

China's Industrial Economy

2016 Q1 Report¹

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¹ This survey is implemented by Beijing Allinfo Co., based on the questionnaire and sample provided by Professor Gan Jie, Director of the Center on Finance and Economic Growth. We thank Beijing Allinfo for its hard work and professionalism. We acknowledge the able research assistance of Chen Ziyi, Liu Jiayu, Yang Jingwen and Zeng Yansen who provided support to the data analysis and presentation, and Tiffany Luo, who provided support for text revision.

Executive Summary

In contrast to recently published economic data, our detailed survey indicates that China's industrial economy did not stabilize in the first quarter. Moreover, it declined. Our Business Sentiment Index was 46, indicating contraction. Production declined with a diffusion index of 43. Excess capacity is now at a historic high. Only 1.2% of firms made expansionary investment, the lowest on record.

Overcapacity remained the biggest challenge for the industrial economy. After multiple quarters of capacity curtailment, capacity utilization has improved. But the process of curtailing production capacity will continue. In Q1, about two thirds of the firms reported that supply exceeded demand for their products in the domestic market, and the diffusion index reflecting oversupply was 83. Both are the highest figures since our survey began in 2014 Q2.

We followed up with firms surveyed in 2015 Q4 and found that about of 2% of the firms had since suspended production or were suspected to have suspended production (i.e. the phone number was wrong, suspended or did not exist). In Q1, firms were more likely to have reduced a substantial portion of their labor force. Firms with reduction in employment exceeding 10% accounted for 3.5% of the sample, while reduction in employment exceeding 20% accounted for 2.5%, both doubling the numbers in Q4 2015 and being the highest on record. Based on the firm size distribution of employment reduction, we estimated that the total employment drop is about 1%.

Against the backdrop of overcapacity and sluggish investment, firms do not have much need of financing. Therefore, financing is still not a bottleneck for industrial growth.

The problems facing the industries are structural and fundamental, and can only be resolved through long-term industrial policy. In the past one and half years, the economic policy seems to have overly relied on short-term monetary and fiscal policies. As we pointed out in our previous report, the recent weakening of market expectations imply that the multiplier effect of monetary and fiscal policies would be low, thus rendering them ineffective. More importantly, leaving these fundamental problems unchecked means that there would be an increasing number of contractions that are in need of short-term stabilizing policies. The recent government acceptance of an L-shaped economic trend and calls for fundamental policies show wisdom and commitment, which is what is needed to restore market confidence.

Introduction

This report is based on data collected from our quarterly surveys of about 2,000 industrial firms in China. This is the eighth such survey after it launched in 2014 Q2. Conducted through telephone interviews, our survey design ensures that our sample fully represents industry, region (provinces) and company size. As a result, we are able to construct business indices that are, to the best of our knowledge, the most informative ones available about the Chinese economy. Furthermore, our survey questions allow us to understand the underlying mechanisms behind the data, and analyze why the economy is doing well or not.

It should be emphasized that, although our survey includes industrial companies with annual sales above five million RMB, given that this is not a high threshold, we cover the vast majority of companies. If we exclude the sectors of agriculture, real estate and finance from China's GDP, then the industrial sector accounts for 50% of everything else. Thus, the findings from this sample should not be ignored.

There were a total of 2,032 firms in our 2016 Q1 survey, of which 1,495 firms were also questioned in our 2015 Q4 survey. The initial survey sample was based on a stratified random sampling by industry, region and size from the National Bureau of Statistics' population of about 488,000 industrial firms that have sales of more than five million RMB. Appendix A details the sampling procedure and compares our sample with the NBS population.

I. Overall: China's Industrial Economy Has Not Stabilized

The Business Sentiment Index stood at 46 in Q1, a one point increase from the last quarter but still indicating a contraction mode. Our BSI is the simple average of three diffusion indices, including current operating conditions, expected change in operating conditions and investment timing.^{1,2} The index construction resembles that of the US Consumer Sentiment Index, hence its name. It not only contains information on current operating conditions, but also includes measures that are forward-looking and reflects the absolute level of economic activities.³

¹ Specifically, the three questions underlying our Business Sentiment Index are the following: 1. How are current operating conditions – “good”, “neutral” or “difficult”? 2. What is the expected change in operating conditions during the next quarter – “up”, “same” or “down”? 3. To what extent is it now a good time to invest – “good”, “medium” or “bad?”

² The diffusion index is based on answers to multiple-choice questions, with the choices in analog to “good,” “neutral” and “bad”, or “up,” “same” and “down.” The diffusion index is computed as % of firms answering “good” + 0.5 * % of firms answering “neutral”. The diffusion index ranges between 0 and 100. A larger value indicates better operating conditions and 50 is the turning point between expansion and contraction.

³ Most existing indices, including the well-known PMI, are ex-post and relative (to last quarter). Even when the absolute level of business conditions is gloomy, one may still observe a high diffusion index, as long as it is an improvement over the previous quarter.

As shown in Figure 1, there are significant variations among the three sub-indicators that constitute the BSI. With regards to current operating conditions (Figure 2), 15% of firms replied “good”, 79% replied “neutral” and 6% replied “difficult”. The diffusion index was 55 in 2016 Q1 (compared with 56 in 2015 Q4). Meanwhile, the diffusion index for the expected change in operating conditions was 50, two points higher than the previous quarter.

Fixed investment remained sluggish. When asked to what extent it is now a good time to make fixed investments, less than 2% of the firms considered the timing to be “good”, with a diffusion index of 32, far below the turning point of 50 (Figure 3). Only 8% of firms made fixed investment in Q1 and a mere 1.2% made expansionary investment (that is, an investment rate above 3% of assets – a level that roughly covers depreciation). The latter is the lowest on record. The sluggish pace of investment will not improve in the near future: only eight firms (0.4%) planned to make investment in the next quarter.

While the employment index registered 47 in Q1 (Figure 4), indicating a slight decline, the percentage of firms with substantial reduction in employment increased significantly, as discussed in more detail below. Production contracted in Q1 with a diffusion index of 43 (as compared to 48 in 2015 Q4). Production of capital goods declined most significantly, with a diffusion index of 34. Product prices are still in deflation, with a diffusion index in Q1 of 44, the same as in 2015 Q4. The decline in demand for capital goods was the most significant, which is clearly related to sluggish investment.

Table 1 shows the performance of different types of firms over the last two quarters. As before, SOEs performed better than private sector firms. Large firms did better than small ones. There was no significant difference among firm sizes and product types.

Table 2 further analyzes the business conditions of different industries, where industry classification is based on the 35 two-digit industries of the National Bureau of Statistics. Variations across industries were substantial, with the BSI ranging from 38 to 61. The top three industries included Medicines (with a BSI of 61), Manufacture of Handicrafts & Others (56) and Water Production & Supply (53). The worst-performing industries were Processing of Nonmetal Ores (38), Petroleum & Nuclear Fuel (38), Processing of Wood Products (38), General-purpose Machinery (39), Manufacture of Leather-Related Products & Footwear (39) and Agricultural & Related Products (39). Processing of Nonmetal Ores has been the worst-performing industry three times since 2015 Q1; Petroleum & Nuclear Fuel, Processing of Wood Products and Manufacture of Leather-Related Products & Footwear have each appeared on the worst-performing list three times since 2015 Q1.

It is worth noting that Coal Mining and Iron & Steel, two of the worst-performing industries in the recent past, improved the most in Q1. This was clearly related to large rises in commodity prices as well as real estate and infrastructure building.

Table 3 displays regional business conditions. Regional variations were much less pronounced than industrial variations, with the BSI ranging from 36 to 50. The worst-performing regions comprised of Guizhou (36), Ningxia (40), Sichuan (40), Shanxi (42), Hebei (43), Gansu (43) and Chongqing (43). Among these provinces, Guizhou has been on the list since 2014 Q3. Shanxi and Hebei have been on the list since 2015 Q2.

II. Understanding the Economy: Challenges and Priorities

Weak demand is still by far the biggest challenge for the industrial economy. 81% of the firms surveyed in Q1 cited a lack of orders, a further increase from 78% in the previous quarter (Figure 5). Costs come second, with labor and raw material costs listed by 18% and 14% of firms, respectively. Other significant factors include difficulties in collecting trade receivables (10%) and environmental issues (4%). Financing is not a bottleneck, with only 2% replying that financing is a limiting factor. These factors are highly consistent with findings in our previous surveys.

II.1 Overcapacity: Still at a Historical High

The problem of excess capacity has worsened since 2015 Q3. In Q1 this year, about two thirds of the firms reported that supply exceeded demand for their products in the domestic market (compared with 54 in 2015 Q4), and the diffusion index reflecting oversupply was 83 (77 in 2015 Q4) (Figure 6A). Both are the highest since our survey began in 2014 Q2. Firms fare worse in domestic markets than in overseas ones, with diffusion indices roughly 15 points higher in Q1.

In 2016 Q1, 31% of the firms reported that their excess capacity was above 10% (21% in 2015 Q4), while 15% reported that their excess capacity was above 20% (8% in Q4) (Figure 6B). We categorize an industry as having severe excess capacity if more than 10% of the firms report excess capacity of more than 20%. In Q1, the number of industries and regions with severe excess capacity accounted for about half and three quarters of the total firms respectively, up substantially from 11 (out of 35) in 2015 Q4 to 17 in 2016 Q1 for industries and from 11 (out of 31) to 24 for regions (Table 4). All the six worst-performing industries are also on the list of industries with severe overcapacity. The data indicates that overcapacity not only affected more firms but also intensified in firms that had previously been affected.

As of 2016 Q1, the top three industries with severe overcapacity were Non-ferrous Metals, Petroleum & Nuclear Fuel and Ferrous Metals.

Weak demand has not caused inventory problems, thanks to the “order-based” production model adopted by many Chinese firms. As shown earlier, finished-goods inventory stayed largely flat. As many as 47% of firms said they did not have significant levels of inventory because they produce only after taking orders. For those carrying inventories, nearly 81% said they expected the inventory to be digested within three months, with a further 14% saying it would take between three to six months. This leaves only 5% of the whole sample expecting to carry inventory for more than six months.

II.2 Effort to Curtail Overcapacity

Seven of the firms surveyed in 2015 Q4 have since suspended production, accounting for 0.3% of the sample. An additional 33 firms (1.6%) were suspected to have suspended production (Figure 7A). This included companies where, during between five to ten attempts to reach them, the phone number was either wrong, suspended or did not exist, or the line could either not be connected or was busy. Therefore, a total of 2% of the firms have suspended production or were suspected to have suspended production (up from 1.8% in 2015 Q4).

In Q1, the percentage of firms that reduced employment continued to increase and firms were also more likely to have curtailed a substantial portion of their labor force. Firms with reduction in employment exceeding 10% accounted for 3.5% of the sample, while reduction in employment exceeding 20% accounted for 2.5%, both doubling the numbers in Q4 2015 and being the highest on record (Figure 7B). Slightly more than half of the firms with drops in employment over 20% are small firms. Based on the firm size distribution of employment reduction, we estimate that the total employment drop is about 1%. Given the number of industrial workers was put at 230 million at the end of 2014, this estimate means that there have been a total of 2.3 million job losses. According to firms’ expected employment data, however, the situation may improve in the next quarter.

Figure 7C displays capacity utilization in Q1. There is no consensus as to what level of capacity utilization should be considered healthy. Nevertheless, if we take the examples of the two largest western industrial nations, the US and Germany, their monthly average capacity utilization was 79% (1994-2015) and 83% (1992-2015), respectively. Their lowest points after the financial crisis in 2008 were 67% and 70%, respectively, both measured in June 2009. Given that the profit margins of Chinese firms are substantially lower than those in western countries, they may need a higher utilization rate in order to stay financially healthy. In 2016 Q1, 71% of firms surveyed had a capacity utilization above 80%, while 15% of the firms had a level below 70%. While the numbers represent an improvement from last year, there are still a significant portion of firms that need to curtail their production capacity.

