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Corporates

Industrial Gases Industry: Globally Strong, Regionally Different

In this study, Scope Ratings has a closer look at the global market for industrial gases. The agency concludes that industrial gas suppliers not only display exceptionally strong characteristics as an industry, which is favourable from a rating perspective, but also manage their business and balance sheets differently depending on their regional origin and the expectations of investors.

Favourable industry characteristics for this specialty chemicals market do exist with respect to cyclicality, entry barriers and substitution risk, the three main determinants in Scope's Corporate Ratings Methodology to assess a company's industry as part of the business risk profile assessment.

Industrial gases are gaseous materials which are manufactured for a broad use in industry, health care and other areas. Main gases are nitrogen, oxygen, carbon dioxide, argon, hydrogen, helium and acetylene – while natural gas and deduced products like LNG, LPG or ethylene are not industrial gases. Industrial gases are commonly part of the specialty chemicals industry and are used in a great range of industrial applications (e.g. medical gases, cutting and welding, refrigeration or food processing and packaging.

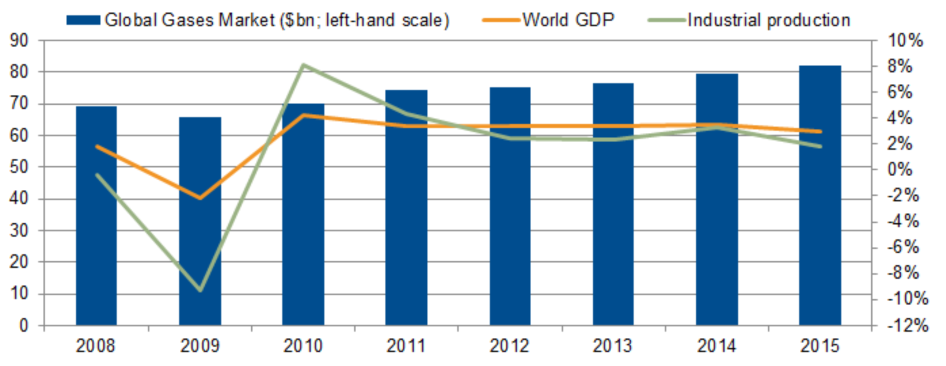
Cyclicality

Scope views the industrial gas industry as relatively stable – it is safe from extreme cyclicality, even in times of severe stress. This is evidenced by the industry's (and its leading players') stark resilience to the worst global recession since World War II, during 2009 (Figure 1). Relative to the two macroeconomic indicators used by Scope in its analysis, global GDP and industrial production, the demand for technical gases appears to have been stable over the last eight years. Furthermore, the industry greatly outperformed other industries in the 2008/09 recession.

Diversified end-customer industries constitute an explanatory factor. Furthermore, most industrial gases are not easily replaceable in production processes as they offer gains in quality and productivity. For example, oxygen used in steel production improves its quality by removing carbon, making it harder than traditional steel.

Most customers are generally loyal to gas suppliers and tend to be motivated to keep production processes uninterrupted with a continuous flow of supply, even in times of crises. This shows in the significant share of orders for partly long-term contracts. The strong dependency on gas producers in the region also helps prevent prices from falling significantly.

Figure 1: Global industrial gases market is relatively resilient



Source: Scope estimates, Eurostat

Given the industry's broad exposure to key industrial sectors, Scope expects some correlation with macroeconomic variables like global GDP. These two aspects result in Scope assessing the industry's cyclicality risk as low to medium.

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Related Research

Linde AG Rating Report
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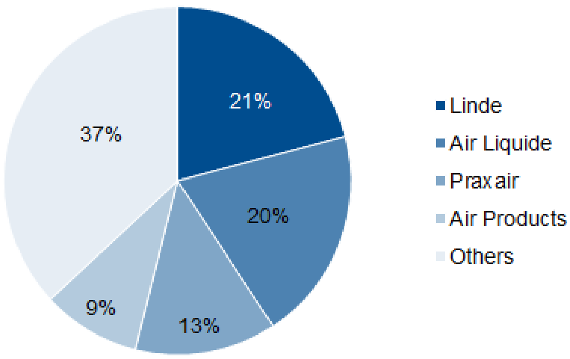
Barriers to entry

Scope believes the industrial gas industry has high entry barriers. This follows three observations:

- The industry is strongly consolidated.
- Network considerations are crucial.
- The industry is capital-intensive.

