

# The Journal of Industrial Statistics

## Contents

### SECTION I: Articles

- **Editorial** i
- **Abhishikta Acharyya (Roychowdhury) and Bibek Ray Chaudhuri** 1  
Outward FDI vs. Exports: The Case of Indian Manufacturing Firms
- **T. K. Sanyal and A. K. Panigrahi** 22  
A Study of Certain Useful Business Parameters based on ASI 2012-13 results
- **G.C. Manna and Sudipta Bhattacharya** 48  
An Empirical Study on the Relative Efficiency of Panel Survey in the Annual Survey of Industries
- **Gopa Ghosh and Madhumati Dutta** 58  
Status of Energy Consumption in the Manufacturing Industry of Eastern India – A Decomposition Analysis
- **Atanushasan Basu and Shreya Sengupta** 77  
Growth of Capital Stock in Organised Manufacturing Sector- Impact of Recession

### SECTION II: Facts and Figures

- ASI Web Portal Data Processing Experience 95
- Data Revision in ASI 2011-12 98

### **Management Committee**

**Chairperson:** Amarjeet Kaur, Director General, Central Statistics Office, New Delhi

#### **Members :**

S P Mukherjee (Editor-in-chief), former Centenary Professor, University of Calcutta, Kolkata

Sugata Marjit, Vice Chancellor, University of Calcutta, Kolkata

B N Goldar, Professor, Institute of Economic Growth, New Delhi

N S Siddharthan, Honorary Professor, Madras School of Economics, Chennai

K. P. Unnikrishnan, Additional Director General, Central Statistics Office, ESD, New Delhi

G. C. Manna, Additional Director General, Central Statistics Office, NAD, New Delhi

Ratan Khasnabis, Professor, University of Calcutta, Kolkata

Jahar Saha, former Director,

Indian Institute of Management, Ahmedabad

**Member Secretary:** T. K. Sanyal, Deputy Director General, Central Statistics Office (IS Wing), Kolkata

### **Editorial Board**

**Chairman:** S P Mukherjee, former Centenary Professor, Dept. of Statistics, University of Calcutta, Kolkata

**Members:** B N Goldar, Professor, Institute of Economic Growth, New Delhi

Sugata Marjit, Vice Chancellor, University of Calcutta, Kolkata

N S Siddharthan, Honorary Professor, Madras School of Economics, Chennai

Ratan Khasnabis, Professor, University of Calcutta, Kolkata

Jahar Saha, former Director, Indian Institute of Management, Ahmedabad

K. Narayanan, Professor, IIT Bombay, Mumbai

Manoranjan Pal, Professor, Indian Statistical Institute, Kolkata

Sarmila Banerjee, Professor, University of Calcutta, Kolkata

Joyashree Roy, Professor, Jadavpur University, Kolkata

Sugata Sen Roy, Professor, University of Calcutta, Kolkata

**Editorial Secretary:** T. K. Sanyal, Deputy Director General, Central Statistics Office (IS Wing), Kolkata

### **Paper Reviewers for this Issue**

• Prof. Joyashree Roy, Jadavpur University, Kolkata

• Prof. K. Narayanan, IIT Bombay, Mumbai

• Dr. G C Manna, Central Statistics Office, New Delhi

• Prof. Samindra Sengupta, University of Calcutta, Kolkata

• Dr. Dillip Datta, Sayantan Consultants, Kolkata

**Copy right and Photocopying:** All rights reserved, no part of this publication may be reproduced, stored or transmitted in any form or by any means without the prior permission in writing from CSO, IS Wing, Kolkata. The views and interpretations in the articles, reviews, etc., published in this journal are those of the authors and do not necessarily represent the views of the publisher or editor of the journal.

# The Journal of Industrial Statistics

## Contents

### SECTION I: Articles

- **Editorial** i
- **Abhishikta Acharyya (Roychowdhury) and Bibek Ray Chaudhuri** 1  
Outward FDI vs. Exports: The Case of Indian Manufacturing Firms
- **T. K. Sanyal and A. K. Panigrahi** 22  
A Study of Certain Useful Business Parameters based on ASI 2012-13 results
- **G.C. Manna and Sudipta Bhattacharya** 48  
An Empirical Study on the Relative Efficiency of Panel Survey in the Annual Survey of Industries
- **Gopa Ghosh and Madhumati Dutta** 58  
Status of Energy Consumption in the Manufacturing Industry of Eastern India – A Decomposition Analysis
- **Atanushasan Basu and Shreya Sengupta** 77  
Growth of Capital Stock in Organised Manufacturing Sector- Impact of Recession