Consistent with overcapacity and the resulting tight cash position, 29% of firms reported that they faced difficulties in collecting trade receivables from their customers in Q1. 10% of the firms (up from 6% in 2015 Q4) cited collecting trade receivables as a constraining factor for next quarter's production. This problem is more prominent among private-sector firms as well as firms producing capital goods (37%) and intermedium goods (35%). State-owned enterprises are disproportionately more likely to delay payment, accounting for 21% of firms that have delayed payment. Therefore, the difficulty in collecting trade receivables is mainly due to a sluggish economy and the resulting lack of pricing power.

II.3 Costs Rise Slightly

Unit costs rose slightly in Q1 with a diffusion index of 59, up from 54 in 2015 Q4. The labor cost index was 54 (53 in Q4), whereas the cost of raw materials declined, with a diffusion index of 46 (Figure 8). Thus, cost rises in Q1 were not mainly due to increased production costs (i.e. labor and raw materials) but due to increased administrative and marketing expenses. This is in contrast to the previous quarters, during which cost rises were largely driven by labor costs.

II.4 Financing is Not a Bottleneck

Consistent with results in previous quarters, only 2% of the firms cited financing as a constraining factor in 2016 Q1 (Figure 5). Correspondingly, 31% of the firms reported that funds were sufficient, 64% replied "neutral", while only 5% reported insufficient funding (Figure 10A). A vast majority of the firms (91%) reported insufficient funds for production, not for expansion. Another 7% reported insufficient funds due to operating losses.

As shown in Table 6.1 and Figure 10B, only a small proportion of firms have obtained new loans in the past quarters. In Q1, this number was 2.9%, an increase from Q4 (2.4%). Among the firms without new loans, the vast majority (92%) reported that they did not have the need for capital. Moreover, the diffusion index reflecting an accommodating bank lending attitude was 61. The proportion of firms reporting a "difficult" lending attitude, however, increased moderately to 19% in Q1, from 10% and 16% in the previous two quarters, respectively. That is, while firms still find the banks' lending attitude to be generally accommodating, the degree of that accommodating attitude has been somewhat reduced.

Table 6.2 provides an overview of how Chinese firms have been financed. Internally-generated funds were, by far, the most important source of financing, with 99% of surveyed firms reporting this as their primary funding source. About 3% of firms reported the founder's own capital as the primary source of funds, while 48% reported this as the second most important source of funds. 50% of firms indicated bank loans as their second most important source of funds. Sources of financing were

highly concentrated in Chinese firms: in the case of internal funds, 86% of firms reported that this largest financing source accounted for more than 50% of their total funds.

New industrial loans in the first quarter were all collateralized. The most common source of collateral was land and plants, cited by 94% of firms. Machinery and equipment was another popular source of collateral, cited by 9%.

It was rare for firms to borrow from sources other than banks. In Q1, only 5 firms (0.25%) reported borrowing from other financing institutions. Interest rates are all below 20%.

While our finding that financing is not a bottleneck contrasts with conventional wisdom, it is perfectly consistent with the central bank's "Financial Institutions Lending Statistics" reports. During 2014, new loans to industrial firms declined by, on average, 30% each quarter. The net amount of new industrial loans issued in 2015 was only 5% of loan balances in 2014 Q4. Moreover, new industrial loans dropped by 52% compared to the same period last year.

It is worth noting that, out of the record 4.5 trillion new loans in Q1, one third (1.5 trillion) went to real estate-related loans, of which two thirds were mortgage loans. That is, a large amount of credit did not enter the real economy, which may yet have a crowding effect (consistent with our observed tightening lending attitude) and cause asset market bubbles.

Overall, the fact that financing is not a bottleneck must be set against the backdrop of a declining industrial economy. Investment opportunity is scarce; as long as a firm is profitable, retained earnings are generally sufficient for operation.

IV. Conclusion

In contrast to recently-published economic data, our detailed survey indicates that the industrial economy did not stabilize in the first quarter and in fact declined. Our Business Sentiment Index indicates a contraction mode, production declined and excess capacity is at a record high. Meanwhile, expansionary investment is at the lowest level on record. The number of firms that saw a 20% or more reduction in employment increased to a record high level.

Looking back at China's economy policy, since it first lowered interest rates in November 2014, the government-proposed economic "New Normal" and its commitment to stabilizing the economy within a reasonable range have been helpful in managing market expectations, raising market confidence and preventing a hard landing. On the other hand, the problems facing the industries are structural and

fundamental, and can only be resolved through long-term industrial policy.

In the past one and half years, China's economic policy seems to have overly relied on short-term monetary and fiscal policies. As we have previously pointed out, the recent weakening of market expectations imply that the multiplier effect of monetary and fiscal policies would be low, thus rendering them ineffective. More importantly, leaving these fundamental problems unchecked means that there would be an increasing number of contractions that are in need of short-term stabilizing policies. The recent government acceptance of an L-shaped economic trend and calls for fundamental policies show wisdom and commitment, which is what is needed to restore market confidence.