The first point is explained by the fact that only four companies generate more than 60% of global industrial gases revenue (Figure 2). The world's main industrial regions appear to be well covered by gas producers that concentrate on those locations. A gas company has a strong competitive position in a radius of roughly 200km around its existing air separation plants, as gas transportation costs beyond this distance are uneconomical. Given the incumbents' strong local positions, it would be costly and inefficient for a new supplier to enter the market. Moreover, strong existing customer-supplier relationships that provide continuity and availability take precedence over price, which makes incumbent gas producers difficult to unseat. In our view, the ability to offer a strong international gas supply network to multinational customers is a strong competitive advantage.

Figure 2: Market dominated by four large suppliers (2015)



Source: Scope estimates, individual annual reports

In addition, the industry is relatively capital-intensive, reflecting the investments necessary to build infrastructure. This is evidenced by plant and equipment, which accounts for about 40% of the total balance sheet for most in the sector, compared to about 10-15% for pharmaceuticals.

Based on the above we view entry barriers of the industrial gases market as high.

Substitution risk

We believe that the substitution risk to replace technical gases in most industrial production processes is low across the wide range of products. While there might be alternatives to gas usage in specific applications – e.g. instead of cutting and welding automotive parts, these can also be glued together – we believe that the technical replacement of the product constitutes a low risk.

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Figure 3: Scope's industry risk assessment

Cyclicality	Barriers to entry		
	Low	Medium	High
High	CCC/B	B/BB	BB/BBB
Medium	B/BB	BB/BBB	BBB/A
Low	BB/BBB	BBB/A	AA/AAA

Source: Scope

Following our indicative matrix (Figure 3), our combined assessment of the industry's medium cyclicality risk and high barriers to entry suggest a BBB/A rating. After taking into account our low substitution risk, we assess the industry risk overall as A+.

Competitive position

Applying Scope's Corporate Ratings Methodology, we look at the following factors to determine a company's competitive position as an element of our business risk assessment:

- Market shares
- Operating margins
- Diversification

Industrial gases market shares

We estimate the size of the global industrial gases market at USD 82bn in 2015. Based on this we have calculated the market shares of the leading global gas suppliers (Figure 4).

Figure 4: Leading companies' 2015 market shares

Market shares	World	Europe	Americas	Asia-Pacific
Linde	21%	25%	21%	18%
Air Liquide	20%	31%	14%	16%
Praxair	13%	6%	26%	6%
Air Products	9%	8%	13%	6%

Source: Scope

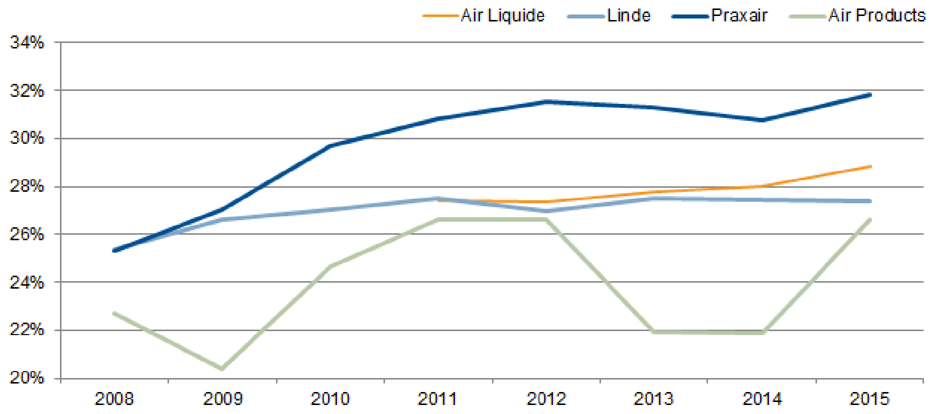
Air Liquide's global market share is likely to rise by about five percentage points from 2016, reflecting its takeover of Airgas Inc., a US-based company. The transaction was closed in the second quarter of 2016.

