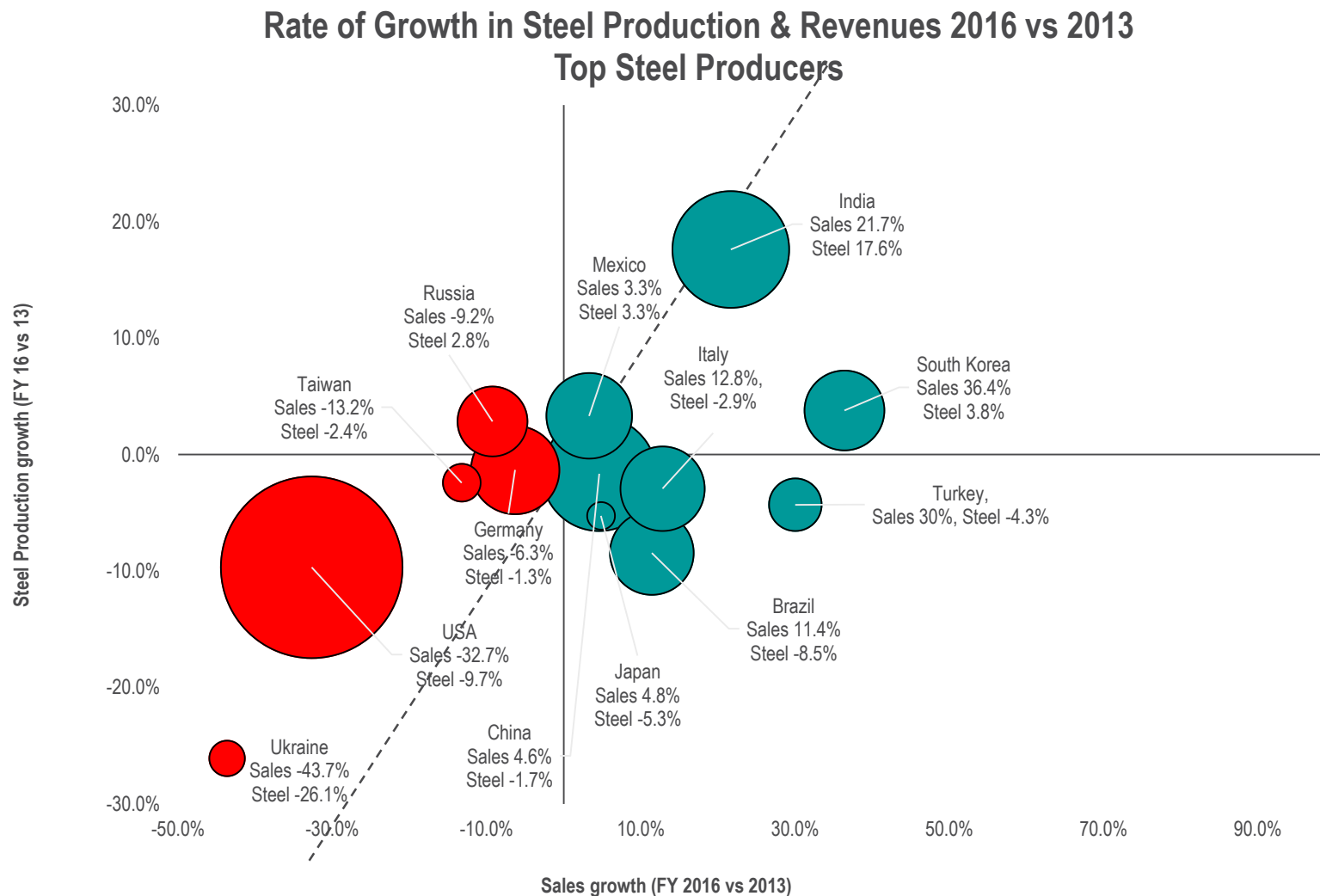
# 2016 steel production broadly stable with continued shift to emerging economies

- World steel production up 0.7%
  - China (50.4% of global production) up 1.2%
  - Rest of world up 0.2%
    - Brazil still struggling with political difficulties
- 31 out of 66 WSA countries reported an increase
  - 4 of top 10 producers reported an increase
  - The top 10 producers represent 85% of global production
- India remains the fastest growing global producer



(1) Size of bubble reflects relative amount of steel produced

# Steel Division sales ahead of underlying market in emerging economies



- (1) Size of bubble refers to relative size of Steel Division Revenue in each country  
(2) India includes Kazakhstan

# China steel market trends

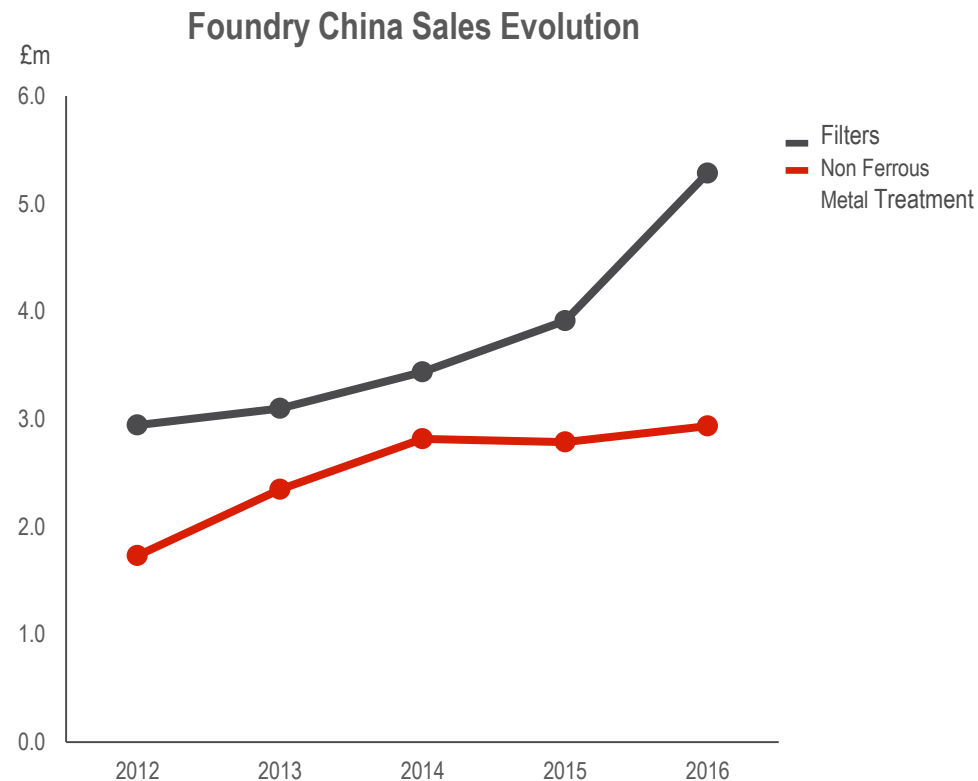
- China launched a plan called 'Made in China 2025' emphasising initiatives such as:
  - Robotics
  - Applying the tools of information technology to production processes
  - Pollution reduction
- Steel industry accelerates its transformation
  - Continuation of the shift from Long to Flat (+160bps in 2016)
  - Absorption of Wuhan steel by Baosteel
  - Investment in cast strip lines by Shagang
  - Development of Thin slab in Rhizao and Quality Strip Plant in Jingtang





# China foundry market trends

- In China, commercial vehicle production grew by 6% in 2016 and passenger vehicles increased by 16% to 24 million units
- China's 5 year plan envisages Foundry industry growth at 3 - 4%, with Aluminum and Magnesium Alloy and Ductile Iron the fastest growing segments

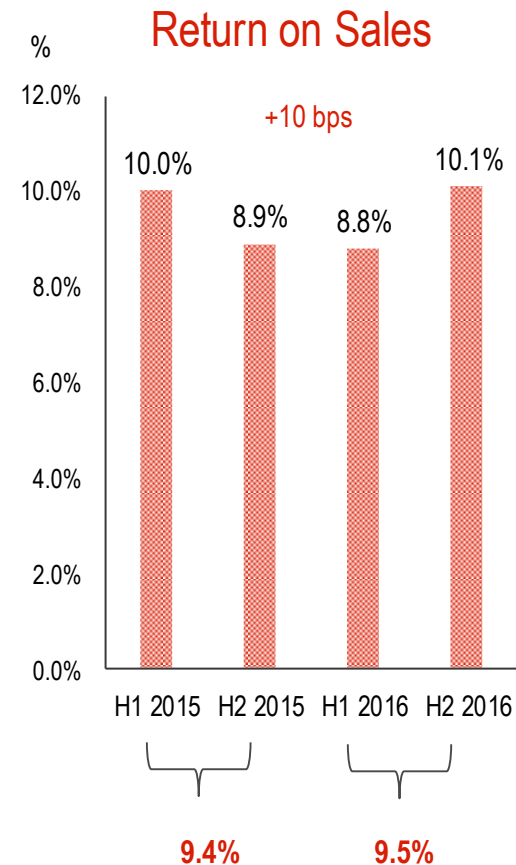
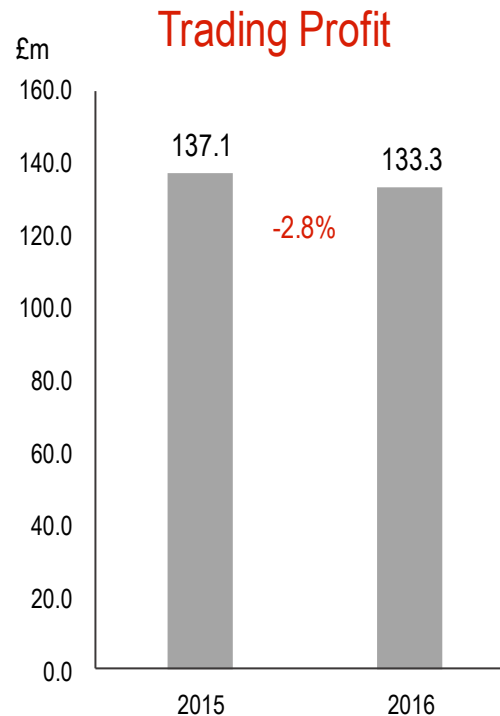
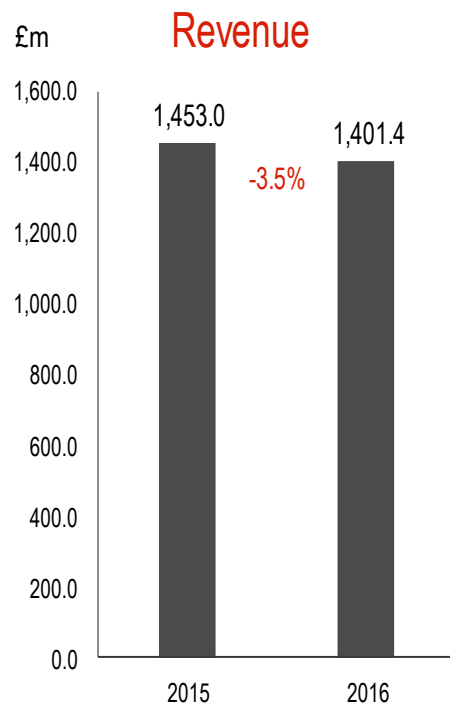




## 2016 Group and Divisional Performance



# 2016 trading performance at constant currency

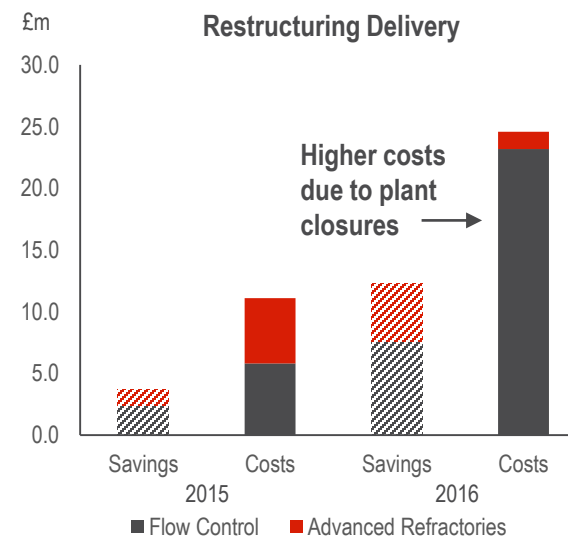
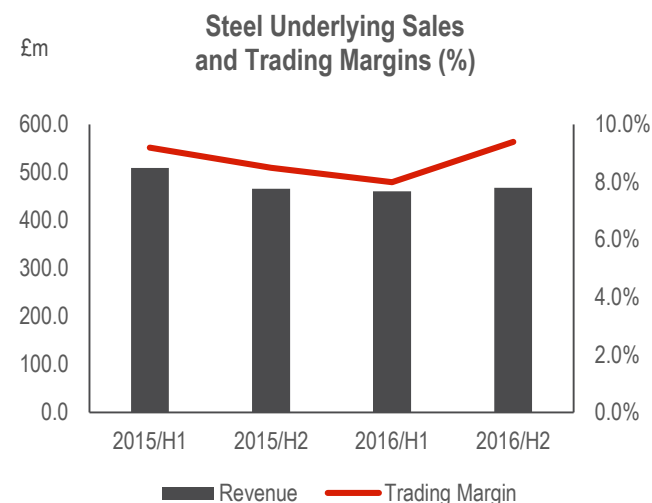


# Steel Division: performance

£m	2016	2015	Change	Underlying* change
Total Revenue	942.0	897.6	+4.9%	-4.8%
Total Trading Profit	79.2	79.5	-0.5%	-6.6%
Trading Margin %	8.4%	8.9%	-50bps	-20bps

\* On an underlying basis: at constant currency and excluding the impact of acquisitions and disposals

- Steel Underlying trading profit down 6.6% reflecting:
  - Lower activity in key regions of NAFTA and EMEA reaching a trough in Q1 2016
  - Consecutive drop through largely compensated by delivered restructuring savings
    - £16.1m of savings delivered in 2015 and 2016 at a cost of £35.9m
    - £23.2m of costs incurred in 2016 due to plant closures in European Flow Control businesses
- Recovery initiated in Q2 2016 leading to:
  - Margin progress from 8.0% to 9.4% in H2 2016

