Manufacturing Barometer

Business outlook report
January 2016

Special topic:
Year 2016 major challenges

pwc

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Significantly, US economic growth appears to be slowing along with the world economy, and US industrial manufacturers have cut back on their own company's forecasted growth rate over the next 12 months.

Importantly, optimism about the US economy's prospects over the next 12 months was off 14 points from 60 percent last quarter to 46 percent. It is 22 points below that of a year ago, 68 percent. This is the lowest level of optimism about the US economy since 2Q 2014 when optimism was at 48 percent.

Optimism about the world economy's prospects over the next 12 months remained at a low level, up from 23 percent to 27 percent. A year ago, it was a moderately low 38 percent (11 points higher). Significantly, the condition of the world economy was cited as the most prominent challenge in the year ahead.

It is noteworthy that own-company revenue forecasts by these industrial manufacturing businesses have been decelerated to a 3.6 percent pace for the next 12 months, off sharply from the 5.3 percent pace forecast last quarter, and off nearly 40 percent from 5.8 percent forecast a year ago. Note that the 3.6 percent pace is the lowest since 1Q 2011 (3.0 percent).

In a world of prospective tepid growth, China and the condition of the world economy will be the greatest challenge panelists cite for 2016, along with oil/energy prices and the strong dollar variables. So far, cutbacks by oil producers as the price of oil falls have far offset the benefits of lower energy costs.

International sales appear to be slowing down. In 4Q 2015, sales were down for 30 percent and up for only 12 percent, for a net 18 percent decreasers. In terms of 2016 challenges, a high minority of 44 percent cite lack of opportunities in the international markets. Yet, the projected contribution of international sales to total revenues over the next 12 months continued at a planned 31 percent pace (similar to the 30 percent a year ago). Expansion abroad was planned by a net 15 percent versus only 7 percent reducing activity abroad. These findings suggest volatility ahead in the international markets.

Capital spending is planned by nearly half of industrial manufacturers (49 percent), but they have sharply decelerated the planned spending levels (1.9 percent). New product and service introductions lead the way, along with R&D, IT and business acquisitions. Prospective M&A activities are rising, cited by 39 percent, led by 34 percent interested in purchasing another business. Also on the upswing were strategic alliances and/or new joint ventures, cited by a net 29 percent of panelists.

New hiring, typically a lagging indicator of economic vitality, was off precipitously with only 42 percent planning to hire, with a net zero addition to composite workforces reported. Note that the few oil/energy producers in the panel were laying off workers.

The monetary exchange rate and strong US dollar was called out specifically as chief potential barrier to growth in the year ahead, cited by 49 percent (34 percent higher than a year ago). Lack of demand was second, at 39 percent; oil/energy prices were at 32 percent; and decreasing profitability was at 29 percent (all higher).

Finally, gross margins were flat-to-negative in 4Q 2015, with both costs and prices on the net downside. Price flexibility became virtually absent in the present marketplace, and more margin concerns were noted.

Optimism about the world economy spirals downward

Optimism about the US economy's prospects over the next 12 months was off 14 points from 60 percent last quarter to 46 percent. A year ago, optimism was 22 points higher, at 68 percent, and it had stayed near the 70 percent level through 2Q 2015. Few panelists are pessimistic (only 9 percent), but a great many have become "uncertain." There is concern about the strong dollar, oil/energy producers cutbacks, and China and the emerging markets carryover effects in the US. (Linkage between the US and emerging markets is said to account for about 40 percent of the total global gross domestic product.)

Optimism about the world economy's prospects over the next 12 months remained at a low 27 percent, down 11 points from the moderately low 38 percent a year ago. Pessimism remained at 22 percent, 15 points higher than a year ago. However, half the panelists (51 percent) reflect the prevalence of "uncertainty." China may have a tough time refocusing its economy over the next year, and emerging markets reflect excess capacity. There is fear of further cuts in the worldwide currency which may further impact the stronger US dollar.

Own-company revenue forecasts cut back sharply

It is noteworthy that own-company revenue forecasts by these industrial manufacturing businesses have been decelerated to a 3.6 percent pace for the next 12 months, the lowest rate since 1Q 2011 when it was at 3.0 percent. A sharp cutback took place since last quarter, when it was at 5.3 percent and a year ago when it was at a somewhat higher 5.8 percent. Looking ahead, 70 percent expect positive revenue growth for their own companies over the next 12 months – 5 percent double-digit growth and 65 percent single-digit growth. This is down 15 points from the 85 percent a year ago expecting own company positive growth. Negative own-company revenue growth is expected by 10 percent, and 4 percent expect zero growth. A large number (16 percent) were not reported in the face of uncertainty.

Calendar year 2015 own company growth estimates were cut back sharply to a 1.8 percent pace, off from 3.8 percent last quarter and 5.2 percent a year ago. (Note that these estimates appear excessively low for 2015, but the US stock market is currently estimating a limited 1.1 percent gain in 2015).

International sales continuing with recent volatility

The expected contribution of international sales to total revenues for these industrial manufacturers over the next 12 months is expected to remain at the 31 percent level – despite 4Q 2015 indications of a net 18 percent decreasers (12 percent up, 30 percent down). A year ago, there was a net 12 percent increasers (20 percent up, 8 percent down). And 44 percent cite lack of opportunity in international markets as a major challenge in the year ahead. Yet activity abroad continues on the positive side for a net 15 percent versus only 7 percent reducing activity abroad.

New hiring remains flat

A total of 42 percent of panelists plan to add employees over the next 12 months, and only 7 percent plan to reduce their workforce. But the overall composite workforce of these firms will remain flat (0.0 percent), as few are being hired on average and many are being cutback by the reducers – including a few oil producers laying off a fair share of their workers as the price of oil dropped below $40 a barrel of crude oil. A year ago, the hiring picture was considerably brighter, with 60 percent hiring (18 points higher) and workforces increasing by a modest 1.1 percent.

Majority spending but at limited levels

CapEx spending is planned by a near-majority of these industrial manufacturers (49 percent) – up 12 points quarter-to-quarter, and 6 points higher than a year ago (43 percent). However, the level of prospective spending was at a low 1.9 percent of total sales, down from 5.6 percent last quarter and 3.3 percent a year ago. Increased operational spending was also up, cited by 86 percent. New product or service introductions were at 44 percent, and led the way along with R&D, 41 percent (up 4 points), information technology, 36 percent (up 14 points), and business acquisitions, 34 percent (up 11 points).

Several business initiatives were also higher, led by M&A activity, 39 percent (up 12 points) – mostly purchase of another business, 34 percent (up 12 points). Strategic alliances were cited by 20 percent (up 7 points) and new joint ventures by 17 percent (up 4 points) – with a net of 29 percent for either strategic alliances and/or new joint ventures, indicating more collaboration in the year ahead.

Expansion to new markets abroad was cited by 14 percent (up 6 points) and new facilities abroad by 9 percent (up 4 points) – with a net of the two at 15 percent versus only a net 7 percent reducing activity abroad (7 percent) or closing facilities abroad (3 percent).