### SECTION II: Facts and Figures

- **ASI Web Portal Data Processing Experience** 95
- **Data Revision in ASI 2011-12** 98

## EDITORIAL

The present issue has five papers studying various aspects of units under two level classification of the industrial sector in India. Consistent with the purpose of the journal, all these papers use ASI data, Prowess data base published by the Centre for Monitoring Indian Economy (CMIE) or RBI data base. Where ever the authors have used more than one data source, they have carefully matched the data to make them comparable. As classification of industries in ASI has changed over time, ASI time series data also need matching. Except in one paper, the authors use descriptive and inference mode analysis, namely, using the data to describe the state of variables and making inferences on population parameters. In the other paper, the authors suggest some methodological improvement in data collection in ASI. I hope, some day, the ASI data would be used in macro or micro decisions of diverse industries.

*Gopa Ghosh and Madhumati Dutta in their paper, **Status of Energy Consumption in the Manufacturing Industry of Eastern India – A Decomposition Analysis***, attempt to determine the core factors that have influenced energy consumption in manufacturing sector of eastern states, in particular, Bihar, Chhattisgarh, Jharkhand, Odisha and West Bengal. They use Index Decomposition Analysis – Model of Log Mean Divisia Index I (LMDI I). They have obtained the data for the study from ASI reports for the period 2008 – 2013. Based on the findings of the study, the authors make conclusions which would be useful in examining and reformulation of energy policies of the states.

Foreign Direct Investment and Exports are of concerns to any country like India. Abhishikta Acharyya (Roychowdhury) and Bibek Ray Chaudhuri take up some of these concerns in their paper, ***Outward FDI vs. Exports: the Case of Indian Manufacturing Firms***. In particular, the authors re-examine the “determinants of the export and FDI decision”. They relate FDI and export decision with firm characteristics which include R & D intensity, firm size, and age of firms, credit constraint, and international experience. Based on extensive literature search they formulate five hypotheses. They formulate a Multinomial Logit model. They obtain some firm level data from published monthly outward FDI data published by RBI (2008 – 12). They get other data from CMIE Prowess data base. The interesting results are: size of firms affects the probability of internationalization; financial constraints make firms stay on domestic market; firms resorting to both domestic and foreign mode choice have high debt/equity ratio in India; Firms with higher productivity are more likely to choose FDI over exports; firms’ choice of FDI or export in a year is dependent on its internationalization in the previous year; although more R&D leads to choice of export over domestic, more R&D expenditure to sales, however, increases probability of choosing export over FDI.

In their paper, ***Growth of Capital Stock in Organised Manufacturing Sector - Impact of Recession***, Atanushasan Basu and Shreya Sengupta study how capital stock in manufacturing has been affected by the recession after 2008. They consider years 2004-05 to 2007-08 as pre recession period and years 2008 – 09 and 2012 – 13 as post recession period. They use linear regression to study growth in pre and post recession era and compare the growths in pre and post recession years. They find that on the whole industries have low growth in the post recession years. The recession has varying effect on capital stock in different industry groups. The analyses show that the growth of fixed capital

(investment) in industries which include “*textiles and wearing apparel, leather and related products, paper and paper products, coke and refine petroleum products, chemical and chemical products, other non-metallic mineral products, computer, electronic and optical products, and other transport equipments*” have been significantly affected by the recession.

G. C. Manna and Sudipta Bhattacharya in their paper, *An Empirical Study on the Relative Efficiency of Panel Survey in the Annual Survey of Industries*, address to a methodological issue related to ASI. In ASI, firms are grouped into two, one consisting of firms employing more than 100 employees called ‘census sector’ and the rest of the firms are called ‘sample sector’. In ASI, all firms in the census sector are surveyed, whereas from the sample sector, each year a sample of firms is chosen for the survey. This implies that the list of firms to be surveyed from the census sector would be the same over the years, whereas the list of firms to be surveyed from the sample sector would be different from year to year. Manna and Bhattacharya raise an issue of efficiency in estimation of parameters from such procedure. They examine for four selected states, the estimation of parameters using the data from independent sample firms each year from sample sector, and the estimation of parameters using the data from the survey of a panel firms each year. They show evidence that use of panel data would be more efficient than the current procedure in estimation of parameters.

In the paper, *A Study of Certain Useful Business Parameters based on ASI 2012-13 results*, T. K. Sanyal and A. K. Panigrahi have used ASI data to compute certain financial parameters, specially, parameters reflecting ‘liquidity aspects’ of industries. In particular, they have computed seven ratios, namely, Current ratio, Quick Ratio, Working Capital as percentage of Sales, Debtor days, Creditor Days, Inventory days and Cash Conversion Cycles for different industries for each year for the period 2008-09 to 2012-13. These ratios would reflect average health of firms in terms of liquidity. Each firm can use them to compare its own liquidity position with the average of the industry it is in. It can also see the industry trend in various aspects of liquidity over time and compare them with those of its own.