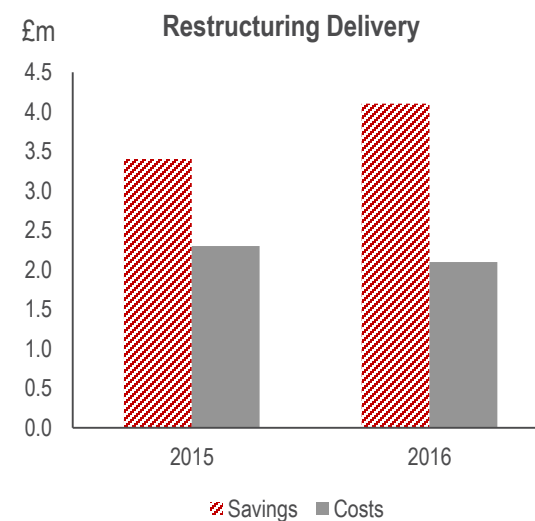
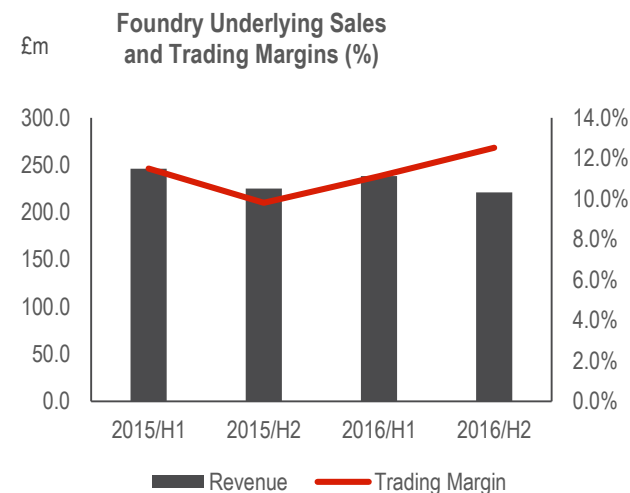


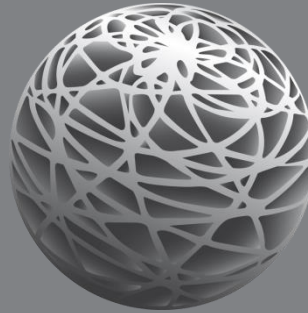
# Foundry Division: performance overview

£m	2016	2015	Change	Underlying* change
Total Revenue	459.4	424.4	+8.3%	-2.5%
Total Trading Profit	54.1	44.5	+21.6%	+7.3%
Trading Margin %	11.8%	10.5%	+130bps	+110bps

\* On an underlying basis: at constant currency and excluding the impact of acquisitions and disposals

- Underlying margin improvement of 110bps and trading profit up 7.3% vs 2015 extending the good progress made in 2015
- £7.5m of savings delivered in 2015 and 2016 at a cost of £4.4m
- Margin progress from 11.1% to 12.5% in H2 2016





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## Financial Review

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Chief Financial Officer

VESUVIUS PLC

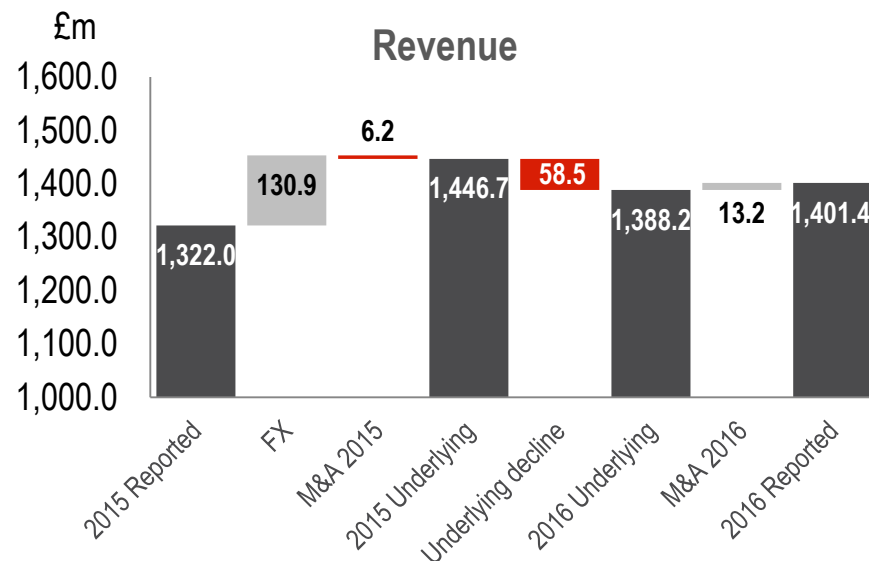
# Income statement

	2016	2015	Year on Year Change	
	£m	£m	As reported	Underlying <sup>(1)</sup>
Revenue	1,401.4	1,322.0	+6.0%	-4.0%
Trading Profit	133.3	124.0	+7.5%	-1.5%
Trading margin %	9.5%	9.4%	+10bps	+30bps
Net finance costs	(14.5)	(15.4)		
Share of JV	1.0	–		
Headline Profit before Tax	119.8	108.6		
Effective tax rate %	26.4%	25.5%		
Tax	(31.4)	(27.7)		
Non-controlling Interest	(6.3)	(5.2)		
Headline Earnings	82.1	75.7	+8.5%	+2.7%
Headline Earnings per share (p)	30.4	28.1	+8.4%	
Dividend per share (p)	16.550p	16.275p		

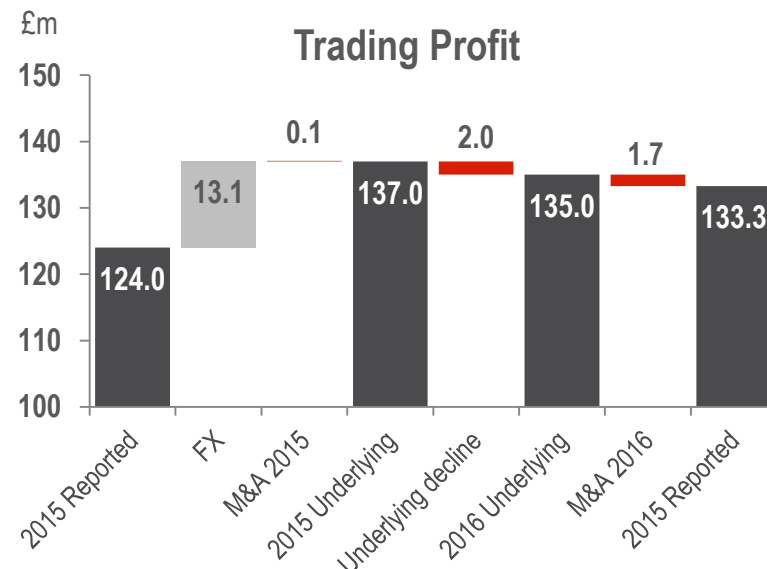
<sup>(1)</sup> Underlying basis is at constant currency and excludes separately reported items and the impact of acquisitions and disposals



# Underlying revenue fell by 4.0% and trading profit by 1.5%



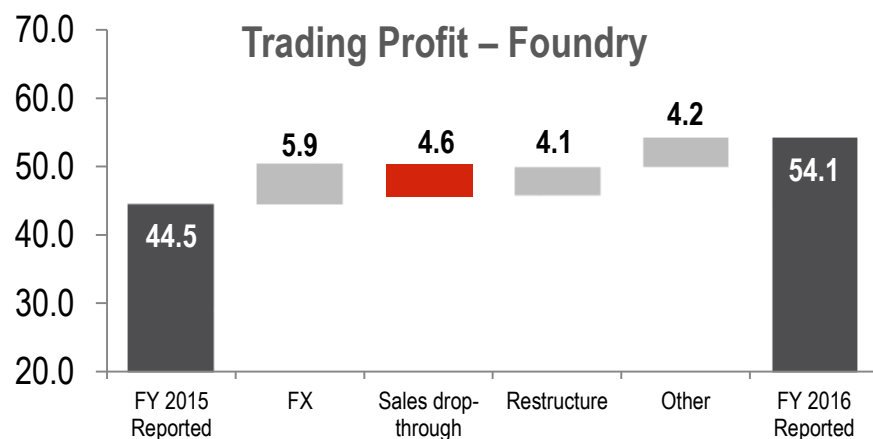
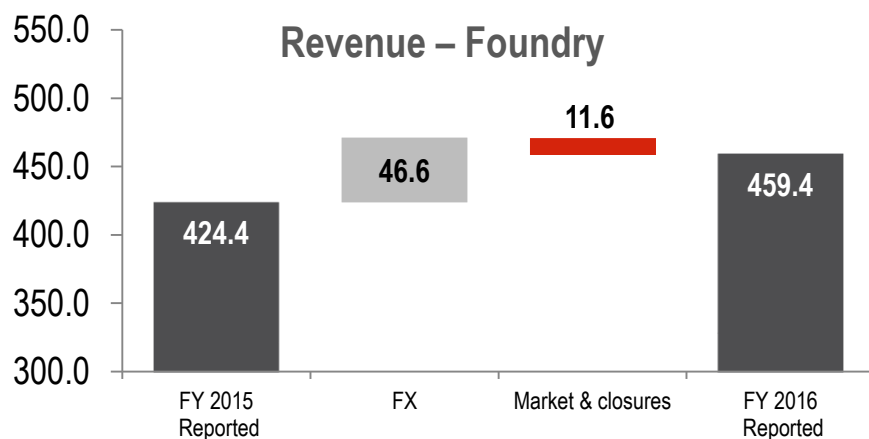
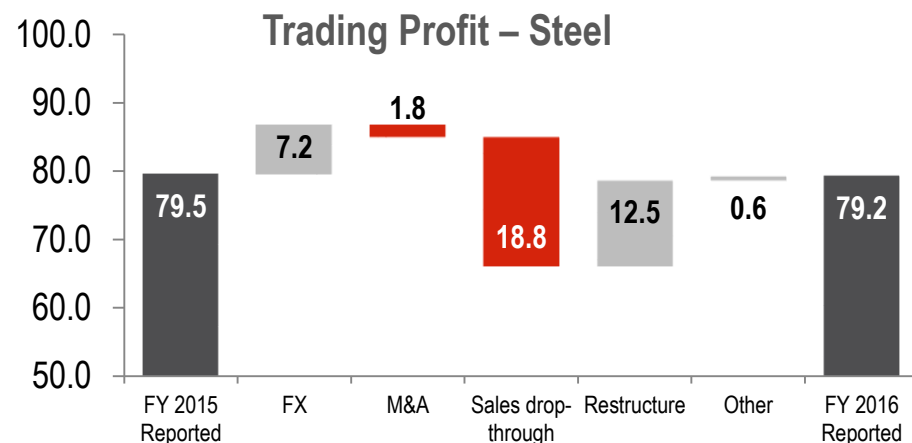
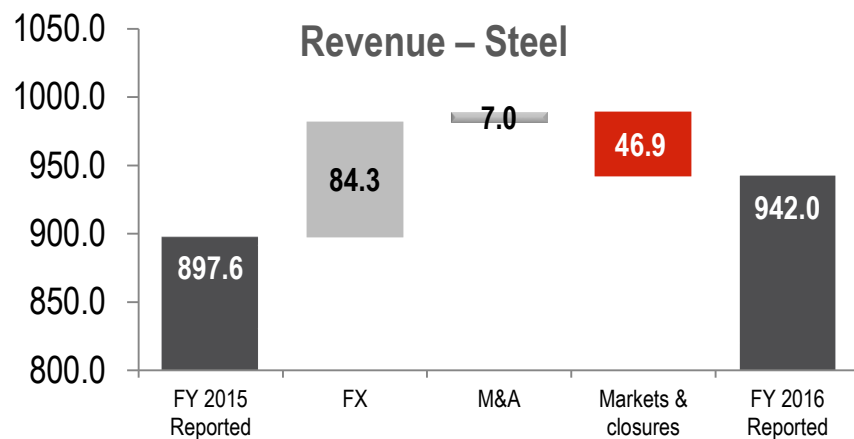
- Revenue up £79.4m on a reported basis (+6.0%) but down £58.5m on an underlying basis (-4.0%)
- Acquisitions added £13.2m of revenue
  - Sidernes, and the mould flux business of Carboox
- Regional differences with selected weaker developed markets (US -14%, UK -17%) but good growth in selected developing markets (India +14%)



- Trading profit up £9.3m on a reported basis (+7.5%) but down £2.0m on an underlying basis (-1.5%)
- Trading margin up 10 bps on a reported basis and 30 bps on an underlying basis
- Revenue drop through of £58.5m should have impacted trading profit by £23.4m but mitigated to £2.0m through restructuring and cost reduction



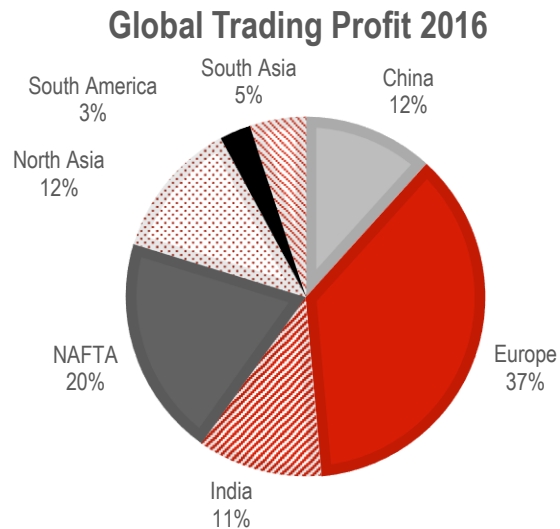
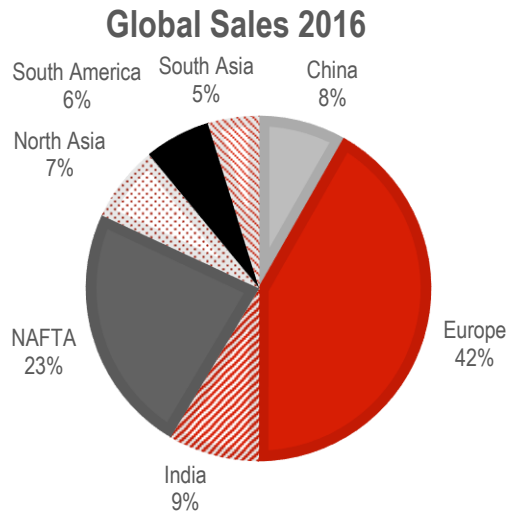
# Revenue and trading profit performance year on year by Division



# All major currencies strengthened against sterling

Currencies (Impact of FX translation on GBP reporting currency)	2016 Dec YTD Average Rates	2015 FY Average Rates	2016 Average Rates v 2015 Average Rates	Impact on Sales (£m)	Impact on TP (£m)	Impact on net debt (£m)
USD	1.36	1.53	11.2%	47.6	4.2	-20.0
EUR	1.22	1.38	11.1%	40.6	1.1	-16.4
INR	91.13	98.00	7.0%	7.3	1.4	3.2
RMB	9.00	9.60	6.3%	7.2	1.3	1.3
JPY	147.62	185.07	20.2%	8.7	1.6	-
BRL	4.75	5.09	6.7%	4.6	0.4	0.3
ZAR	20.00	19.48	-2.7%	-1.0	0.0	0.2
Other				15.9	3.1	1.1
<b>Total</b>				<b>130.9</b>	<b>13.1</b>	<b>-30.3</b>