Headwinds: Dollars, demand and world economy

Condition of the world economy is by far the greatest challenge to these industrial manufacturers in the year ahead, cited by 80 percent, with two-thirds (67 percent) calling it a top 3 challenge for their companies.

Monetary exchange rate/the strong US dollar was chief headwind in the barrier section, cited by 49 percent, up from 38 percent last quarter and 15 percent a year ago (34 points higher now). Lack of demand followed, at the 39 percent level, reflecting both US and worldwide economic conditions. Interestingly, panelist concern about oil/energy prices over the next 12 months rose 12 points to 32 percent, despite the recent tumble of crude oil to below $40 per barrel. Note also the lack of concern about higher interest rates (only 10 percent) despite the Federal Reserve's 25 basis point rise in December.

Gross margins flat; costs and prices down

In 4Q 2015, gross margins became flat-to-negative, at a net minus 2 percent, with 27 percent higher and 29 percent lower. Costs were moderately lower (net minus 12 percent), as well as prices (net minus 12 percent). Pricing flexibility was noted as absent. Looking ahead, decreasing profitability as a potential barrier rose 4 points quarter-to-quarter and is 9 points higher than a year ago. (20 percent).

A quarter-over-quarter comparison of key indicators shows the business outlook for the next 12 months and how the views of the panel have changed each quarter (see chart 1.1). The pages that follow provide a detailed look at each question for the past five quarterly surveys.

Special topic: Year 2016 major challenges

Major challenges for year 2016

The most prominent challenge in panelist companies' planning process for 2016 was the condition of the world economy, cited by 80 percent, with 67 percent rating it as a top 3 issue. This was significantly higher than in 2011.

Higher costs of goods and services (71 percent) and greater opportunities for new product and service introductions (67 percent) were next– top 3 rated by 29 percent and 22 percent, respectively.

Top majority challenges were increased price flexibility (62 percent) and strength of the US dollar (53 percent).

Finally, strong minority challenges cited were greater capital spending (47 percent), greater focus on talent (47 percent), opportunity to restructure the business through M&A (45 percent), and lack of opportunities in the international markets (44 percent).

Note that fear of inflation was cited by 36 percent, but only 2 percent viewed it as a top 3 challenge.

Key indicators for the business outlook

Chart 1.1 Key indicators for the business outlook

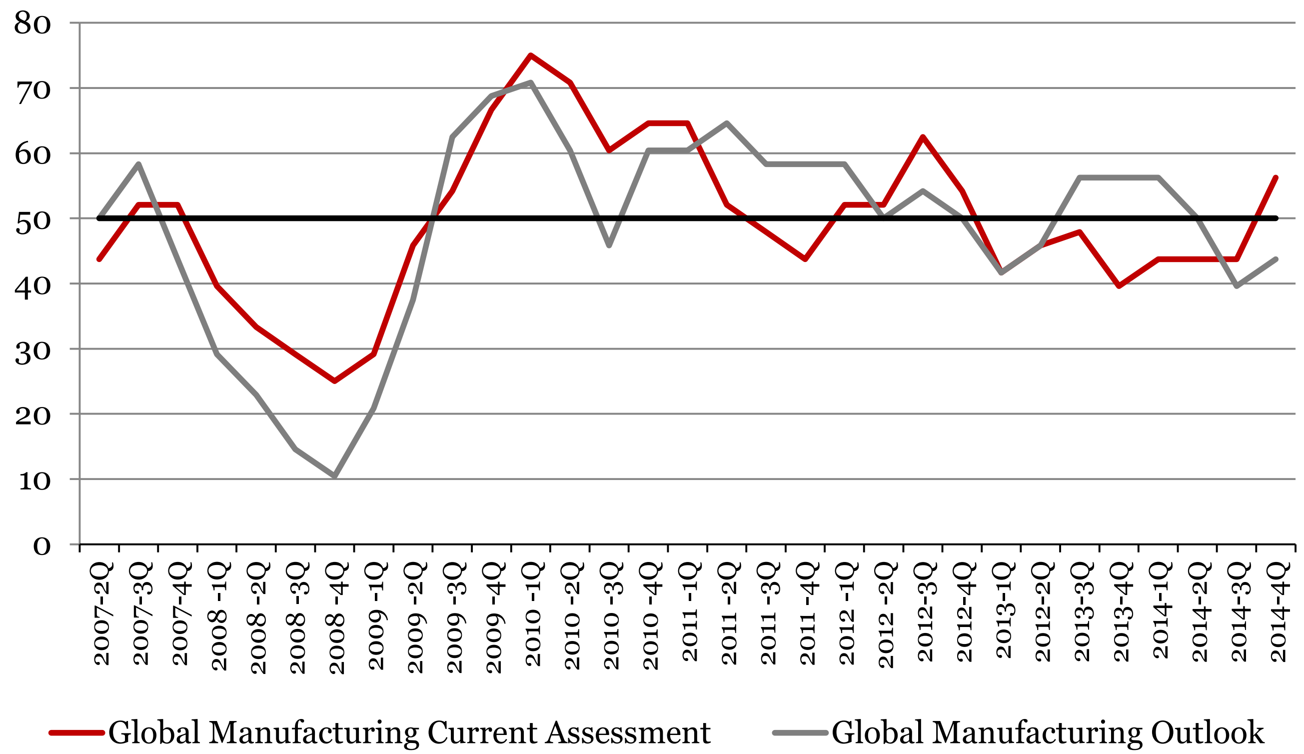
A quarter-over-quarter comparison of the survey's key indicators shows how the 12-month outlook has changed each quarter. The change column indicates the movement of opinion of those surveyed over the past two quarters.

Business outlook, next 12 months among industrial manufacturers	2014	2015				Change	Page
	4Q'14	1Q'15	2Q'15	3Q'15	4Q'15	3Q'15–4Q'15	
Optimistic about US economy	68%	76%	69%	60%	46%	↓	11
Optimistic about world economy	38%	42%	38%	23%	27%	↑	12
Expect positive revenue growth	85%	83%	81%	73%	70%	↓	20
Average growth rate expected	5.8%	5.1%	4.9%	5.3%	3.6%	↓	20
Planning major new investments	43%	52%	34%	37%	49%	↑	22
New investments as a % of sales	3.3%	3.3%	3.3%	5.6%	1.9%	↓	22
Planning to hire	60%	52%	52%	37%	42%	↑	21
New workers as a % of workforce (net)	1.1%	0.5%	0.2%	-0.2%	0.0%	↑	21
Expected barriers to growth:							
• Monetary exchange rate	15%	21%	37%	38%	49%	↑	23
• Lack of demand	35%	29%	39%	32%	39%	↑	23
• Oil/energy prices	22%	26%	22%	20%	32%	↑	23
• Decreasing profitability	20%	21%	24%	25%	29%	↑	23
• Legislative/regulatory pressures	32%	33%	39%	25%	22%	↓	23
• Competition from foreign markets	15%	17%	17%	12%	22%	↑	23
• Taxation policies	27%	24%	29%	17%	14%	↓	23
• Lack of qualified workers	33%	35%	24%	10%	14%	↑	23
• Pressure for increased wages	10%	17%	12%	12%	14%	=	23
• Higher interest rates	7%	10%	7%	12%	10%	=	23
• Capital constraints	12%	14%	14%	12%	7%	↓	23

PwC global manufacturing current assessment and outlook indices

The fourth-quarter manufacturing outlook declined relative to third-quarter results, as did the current assessment. Given that both indices are calculated using a four-quarter moving average, these results highlight some growing areas of concern. For example, an optimistic view regarding the growth in the US economy in the next 12 months fell to 46 percent of respondents, a decline of more than 23 percent. This is the lowest level since the third quarter of 2012 and is well below the 5-year average. However, it is expected to shift as companies continue to add jobs and increase their operational spending in the near-term. New capital investment seems to be facing a tightened outlook, as we saw a more than 35 percent reduction in the percentage of respondents planning major new investments in the next 12 months and a 3.5 percent reduction in new investments as a percentage of revenue.