Figure 1. Business Sentiment Index

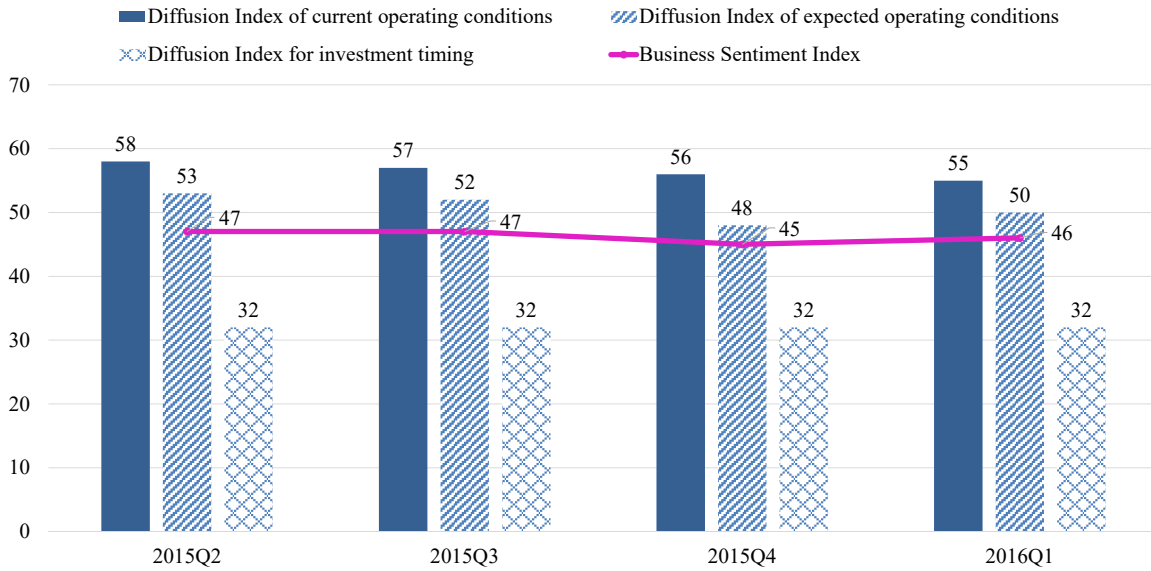


Figure 2. Current Operating Conditions

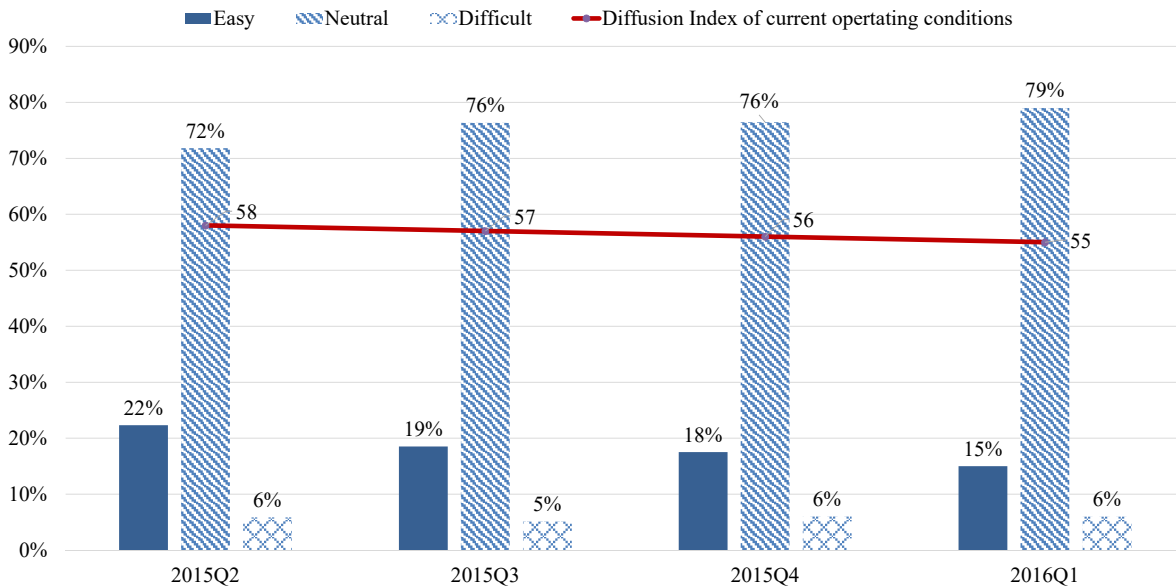


Figure 3. Investment

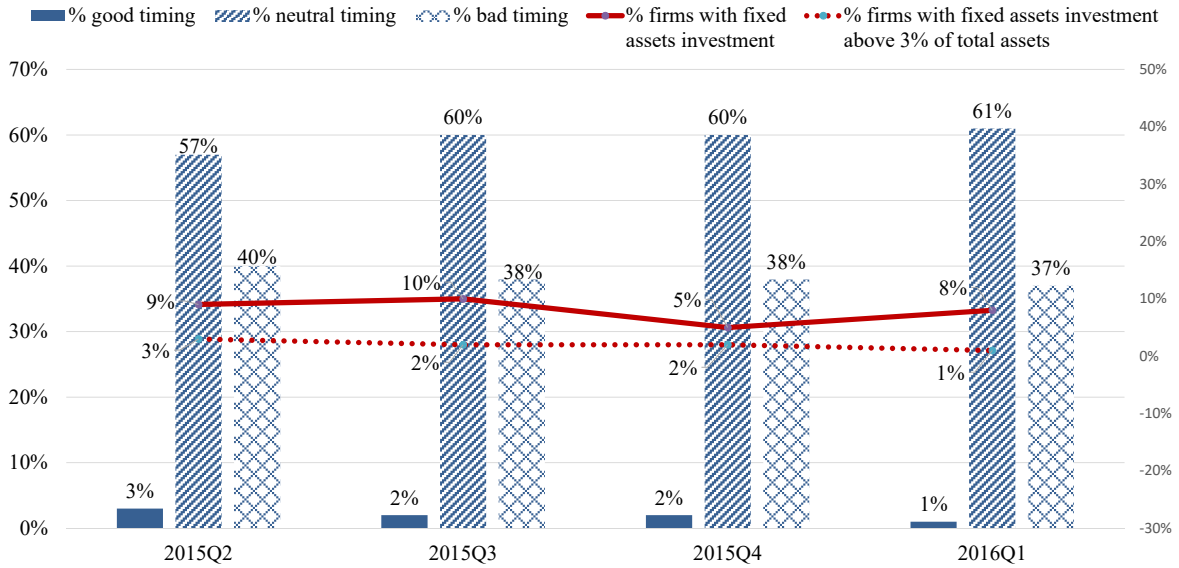


Figure 4. Other Main Economic Indices



Figure 5. Factors Constraining Production of Next Quarter

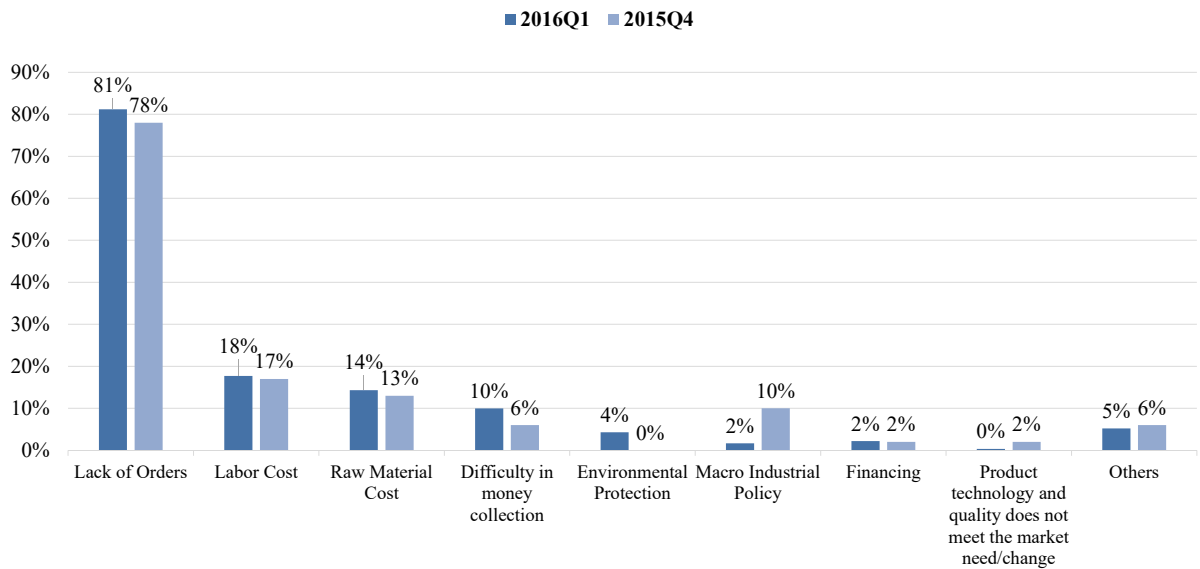


Figure 6A. Excess Capacity in Domestic Market

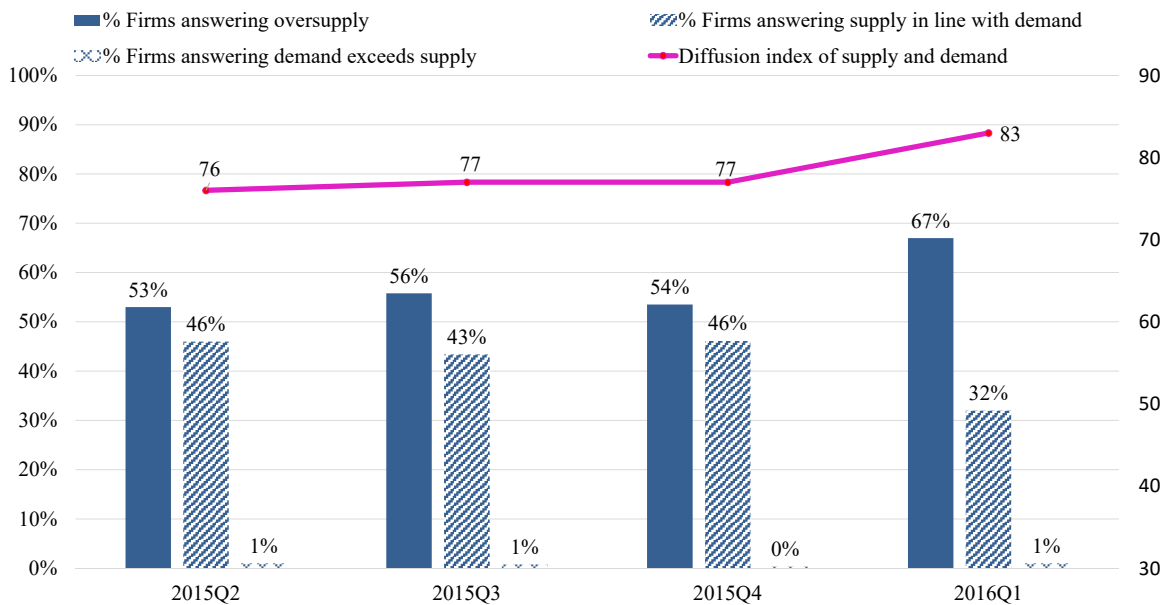


Figure 6B. Firms with Severe Excess Capacity

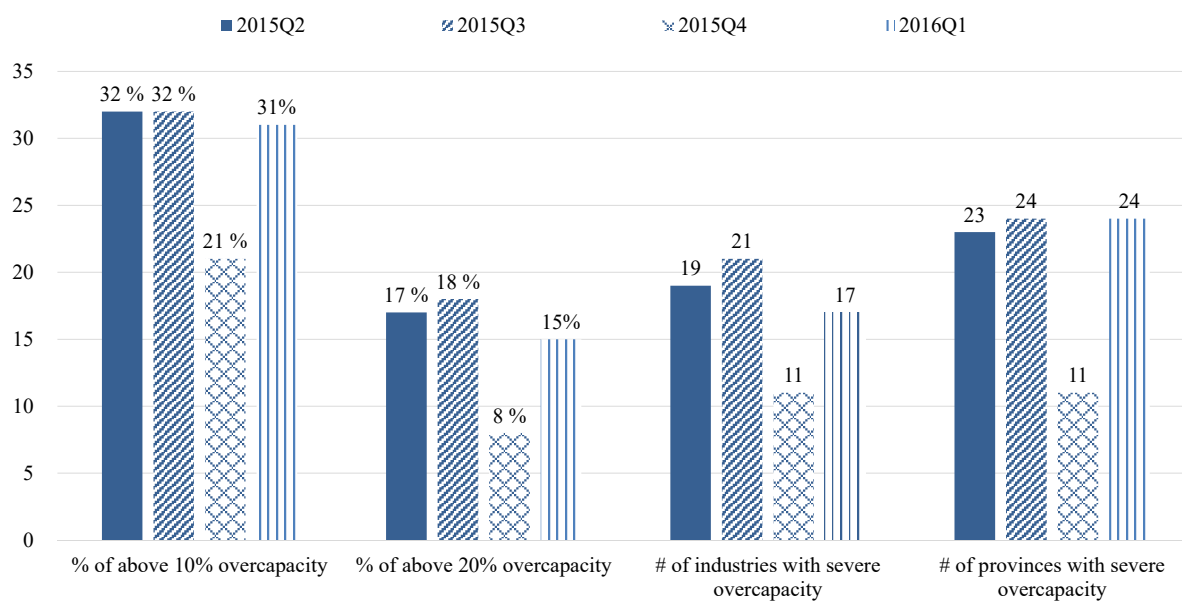


Figure 7A. Suspended Production

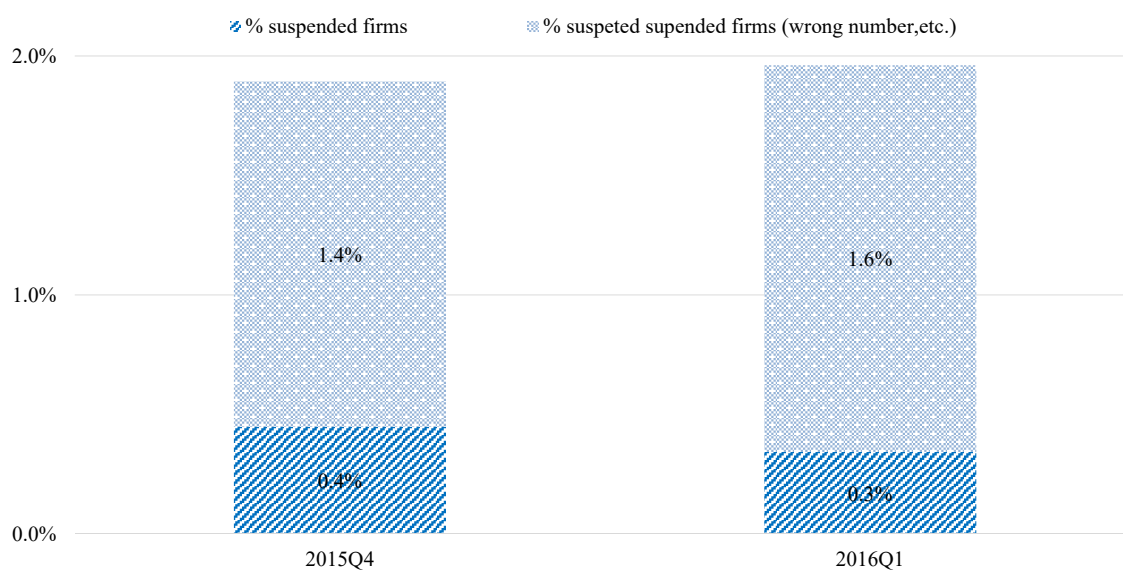


Figure 7B. Firms with Employment Reduction

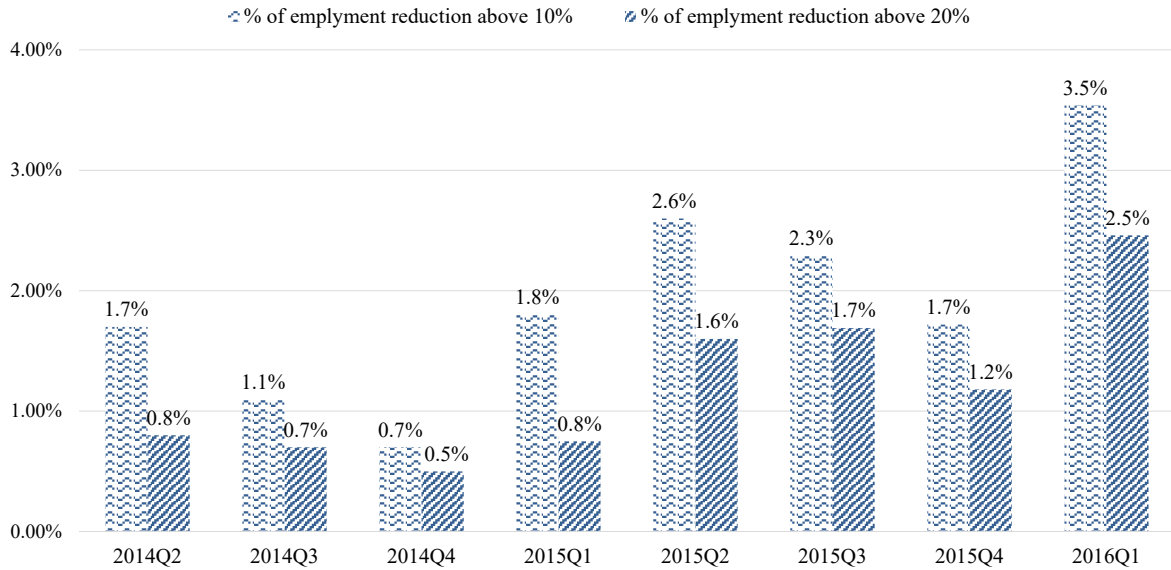


Figure 7C. Capacity Utilization

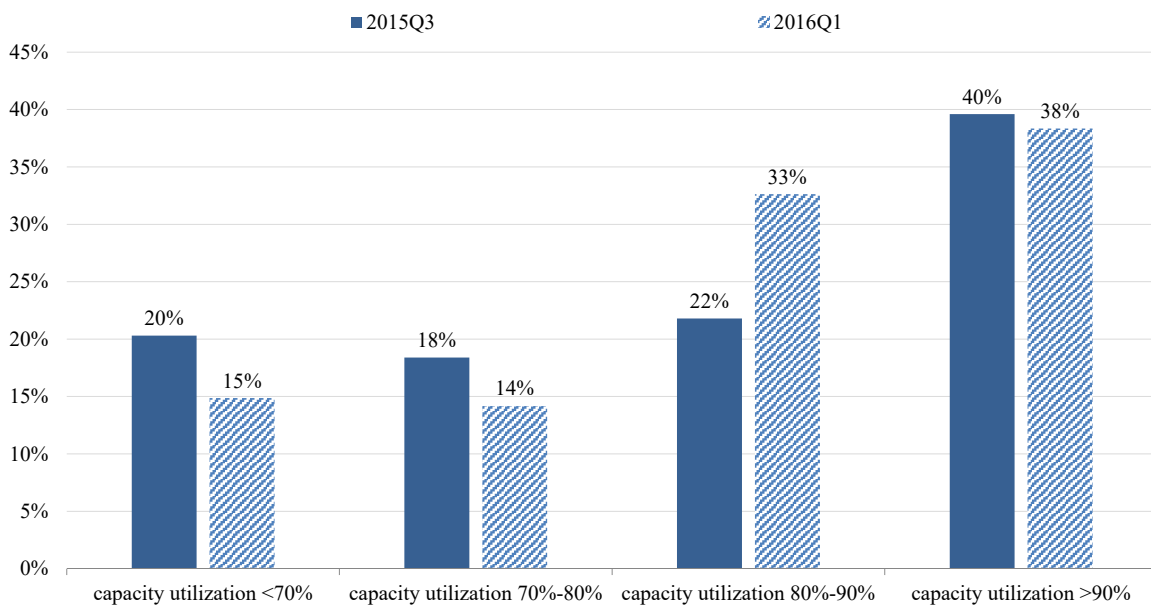


Figure 8. Costs

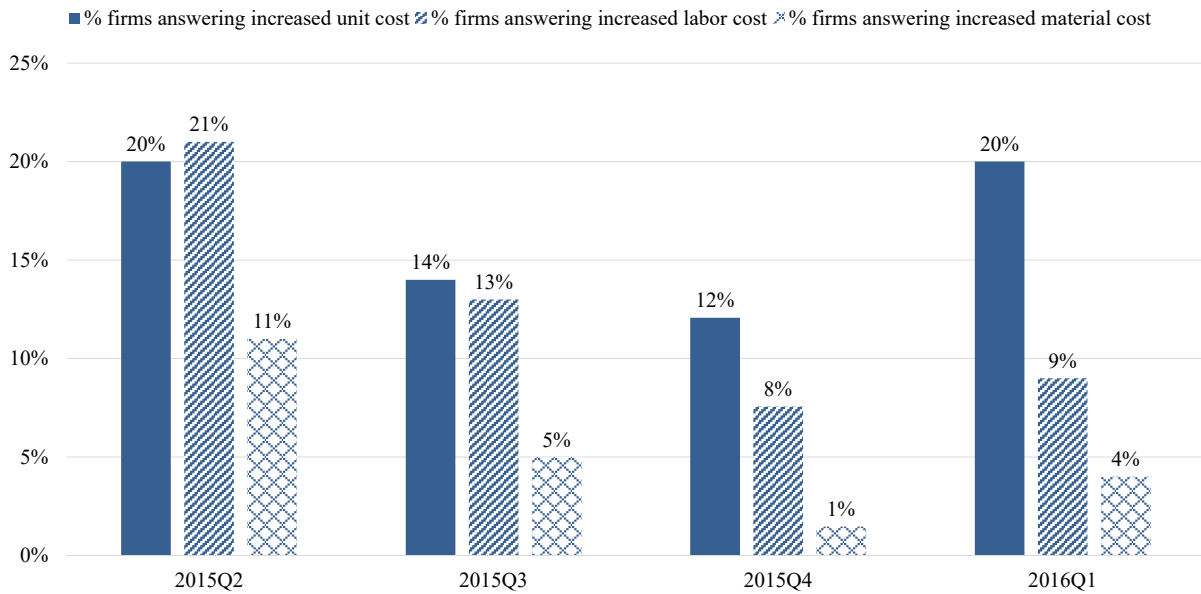


Figure 9. Gross Margins

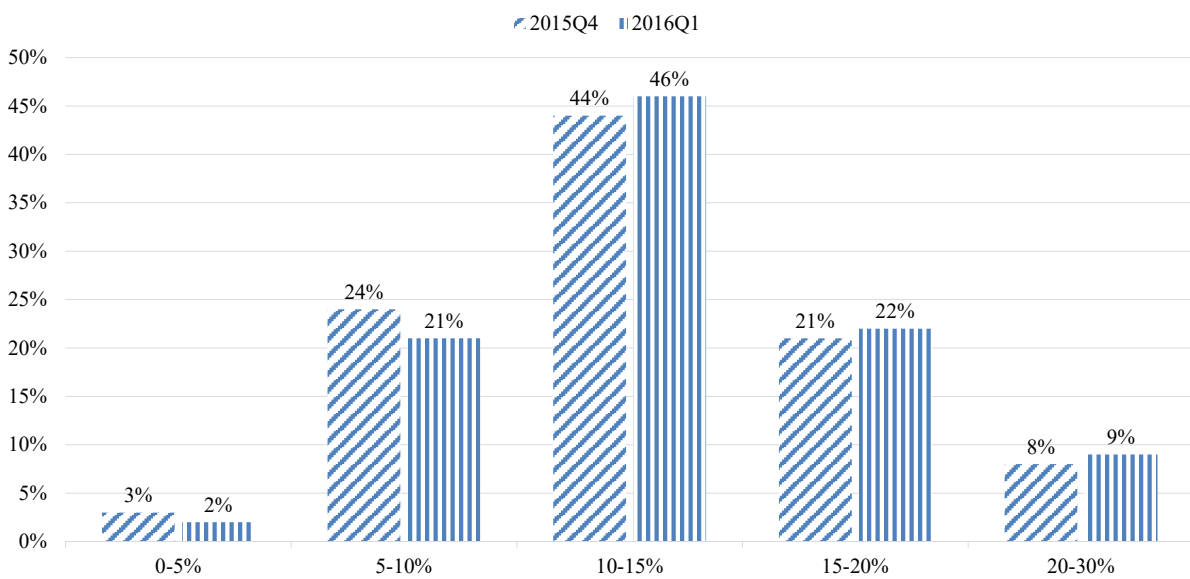


Figure 10. Financing
Figure 10A. Sufficient Capital

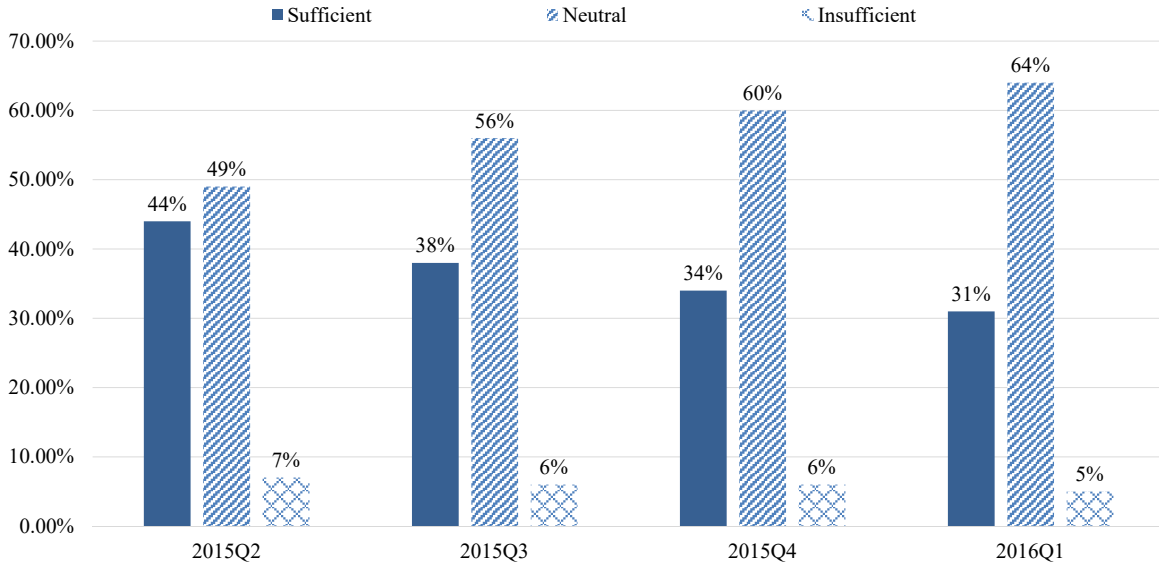


Figure 10B. New Loans

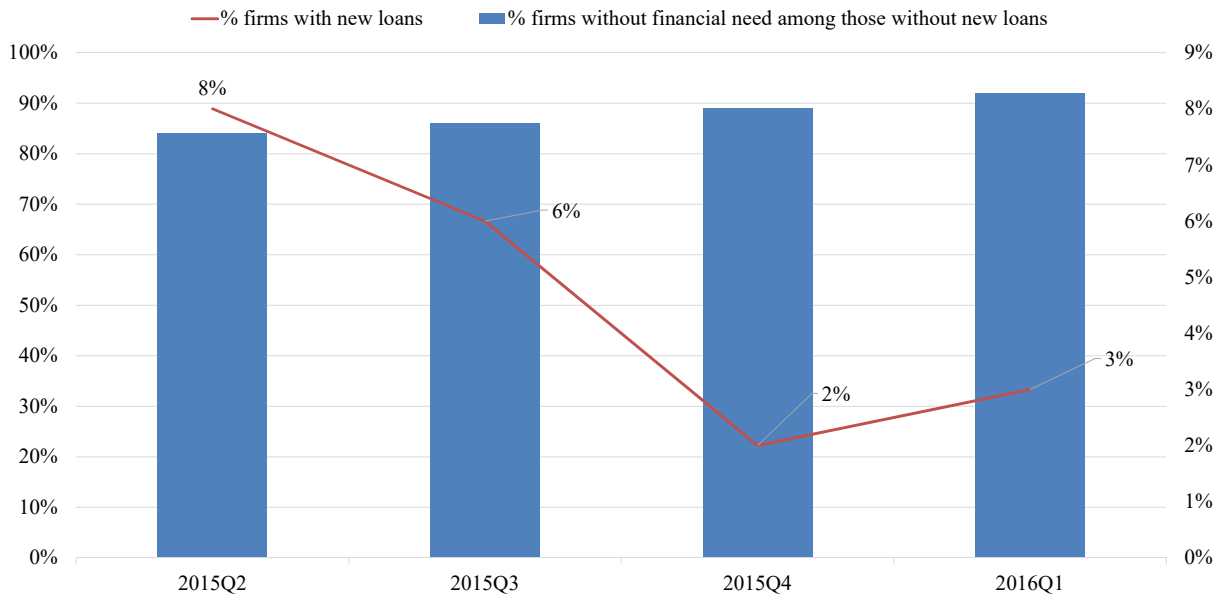


Figure 10C. Lending Attitude

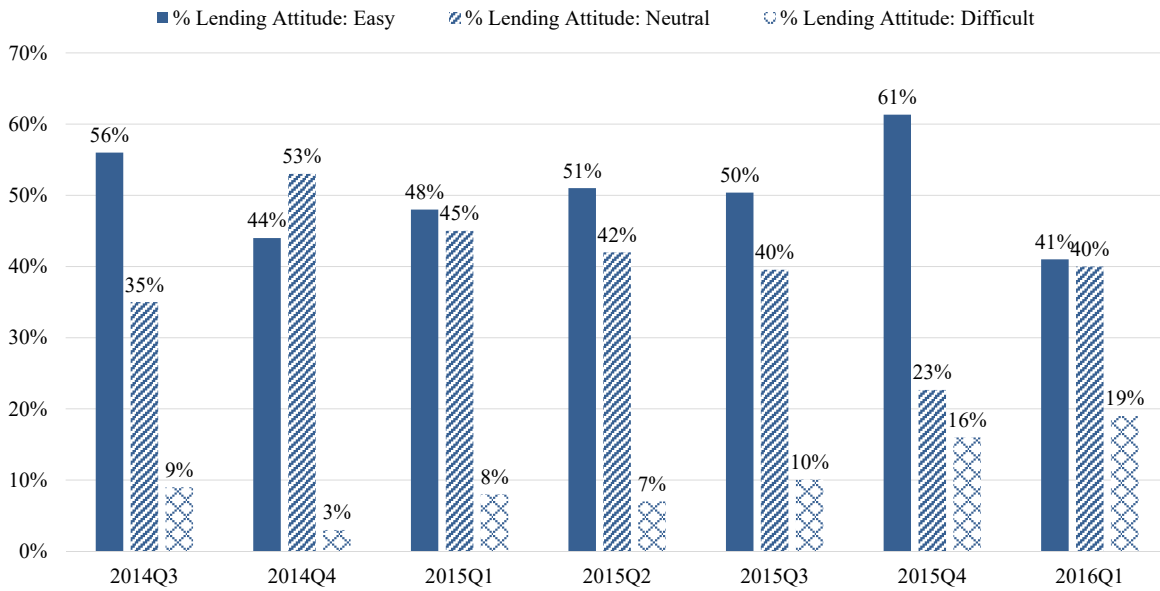


Figure 10D. Central Bank Data: New Bank Loans by Sector

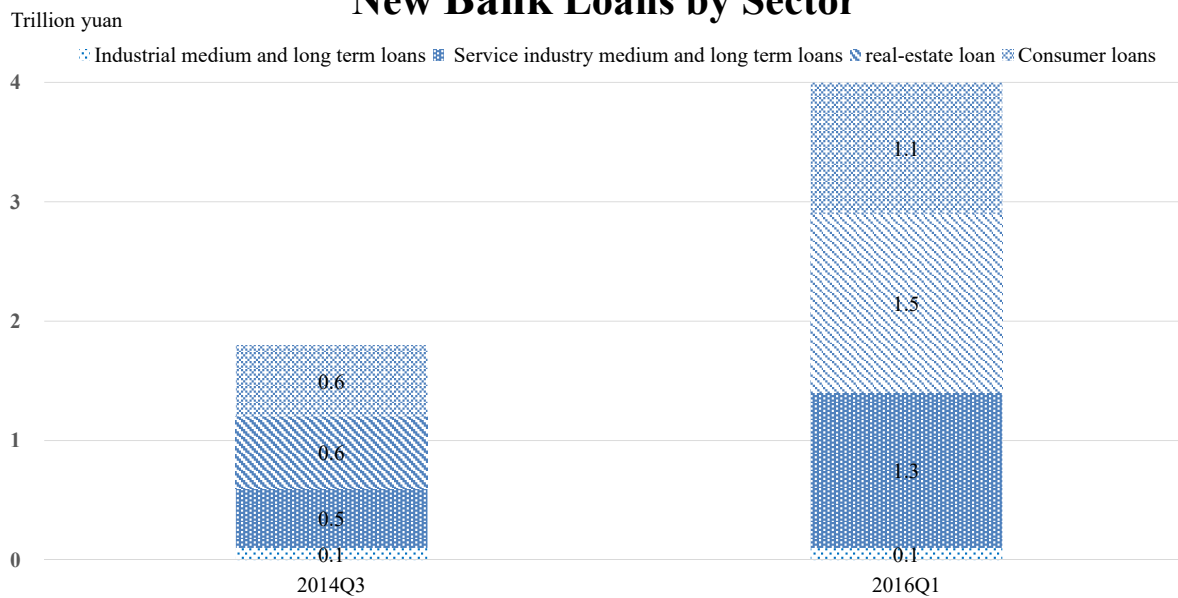


Table 1. Operating Conditions of Industrial Firms**Table 1.1**

	Number of Firms		Business Sentiment Index		Diffusion Index - Operating Conditions		Diffusion Index - Expected Change in Operating Conditions		Diffusion Index - Good Timing for Investment	
	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4
Nation	2032	2038	46	45	55	56	50	48	32	32
<i>By Size</i>										
Large	755	747	47	47	56	57	51	49	34	34
Medium	675	672	45	45	55	56	49	49	31	32
Small	602	619	44	44	53	54	49	47	31	31
<i>By Ownership</i>										
State-owned	74	81	49	51	61	68	46	48	38	37
Collectively-owned	38	37	42	43	49	50	47	45	30	35
Private	1642	1637	45	45	54	55	50	48	31	31
Foreign-owned	329	332	49	49	59	60	50	49	37	36
<i>By Product Type</i>										
Consumer Goods - Durable	409	438	45	45	54	55	49	49	32	32
Consumer Goods - Nondurable	613	626	46	47	58	60	49	50	31	31
Capital Goods	195	199	45	44	52	53	49	46	33	34
Intermediate Goods	816	776	46	45	53	54	51	47	33	33

Table 1.2

	% of Firms with Fixed Investment		Diffusion Index - Production		Diffusion Index - Employment		Diffusion Index - Price	
	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4
Nation	8	5	43	48	47	48	44	44
<i>By Size</i>								
Large	7	6	45	48	47	47	45	44
Medium	9	5	42	48	47	48	43	44
Small	7	5	42	49	48	48	42	45
<i>By Ownership</i>								
State-owned	6	11	41	56	45	49	47	43
Collectively-owned	13	8	54	51	46	46	47	43
Private	8	5	43	47	48	48	43	44
Foreign-owned	7	8	46	53	48	49	47	47
<i>By Product Type</i>								
Consumer Goods - Durable	6	5	45	50	47	48	46	45
Consumer Goods - Nondurable	9	5	44	55	48	48	44	47
Capital Goods	6	7	34	37	46	47	37	40
Intermediate Goods	8	4	44	45	47	48	44	42

Notes:

1. Diffusion Index (DI) is computed using the percentage of firms that answer "increase" (% increase) and "same" (% same) according to the formula: $(\% \text{ increase} + 0.5 * \% \text{ same})$. The index ranges between 0 and 100. A larger value indicates a better operating condition.