# Geographic diversification counters currency risk



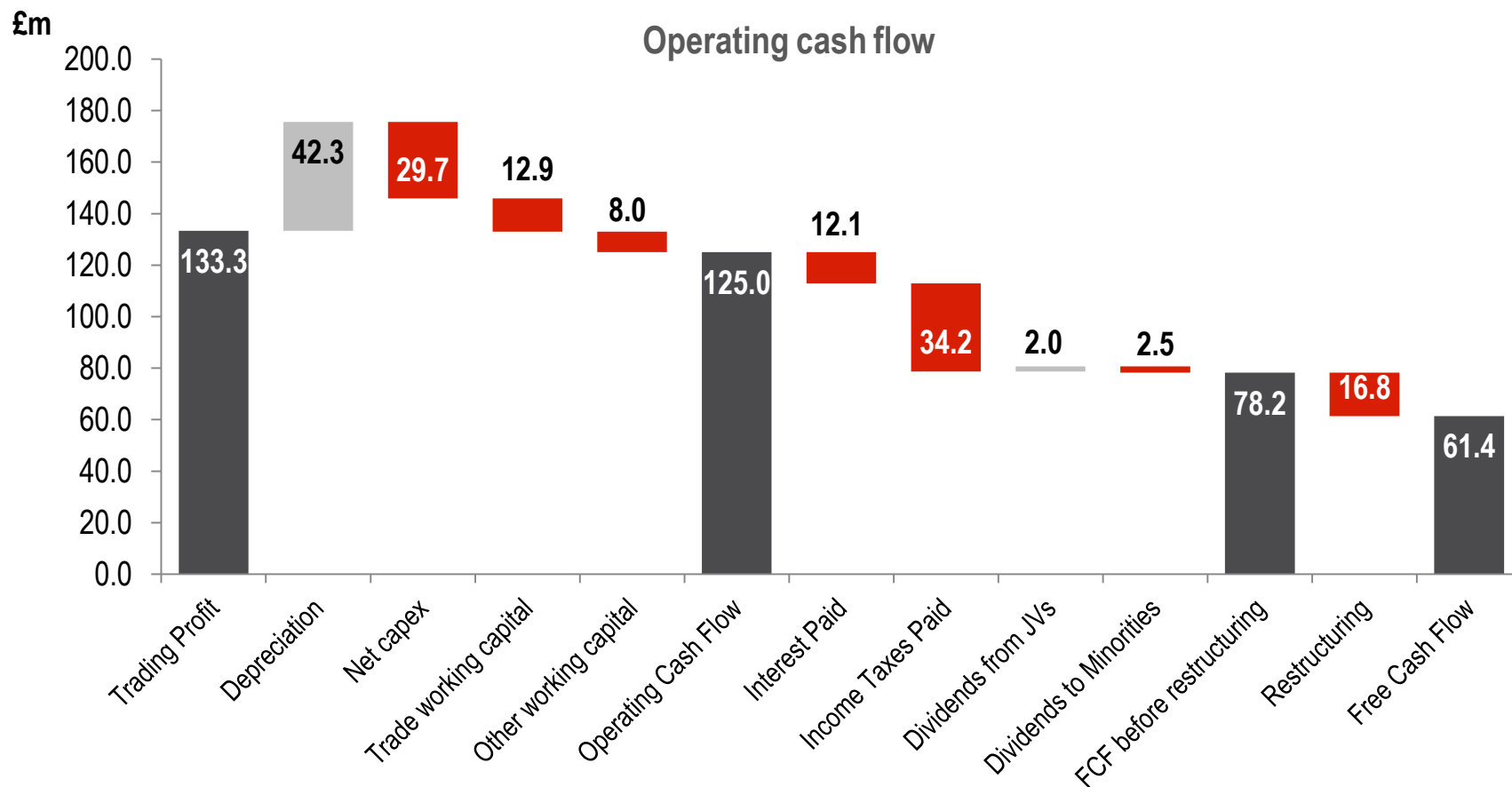
## Balance sheet risk

- Europe and NAFTA account for c.60% of Group profits
- Group debt split across GBP, USD, and EUR to match

## P&L risk

- Low GBP exposure as UK forecast of approx. 4% of sales

## Achieved 94% cash conversion rate

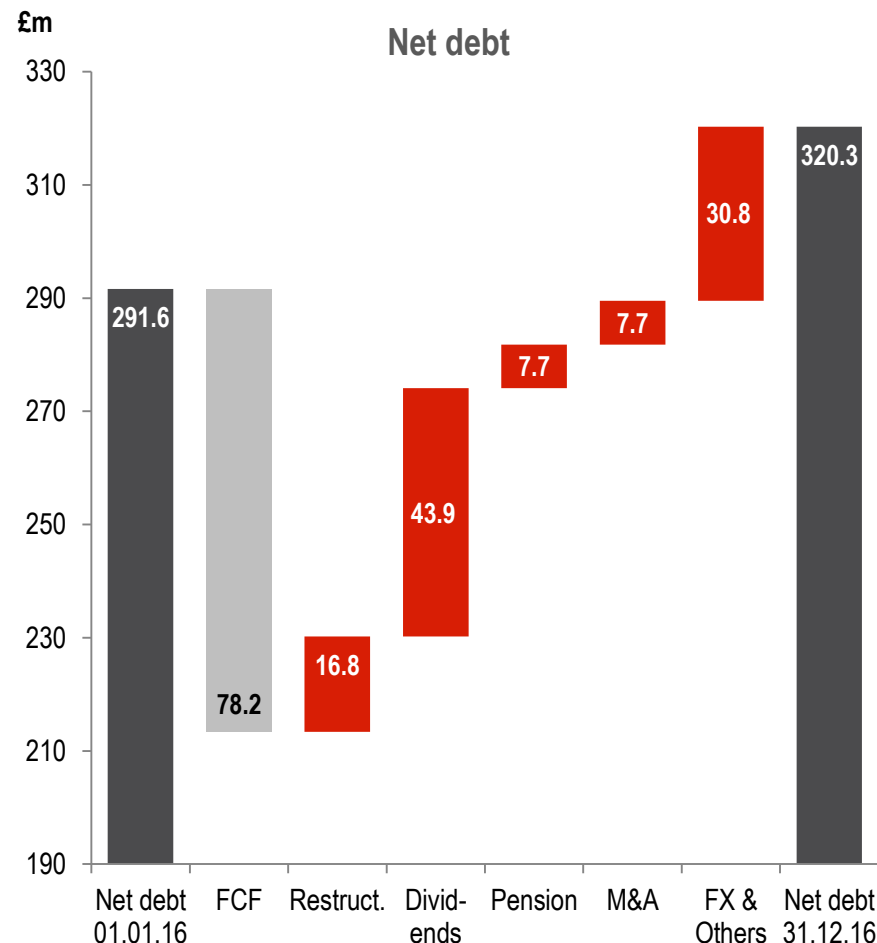


- Full year cash conversion of 93.8%
- Capex in 2016 was below depreciation
- Free cash flow at £61.4m is 49% of OCF
- Working capital increased in 2016
- Income tax paid increased in line with ETR

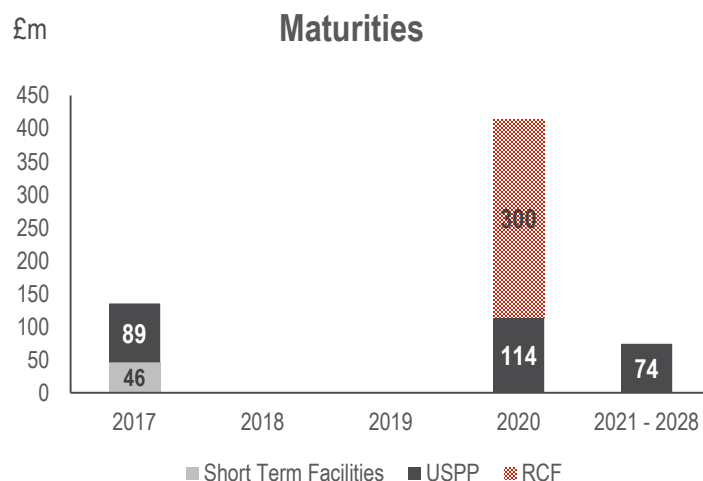
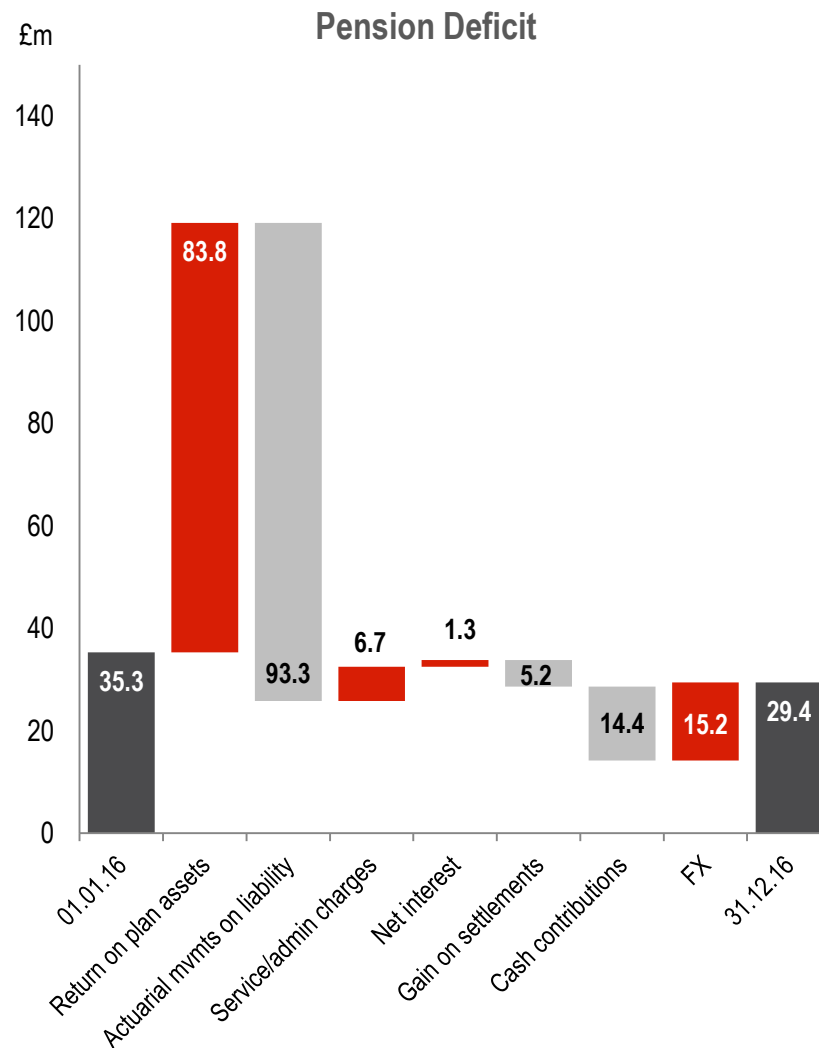
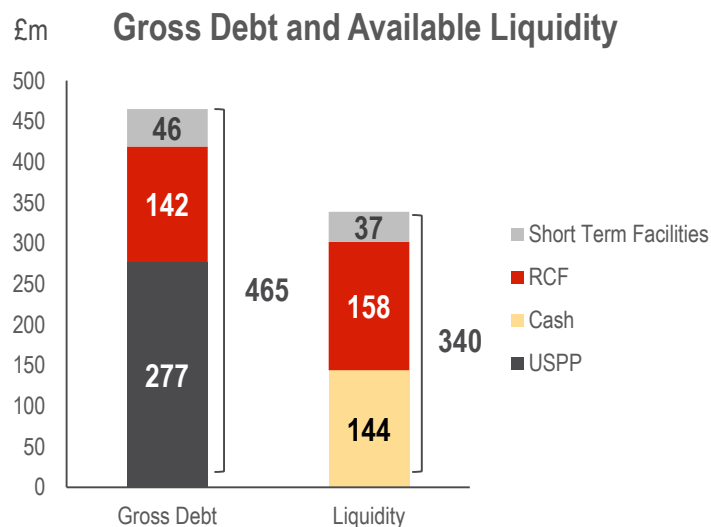


## Net debt increased to £320.3m due largely to FX movements

- Net debt increased £28.7m in the year
- Acquisition of mould flux business of Carbox at £7.3m, and £0.4m release of contingent payments for prior year acquisition (Process Metrix)
- FX impact was pronounced at year end with all global currencies strengthening against sterling. The Euro and the US dollar have strengthened by 13.5% and 16.3%, respectively

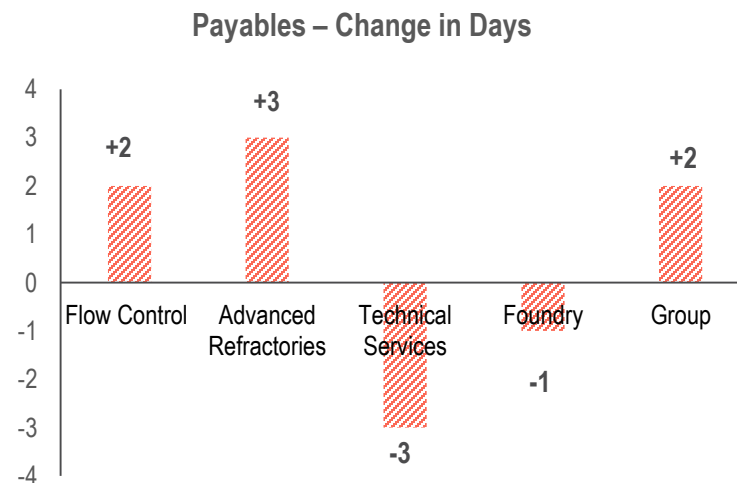
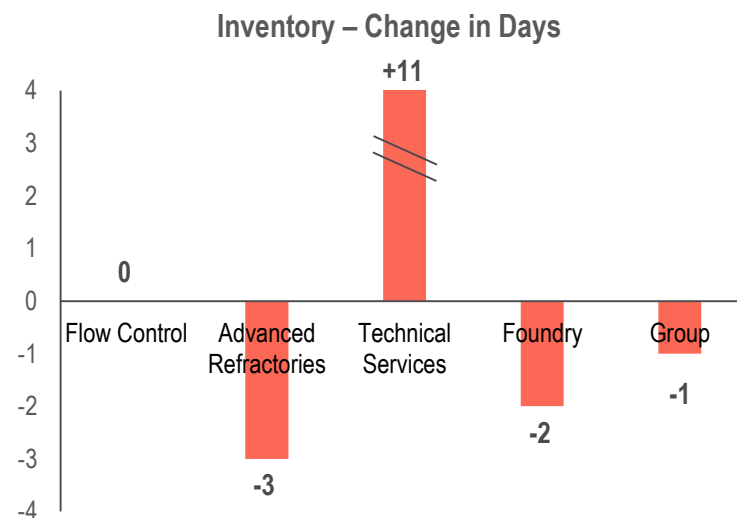