At the same time, respondents appear to be becoming more optimistic about other micro-level metrics. We saw upticks in companies anticipating higher margins, increased hiring, and increased operational spending. While not explicitly addressed in the survey, it is likely that lower costs for energy and a favorable business climate (e.g., cost of credit remains extremely low by historical standards) are driving a certain level of optimism. At the same time, there is a 4 percent increase in optimism by respondents regarding the global economy over the next 12 months, driven in part better domestic conditions in Europe and continued growth in the UK.



PwC global manufacturing current assessment and outlook indices

According to our analysis, the US economy is expected to advance at approximately the same rate of growth in 2015 as it did in 2014 (2.4 percent). This growth is substantially stronger than has been seen in recent years and, while below the average of 3.25 percent between 1947 to the present, shows significant improvement since the recent recession.

Consumer spending also expanded in 2015. This was driven in part by an increase in employment as the economy added 2.6 million more jobs, the unemployment rate fell from 5.8 percent to 5.0 percent and the number of involuntary part-time workers, which had grown during the recession, has now fallen by than 9 percent on a year-over-year basis. Real consumer spending was up 2.5 percent over the last year, with spending on durable goods exhibiting the fastest growth, thanks in part to low interest rates on big-ticket items.

Given this improvement in consumer spending, combined with lower commodity prices and increased spending in the industrial sector, we are cautiously optimistic that the US economy will continue to grow in 2016.

Background/methodology

PwC has surveyed global manufacturing executives since 2003 with the results published in our *Manufacturing Barometer* publication. The responses to these survey questions have been used to measure the sentiment of manufacturers by creating current assessment and outlook indices. The Global Manufacturing Current Assessment Index measures current trends in pricing, margins, employment, and capital expenditures, while the Global Manufacturing Outlook Index measures expectations for revenue, employment, operational spending, and capital expenditures. These results are calculated as a four-quarter moving average of diffusion indices which measure the degree to which their equal-weighted components move in the same direction at the same time. The indices are scaled between 1 and 100 with above 50 indicating more positive sentiment and below 50 indicating more negative sentiment.

Economic views

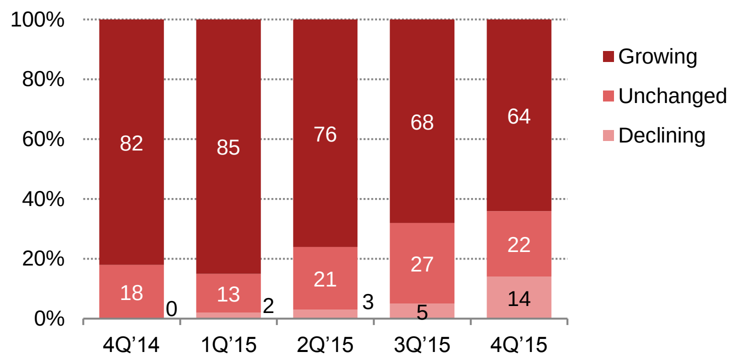
View of the US economy, this quarter

Which best describes your view of the US economy this quarter?

In fourth-quarter 2015, 64 percent of US industrial manufacturers surveyed believed the US economy was growing, off 4 points from the prior quarter's 68 percent but well below the 82 percent a year ago (minus 18 points). Fourteen percent believed it was declining (up 9 points) and 22 percent saw no change from third-quarter 2015.

Chart 2.1 View of the US economy, this quarter

Industrial manufacturers



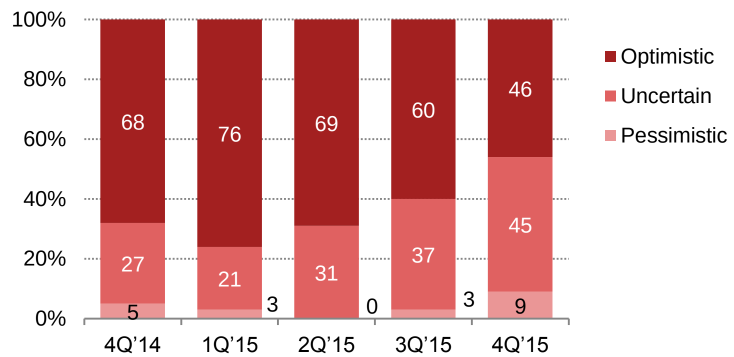
View of the US economy, next 12 months

Looking at the next 12 months, how do you feel about the prospects for the US economy?

Looking ahead, far fewer industrial manufacturing panelists (46 percent) expressed optimism about the 12-month outlook for the US economy, down 14 points from the prior quarter's 60 percent and 22 points below a year ago (68 percent). Nine percent were pessimistic (up 6 points from last quarter), while 45 percent were uncertain. A year ago, more than two-thirds (68 percent) were optimistic, and only 5 percent were pessimistic.

Chart 2.2 View of the US economy, next 12 months

Industrial manufacturers



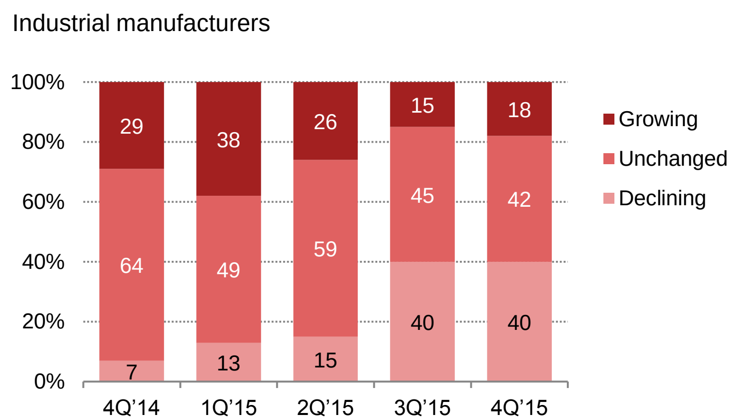
Note: In 4Q 2015 total respondents = 59

View of the world economy, this quarter

Which best describes your view of the world economy this quarter (international marketers only)?