2. Business Sentiment Index is the average of DIs for Operating Conditions, Expected Operating Conditions and Good Timing for Investment.

Table 2. Operating Conditions by Industry

Table 2.1 Operating Conditions of All Industries

	Number of Firms		Business Sentiment Index		Diffusion Index - Operating Conditions		Diffusion Index - Expected Change in Operating Conditions		% of Firms with Fixed Investment		Diffusion Index - Good Timing for Investment	
	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4
Nation	2032	2038	46	45	55	56	50	48	8	5	32	32
<i>Mining</i>												
Coal Mining and Washing	3	5	50	30	50	20	50	25	0	0	50	20
Mining and Processing of Ferrous Metal Ores	2	1	33	50	25	50	25	50	0	0	50	50
Mining and Processing of Non-ferrous Metal	7	5	40	47	50	50	29	50	14	20	43	40
Mining and Processing of Nonmetal Ores	11	14	38	42	41	39	50	50	0	14	23	36
<i>Production and Supply of Electricity, Heat, Gas and Water</i>												
Power Production and Supply	33	36	47	53	62	67	32	46	18	11	48	47
Production and Supply of Water	12	9	53	52	71	89	58	50	25	0	29	17
<i>Light Manufacturing</i>												
Processing of Agricultural and Related Products	102	111	39	35	55	52	50	50	12	2	11	2
Manufacture of Foods	52	51	48	50	58	59	44	50	13	16	43	41
Manufacture of Beverage	35	43	43	47	61	64	47	57	6	2	20	19
Manufacture of Textiles	123	135	41	40	48	48	51	47	2	3	26	27
Manufacture of Textile Wearing and Apparel	75	73	46	50	54	57	48	48	12	16	37	45
Manufacture of Leather, Fur, Feather and Footwear	40	33	39	37	56	58	53	50	10	6	8	3
Processing of Wood Products	35	43	38	36	53	53	47	51	0	5	13	5
Manufacture of Furniture	31	29	46	49	58	62	47	48	3	14	34	36
Manufacture of Paper and Paper Products	54	57	49	49	55	58	47	45	2	2	44	43
Printing, Reproduction of Recording Media	58	55	51	53	59	62	44	48	2	4	49	48
Manufacture of Cultural and Sports Products	20	19	52	54	60	63	53	50	0	0	43	47
Manufacture of Medicines	57	62	61	63	78	81	52	51	18	8	53	57
Manufacture of Handicrafts and Others	39	40	56	55	65	69	53	48	5	0	49	50
Recycling and Disposal of Waste	3	2	50	50	50	50	50	50	0	0	50	50
<i>Chemical Industry</i>												
Processing of Petroleum and Nuclear Fuel	8	7	38	38	50	50	44	64	0	0	19	0
Manufacture of Chemical Products	121	128	48	50	51	54	51	50	3	2	42	45
Manufacture of Chemical Fibers	8	10	50	47	56	50	44	45	13	0	50	45
Manufacture of Rubber Products	24	25	51	48	67	64	56	48	0	4	31	32
Manufacture of Plastics	95	82	43	47	53	54	52	51	2	2	24	35
<i>Equipment Manufacturing</i>												
Manufacture of General-purpose Machinery	177	190	39	39	47	46	47	46	2	5	24	24
Manufacture of Special-purpose Machinery	111	118	48	48	55	58	50	47	7	3	39	39
Manufacture of Transport Equipment	98	77	50	51	53	55	51	50	7	12	45	47
Manufacture of Electric Machinery and Apparatus	148	151	45	45	60	62	51	47	18	3	24	26
Computers, Communication and Electric Equipment	87	79	52	52	59	58	49	51	6	8	48	49
Manufacture of Measuring Instruments	39	41	47	48	55	56	49	50	10	10	37	38
<i>Other Heavy Manufacturing</i>												
Manufacture of Non-metallic Mineral Products	124	114	42	40	44	46	56	46	1	2	27	28
Smelting and Pressing of Ferrous Metals	29	27	43	36	41	35	53	50	14	7	33	24