# Strong balance sheet with significant liquidity

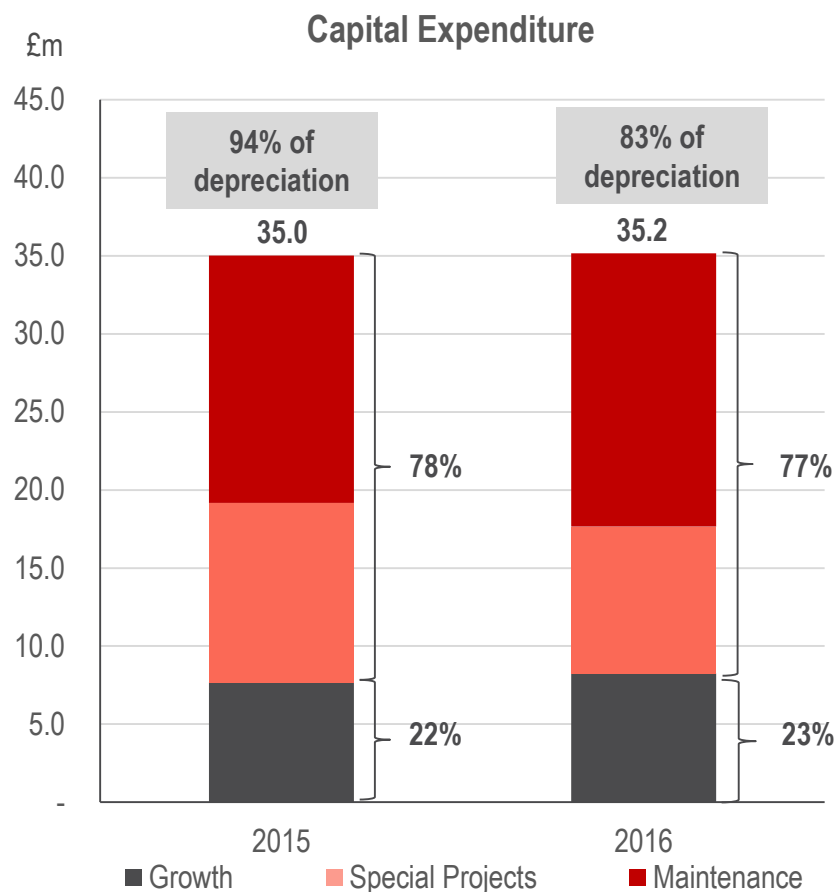


# Efficient management of working capital (constant currency)

- Focus on inventory management during 2016 has yielded clear benefits for Advanced Refractories and Foundry divisions
- Ongoing renegotiation efforts on payable terms during 2016
- Launching supplier finance project for 2017 has potential over time to materially increase average payment terms
- Continued efforts to tighten credit control and customer selection criteria in developing markets
- Technical Services working capital will experience volatility as business ramped-up



# Capital expenditure discipline



- Rigorous process for approving capex as part of annual budgeting process
- Capex split into three key categories: maintenance; growth; special projects
- No near-term capacity additions planned
- Capex declined by 8% in constant currency terms from 2015 to 2016



# Financial objectives remain consistent



- Focus on cost control and delivery of restructuring
- Improve working capital efficiency
- Maintain high levels of cash conversion
- Continue with the conservative approach to gearing
- Maintain financial flexibility
- Improve shareholder returns





# Outlook



# 2016 Summary

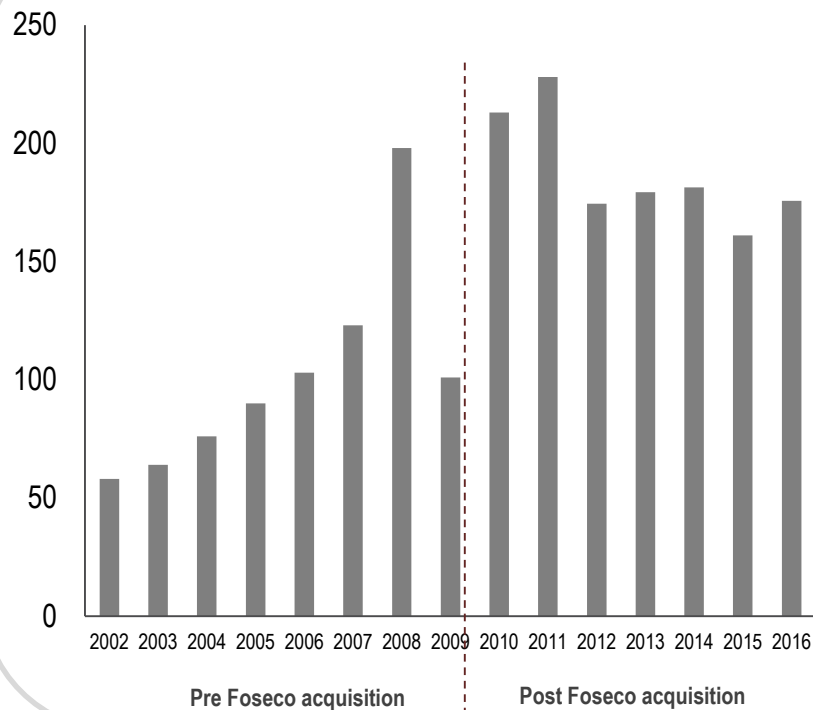


- Resilient results showing progress despite broadly flat end markets
- Restructuring programme ahead of plan and delivered
  - £16.6m cost savings in 2016
  - Total annual programme benefits further increased to £35m by the end of 2017 at a cost of £45m
- Global steel and foundry markets showing signs of stabilisation, albeit mixed and at low levels
- Good progress in structural growth markets – China, India and Brazil
- Strong cashflow performance, with cash conversion of 94%
- Strong balance sheet, with c.£340m of available liquidity
- Increased the dividend by 1.7% to 16.55 pence per share

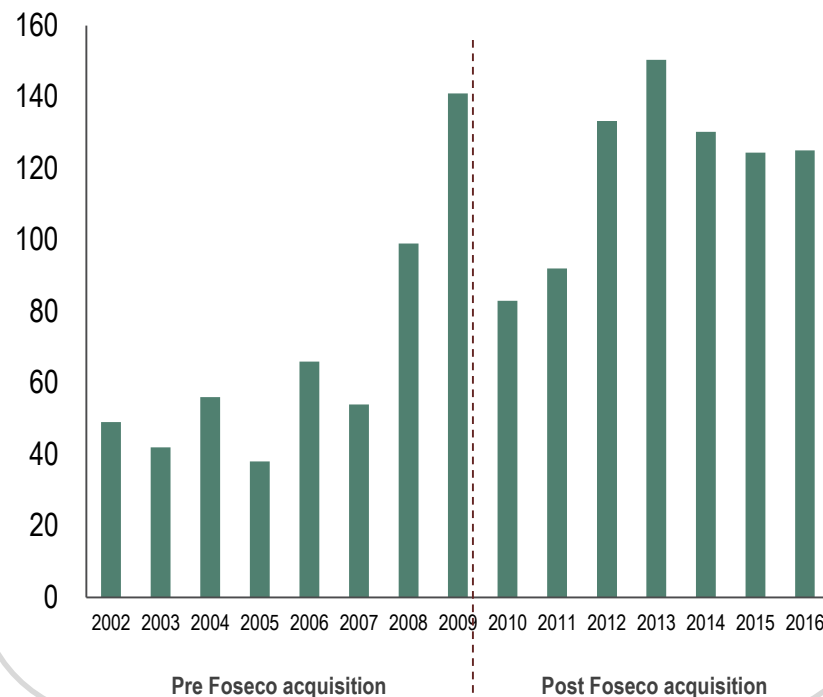


# Resilient profitability and strong cash flow generation

**EBITDA (1, 2) £m**



**Operating cash flow (1, 2, 3) £m**



- (1) Company data as reported, excluding Precious Metals Processing
- (2) 2012 results have been restated as a result of IAS 19 (Revised) Employee Benefits
- (3) Cashflow from operations before interest and tax and after capital expenditure

# Focused on delivering shareholder value

## Focus areas for 2017

**Continue**

**Revenue growth:** China, India, Technical Services, innovation

**Strengthen**

**Cash generation:** payment terms, inventories, receivables

**Deliver**

**Further margin progression:** cost reduction, Lean, Excellence



# Outlook

- Global market environment broadly stable at relatively low levels but with some encouraging early signs of improvement visible in recent months
- Vesuvius remains well placed to benefit from a recovery in end markets
- Continued focus on medium-term strategy:
  - Building Technical Services business
  - Growth in structural growth markets:
    - China, India, Mexico and Brazil
- Restructuring programme delivery continues and target savings further increased
  - Annualised benefits of £35 million to be delivered by end of 2017
- Maintain focus on trading margin improvement, cash generation, balance sheet strength and shareholder returns





## Q&A





# Appendix





# 5 year history at constant currency<sup>(1)</sup>

	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
<b>Revenue</b>	<b>1,529.8</b>	<b>1,502.1</b>	<b>1,547.2</b>	<b>1,452.9</b>	<b>1,401.4</b>
Steel <sup>(2)</sup>	1,021.2	1,024.4	1,059.8	981.9	942.0
Foundry	508.6	477.6	487.3	471.0	459.4
<b>Trading Profit</b>	<b>125.1</b>	<b>140.8</b>	<b>157.6</b>	<b>137.1</b>	<b>133.3</b>
Steel	82.9	91.9	108.0	86.7	79.2
Foundry	42.1	48.8	49.6	50.4	54.1
<b>Margins</b>	<b>8.2%</b>	<b>9.4%</b>	<b>10.2%</b>	<b>9.4%</b>	<b>9.5%</b>
Steel	8.1%	9.0%	10.2%	8.8%	8.4%
Foundry	8.3%	10.2%	10.2%	10.7%	11.8%

(1) All numbers shown at December 2016 average exchange rates

(2) Steel includes Technical Services

# Currency Ready Reckoner

Currencies	Change	Approximate change in annual profits
US Dollar	1 cent	£0.4 million
Euro	1 cent	£0.3 million
Indian Rupee	1 rupee	£0.5 million
Chinese Renminbi	0.1 RMB	£0.5 million
Japanese Yen	1 yen	£0.1 million
Brazilian Real	0.01 BRL	£0.1 million
South African Rand	1 cent	£0.0 million

- Rule of thumb for impact of a movement in currency against sterling (1 unit change)
  - Amounts shown are movements for each currency
  - Works both for strengthening and weakening of currencies



# Market leading positions across many of our products

## Molten metal in steel industry



A world leader in flow control systems (slide gates)

A world leader in isostatically pressed refractories

A world leader in flow control pre-cast solutions

A world leader in mould & tundish fluxes

### Steel Flow Control Competitors



## Molten metal in foundries



A world leader in filters

A world leader in feeding systems

A world leader in coatings













### Foundry Technologies Competitors



Hamilton



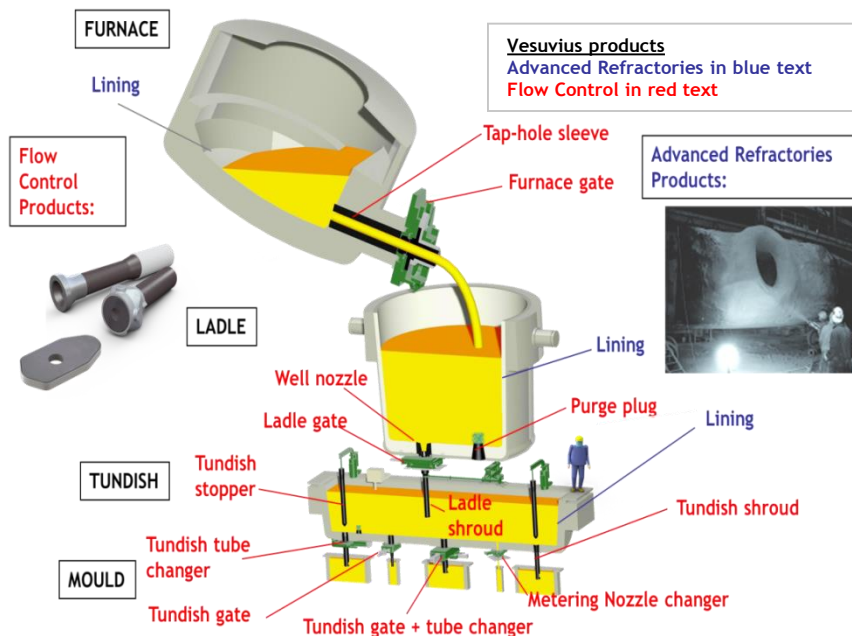
# Vesuvius is focused on the Steel and Foundry markets

	Steel			Foundry
	Steel Flow Control	Technical Services	Advanced Refractories	Foundry Technologies
Revenue (% of group)	£506m	£37m	£399m	£459m
Overview	Provides products, systems and services to regulate and protect the flow of steel in the continuous casting process	Provides products, systems and services to collect and interpret data in the molten metal flow process	Provides installation expertise and materials that withstand extreme temperatures and offer corrosion resistance at our customers' facilities	Improves casting quality and foundry process efficiency through the supply of products and applications engineering to the global foundry industry
Products	<b>Nozzles</b>  <b>Tube Changers</b> 	<b>Probes</b>  <b>Lasers</b> 	<b>Lining</b>  <b>Precasts</b> 	<b>Filters</b>  <b>Feeding Systems</b> 
End Markets	Steel (100%)	Steel (80%) Foundry (20%)	Iron & Steel (75%) Cement, HPI (25%)	Vehicles (40%) Glass (5%) Other (55%)
Employees	4,256	557	2,352	2,815
		Sold under the Vesuvius brand 		Sold under the Foseco brand 