In fourth-quarter 2015, only 18 percent of the panelists marketing abroad viewed the world economy as growing, up 3 points from the low last quarter of 15 percent; and 11 points below the 29 percent a year ago. Significantly, 40 percent believed it was declining (same as the prior quarter). A year ago, only 7 percent were declining. Forty-two percent said they saw no change. Currently, perceptions of the world economy's decline is nearly 6 times higher than a year ago, 33 points higher.

Chart 2.3 View of the world economy, this quarter

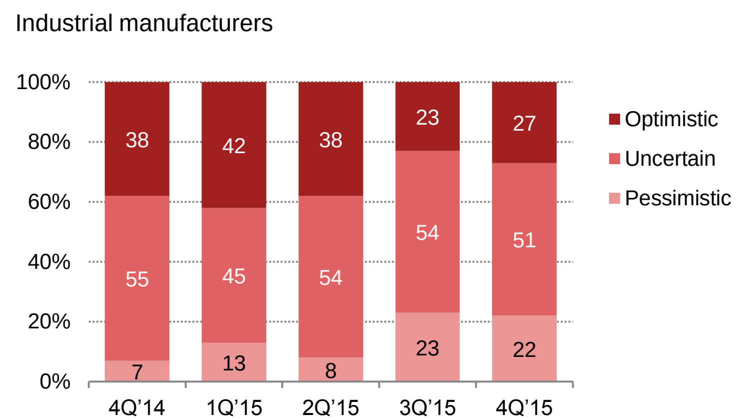


View of the world economy, next 12 months

Looking at the next 12 months, how do you feel about the prospects for the world economy (international marketers only)?

Looking ahead, only 27 percent of US-based industrial manufacturers who market abroad are optimistic about the prospects for the world economy over the next 12 months, 4 points higher than the prior quarter's 23 percent, but 11 points below a year ago (38 percent). Twenty-two percent are pessimistic (1 point lower), while 51 percent are uncertain. A year ago, 38 percent were optimistic (11 points higher) and only 7 percent were pessimistic (15 points less).

Chart 2.4 View of the world economy, next 12 months



Note: In 4Q 2015 total respondents marketing abroad = 55

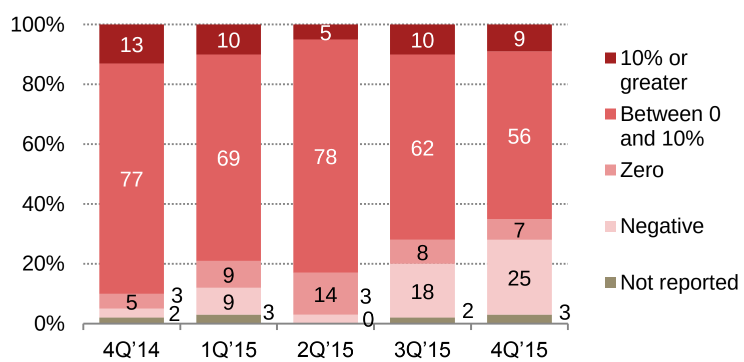
Company performance

What is your company's estimated revenue growth rate for the calendar year?

The composite average growth estimate for own-company revenue in the calendar-year 2015 dropped quite sharply to 1.8 percent, from the 3.8 percent in the third quarter for calendar-year 2015, but more sharply below the 5.2 percent a year ago. Sixty-five percent of respondents said they expect positive own-company growth, with 9 percent expecting double-digit growth and 56 percent anticipating single-digit growth. Twenty-five percent were on the negative side (up 7 points), while 7 percent expected zero growth and 3 percent were not reported. A year ago, a 5.2 percent growth rate was cited, nearly three times higher.

Chart 3.1 Company revenue growth, calendar year

Industrial manufacturers



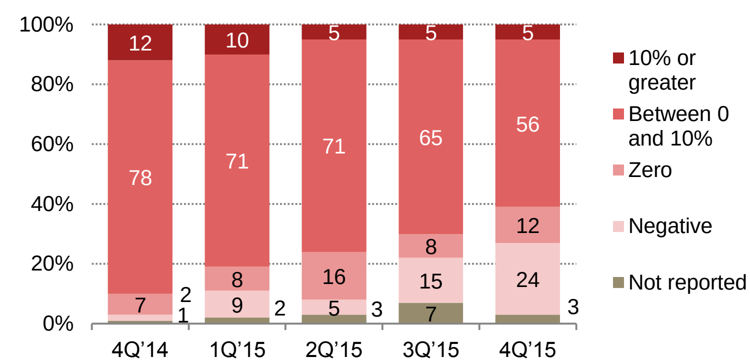
Mean +5.2% +4.1% +3.9% +3.8% +1.8%

What is your industry's estimated growth rate for the calendar year?

Estimated industry growth rate for calendar-year 2015 dropped sharply to 0.9 percent, a point below the third quarter's 1.8 percent for calendar-year 2015 and far below the 4.3 percent a year ago. Sixty-one percent of panelists reported positive industry growth for 2015 (5 percent double-digit growth and 56 percent single-digit growth). Twenty-four percent were on the negative side (up 9 points) and 12 percent expected zero growth for this year. Three percent was not reported.

Chart 3.2 Industry growth, calendar year

Industrial manufacturers



Mean +4.3% +3.7% +3.2% +1.8% +0.9%

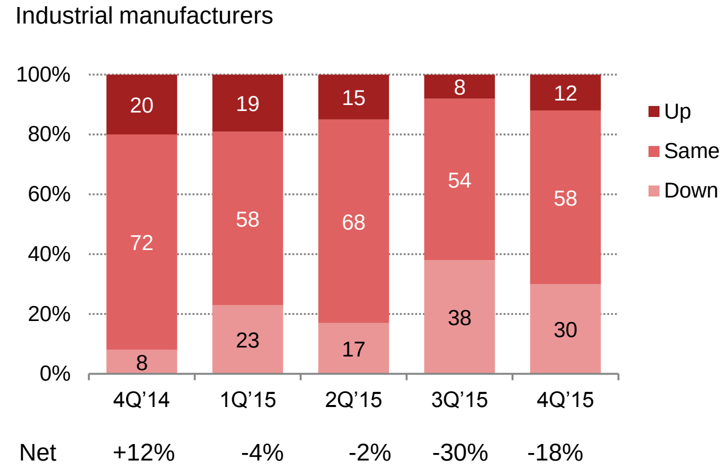
Note: In 4Q 2015 total respondents = 59

International sales

Are international sales up, down, or the same compared with three months ago (international marketers only)?

US-based industrial manufacturers that sell abroad reported a continued downward movement in international revenue in fourth-quarter 2015, with only 12 percent reporting an increase in sales, and 30 percent reporting a decrease, for a net 18 percent decreasers (12 points above the previous quarter's low). The remaining 58 percent said sales stayed about the same quarter to quarter. Note that this appears to continue a quarterly low in international sales among these panelists.