Smelting and Pressing of Non-ferrous Metals	28	17	46	46	50	50	52	47	4	12	36	41
Manufacture of Metal Products	142	148	44	42	58	58	51	45	19	5	24	23

Table 2.2 Industry Ranking of Operating Conditions

	Number of Firms		Business Sentiment Index		Diffusion Index - Operating Conditions		% of Firms with Fixed Investment		Diffusion Index - Good Timing for Investment	
	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4
Nation	2032	2038	46	45	55	56	8	5	32	32
<i>Top Five</i>										
Manufacture of Medicines	57	62	61	63	78	81	18	8	53	57
Manufacture of Handicrafts and Others	39	40	56	55	65	69	5	0	49	50
Production and Supply of Water	12	9	53	52	71	89	25	0	29	17
Computers, Communication and Electric Equipment	87	79	52	52	59	58	6	8	48	49
Manufacture of Cultural and Sports Products	20	19	52	54	60	63	0	0	43	47
<i>Bottom Five</i>										
Manufacture of Chemical Products	8	7	38	38	50	50	0	0	19	0
Mining and Processing of Nonmetal Ores	11	14	38	42	41	39	0	14	23	36
Smelting and Pressing of Ferrous Metals	35	43	38	36	53	53	0	5	13	5
Processing of Agricultural and Related Products	102	111	39	35	55	52	12	2	11	2
Manufacture of Leather, Fur, Feather and Footwear	40	33	39	37	56	58	10	6	8	3

Notes:

1. Ranking includes industries with more than three firms.

Table 3. Operating Conditions by Region**Table 3.1 Operating Conditions of All Regions**

	Number of Firms		Business Sentiment Index		Diffusion Index - Operating Conditions		Diffusion Index - Expected Operating Conditions		% of Firms with Fixed Investment		Diffusion Index - Good Timing for Investment	
	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4
	2032	2038										
Nation	2032	2038	46	45	55	56	50	48	8	5	32	32
<i>North China</i>												
Beijing	38	40	48	48	53	58	53	44	8	8	39	41
Tianjin	50	50	45	44	53	55	49	43	8	4	32	35
Hebei	88	87	43	42	55	55	47	45	5	3	27	25
<i>Northeast</i>												
Liaoning	92	86	44	42	52	52	48	46	7	3	32	30
Jilin	23	30	47	44	54	55	54	45	4	3	33	32
Heilongjiang	25	27	47	42	54	54	56	48	16	4	32	24
<i>Northwest</i>												
Inner Mongolia	15	15	47	42	50	47	50	40	7	7	40	40
Shaanxi	21	21	48	48	57	57	52	52	14	5	33	33
Gansu	5	6	43	53	60	67	40	58	0	17	30	33
Ningxia	5	3	40	33	50	50	50	50	0	0	20	0
Xinjiang	4	3	50	39	50	50	75	50	0	0	25	17
<i>Central North</i>												
Shanxi	21	23	42	41	52	48	45	48	0	4	29	22
Shandong	196	196	47	44	54	54	53	48	5	5	33	31
Henan	64	65	45	44	52	55	50	48	6	8	32	28
<i>Southwest</i>												
Chongqing	29	31	43	46	53	56	45	50	7	6	31	31
Sichuan	53	54	40	43	50	56	43	44	0	9	27	28
Guizhou	7	6	36	36	50	42	36	50	14	0	21	17
Yunnan	20	16	46	49	58	63	48	53	10	0	33	31
<i>East China</i>												
Shanghai	100	89	47	47	59	58	49	47	7	6	35	35
Jiangsu	308	303	45	45	54	55	49	49	9	5	32	32
Zhejiang	300	299	46	46	56	57	50	49	10	5	32	33
<i>South China</i>												
Fujian	87	81	45	46	54	56	49	49	11	5	32	34
Guangdong	257	271	47	47	57	57	50	50	7	4	34	35
Guangxi	34	33	46	46	56	58	50	50	9	3	31	30
Hainan	1	2	50	42	100	75	50	50	0	0	0	0
<i>Central South</i>												
Anhui	63	74	47	45	56	57	52	49	6	5	31	31
Jiangxi	38	42	48	48	61	62	49	49	8	12	34	35
Hubei	56	51	45	46	52	51	53	53	11	6	31	34
Hunan	32	34	45	49	53	57	48	53	9	6	33	37