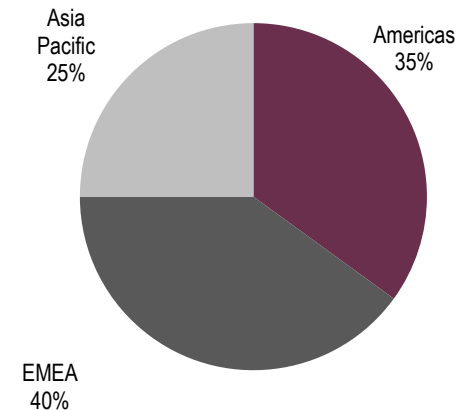
# Main products and markets – Steel business segment

## Steel business segment overview

- World leader in the supply of consumable **Steel Flow Control** products used in the enclosed continuous casting process and a leading supplier of **Advanced Refractories** used as high temperature linings



## Steel business segment revenue by operating location 2016



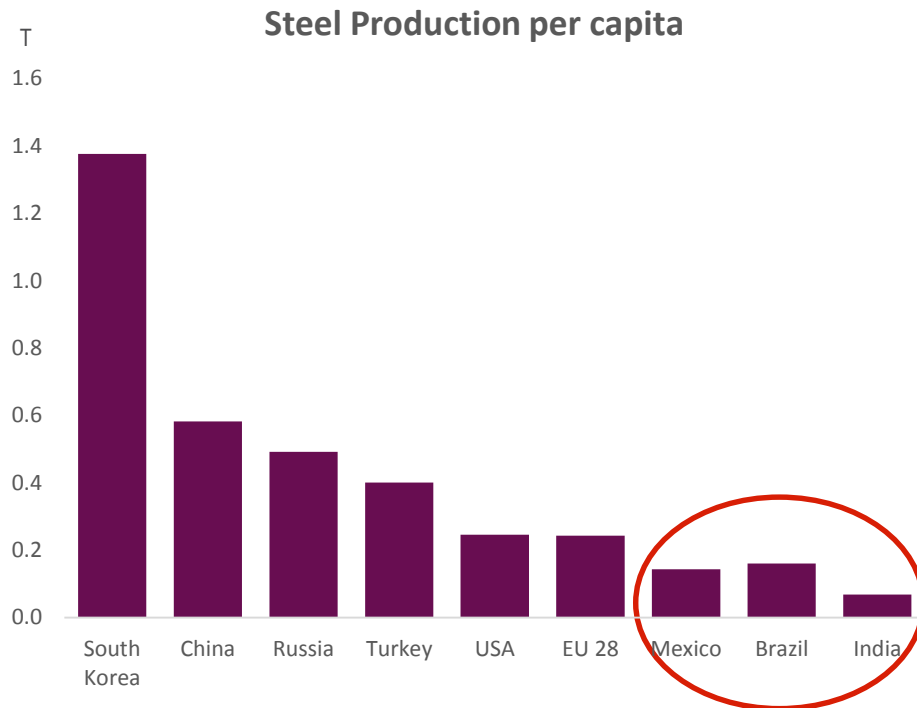
Well balanced presence in all major areas

- Vesuvius is the only truly global player in Flow Control
- Asia Pacific major volume growth potential
- Europe and NAFTA as laboratories for innovation



**A global leader for steel flow control consumable ceramics**

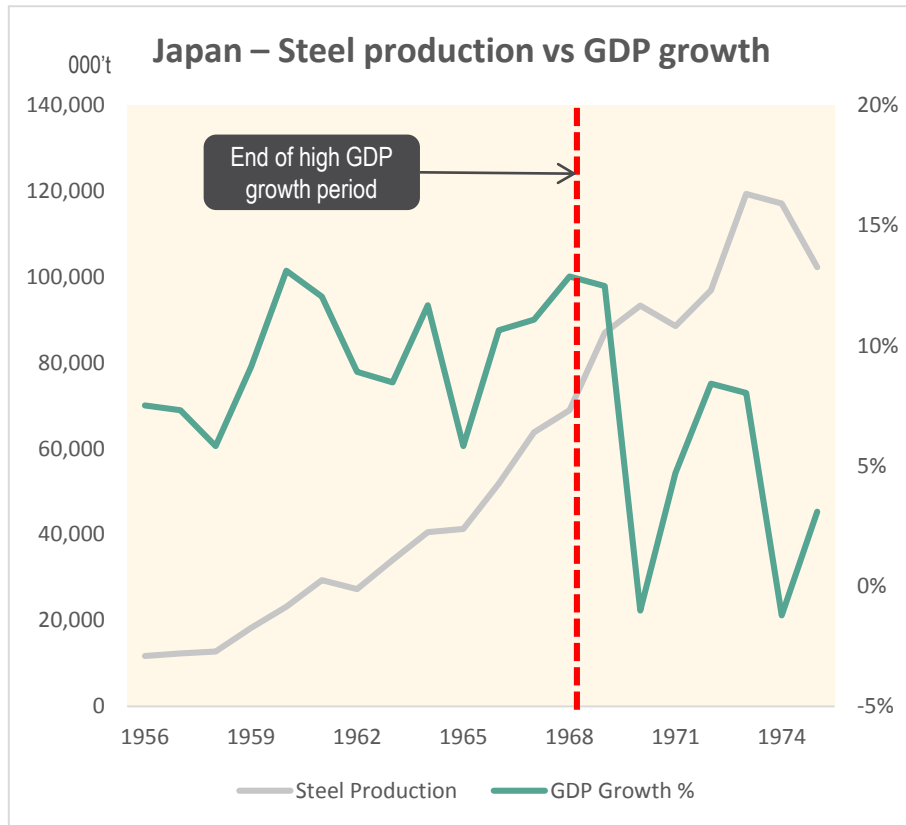
# Potential for growth



Source: WSA for steel (2015) and World Bank for population (2015)

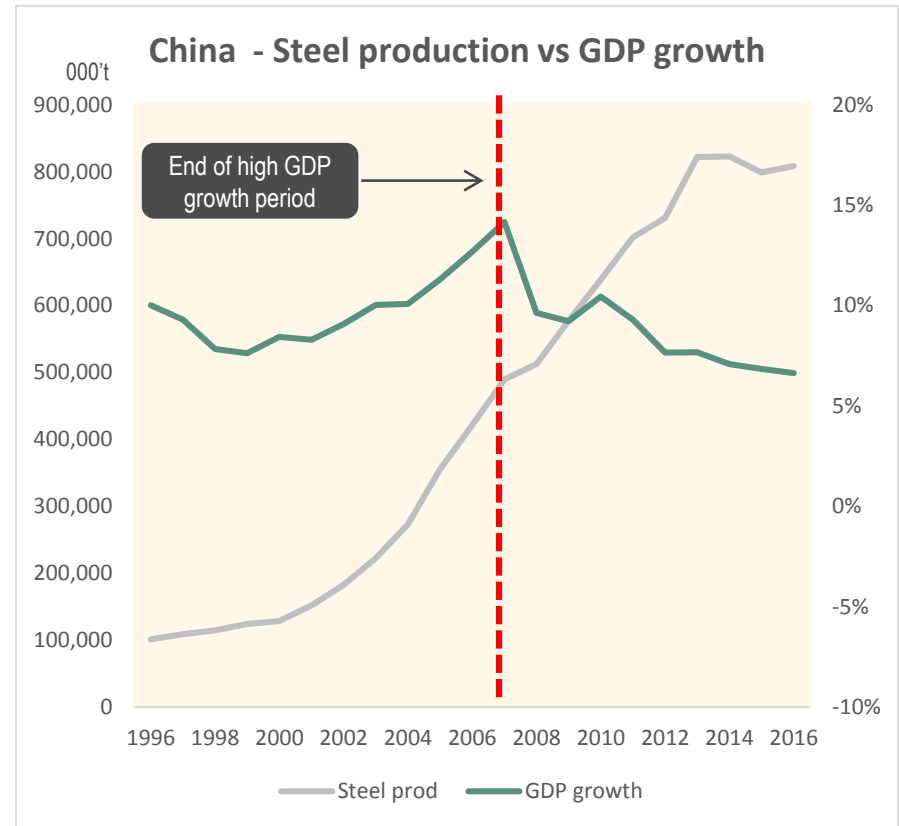
- Three heavily populated countries constitute considerable potential for growth
- All have low steel production tonnes per capita vs peers, indicating expected growth in infrastructure and construction development
  - India
  - Brazil
  - Mexico

# China Steel Production: Has the limit been reached? Parallel with Japan



Steel production per capita in Japan 831kg

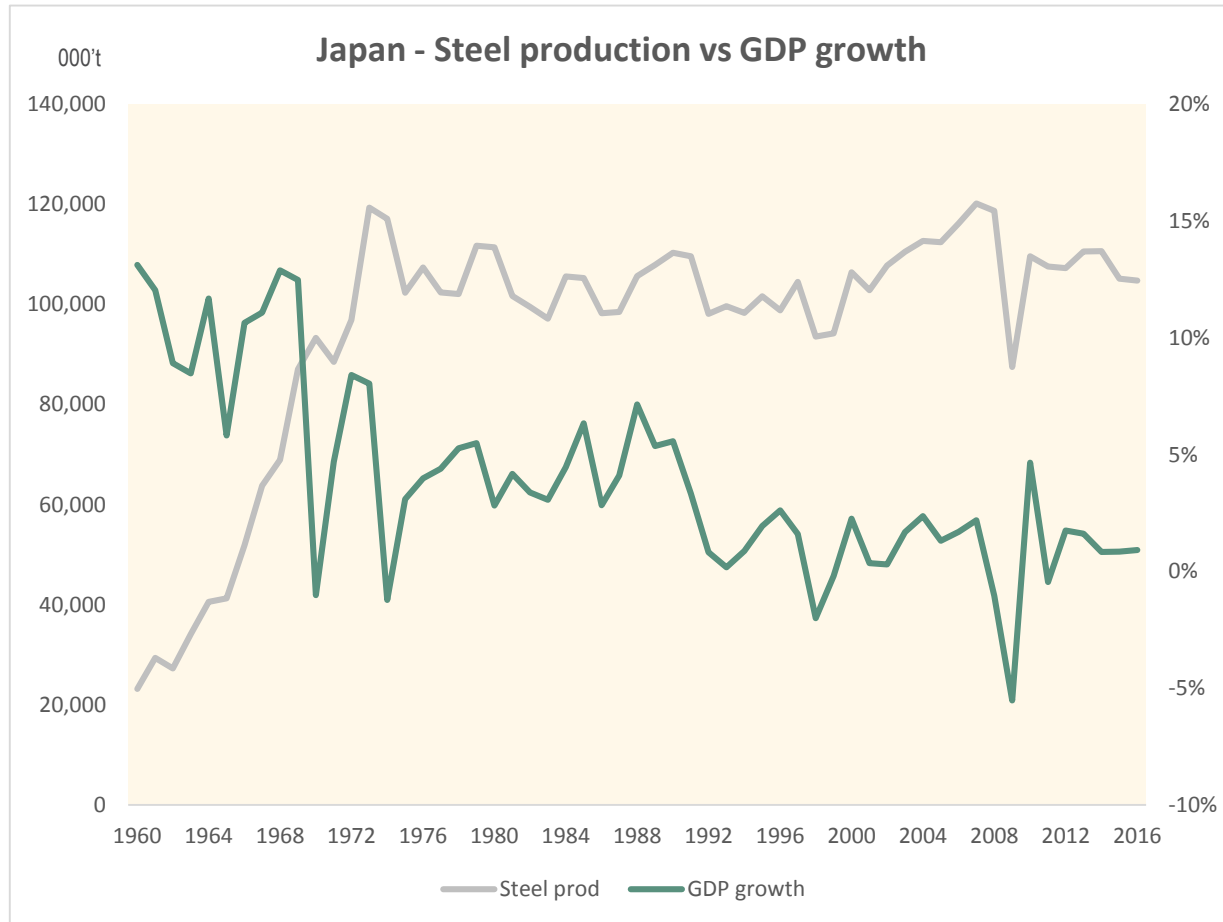
From 1956 to 1974 (18 years) steel production was multiplied 10x



Steel production per capita in China 581kg

From 1996 to 2014 (18 years) steel production was multiplied 8x

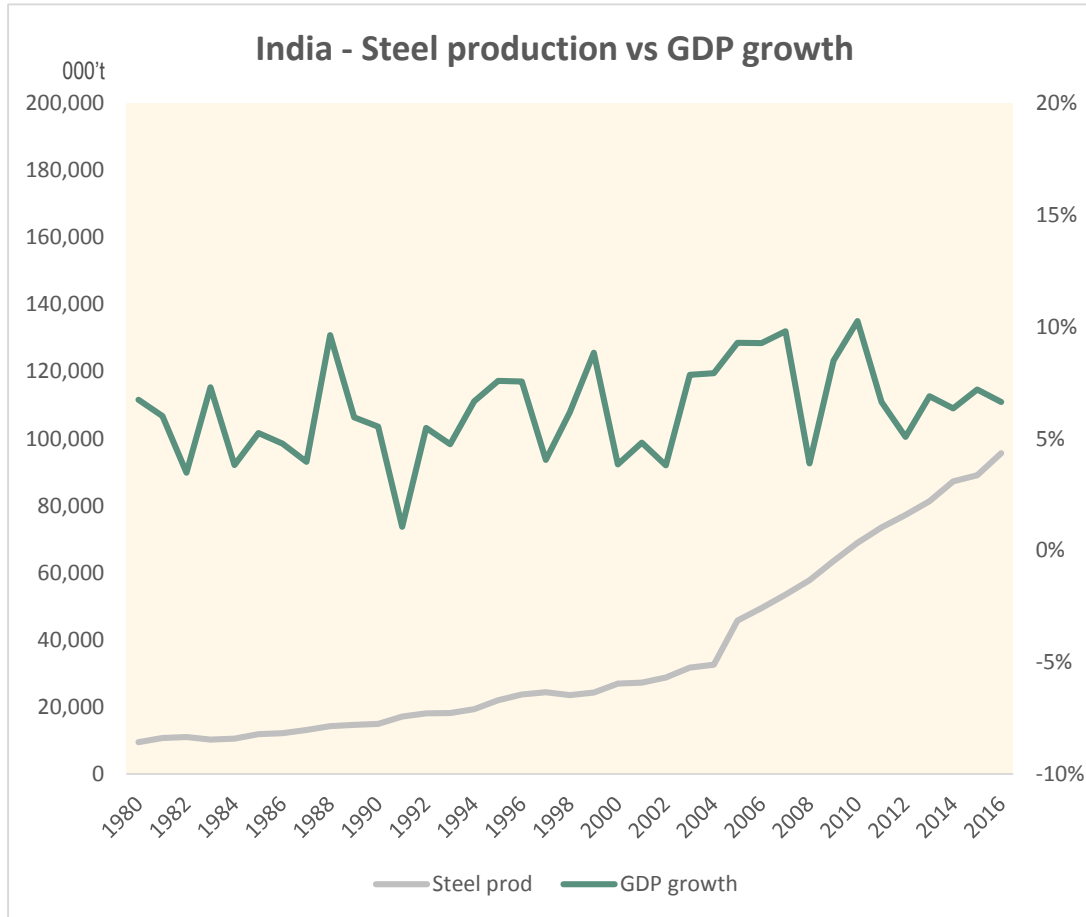
# What is the steel profile of a maturing economy: The case of Japan