Chart 3.3 International sales



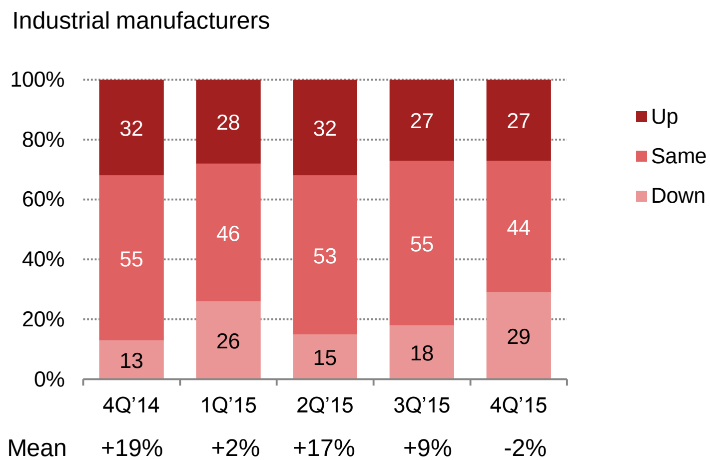
Note: In 4Q 2015 total respondents marketing abroad = 55

Changes in gross margins

Are gross margins up, down, or the same compared with three months ago?

In fourth-quarter 2015, gross margins became flat-to-negative. They were higher for 27 percent of panelists and lower for 29 percent, for a net minus 2 percent, 11 points below the prior quarter's plus 9 percent, and well below the plus 19 percent a year ago. Forty-four percent stayed about the same.

Chart 3.4 Changes in gross margins



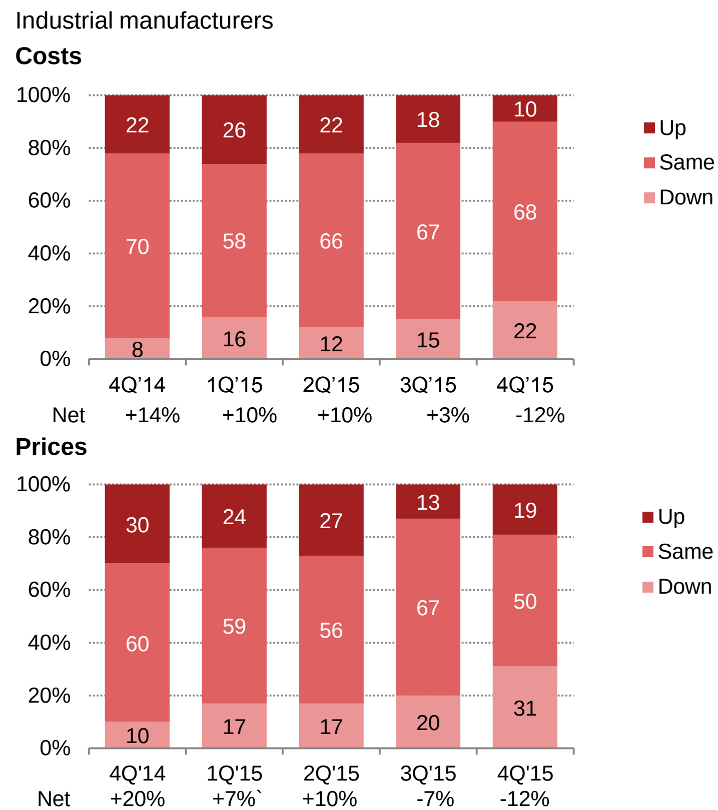
Note: In 4Q 2015 total respondents = 59

Changes in costs and prices

Are costs up, down, or the same compared with three months ago? prices?

In fourth-quarter 2015, costs and prices were notably lower. Ten percent of US-based industrial manufacturers reported higher costs (off 8 points) and 22 percent reported lower costs (up 7 points), for a net minus 12 percent change, 15 points below the prior quarter's plus 3 percent. On the price side, 19 percent raised prices (up 6 points) and 31 percent lowered them (up 11 points), for a net minus 12 percent reporting lower prices (5 points below the prior quarter) as price flexibility nearly completely disappeared. A year ago, a net 20 percent were price flexible.

Chart 3.5 Changes in costs and prices

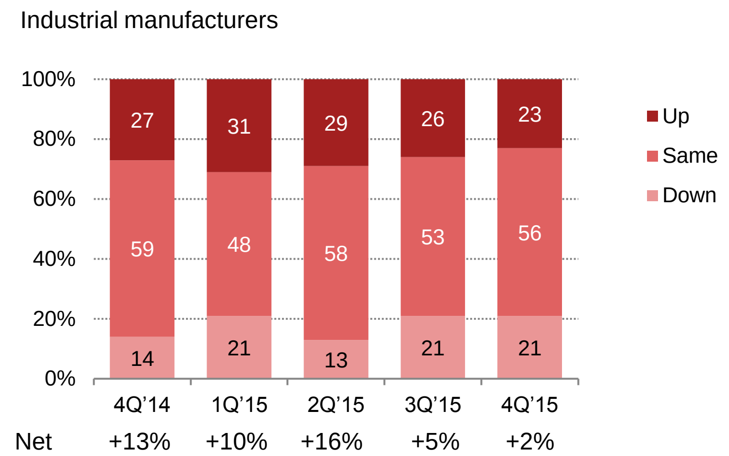


Inventory movement

Are finished inventories as a percentage of sales up, down, or the same compared with three months ago?

Inventories as a percentage of sales grew for 23 percent of US-based industrial manufacturers in the third quarter, 3 points below the prior quarter. Levels were down for 21 percent (same), for a net plus 2 percent higher inventory growth in fourth-quarter 2015. A year ago in 4Q14, inventories were at a net plus 13 percent, on the positive side.

Chart 3.6 Inventory movement



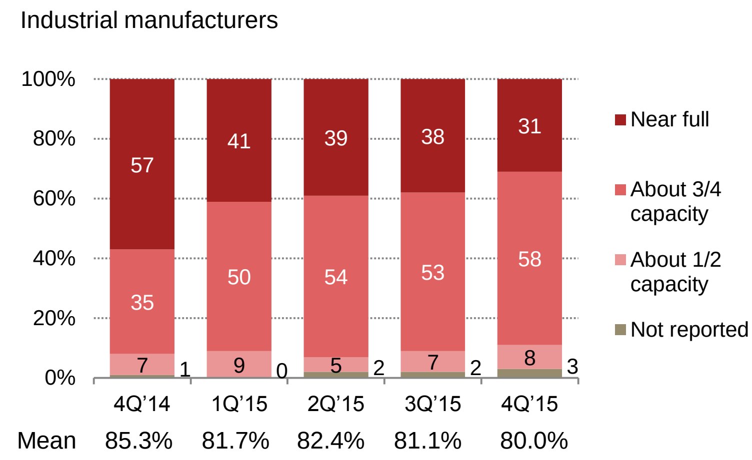
Note: In 4Q 2015 total respondents = 59

Level of operating capacity

What is your organization's current operating capacity?