Table 3.2 Regional Ranking of Operating Conditions

	Number of Firms		Business Sentiment Index		Diffusion Index - Operating Conditions		% of Firms with Fixed Investment		Diffusion Index - Good Timing for Investment	
	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4
Nation	2032	2038	46	45	55	56	8	5	32	32
<i>Top Five</i>										
Xinjiang	4	3	50	39	50	50	0	0	25	17
Jiangxi	38	42	48	48	61	62	8	12	34	35
Beijing	38	40	48	48	53	58	8	8	39	41
Shaanxi	21	21	48	48	57	57	14	5	33	33
Inner Mongolia	15	15	47	42	50	47	7	7	40	40
<i>Bottom Five</i>										
Guizhou	7	6	36	36	50	42	14	0	21	17
Sichuan	53	54	40	43	50	56	0	9	27	28
Ningxia	5	3	40	33	50	50	0	0	20	0
Shanxi	21	23	42	41	52	48	0	4	29	22
Gansu	5	6	43	53	60	67	0	17	30	33

Notes:

1. Ranking includes regions with more than three firms.

Table 4. Oversupply**Table 4.1 Overall**

	Number of Firms		Diffusion Index for Oversupply in Domestic Markets		Diffusion Index for Oversupply in Overseas Markets		Diffusion Index for Finished Goods	
	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4
Nation	2032	2038	83	77	68	63	49	49
<i>By Size</i>								
Large	755	747	82	75	67	63	49	49
Medium	675	672	84	77	68	63	48	49
Small	602	619	84	77	69	66	49	49
<i>By Ownership</i>								
State-owned	74	81	77	64	57	55	46	51
Collectively-owned	38	37	78	71	79	71	53	53
Private	1642	1637	84	78	68	64	49	49
Foreign-owned	329	332	81	69	66	62	49	46
<i>By Product Type</i>								
Consumer Goods - Durable	409	438	81	78	65	63	47	50
Consumer Goods - Nondurable	613	626	82	72	66	62	48	47
Capital Goods	195	199	83	73	69	61	50	48
Intermediate Goods	816	776	85	80	70	65	49	51

Table 4.2 Industries with Severe Excess Capacity

Industry	Number of Firms	% of Firms with 20% excess capacity and above	% of Firms with 10% excess capacity and above
Mining and Processing of Non-ferrous Metal	7	71	71
Processing of Petroleum and Nuclear Fuel	8	63	75
Smelting and Pressing of Ferrous Metals	29	48	59
Manufacture of Non-metallic Mineral Products	124	40	53
Mining and Processing of Nonmetal Ores	11	36	64
Smelting and Pressing of Non-ferrous Metals	28	32	46
Processing of Wood Products	35	26	37
Manufacture of Metal Products	142	25	42
Manufacture of Electric Machinery and Apparatus	148	22	39
Processing of Agricultural and Related Products	102	21	54
Manufacture of Furniture	31	16	29
Manufacture of Measuring Instruments	39	15	23
Manufacture of Foods	52	13	29
Manufacture of Paper and Paper Products	54	13	28
Manufacture of Leather, Fur, Feather and Footwear	40	13	43
Manufacture of Chemical Products	121	12	31
Manufacture of Cultural and Sports Products	20	10	10

Notes:

1. This table reports industries that have at least 10% of firms with 20% or above excess capacity.
2. This table includes industries with more than three firms.

Table 4.3 Regions with Severe Excess Capacity

Province	Number of Firms	% Firms with 20% Excess Capacity and above	% Firms with 10% Excess Capacity and above
Ningxia	5	80	80
Guizhou	7	43	43
Yunnan	20	40	60
Jilin	23	35	48
Shaanxi	21	33	48
Hunan	32	28	34
Liaoning	92	27	48
Inner Mongolia	15	27	33
Xinjiang	4	25	75
Sichuan	53	25	38
Tianjin	50	22	40
Hebei	88	22	38
Anhui	63	21	41
Gansu	5	20	20
Henan	64	19	34
Heilongjiang	25	16	28
Beijing	38	16	29
Shanxi	21	14	33
Chongqing	29	14	24
Shandong	196	14	26
Jiangxi	38	13	18
Jiangsu	308	10	25
Fujian	87	10	33
Shanghai	100	10	21

Notes:

1. This table reports regions that have at least 10% of firms with 20% or above excess capacity.
2. This table includes regions with more than three firms.

Table 5. Cost and Price**Table 5.1 Overall**

		Diffusion Indices									
		Number of Firms		Unit Cost Index		Labor Cost Index		Raw Material Cost Index		Price Index	
		Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4
<i>Nation</i>		2032	2038	59	54	54	53	46	45	44	44
<i>By Size</i>											
	Large	755	747	58	53	54	53	48	45	45	44
	Medium	675	672	61	54	56	53	45	44	43	44
	Small	602	619	59	54	54	53	45	45	42	45
<i>By Ownership</i>											
	State-owned	74	81	54	50	51	53	50	47	47	45
	Collectively-owned	38	37	54	54	51	53	49	42	47	43
	Private	1642	1637	60	54	54	53	45	44	43	44
	Foreign -owned	329	332	58	53	55	53	48	48	47	47
<i>By Product Type</i>											
	Consumer Goods - Durable	409	438	59	52	57	54	49	47	46	45
	Consumer Goods - Nondurable	613	626	59	52	53	51	46	46	44	47
	Capital Goods	195	199	67	62	53	59	40	41	37	40
	Intermediate Goods	816	776	58	53	55	53	46	43	44	42

Table 5.2 Industries with Unit Cost Increase More Significant than National Average

	Diffusion Indices				Price Index
	Number of Firms	Unit Cost Index	Labor Cost Index	Raw Material Cost Index	
Nation	2032	59	54	46	44
Manufacture of Textiles	123	95	53	23	19
Manufacture of General-purpose Machinery	177	86	57	26	23
Manufacture of Furniture	31	71	73	58	53
Manufacture of Cultural and Sports Products	20	70	73	48	40
Manufacture of Plastics	95	67	52	38	35
Manufacture of Rubber Products	24	65	67	44	38
Mining and Processing of Nonmetal Ores	11	64	64	50	36
Smelting and Pressing of Ferrous Metals	29	64	64	52	52
Processing of Petroleum and Nuclear Fuel	8	63	63	56	38
Manufacture of Foods	52	62	59	59	51
Processing of Wood Products	35	60	64	53	47
Smelting and Pressing of Non-ferrous Metals	28	59	59	54	48

Notes:

1. Industries are sorted by Diffusion Index for Unit Cost in descending order. The table includes industries with more than three firms.

Table 5.3 Regions with Unit Cost Increase More Significant than National Average

	Diffusion Indices				
	Number of Firms	Unit Cost Index	Labor Cost Index	Raw Material Cost Index	Price Index
Nation	2032	59	54	46	44
Jiangsu	308	63	55	43	41
Zhejiang	300	63	54	44	41
Shandong	196	62	55	45	44
Shanghai	100	61	54	45	43
Anhui	63	61	55	49	46
Ningxia	5	60	50	50	60
Fujian	87	60	56	46	46
Inner Mongolia	15	60	60	50	47

Notes:

1. Provinces are sorted by Diffusion Index for Unit Cost in descending order. The table includes provinces with more than three firms.

Table 6. Financing Environment**Table 6.1 Overall**

	% Firms with Loans		% Firms with New Loans		Collateralization Rate %		Diffusion Index - Lending Attitude		Diffusion Index - Interest Rate	
	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4
Nation	2032	2038	25	24	3	2	61	73	40	42
<i>With or Without Investment</i>										
Firms with Investment	156	105	31	33	6	5	81	44	29	36
Firms without Investment	1876	1933	25	24	3	2	58	76	42	42
<i>By Size</i>										
Large	755	747	27	28	3	4	61	79	39	39
Medium	675	672	27	25	3	2	64	67	42	46
Small	602	619	20	19	3	1	55	64	37	41
<i>By Ownership</i>										
State-owned	74	81	25	25	0	0	76	69	23	46
Collectively-owned	38	37	21	22	5	3	50	50	25	50
Private	1642	1637	27	26	3	3	62	72	39	41
Foreign -owned	329	332	16	17	2	2	57	75	50	43
<i>By Product Type</i>										
Consumer Goods - Durable	409	438	27	23	5	2	69	77	36	46
Consumer Goods - Nondurable	613	626	27	26	2	3	59	71	41	34
Capital Goods	195	199	26	22	5	2	42	64	40	30
Intermediate Goods	816	776	22	24	2	2	63	74	41	48

Notes:

1. A higher Diffusion Index for lending attitude reflects easier lending.
2. A higher Diffusion Index for interest rate reflects higher interest rate.

Table 6.2 Sources of Financing

The most important source of financing

Sources	Number of Firms	% of Firms
Internal Funds	1999	98
Founder	53	3
Bank	24	1
Non-official finance institution	4	0
Stock market	3	0
Others	2	0
Relatives and friends	1	0

The second most important source of financing

Sources	Number of Firms	% of Firms
Bank	489	50
Founder	466	48
Internal Funds	15	2
Relatives and friends	6	1
Others	3	0
Stock market	1	0
Non-official finance institution	1	0

Appendix A1. Industry and Regional Ranking of Excess Capacity

Appendix A1.1 Industry Ranking of Excess Capacity

Industry	Number of Firms		% of Firms with 20% excess capacity and above		% of Firms with 10% excess capacity and above	
	Q1	Q4	Q1	Q4	Q1	Q4
Mining and Processing of Non-ferrous Metal	7	5	71	0	71	0
Processing of Petroleum and Nuclear Fuel	8	7	63	57	75	100
Smelting and Pressing of Ferrous Metals	29	27	48	22	59	41
Manufacture of Non-metallic Mineral Products	124	114	40	18	53	32
Mining and Processing of Nonmetal Ores	11	14	36	29	64	36
Smelting and Pressing of Non-ferrous Metals	28	17	32	0	46	29
Processing of Wood Products	35	43	26	21	37	51
Manufacture of Metal Products	142	148	25	20	42	38
Manufacture of Electric Machinery and Apparatus	148	151	22	16	39	30
Processing of Agricultural and Related Products	102	111	21	17	54	56
Manufacture of Furniture	31	29	16	3	29	17
Manufacture of Measuring Instruments	39	41	15	2	23	7
Manufacture of Foods	52	51	13	6	29	27
Manufacture of Paper and Paper Products	54	57	13	0	28	2
Manufacture of Leather, Fur, Feather and Footwear	40	33	13	12	43	52
Manufacture of Chemical Products	121	128	12	2	31	15
Manufacture of Cultural and Sports Products	20	19	10	0	10	0
Printing, Reproduction of Recording Media	58	55	9	9	29	15
Manufacture of Beverage	35	43	9	2	29	16
Manufacture of Transport Equipment	98	77	8	4	20	13
Manufacture of Special-purpose Machinery	111	118	7	2	13	4
Manufacture of Plastics	95	82	6	7	43	52
Power Production and Supply	33	36	6	0	18	0
Computers, Communication and Electric Equipment	87	79	6	3	22	23
Manufacture of General-purpose Machinery	177	190	6	2	8	3
Manufacture of Textile Wearing and Apparel	75	73	5	3	25	19
Manufacture of Medicines	57	62	5	2	19	8
Manufacture of Rubber Products	24	25	4	0	21	0
Manufacture of Textiles	123	135	2	1	2	1
Manufacture of Handicrafts and Others	39	40	0	0	15	15
Manufacture of Chemical Fibers	8	10	0	10	13	30
Production and Supply of Water	12	9	0	0	0	0

Notes:

1. Industries are sorted based on the percentage of firms with over 20% excess capacity in descending order. The ranking includes industries with more than three firms.