- Steel production per capita in Japan 831kg
- After the peak in 1973 steel production declined a little and recovered to about 88% of peak over 40 years

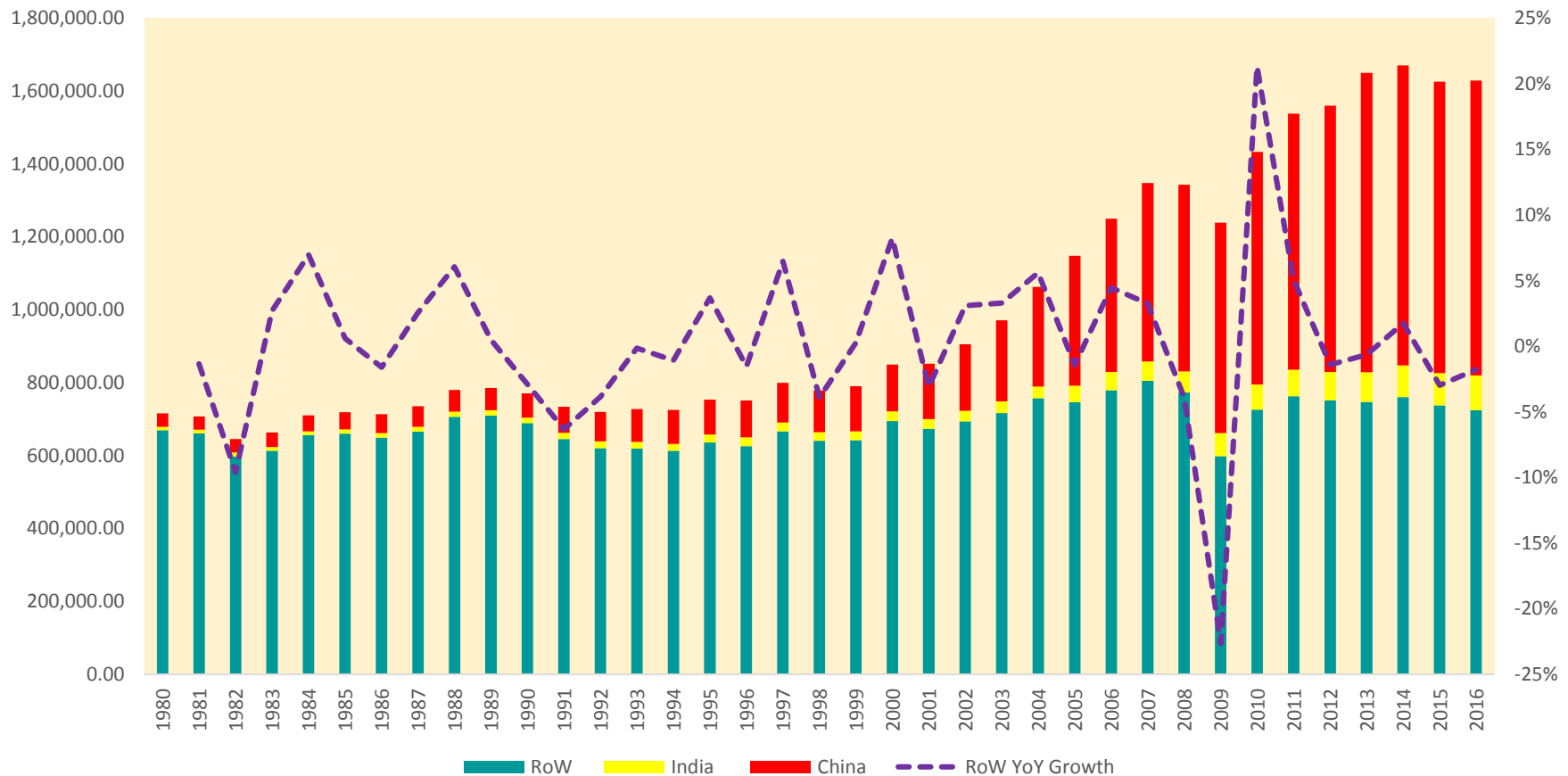


# The Indian steel production high growth sequence should start soon



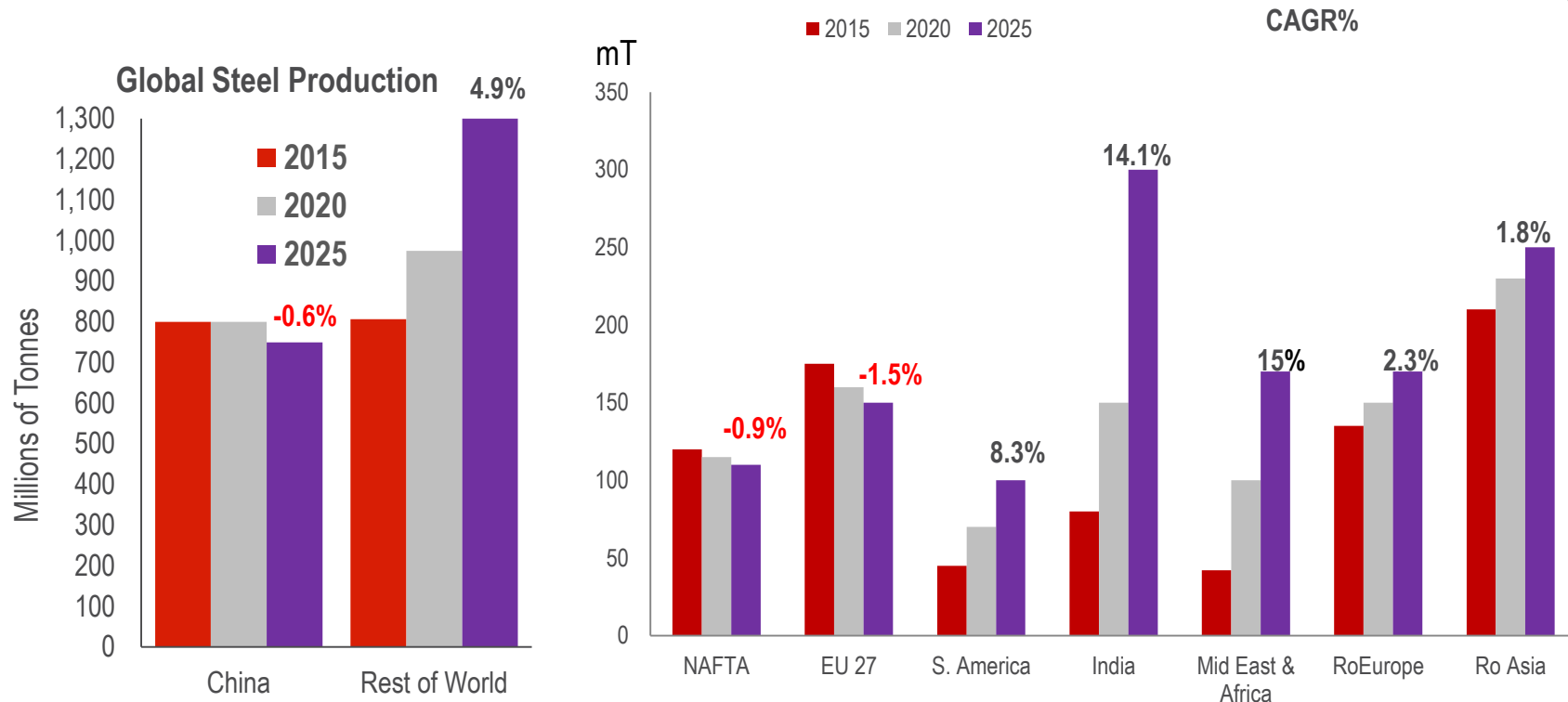
- Steel production per capita in India 70kg (vs 585kg in China)
- The long term steel growth episode should start in the coming three years and last longer than in Japan and China
- Official objective is 300 million tonnes in 2025

# World Steel Production: Where is India in the growth cycle?



- By directly comparing Chinese and Indian tonnages, India currently could be seen as being in the same situation as China in 1994; and still progress to 124mT in 2020 and 273mT in 2025

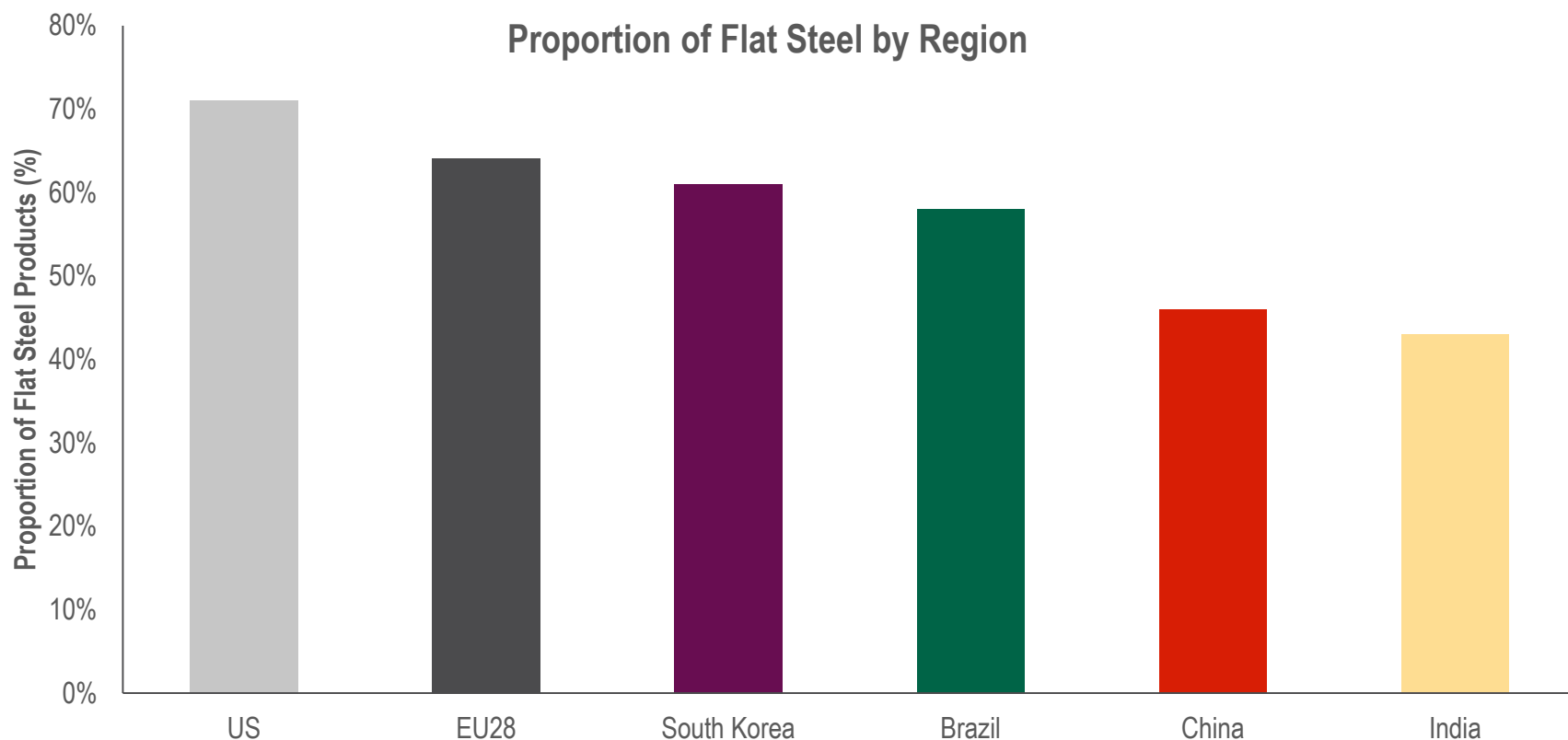
# Steel market growth scenario



- Nafta and Europe should decrease slowly as their economic growth model requires less steel
- China stabilises and starts declining at the end of the period
- India enters a major steel growth phase
- South America, Middle East and at the end of the period Africa enjoy sustained growth

Global forecasted production (MT)	2016	2020	2025
	1,629	1,775	2,050

# Growth opportunities – Steel



- Vesuvius serves mainly the flat products market which will grow at a higher pace than global steel as developing markets evolve towards consumption driven economies
- Typical consumption of Flow Control products in flat steel is £1.5/T of steel vs £0.5/T of steel in long

# China's move towards flat steel is confirmed

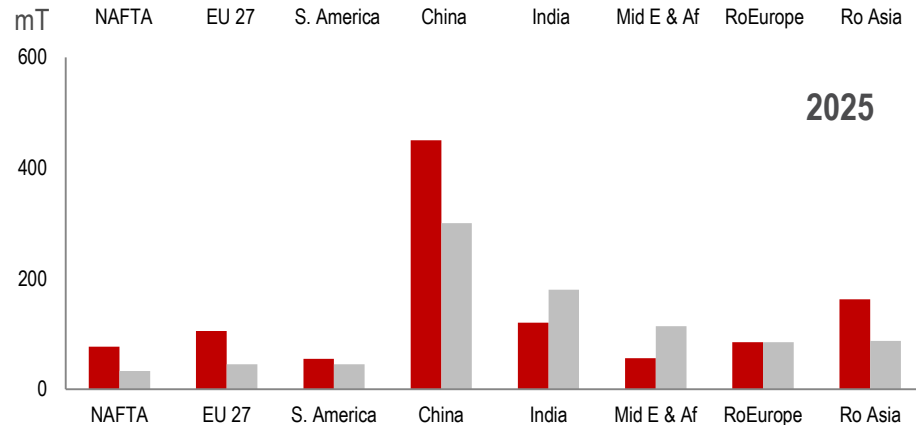
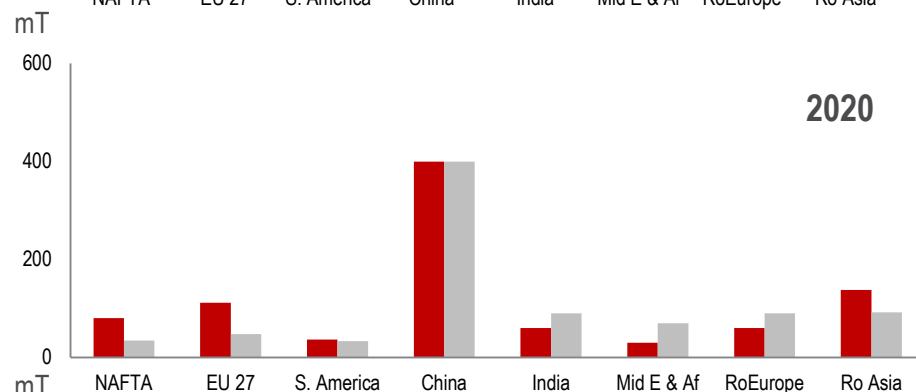
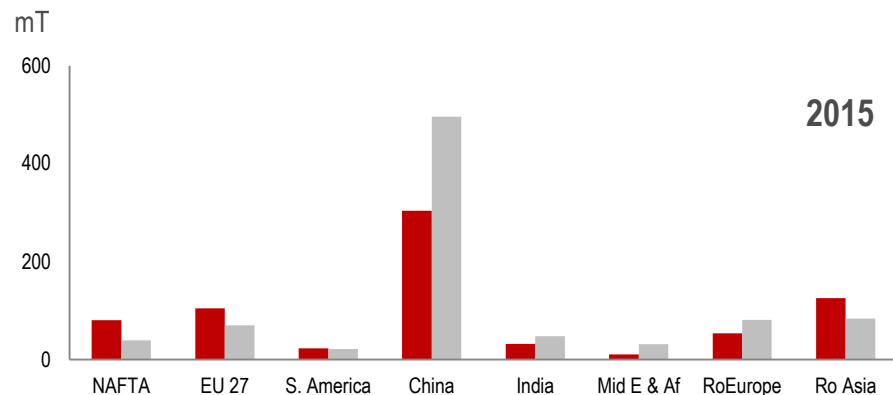