From a rating point of view, both Air Liquide and Linde stand out among the four global leaders depicted in Figure 4 due to their larger size and better global representation, while the two US-based producers, Air Products and Praxair, have high market shares at home but comparatively lower ones abroad. Overall, all four companies have solid investment grade characteristics in Scope's assessment of market share.

Operating margins

The protected business model adopted by large industrial gases producers enables them to generate relatively high operating margins and free cash flows (Figure 5).

Figure 5: EBITDA margins are comparatively higher



Source: Company reports

On average, it appears major suppliers can easily attain an EBITDA margin of between 24% and 28%. Interestingly, the two European players' historical margin development is much more stable over time compared to their US peers. This is also the case with their resilience to heavy downturns of profitability during recessions, such as in 2008/09 when only Air Products' operating margin declined significantly. The other major players went through this period comparatively unscathed in comparison to other industrial sectors. Profitability even increased in 2009, attesting to the suppliers' ability to compensate lower volumes with a combination of higher prices and the ability to drive down costs efficiently.

Praxair's margins suffered strongly in 2013 and 2014, and Air Products' margins even more so, primarily reflecting the US dollar's appreciation during this period.

Diversification

All four international gas companies are sufficiently diversified. This is predominantly the case with regard to product and end-customer industry exposure (Figure 6). The two US-based companies are significantly weaker than their European peers with respect to regional diversification.

Figure 6: Well-diversified product and delivery structures

2015 EUR m	Electronics	On-site	Bulk	Cylinders	Health care	Total gas sales
Linde	N/A*	3,847	3,616	4,040	3,665	15,168
Air Liquide	1,523	5,201	5,229	N/A	2,799	14,752
Praxair	882	2,841	3,331	2,743	N/A	9,796
Air Products	no disclosure				N/A	

Source: Company reports *included in other product segments

Business risk profile

Based on our perception of the industrial gas sector's protected industry risk – derived from its low-to-medium cyclicality, high barriers to entry and low substitution risk – Scope has assigned an industry risk of A+ to the industry, which is identical for all the industrial players. We see the major industrial gas companies' competitive position as having investment grade characteristics throughout. In combination with the industry risk, all five companies assessed (the four majors plus Messer in Germany) would have a business risk profile in the A category or higher.

Financial risk profile

For our assessment of the leading companies' financial risk profiles, we use the following company snapshots – which have been compiled from public information only, apart from Linde. This approach differs from mandated full corporate ratings as the rating inputs exclude management contact and financial estimates. The ratings derived are thus mere snapshots based on the latest published figures, and results should be interpreted as indications of credit quality only.

The 'bespoke' nature of our Linde rating is also evident from the 'key supplementary rating drivers' element contributing to its corporate rating. This captures our positive assessment of Linde's financial policy, contributing one notch to the business and financial risk profile elements.

Company snapshots

In our analysis we found a couple of differences between European and US industrial gas producers. One is related to an observation which we also made in other industries, and which constitutes one of Scope's main analytical differentiation points compared to the large credit rating agencies. This is with regard to cash levels on the balance sheet, which differ substantially between US-based and European companies. This is also the case in the industrial gases industry (Figure 7).

Based on the prevailing shareholder value principles readily adopted by most listed US companies, balance sheet cash is usually minimized and should reflect little more than the level needed to run daily operations. In Europe, different management philosophies mean that companies tend to hold significantly more cash. Germany in general, for example, is still widely influenced by traditional post-war local GAAP thinking – the ideal of a generally cautious entrepreneur (HGB accounting) – which reflects the creditor-oriented assumptions of conservative valuation (e.g. the lower of cost and market value for fixed assets). In addition, many companies are not only following shareholder value maxims and adopting a more safety-oriented liquidity policy as a general reflection of being cautious; this approach is especially common in family-owned companies (e.g. Messer, the smallest technical gases companies in this study, keeps the highest cash balance in relative terms), which value the cushion provided by cash when access to liquidity is restrained (such as in 2008/09).

Scope believes that this is a truly differentiating factor between European and US-based corporates, and should be adequately reflected in the assessment of credit quality. Liquidity as an element of our Corporate Rating Methodology has therefore been defined differently compared to other rating agencies (see Corporate Rating Methodology).