Appendix A1.2 Regional Ranking of Excess Capacity

Province	Number of Firms		% of Firms with 20% excess capacity and above		% of Firms with 10% excess capacity and above	
	Q1	Q4	Q1	Q4	Q1	Q4
Guizhou	7	6	43	33	43	33
Yunnan	20	16	40	13	60	50
Jilin	23	30	35	20	48	33
Shaanxi	21	21	33	5	48	38
Hunan	32	34	28	6	34	15
Liaoning	92	86	27	10	48	30
Inner Mongolia	15	15	27	7	33	20
Sichuan	53	54	25	9	38	20
Tianjin	50	50	22	12	40	32
Hebei	88	87	22	9	38	26
Anhui	63	74	21	5	41	24
Gansu	5	6	20	0	20	0
Henan	64	65	19	12	34	31
Heilongjiang	25	27	16	15	28	26
Beijing	38	40	16	15	29	28
Shanxi	21	23	14	13	33	30
Chongqing	29	31	14	13	24	19
Shandong	196	196	14	12	26	25
Jiangxi	38	42	13	10	18	19
Jiangsu	308	303	10	6	25	18
Fujian	87	81	10	6	33	27
Shanghai	100	89	10	7	21	17
Zhejiang	300	299	10	4	24	14
Guangdong	257	271	7	4	23	18
Guangxi	34	33	6	3	32	27
Hubei	56	51	4	6	14	6

Notes:

1. Provinces are sorted based on the percentage of firms with over 20% excess capacity in descending order. The ranking includes provinces with more than three firms.

Appendix A2. Industry and Regional Diffusion Index for Cost and Price

Appendix A2.1 Industry Diffusion Index for Cost and Price

	Nation	Diffusion Indices									
		Number of Firms		Unit Cost Index		Labor Cost Index		Raw Material Cost Index		Price Index	
		Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4
		2032	2038	59	54	54	53	46	45	44	44
<i>Mining</i>											
	Coal Mining and Washing	3	5	50	60	50	60	50	38	67	25
	Mining and Processing of Ferrous Metal Ores	2	1	50	100	50	100	50	50	50	50
	Mining and Processing of Non-ferrous Metal	7	5	43	50	43	50	50	50	29	50
	Mining and Processing of Nonmetal Ores	11	14	64	50	64	57	50	43	36	43
<i>Production and Supply of Electricity, Heat, Gas and Water</i>											
	Power Production and Supply	33	36	50	50	50	50	50	50	50	50
	Production and Supply of Water	12	9	50	50	50	50	50	50	50	50
<i>Light Manufacturing</i>											
	Processing of Agricultural and Related Products	102	111	51	42	51	49	50	43	49	48
	Manufacture of Foods	52	51	62	55	59	53	59	51	51	51
	Manufacture of Beverage	35	43	49	43	51	49	47	44	49	50
	Manufacture of Textiles	123	135	95	83	53	58	23	40	19	40
	Manufacture of Textile Wearing and Apparel	75	73	53	55	53	53	49	50	51	50
	Manufacture of Leather, Fur, Feather and Footwear	40	33	55	56	54	50	53	56	46	52
	Processing of Wood Products	35	43	60	45	64	50	53	47	47	40
	Manufacture of Furniture	31	29	71	62	73	60	58	50	53	48
	Manufacture of Paper and Paper Products	54	57	50	48	51	49	49	48	45	46
	Printing, Reproduction of Recording Media	58	55	52	48	52	48	52	50	49	49
	Manufacture of Cultural and Sports Products	20	19	70	53	73	55	48	47	40	45
	Manufacture of Medicines	57	62	50	50	50	50	50	51	50	51
	Manufacture of Handicrafts and Others	39	40	50	51	54	51	49	50	49	49
	Recycling and Disposal of Waste	3	2	50	50	50	50	50	50	50	50
<i>Chemical Industry</i>											
	Processing of Petroleum and Nuclear Fuel	8	7	63	0	63	36	56	0	38	7
	Manufacture of Chemical Products	121	128	51	53	53	51	46	46	48	44
	Manufacture of Chemical Fibers	8	10	50	50	56	50	50	40	50	35
	Manufacture of Rubber Products	24	25	65	54	67	58	44	42	38	42
	Manufacture of Plastics	95	82	67	41	52	51	38	38	35	38
<i>Equipment Manufacturing</i>											
	Manufacture of General-purpose Machinery	177	190	86	67	57	68	26	33	23	34
	Manufacture of Special-purpose Machinery	111	118	52	50	52	50	51	49	48	46
	Manufacture of Transport Equipment	98	77	52	54	55	51	49	50	46	49
	Manufacture of Electric Machinery and Apparatus	148	151	50	50	50	50	50	48	49	49
	Computers, Communication and Electric Equipment	87	79	53	51	55	52	50	48	45	47
	Manufacture of Measuring Instruments	39	41	55	52	55	52	51	52	46	50
<i>Other Heavy Manufacturing</i>											
	Manufacture of Non-metallic Mineral Products	124	114	58	50	58	50	52	50	48	46
	Smelting and Pressing of Ferrous Metals	29	27	64	52	64	61	52	37	52	31
	Smelting and Pressing of Non-ferrous Metals	28	17	59	50	59	62	54	34	48	32
	Manufacture of Metal Products	142	148	50	50	50	50	49	36	49	35

Notes:

1. The table includes industries with more than three firms.

Appendix A2.2 Regional Diffusion Index for Cost and Price

		Diffusion Indices									
		Number of Firms		Unit Cost Index		Labor Cost Index		Raw Material Cost Index		Price Index	
		Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4
	Nation	2032	2038	59	54	54	53	46	45	44	44
<i>North China</i>											
	Beijing	38	40	55	50	53	50	49	44	46	43
	Tianjin	50	50	55	47	55	51	46	40	46	41
	Hebei	88	87	56	54	49	55	43	43	40	42
<i>Northeast</i>											
	Liaoning	92	86	58	51	56	53	49	39	41	42
	Jilin	23	30	57	45	54	52	54	43	52	43
	Heilongjiang	25	27	56	50	54	52	48	43	50	43
<i>Northwest</i>											
	Inner Mongolia	15	15	60	63	60	60	50	39	47	40
	Shaanxi	21	21	57	48	60	48	48	45	43	43
	Gansu	5	6	50	33	50	50	50	25	50	33
	Ningxia	5	3	60	50	50	50	50	50	60	50
	Xinjiang	4	3	50	33	50	33	50	50	50	33
<i>Central North</i>											
	Shanxi	21	23	57	57	50	57	55	43	45	43
	Shandong	196	196	62	53	55	54	45	45	44	44
	Henan	64	65	57	50	52	51	47	44	44	45
<i>Southwest</i>											
	Chongqing	29	31	55	48	52	50	46	45	43	47
	Sichuan	53	54	55	50	52	51	48	45	44	44
	Guizhou	7	6	57	50	57	50	50	50	42	50
	Yunnan	20	16	58	50	58	50	53	50	53	50
<i>East China</i>											
	Shanghai	100	89	61	57	54	56	45	46	43	44
	Jiangsu	308	303	63	56	55	55	43	44	41	43
	Zhejiang	300	299	63	57	54	53	44	45	41	43
<i>South China</i>											
	Fujian	87	81	60	53	56	54	46	47	46	46
	Guangdong	257	271	58	56	55	53	47	46	45	47
	Guangxi	34	33	57	52	57	52	47	47	46	45
	Hainan	1	2	50	50	50	50	50	50	50	50
<i>Central South</i>											
	Anhui	63	74	61	52	55	52	49	43	46	43
	Jiangxi	38	42	49	48	51	50	49	44	49	44
	Hubei	56	51	57	58	51	54	44	50	42	50
	Hunan	32	34	56	51	56	50	50	49	45	43

Notes:

1. The table includes provinces with more than three firms.

Appendix 3. Sampling Procedure

3.1 The Population

The initial sample of our panel is taken from the 2008 Economic Census. This is the most complete and reliable economic census data available. A new round of Economic Census is currently ongoing.

Although the 2008 Economic Census is our best choice, it is done seven years ago. Firm characteristics, such as industry, might have changed significantly. Thus we ask firms about their main products and product types. But we cannot cover companies established after 2008 this problem can only be resolved when the latest Economic Census data (2013 are made available to the public).

2008 Economic Census database is made of provincial databases each containing two sets of data: one uses industrial units and the other uses legal person units.¹We start with the legal person units in 2008 Economic Census database. We then drop non-industrial firms and firms with sales below five million RMB to obtain the population of what NBS terms as “sizable” industrial firms.

3.2 Sampling Procedure

Below is a step-by-step description of the procedure to obtain our initial survey sample in our first survey, that is, the 2014 Q2 survey.

1. Simplify industrial classification code. Using Industrial classification for national economic activities (GBT4754-2002)² as the standard, we only define firms' industry up to major groups (two digit code from 01 to 98)³.
2. Simplify area code. We use the first two digits to place firms in 31 provinces and municipalities.
3. Remove nonindustrial firms: using industry code specified in step 1, we remove those with code smaller than 6 or larger than 46, retaining 39 industry categories. Those left are mining (06-11), manufacturing (13-43) and electricity, gas and water production and processing (44-46).
4. Remove below-scale firms: we remove those with less than 5,000,000RMB in annual main business income, this step removed about $\frac{3}{4}$ of total firms. As of this step, we obtain the population of sizable industrial firms, which consists of 488,052 firms.
5. Classify firms by size into 3 categories using 33% and 66% percentiles in main business income.

¹ Legal person units are composed of industrial activity units, industrial activity units are all under management and control of legal person units.

² Since the original database is based on census conducted in 2008, we use GBT4754-2002 industry classification rather than the newer GBT4754-2011 classification.

³ Industrial classification for national economic activities (GBT4754-2002) classifies firms into division, major group, minor group, subgroup, in order of increasing detail. For example, the subgroup 1361 seafood frozen processing belongs in division A (manufacturing), major group 13 (agriculture and by-product processing), and minor group 136 (seafood processing).

6. Take a stratified random sample using size, region and industry as strata, taking 2.1% of the population. The final sample consists of 10,139 firms.

In our Q1 survey, we started from the 2,039 firms in our last response sample, and obtain responses from 1,477 firms. These firms match the population in terms of industry, region, and sizes reasonably well. Nevertheless, we draw an additional survey samples with an industry-region-size distribution such that the final response sample would match the population, assuming (1) random responses and (2) a 20% response rate. We obtained 555 responses from this new sample, resulting in a total of 2,032 firms in our final response sample.

3.3 Survey Process

The survey is through phone interviews. Figure A1 reports the distribution of the number of phone calls, duration of the calls, and the interviewees' positions in the companies.

3.4. Sample Representativeness

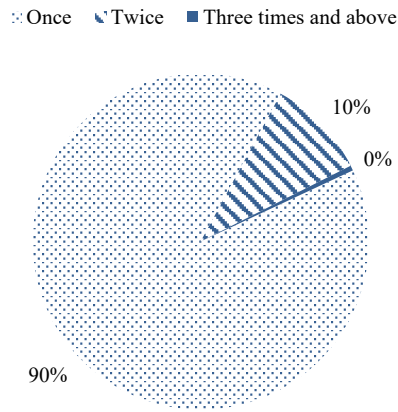
Tables A1.1-A1.3 show that the distribution of the population and the Q1 response sample, as well as the 1,477 firms that were also in the Q1 sample, in terms of industry, region, and sizes. Note that as we are sampling 2.1% of the population, some small strata may not be sampled. Specifically, Mining of other Ores, Extraction of Petroleum and Natural Gas and Manufacture of Tobacco are three industries not sampled; and Qinghai and Tibet are two regions not sampled. Overall, our response sample represents the population well.