Operating capacity is an estimate of the current level of permanent staffing and operations compared with what is needed for full-capacity output. In the fourth quarter, the mean was off a point to 80.0 percent of capacity, with 31 percent of industrial manufacturers surveyed claiming to be at or near full capacity, off 7 points from the prior quarter but 26 points below a year ago (57 percent).

Chart 3.7 Level of operating capacity



Note: In 4Q 2015 total respondents = 59

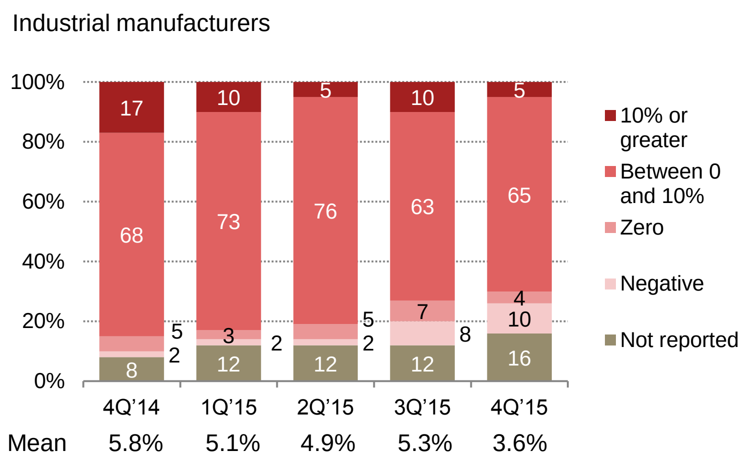
Business outlook, next 12 months

Revenue growth, next 12 months

What is your organization's estimated revenue growth rate for the next 12 months?

The projected average revenue growth rate over the next 12 months among panelists was a significantly slower 3.6 percent, nearly 2 points lower than the prior quarter's 5.3 percent and a year ago (5.8 percent). This is the lowest revenue growth rate since 1Q 2010's 3.0 percent. Seventy percent expect positive revenue growth for their own companies, with 5 percent forecasting double-digit growth and 65 percent forecasting single-digit growth. Ten percent forecast negative growth, 4 percent forecast zero growth, and a high 16 percent were not reported. Many fewer reported positive revenue growth than a year ago (85 percent, 15 points less), and the overall mean growth rate dropped by almost forty percent (5.8 percent versus 3.3 percent).

Chart 4.1 Revenue growth, next 12 months



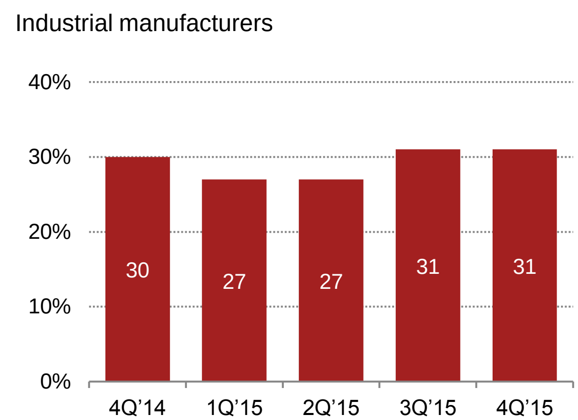
Note: In 4Q 2015 total respondents = 59

International sales, next 12 months

What percentage of your business's total revenue over the next 12 months do you expect to be derived from international sales (international marketers only)?

Of respondents selling abroad, the projected contribution of international sales to total revenue over the next 12 months continued at the 31 percent level, same as the prior quarter, and 1 point above a year ago. It is noteworthy that despite the 4Q15 net 18 point falloff in international sales, the overall mean contribution is expected to remain on pace.

Chart 4.2 International sales, next 12 months



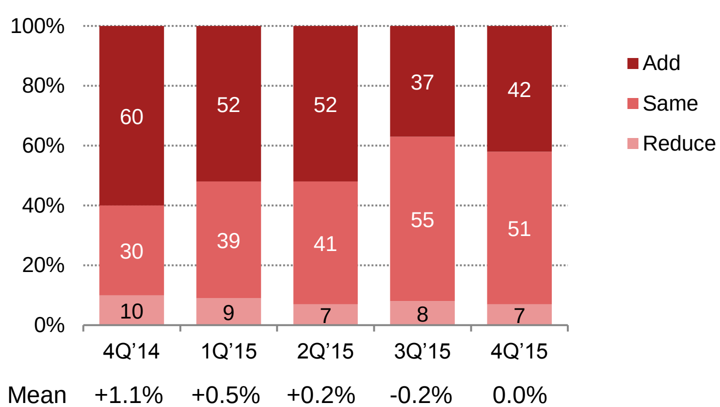
Note: In 4Q 2015 those marketing abroad = 55

Percent planning to hire

Do you plan to add or reduce the number of full-time equivalent employees over the next 12 months?

In total, 42 percent of industrial manufacturers plan to add employees to their workforce over the next 12 months, up 5 points from the low 37 percent in the third-quarter 2015, and off 18 points from a year ago (60 percent). Only 7 percent plan to reduce the number of full-time equivalent employees (off 1 point) and 51 percent will stay about the same. Total net workforce growth projection was flat this quarter at 0.0 percent, slightly above the last quarter's minus 0.2 percent but below last year's plus 1.1 percent, indicating continued cutbacks in hiring among these industrial manufacturing firms.

Chart 4.3 Percent planning to hire



Note: In 4Q 2015 total respondents = 59

Percent planning to hire by type of employee

What types of employees do you plan to add over the next 12 months?

Among the 42 percent of panelists planning to hire within the next 12 months, the most sought-after employees will be blue collar/skilled labor (29 percent, up 6 points) and professionals/technicians (27 percent, up 2 points). White collar support rose to 10 percent. Note that technology/engineering led the way among professionals, at 27 percent (up 2 points). Blue collar is split between skilled/specialized workers (19 percent) and semi-skilled (15 percent).

Chart 4.4 Percent planning to hire by type of employee

Industrial manufacturers

	4Q'14	1Q'15	2Q'15	3Q'15	4Q'15
Planning to hire (net)	60%	52%	52%	37%	42%
• **Blue collar workers**	35%	33%	39%	23%	29%
• Skilled/specialized workers	-	-	29%	17%	19%
• Semi-skilled or unskilled workers	-	-	22%	15%	15%
• **Professionals**	32%	21%	29%	25%	27%
• Technology/engineering	-	-	29%	25%	27%
• Sales/marketing	9%	9%	12%	3%	---
• Business/finance	-	-	10%	3%	2%
• **White collar support**	12%	10%	19%	5%	10%
• **Middle management**	-	-	12%	7%	2%
• **Senior management**	-	-	3%	2%	---

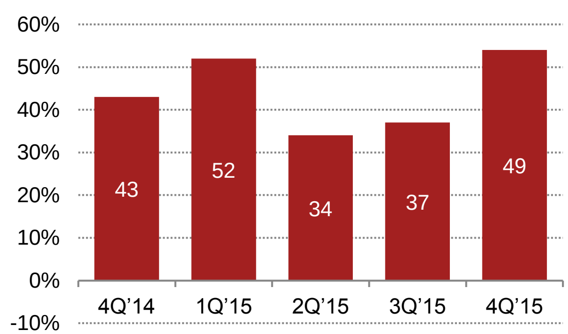
Percent planning major new investments of capital

Are you actively planning any major new investments of capital over the next 12 months? If so, what percentage of total sales do you expect to invest?