Figure 7: Cash on balance sheet comparison

Cash and securities on bal. sheet	2015
Linde (EUR m)	1,838
relative to total assets	*5.2%*
Air Liquide (EUR m)	966
relative to total assets	*3.3%*
Praxair (USD m)	147
relative to total assets	*0.8%*
Air Products (USD m)	206
relative to total assets	*1.2%*
Messer (EUR m)	145
relative to total assets	*6.4%*

Source: Company reports

Generally, the protected business model, which enables comfortable operating margins for the companies assessed, lends itself to consistent free cash flows for most of the companies, even after dividends. While Air Liquide appears to be less cash-generative than Linde (on account of the higher dividend payments and working capital build-up), all sector companies consistently achieve positive free cash flows despite the need for high capital expenditure. Annual capex ranges from 10% to 18% of sales, reflecting the high ongoing infrastructure investments that typifies a capital-intensive industry.

Figure 8: Capital expenditure levels in the industry

Capital expenditure (gross)	2012	2013	2014	2015	H1 2016
Linde (EUR m)	1,863	2,162	1,957	1,894	793
relative to sales	*11.8%*	*13.0%*	*11.5%*	*10.6%*	*9.3%*
Air Liquide (EUR m)	2,008	2,156	1,902	2,028	1,055
relative to sales	*13.1%*	*14.0%*	*12.5%*	*12.4%*	*12.7%*
Praxair (USD m)	2,180	2,020	1,689	1,541	680
relative to sales	*19.4%*	*16.9%*	*13.8%*	*14.3%*	*13.1%*
Air Products (USD m)	1,521	1,524	1,684	1,615	797*
relative to sales	*15.8%*	*15.0%*	*16.1%*	*16.3%*	*11.3%*
Messer (EUR m)	163	186	135	139	
relative to sales	*15.0%*	*18.1%*	*12.9%*	*11.9%*	

*9 months' consideration

Source: Company reports

Figure 9: Linde AG snapshot

Linde						
EUR m	**2013**	**2014**	**H1 2015**	**2015**	**H1 2016**	**LTM**
Revenues	16,655	17,047	9,036	**17,944**	8,560	17,468
EBITDAR	4,123	4,000	2,143	**4,099**	2,090	4,046
EBITDAR margin	*24.8%*	*23.5%*	*23.7%*	***22.8%***	*24.4%*	*23.2%*
Funds from operations (FFO)	3,161	3,023	1,807	**3,202**	1,697	3,092
Free cash flow (after div.)	170	534	-41	**734**	33	808
Financial debt (before hybrid adj.)	9,136	9,405	9,466	**9,036**	10,563	10,563
Add: pensions	377	479	421	**421**	615	615
Add: operating leases	476	481	478	**478**	478	478
Less: available cash	1,148	1,458	1,279	**1,638**	2,667	2,667
Net debt	8,841	8,907	9,086	**8,296**	8,991	8,991
Net debt/EBITDAR	**2.1**	**2.2**		**2.0**		**2.2**
FFO/net debt	**36%**	**34%**		**39%**		**34%**
Business risk profile						AA-
Financial risk profile						A-
Key supplementary drivers						+1
Corporate rating						**A+**

Source: Company reports, Scope

Figure 10: Air Liquide snapshot

Air Liquide						
EUR m	**2013**	**2014**	**H1 2015**	**2015**	**H1 2016**	**LTM**
Revenues	15,358	15,225	8,115	**16,380**	8,295	16,560
EBITDAR	3,993	4,056	2,263	**4,319**	2,206	4,262
EBITDAR Margin	*26.0%*	*26.6%*	*27.9%*	***26.4%***	*26.6%*	*25.7%*
Funds from operations (FFO)	3,099	3,110	1,720	**3,338**	1,733	3,351
Free cash flow (after div.)	83	273	-958	**-41**	-808	109
Financial debt	7,006	7,216	8,620	**8,203**	21,176	21,176
Pensions	833	897	872	**872**	872	872
Leases	494	592	804	**804**	804	804
less average cash	1,527	1,221	694	**966**	1,316	1,316
Net debt	6,806	7,484	9,603	**8,914**	21,536	21,536
Net debt/EBITDAR	**1.7**	**1.8**		**2.1**		**5.1**
FFO/net debt	**46%**	**42%**		**37%**		**16%**
Business risk profile						AA-
Financial risk profile						BB
Corporate rating indication						**A**