3.5 Seasonality

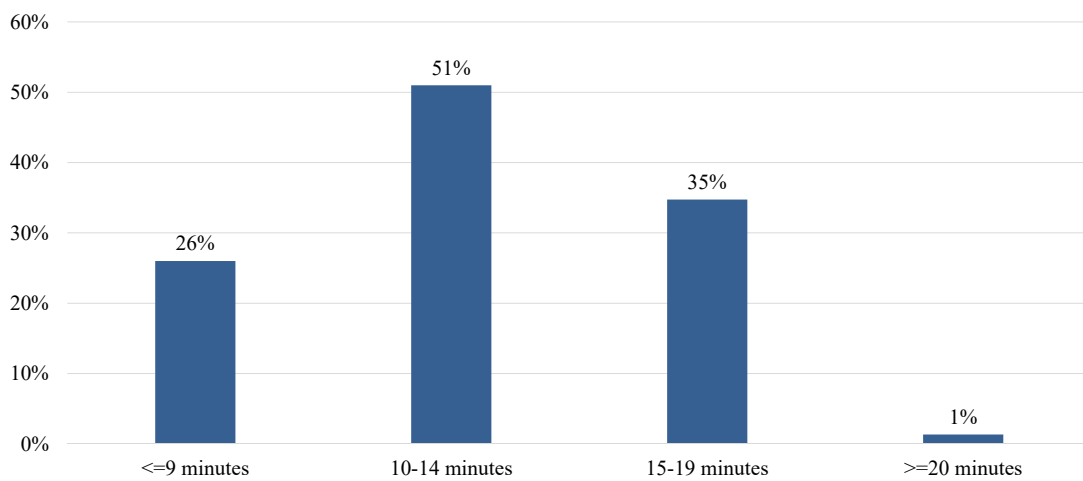
There are no obvious ways to adjust for seasonality, especially given the relatively small number of surveys we have. We deal with this issue by asking directly the firms about seasonality and its impact. As shown in Figure A2, the majority (84%) of firms report no seasonality. For 10% of the firms, seasonality impact is below 5%. Most importantly, the impact of seasonality is roughly symmetrical distributed. Thus, in aggregate, seasonality is not likely to bias our results and we do not adjust for seasonality.

Figure A1. Description of Phone Interviews

A1.1 Number of Calls



A1.2 Duration of Calls



A1.3 Interviewees' Positions

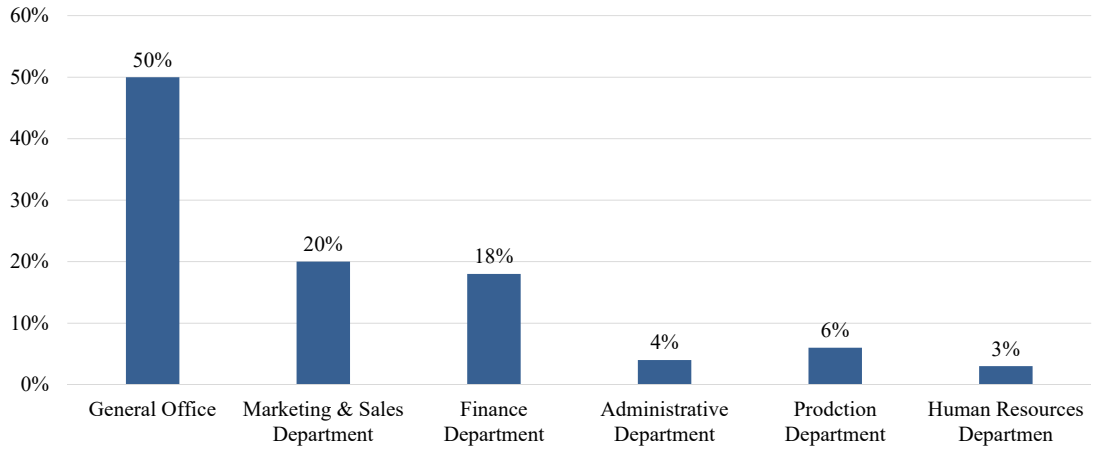


Figure A2. Seasonality

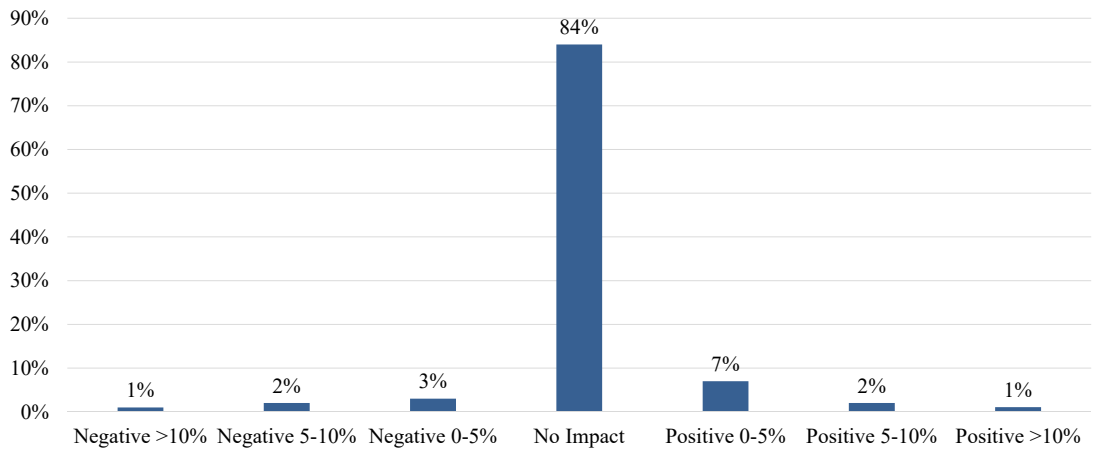


Table A3. Comparisons between Survey Sample and the Population**Table A3.1. Industry Distribution**

	Population		1477 Firms From Q4 Survey		Final Q1 Response Sample	
	Number of Firms	Percent	Number of Firms	Percent	Number of Firms	Percent
Power Production and Supply	6,719	1.38	20	1.35	33	1.62
Manufacture of Electric Machinery and Apparatus	28,972	5.94	108	7.31	148	7.28
Manufacture of Textile Wearing and Apparel	21,271	4.36	54	3.66	75	3.69
Manufacture of Textiles	38,945	7.98	62	4.20	123	6.05
Mining and Processing of Nonmetal Ores	4,900	1.00	0	0.00	11	0.54
Manufacture of Non-metallic Mineral Products	34,710	7.11	98	6.64	124	6.10
Recycling and Disposal of Waste	1,363	0.28	1	0.07	3	0.15
Manufacture of Handicrafts and Others	8,588	1.76	35	2.37	39	1.92
Mining and Processing of Ferrous Metal Ores	5,390	1.10	0	0.00	2	0.10
Smelting and Pressing of Ferrous Metals	8,893	1.82	20	1.35	29	1.43
Manufacture of Chemical Fibers	2,374	0.49	6	0.41	8	0.39
Manufacture of Chemical Products	30,568	6.26	104	7.04	121	5.95
Computers, Communication and Electric Equipment	16,338	3.35	55	3.72	87	4.28
Manufacture of Furniture	6,114	1.25	26	1.76	31	1.53
Manufacture of Transport Equipment	20,878	4.28	61	4.13	98	4.82
Manufacture of Metal Products	29,039	5.95	122	8.26	142	6.99
Manufacture of Beverage	5,824	1.19	28	1.90	35	1.72
Coal Mining and Washing	12,266	2.51	0	0.00	3	0.15
Processing of Wood Products	11,469	2.35	30	2.03	35	1.72
Processing of Agricultural and Related Products	25,501	5.23	63	4.27	102	5.02
Manufacture of Leather, Fur, Feathers and Footwear	9,932	2.04	26	1.76	40	1.97
Mining of other Ores	46	0.01	0	0.00	0	0.00
Production and Supply of Gas	1,024	0.21	0	0.00	1	0.05
Extraction of Petroleum and Natural Gas	322	0.07	0	0.00	0	0.00
Processing of Petroleum and Nuclear Fuel	2,667	0.55	4	0.27	8	0.39
Manufacture of Foods	8,723	1.79	42	2.84	52	2.56
Production and Supply of Water	2,326	0.48	6	0.41	12	0.59
Manufacture of Plastics	22,984	4.71	64	4.33	95	4.68
Manufacture of General-purpose Machinery	42,879	8.79	144	9.75	177	8.71
Manufacture of Cultural and Sports Products	5,310	1.09	15	1.02	20	0.98
Manufacture of Rubber Products	5,277	1.08	19	1.29	24	1.18
Manufacture of Tobacco	163	0.03	0	0.00	0	0.00
Manufacture of Medicines	6,801	1.39	50	3.39	57	2.81
Manufacture of Measuring Instruments	6,474	1.33	34	2.30	39	1.92
Printing, Reproduction of Recording Media	7,681	1.57	36	2.44	58	2.85
Mining and Processing of Non-ferrous Metal	2,885	0.59	5	0.34	7	0.34
Smelting and Pressing of Non-ferrous Metals	9,175	1.88	7	0.47	28	1.38
Manufacture of Paper and Paper Products	11,389	2.33	43	2.91	54	2.66
Manufacture of Special-purpose Machinery	21,837	4.47	89	6.03	111	5.46
Total	488,017	100	1,477	100	2,032	100

Table A3.2. Regional Distribution

	Population		1477 Firms From Q4 Survey		Final Q1 Response Sample	
	Number of Firms	Percent	Number of Firms	Percent	Number of Firms	Percent
Anhui	13,600	2.79	54	3.66	63	3.10
Beijing	7,911	1.62	34	2.30	38	1.87
Fujian	19,528	4.00	61	4.13	87	4.28
Gansu	2,113	0.43	5	0.34	5	0.25
Guangdong	59,050	12.10	201	13.61	257	12.65
Guangxi	5,699	1.17	24	1.62	34	1.67
Guizhou	3,497	0.72	6	0.41	7	0.34
Hainan	657	0.13	1	0.07	1	0.05
Hebei	17,731	3.63	69	4.67	88	4.33
Henan	19,395	3.97	41	2.78	64	3.15
Heilongjiang	4,919	1.01	20	1.35	25	1.23
Hubei	13,058	2.68	37	2.51	56	2.76
Hunan	12,378	2.54	22	1.49	32	1.57
Jilin	5,328	1.09	19	1.29	23	1.13
Jiangsu	80,695	16.54	205	13.88	308	15.16
Jiangxi	10,145	2.08	28	1.90	38	1.87
Liaoning	22,335	4.58	73	4.94	92	4.53
Inner Mongolia	5,268	1.08	8	0.54	15	0.74
Ningxia	1,288	0.26	3	0.20	5	0.25
Qinghai	519	0.11	0	0.00	0	0.00
Shandong	43,369	8.89	145	9.82	196	9.65
Shanxi	7,128	1.46	17	1.15	21	1.03
Shaanxi	4,398	0.90	13	0.88	21	1.03
Shanghai	20,253	4.15	68	4.60	100	4.92
Sichuan	14,795	3.03	35	2.37	53	2.61
Tianjin	7,901	1.62	40	2.71	50	2.46
Tibet	112	0.02	0	0.00	0	0.00
Xinjiang	2,126	0.44	3	0.20	4	0.20
Yunnan	5,291	1.08	12	0.81	20	0.98
Zhejiang	69,935	14.33	211	14.29	300	14.76
Chongqing	7,595	1.56	22	1.49	29	1.43
Total	488,017	100	1,477	100	2,032	100

Table A3.3. A Comparison of Company Characteristics

	Population		1477 Firms From Q4 Survey		Final Q1 Response Sample	
	Mean	Median	Mean	Median	Mean	Median
Assets	90,050	12,920	133,840	17,828	119,417	17,811
Sales	104,697	20,072	125,484	24,693	120,048	24,354
Employment	182	70	234	85	226	85
Sales Per Capita	687	310	534	301	538	296
Total	488,017	100	1,477	100	2,032	100