	2016	2015	2014	2013
<b>Total CISA</b>	1138	1123	1117	1077
<b>Long</b>	481	483	518	502
<b>Flat</b>	519	489	477	455
<b>Long</b>	42.3%	44.0%	45.8%	46.7%
<b>Flat</b>	45.6%	43.5%	42.7%	42.2%

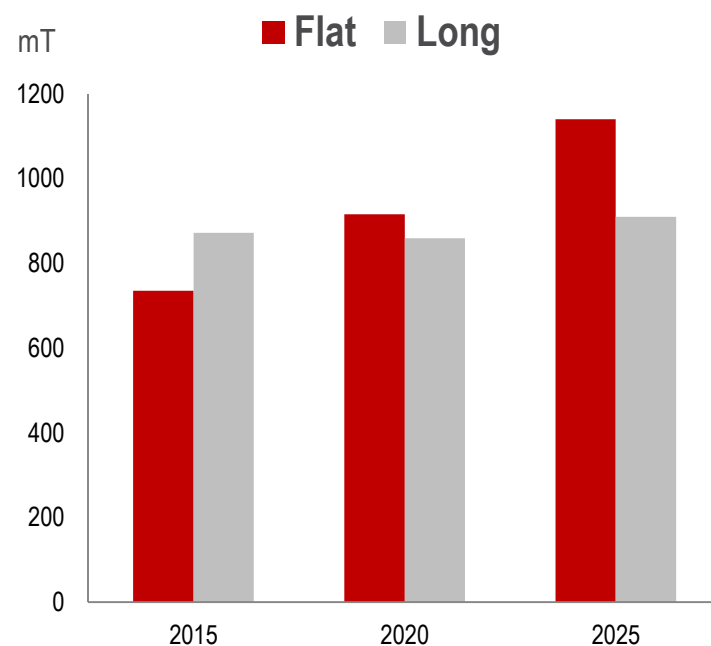
- Proportion of flat steel produced increased by 150bps YoY for Chinese Steel Association members (representing ~60% most advanced of total Chinese steel production)
- However, China Iron & Steel Association is the customer segment we address, already producing 56% of flat steel



# Conversion to flat steel is a growth opportunity

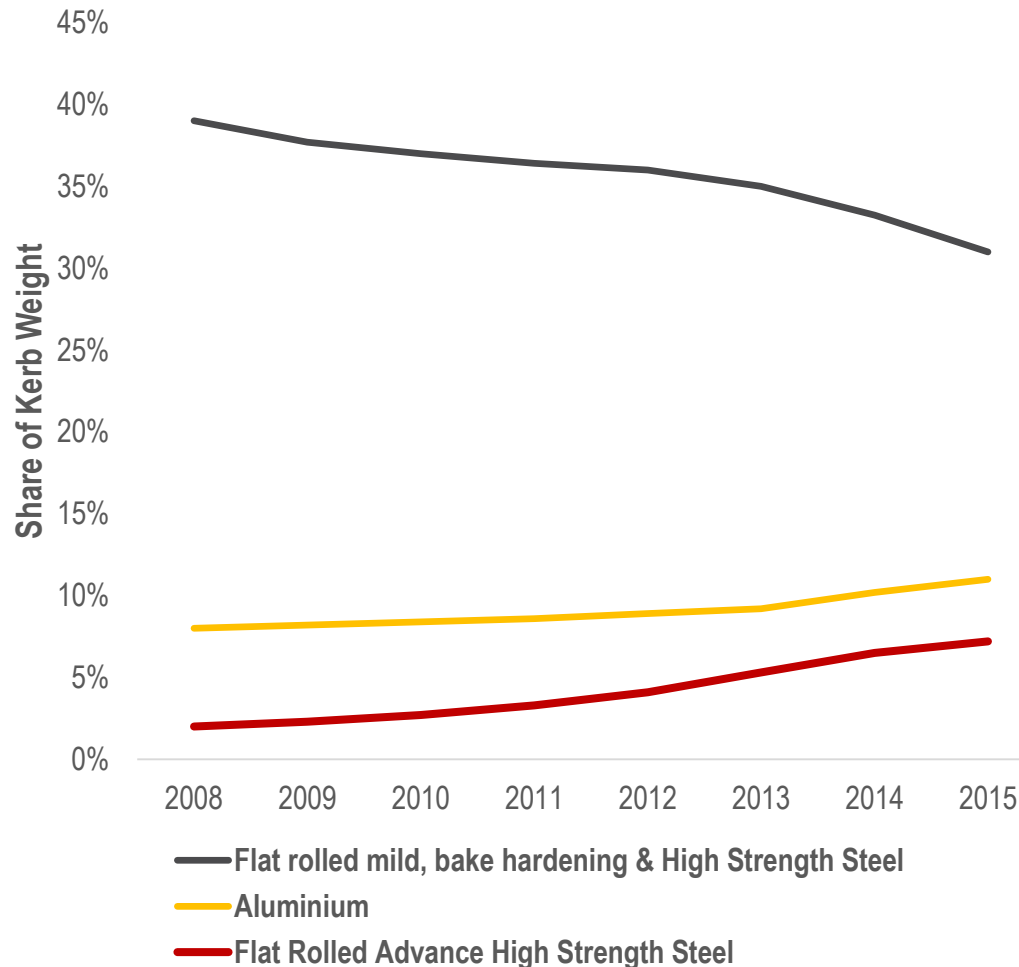


- Progression of flat steel vs long steel could generate growth in our accessible market of 30% in 2020 and 55% in 2025
- In the same period global steel production is expected to grow by only 10% and 28% respectively



# Steel vs Aluminium: Growth of high-strength steel continues along the previous trend

Material share as percent of vehicle kerb weight



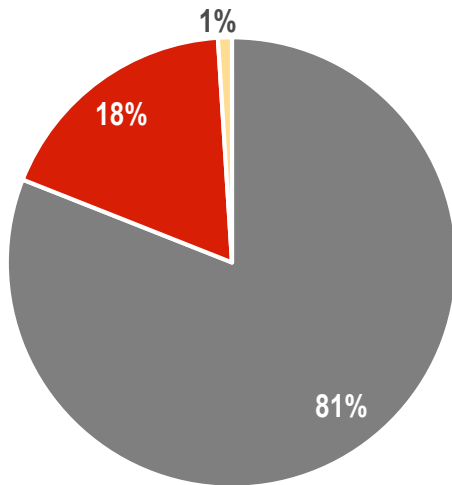
**In vehicle production, conventional steel is replaced by high-resistance steels as well as by Aluminium**

- High resistance steels require more sophisticated technologies to be produced (high Ni or Mn content) and tighter control on the process
- Today the most advanced steel makers suffer very low productivity on such qualities

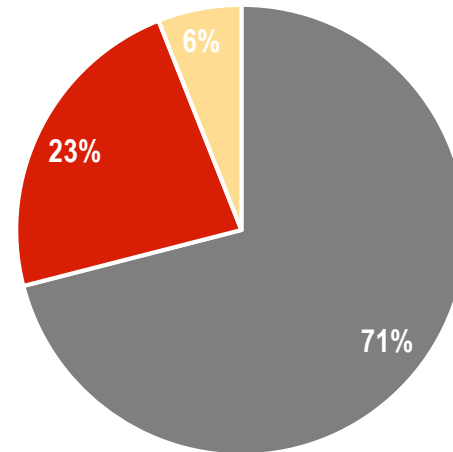
Source: WSA for steel production volumes, Vesuvius internal data for Vesuvius sales at constant currency.

# Steel vs Aluminum: Long term forecast gives the major share to high strength steels for light vehicles

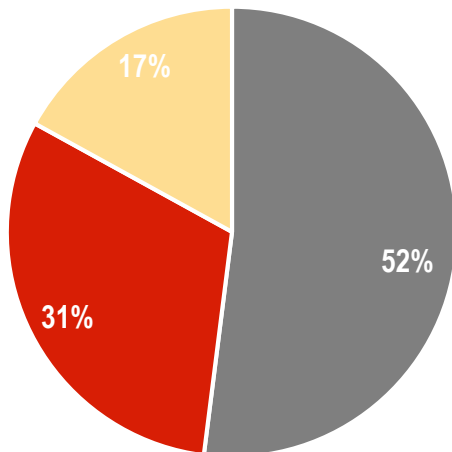
2012



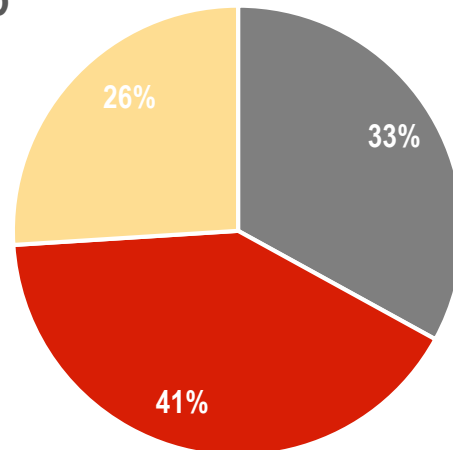
2015



2020



2025



■ Mild and HSLA  
■ AHSS/UHSS  
■ Aluminium

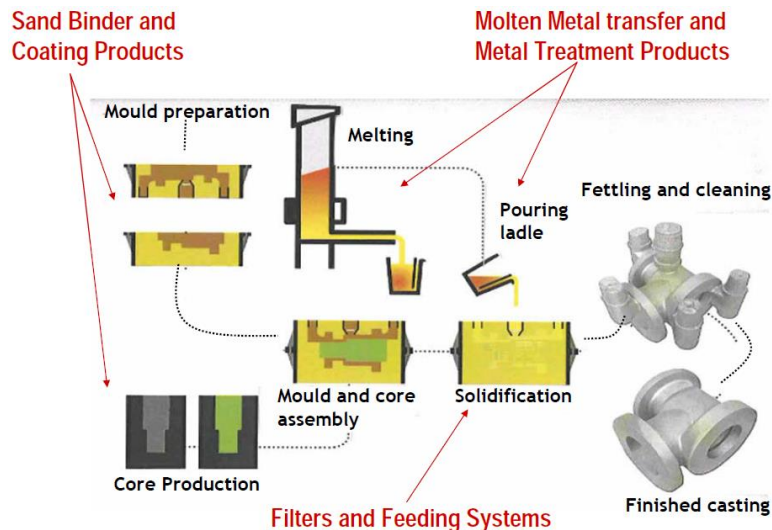
Source: Ducker Worldwide



# Main products and markets – Foundry business segment

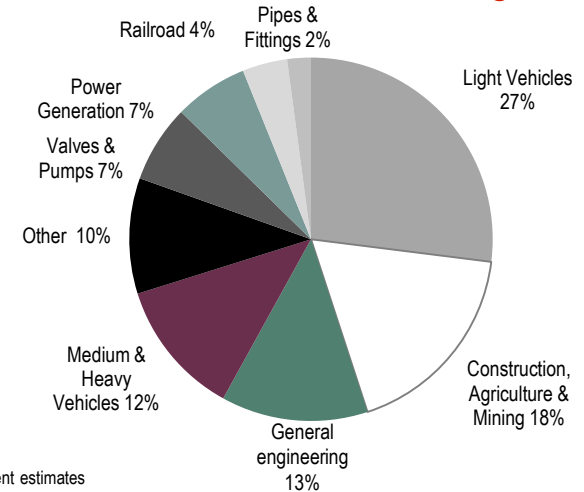
## Foundry casting process

- World leader in the supply of consumable products and technical services used in the production of metal castings which themselves have a wide variety of uses in engineered products