Source: Company reports, Scope

Air Liquide's credit metrics have deteriorated sharply in 2016, following the mainly debt-funded acquisition of Airgas. Published figures for the first half of 2015 reflect the full impact of additional debt for the acquisition, but only a small part of Airgas' cash flows. Figure 10 reflects no pro-forma adjustments to correct for this mismatch; actual credit metrics on a reported basis do not adequately reflect the group's credit quality, in our view.

Figure 11: Praxair Inc. snapshot

Praxair						
USD m	**2013**	**2014**	**H1 2015**	**2015**	**H1 2016**	**LTM**
Revenues	11,925	12,273	5,495	**10,776**	5,174	10,455
EBITDAR	3,874	3,926	1,806	**3,568**	1,836	3,598
EBITDAR Margin	*32.5%*	*32.0%*	*32.9%*	***33.1%***	*35.5%*	*34.4%*
Funds from operations (FFO)	3,191	3,192	1,510	**3,009**	1,538	3,037
Free cash flow (after div.)	295	512	307	**642**	159	494
Financial debt	8,811	9,225	9,347	**9,231**	9,956	9,956
Pensions	141	301	294	**294**	294	294
Leases	422	447	412	**412**	412	412
less average cash	0	0	0	**0**	367	367
Net debt	9,374	9,973	10,053	**9,937**	10,295	10,295
Net debt/EBITDAR	**2.4**	**2.5**		**2.8**		**2.9**
FFO/net debt	**34%**	**32%**		**30%**		**29%**
Business risk profile						A+
Financial risk profile						BBB+
Corporate rating indication						**A**

Source: Company reports, Scope

Figure 12: Air Products and Chemicals Inc. snapshot

Air Products						
USD m (fiscal year to 30 Sep.)	**2013**	**2014**	**9 months 2015**	**2015**	**9 months 2016**	**LTM**
Revenues	10,180	10,439	7,446	9,895	7,061	9,511
EBITDAR	2,318	2,683	2,017	2,636	2,335	2,954
EBITDAR Margin	*22.8%*	*25.7%*	*27.1%*	*26.6%*	*33.1%*	*31.1%*
Funds from operations (FFO)	1,860	2,533	1,646	2,315	1,884	2,553
Free cash flow (after div.)	-484	-80	238	201	579	542
Financial debt	6,274	6,119	5,879	5,879	5,818	5,818
Pensions	297	312	436	436	436	436
Leases	242	264	305	305	305	305
less average cash	250	127	0	0	315	315
Net debt	6,563	6,568	6,620	6,620	6,244	6,244
Net debt/EBITDAR	**2.8**	**2.4**		**2.5**		**2.1**
FFO/net debt	**28%**	**39%**		**35%**		**41%**
Business risk profile						A+
Financial risk profile						A-
Corporate rating indication						**A**

Source: Company reports, Scope

Figure 13: Messer GmbH snapshot

Messer			
EUR m	**2013**	**2014**	**2015**
Revenues	1,027	1,047	1,166
EBITDAR	235	243	256
EBITDAR Margin	*22.9%*	*23.2%*	*22.0%*
Funds from operations (FFO)	197	158	183
Free cash flow (after div.)	0	43	44
Financial debt	544	598	582
Pensions	N/A	N/A	N/A
Leases	N/A	N/A	N/A
less average cash	52	106	95
Net debt	492	492	487
Net debt/EBITDAR	**2.1**	**2.0**	**1.9**
FFO/net debt	**40%**	**32%**	**38%**
Business risk profile			A-
Financial risk profile			A-
Corporate rating indication			**A-**

Source: Company reports, Scope

Messer is the smallest in Scope’s range of our industrial gases companies assessed in this study. The company is a family-owned gas producer with a product portfolio concentrating exclusively on European and Asian customers. In the last three years, the company has taken a positive operating development, reflected in the stable credit metrics.

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