Overall, 49 percent of US industrial manufacturers surveyed plan major new investments of capital during the next 12 months, up 12 points from the prior quarter's low 37 percent, and above last year's 43 percent. The mean investment as a percentage of total sales dropped to 1.9 percent, sharply down from last quarter's 5.6 percent and the 3.3 percent a year ago. These findings indicate a continuity in the number of panelist firms planning CapEx spending over the next 12 months, but they have sharply decreased their planned spending levels.

Chart 4.5 Percent planning major new investments of capital

Industrial manufacturers



Mean investment as a % of total sales	+3.3%	+3.3%	+3.3%	+5.6%	+1.9%

Note: In 4Q 2015 total respondents = 59

Percent planning to increase operational spending

Over the next 12 months, where do you expect to increase spending?

Looking ahead over the next 12 months, operational spending increased: 86 percent of respondents plan to increase operational spending, up 4 points quarter-to-quarter. Increased expenditures leaders were new product or service introductions (44 percent, off 4 points), research and development (41 percent, up 4 points), business acquisitions (34 percent, up 11 points), and information technology (36 percent, up 14 points). Plans for geographic expansion increased 6 points to 19 percent. Marketing and sales promotion rose 5 points to 15 percent, and advertising rose to 9 percent.

Chart 4.6 Percent planning to increase operational spending

Industrial manufacturers

	4Q'14	1Q'15	2Q'15	3Q'15	4Q'15
Percent planning to increase spending (net)	82%	83%	75%	82%	86%
• New product or service introduction	52%	55%	44%	48%	44%
• Research and development	47%	40%	34%	37%	41%
• Information technology	28%	33%	22%	22%	36%
• Business acquisition	22%	28%	20%	23%	34%
• Facilities expansion	20%	19%	10%	20%	22%
• Geographic expansion	27%	19%	12%	13%	19%
• Marketing and sales promotion	15%	9%	9%	10%	15%
• Advertising	8%	1%	2%	---	9%
• Internet commerce	5%	3%	7%	5%	2%

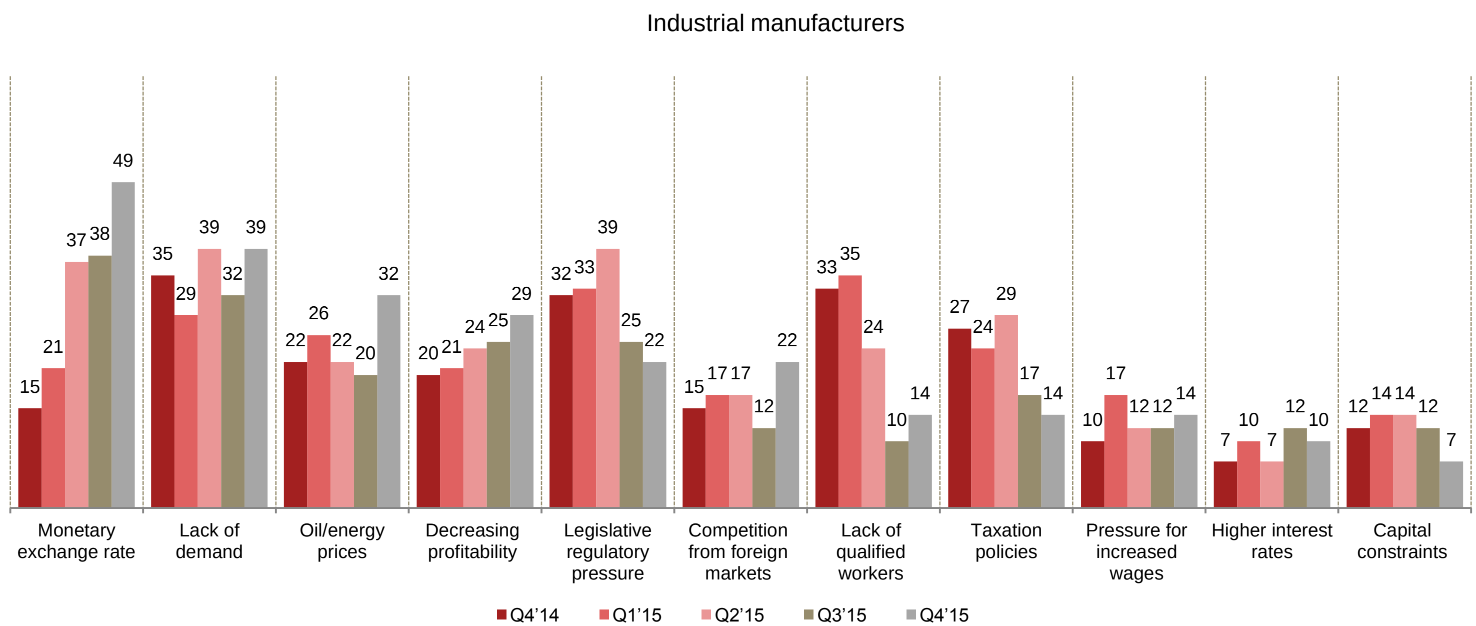
Expected barriers to business growth

Over the next 12 months, will any of the following represent barriers to business growth?

Significantly, monetary exchange rate has become the leading headwind to growth over the next 12 months, up 11 points to 49 percent. A year ago, it was 15 percent (34 points lower), a very weak factor.

The two typically chief barriers to growth were at somewhat lower levels as monetary exchange rate took front stage. Lack of demand was at 39 percent (up 7 points), but legislative/regulatory pressure dropped to 22 percent (off 3 points). Rising again was oil/energy prices, 32 percent (up 12 points), and lack of qualified workers, 14 percent (up 4 points). Decreasing profitability also increased to 29 percent (up 4 points), and competition from foreign markets rose to 22 percent (up 10 points).

Chart 4.7 Expected barriers to business growth



Note: In 4Q 2015 total respondents = 59

Plans for M&A and other business initiatives

Over the next 12 months, do you expect to participate in any of the following new business initiatives?

More panelists are planning new business initiatives, 49 percent (6 points higher). Importantly, more panelists are planning M&A activity over the next 12 months, 39 percent (up 12 points from the last quarter). They are mostly planning to purchase another business (34 percent) and some are planning to sell part or all of their own business (10 percent). Plans for expansion to new markets abroad rose to 14 percent (up 6 points), with 9 percent planning new facilities abroad (up 4 points). Reductions abroad were reported by a net 7 percent, with closing/reduction of facilities abroad cited by 3 percent and reduced activities abroad by 7 percent.

On the rise were strategic alliances or new joint ventures, cited by a net 29 percent: Strategic alliances by 20 percent – up 7 points, and new joint ventures by 17 percent– up 4 points.