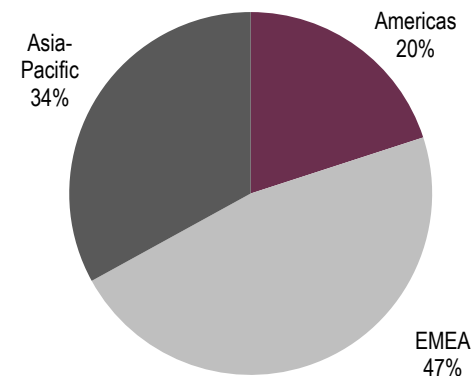


Note Red text denotes Vesuvius products

## Ultimate end markets for castings



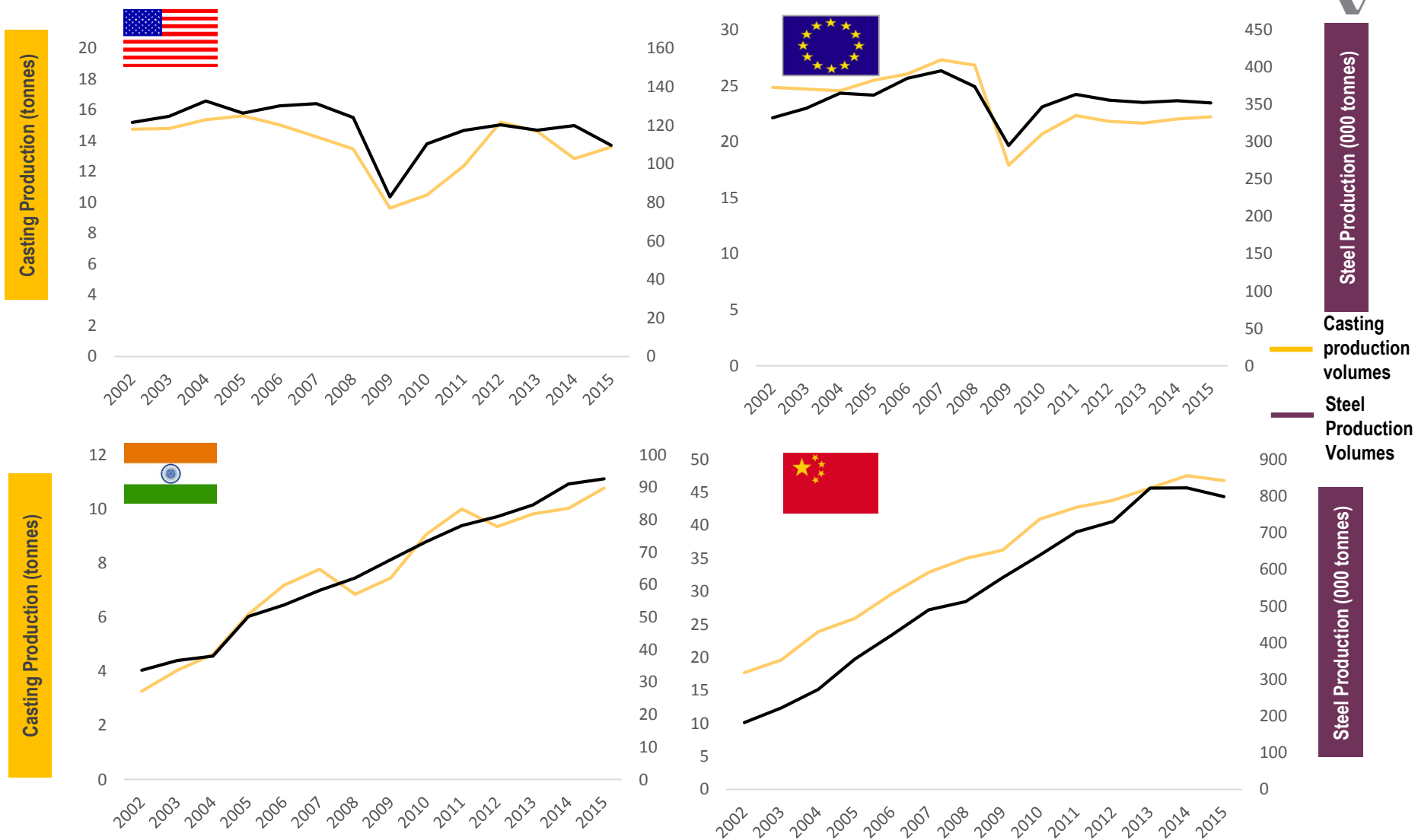
## Foundry business segment revenue by operating location 2016



A global leader in consumables for mould & methoding

# Steel and Foundry casting production tonnages move in parallel

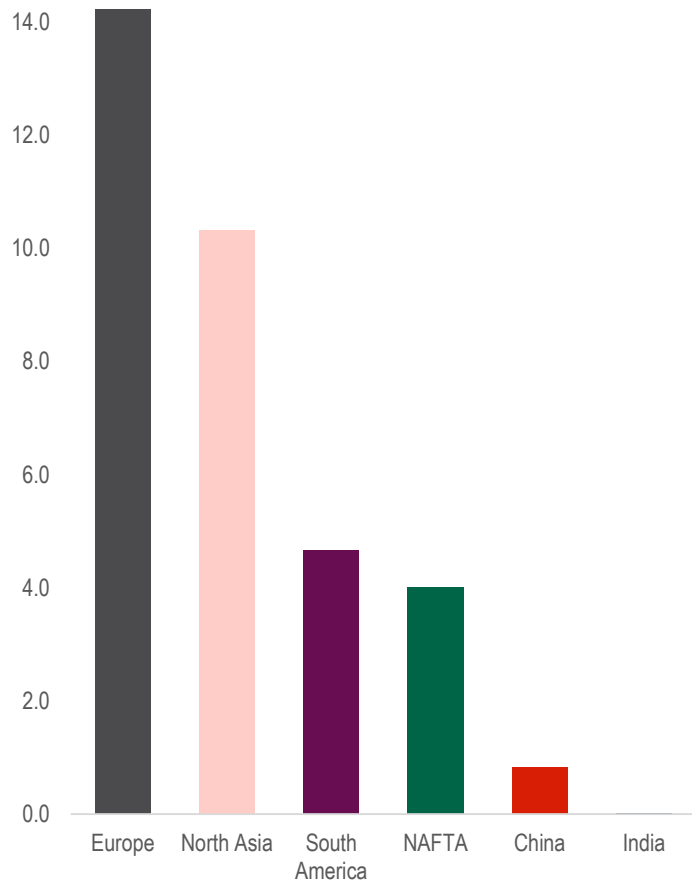
## Growth perspectives should be similar: Foundry should benefit from China and India



Source WSA for steel production volumes; Modern Casting and Vesuvius estimates for casting tonnes,

# Long term growth in Foundry will come from innovation and marketing

Foundry sales of Ductile Iron £/T  
of total market casting volumes (2015)

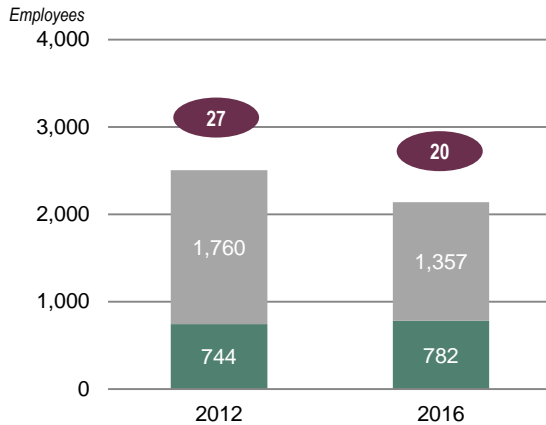


Significant upside potential through continuing market penetration as emerging markets move towards higher quality foundry castings

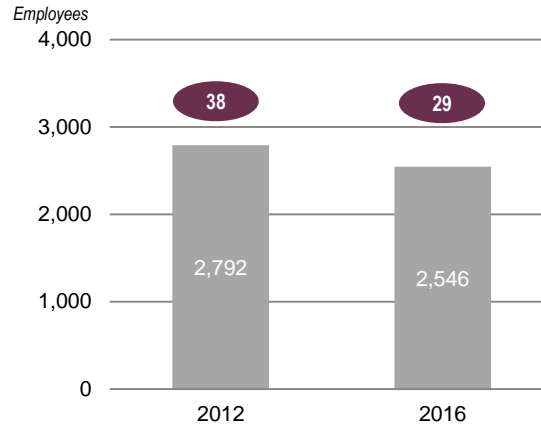
# Shift of headcounts to emerging countries continued



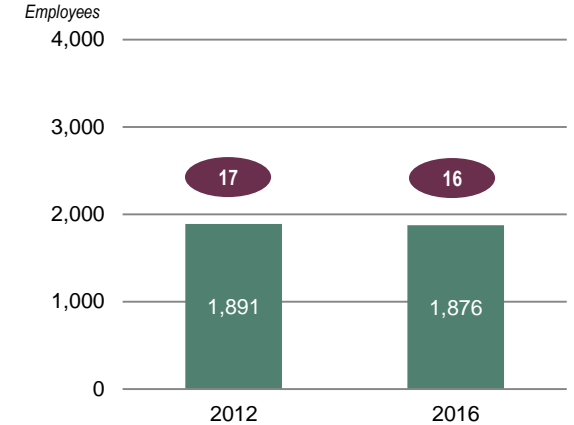
## NAFTA facilities and headcount



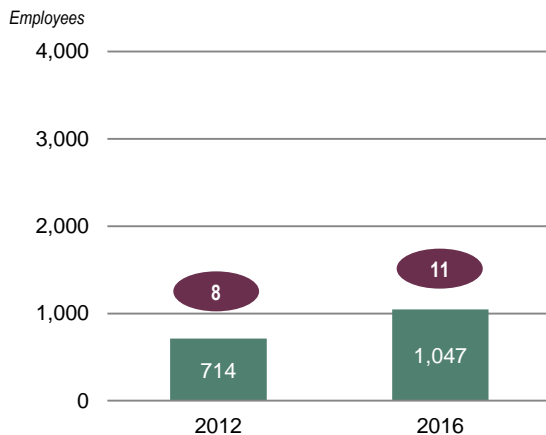
## EU 15 facilities and headcount



## Other EMEA facilities and headcount

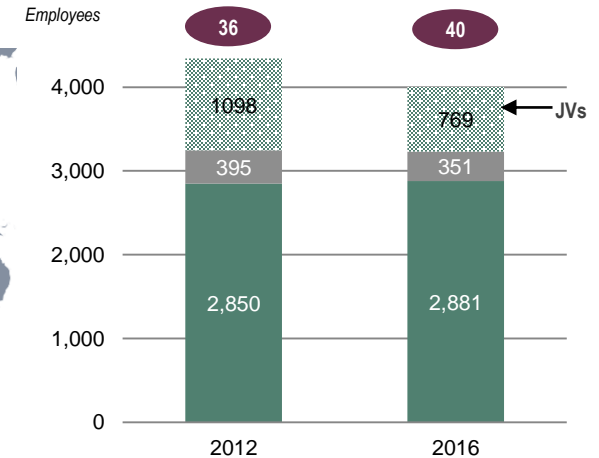


## South America facilities and headcount



● Facilities ■ Developed markets ■ Developing markets

## Asia Pacific facilities and headcount



Source: Cognos, January 2017

Note: 2016 includes Sidernes, Ecil MET TEC, Process Metrix, not included in 2012 plants



# Financial Appendix

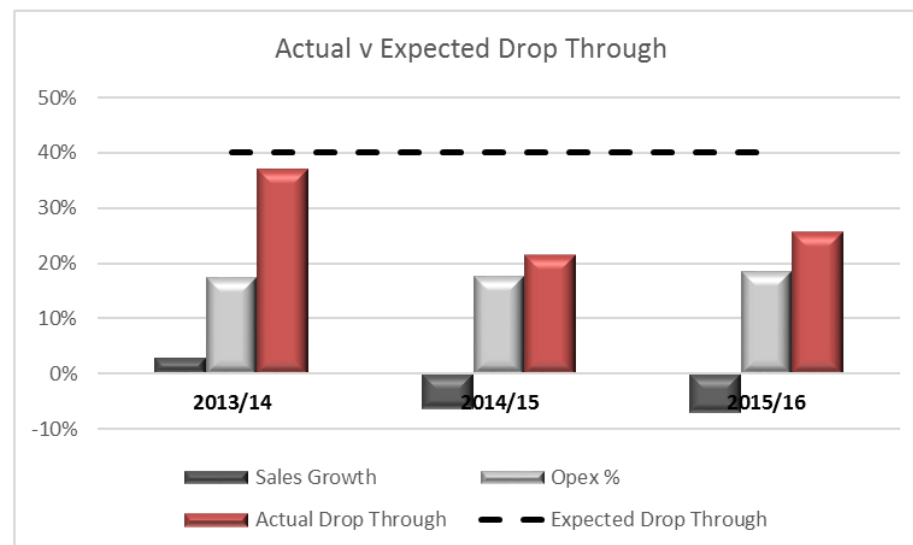
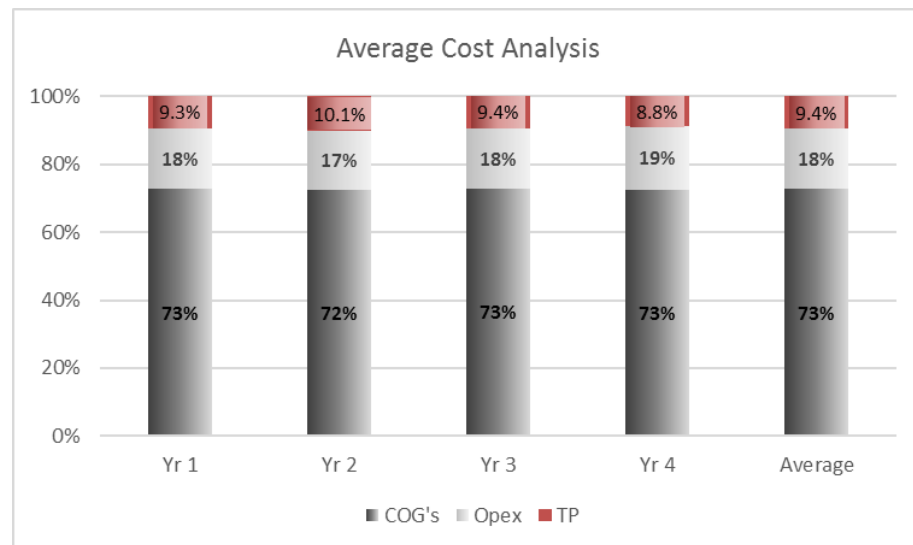


# H1 v H2 performance – Constant Currency

Dec '16 avg. rate / constant £m / (%)	2015/H1	2015/H2	2016/H1	2016/H2	H1'16 v H1'15	H2'16 v H2'15
Direct Sales	757.3	695.7	705.9	695.6	-6.8%	0%
Gross Margin	204.7	182.9	193.2	189.7	-5.8%	3.8%
Trading Profit	75.4	61.7	63.0	70.3	-16.5%	13.9%
Gross Margin %	27.0%	26.3%	27.4%	27.3%	+40 bps	+100 bps
Trading Profit %	10.0%	8.9%	8.9%	10.1%	-110 bps	+120bps
Restructuring Cost (as reported)	3.1	12.4	5.3	23.2	-	-
Savings (as reported)	2.4	8.0	7.1	9.5	-	-
TWC to Sales %	25.5%	26.3%	26.6%	26.6%	+110 bps	+30 bps
Net Debt	296.0	291.6	310.3	320.3	+14.3	+28.7

- H2 2016 performance in relation to past 18 months suggests trough has been reached
- Stable gross margins in 2016 and Trading Profit margins back to H1 2015 levels – both benefiting from restructuring

# Resilience as a result of the restructuring



- Analysis of 4-year average of cost base and margins shows levels of Cost of Goods Sold (COG's); Opex as % sales; and Trading profit within a tight tolerance
- Provides basis of calculating the expected drop through once variable and fixed costs are identified
- Although dependent on mix, group 4-year average shows an expected 40% drop through
- Last 3 years shows achievement of drop through in year of sales growth and mitigation in years of sales contraction