Chart 4.8 Plans for M&A and other business initiatives

Industrial manufacturers

	4Q '14	1Q '15	2Q '15	3Q '15	4Q '15
New business initiatives (net)	53%	57%	54%	43%	49%
• M&A activities (net)	33%	43%	29%	27%	39%
• Purchase another business	25%	29%	19%	22%	34%
• Sell part/all own business	8%	16%	14%	7%	10%
• Equity carve-out/spin-off	5%	3%	---	2%	2%
• New strategic alliance	23%	17%	29%	13%	20%
• New joint venture	25%	19%	19%	13%	17%
• Expand to new markets abroad	22%	19%	12%	8%	14%
• New facilities abroad	18%	12%	9%	5%	9%
• Reduce activity in markets abroad	5%	3%	7%	7%	7%
• Close/reduce facilities abroad	7%	3%	10%	7%	3%

Note: In 4Q 2015 total respondents = 59

Special topic: Major challenges industrial manufacturers are planning for in 2016

Major challenges industrial manufacturers are planning for in 2016

What issues are most prominent in your company's planning process for 2016? Is your company actively planning for the following? Please rank the top three that could be most important to your own company's growth in 2016.

The most prominent challenge in panelist companies' planning process for 2016 was the condition of the world economy, cited by 80 percent, with 67 percent rating it as a top 3 issue. This is significantly higher than in 2011.

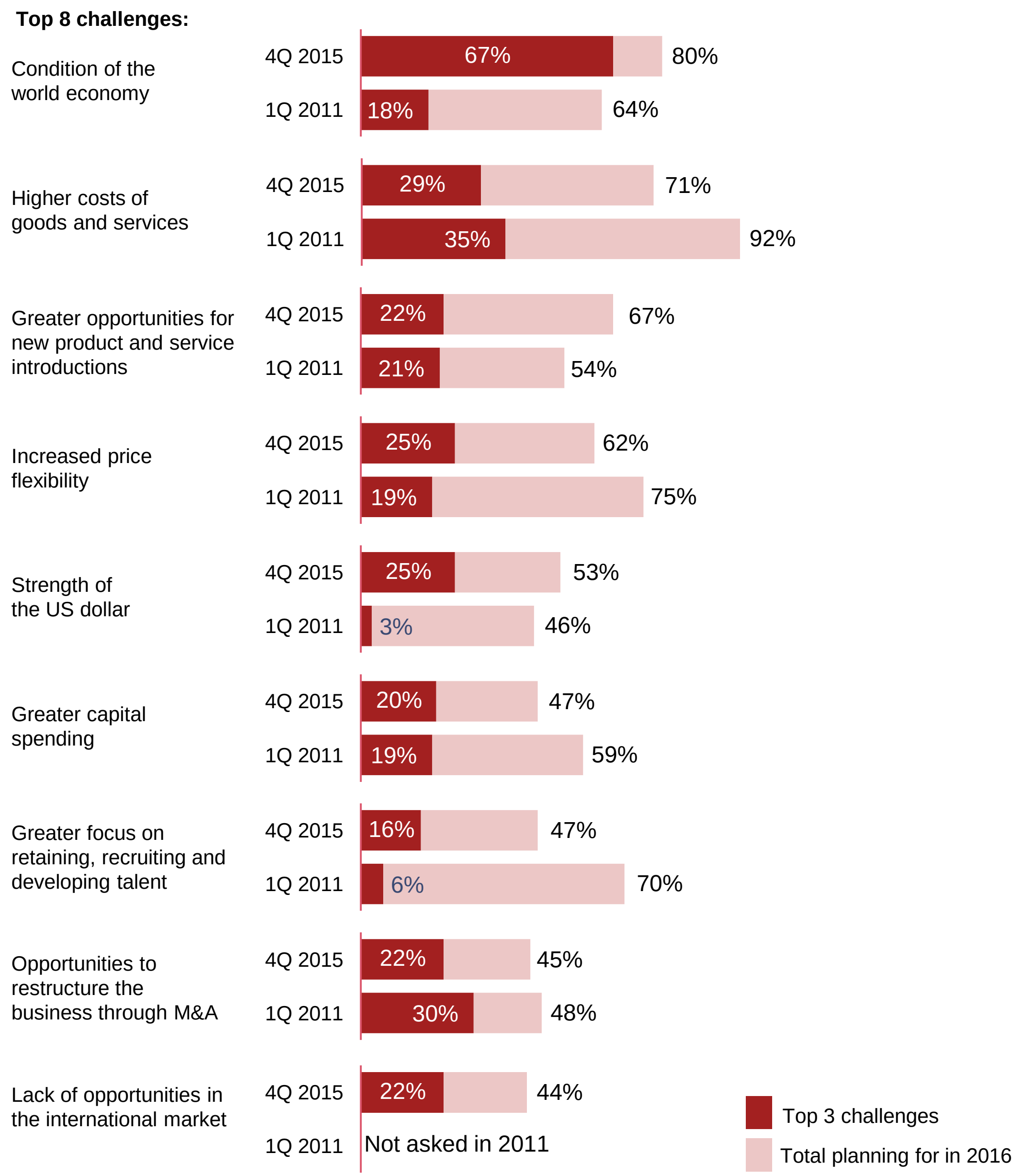
Higher costs of goods and services (71 percent) and greater opportunities for new product and service introductions (67 percent) were next – top 3 rated by 29 percent and 22 percent, respectively.

Top majority challenges were increased price flexibility (62 percent) and strength of the US dollar (53 percent).

Finally, strong minority challenges cited were greater capital spending (47 percent), greater focus on talent (47 percent), opportunity to restructure the business through M&A (45 percent), and lack of opportunities in the international markets (44 percent).

Note that fear of inflation was cited by 36 percent, but only 2 percent viewed it as a top 3 challenge.

Chart 5.1 Major challenges planned for in the year ahead



Survey demographics and research methodology

Demographics	
Who	Senior executives of US-based industrial manufacturing organizations
Interview dates	September 29, 2015 to December 21, 2015
	Industrial manufacturers (59)
Average number of employees at location	6,131
Average business unit revenue	$2.54 billion
Average enterprise revenue	$6.71 billion
Market capitalization	$7.53 billion
Industry sectors	Products 100% Manufacturing 100%

Methodology	
	PwC's *Manufacturing Barometer* is a quarterly telephone survey conducted by the independent research firm BSI Global Research Inc. Our regular survey panel consists of senior executives from a geographically balanced sample of large companies in the United States. Ninety-five percent of the panelists hold titles such as president, CEO, CFO, VP of finance, treasurer, controller, internal audit director, or other related title.

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About the research:

The *Manufacturing Barometer* is one in a series of quarterly business outlook surveys from PwC. The survey provides a view on the 12-month outlook for revenue growth, new investments, new hiring plans, emerging business barriers and more. In addition to the business outlook, we hear from our panelists about special issues they face as the business climate changes. Results of the quarterly business outlook surveys and special issue surveys are available at *www.barometersurveys.com*.

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