March 2016  
Kolkata

Jahar Saha  
Member, Editorial Board

## SECTION I: ARTICLES

	Page No.
• <b>Abhishikta Acharyya (Roychowdhury) and Bibek Ray Chaudhuri</b> Outward FDI vs. Exports: The Case of Indian Manufacturing Firms	1
• <b>T. K. Sanyal and A. K. Panigrahi</b> A Study of Certain Useful Business Parameters based on ASI 2012-13 results	22
• <b>G. C. Manna and Sudipta Bhattacharya</b> An Empirical Study on the Relative Efficiency of Panel Survey in the Annual Survey of Industries	48
• <b>Gopa Ghosh and Madhumati Dutta</b> Status of Energy Consumption in the Manufacturing Industry of Eastern India – A Decomposition Analysis	58
• <b>Atanushasan Basu and Shreya Sengupta</b> Growth of Capital Stock in Organised Manufacturing Sector- Impact of Recession	77

## A Study of Certain Useful Business Parameters based on ASI 2012-13 results

T. K. Sanyal<sup>1</sup>, Central Statistics Office, Kolkata, India  
A. K. Panigrahi, Central Statistics Office, Kolkata, India

### Abstract

*Traditionally, ASI results are generated and disseminated keeping in mind the requirements of National Accounts Statistics. The potential of ASI schedule for computation of standard business ratios, which analysts study at firm-level to make investment decisions, has not probably been explored so far. This paper attempts to study the performance of industries by studying together certain **Standard Business Parameters** based on results of last five ASI years from ASI 2008-09 to ASI 2012-13 focusing particularly on the **liquidity aspects** of industries. Industry-wise (based on 4 digit NIC-2008) business parameters estimated for last five ASI years can be studied to get an idea about the range of industry bench-marks for these parameters. **Business parameters** calculated from ASI estimates give in a sense industry average or benchmark for a particular year as these are ratios of estimated industry aggregates of variables of individual firms pertaining to that year. As the benchmark varies widely across industries because of heterogeneous nature of industries, it can also vary over the years of the same industry because of the prevailing economic scenario (boom or slowdown in the economy). An attempt has been made to study these heterogeneity across industries and also heterogeneity, if any, over the years within the same industry. Individual business entities can compute these parameters for themselves in a particular year and compare with the industry average in that particular year to see where they stood.*

### 1. Introduction

1.1 In the ASI schedule major part of items included in the Balance Sheet (BS) is covered in Blocks C & D. Items excluded from BS are

- ❖ ‘Share Capital’ and ‘Reserves & Surplus’ collectively called ‘**Owner’s Equity**’ or ‘**Shareholder’s Funds**’
- ❖ non-current assets **other than ‘Fixed Capital’**
- ❖ non-current liabilities **other than ‘Outstanding Loan’**.

1.2 Items included in the Balance Sheet are collected in Blocks C & D only as follows:

- Fixed Assets (Non-current Assets) in Block C.
- Inventory (current assets) in Block D
- Other Current Assets in Block D
- Current Liabilities in Block D
- Outstanding Loan (part of non-current liabilities) in Block D

<sup>1</sup> e-mail: tk.sanyal@gov.in

1.3 Similarly, items included in the profit and loss account are collected in different blocks of ASI schedule as follows:

- Block F (**operating expenses and non-operating expenses paid**),
- Block G (**other operating revenue received and non-operating revenue received**),
- Block H (**part of product costs**), Block I (**part of product costs**)
- Block J (**product sales**)
- Block E (**labour cost** as well as **salaries of supervisory and managerial staff**).

1.4 ASI schedule was designed to calculate primarily Gross Domestic Product (GDP) and Gross Capital Formation (GCF) of registered manufacturing sector both industry-wise and State-wise with a view to catering to the requirements of National Accounts Statistics and also to calculate certain other structural ratios and technical coefficients of different industries of the manufacturing sector. It was never meant to study the efficiency of performance of individual firms. Hence some of the items of Balance Sheet as mentioned above are not collected in ASI schedule. Moreover, under Secrecy Clause of 'Collection of Statistics Act', identity of individual firms cannot be disclosed in the unit level data disseminated to the general public. However, **certain useful business parameters** based on this schedule can be derived to study the performance of industries with respect to these parameters over the years.

1.5 This paper attempts to study the performance of industries by studying together certain **Business Parameters** based on last five ASI years from ASI 2008-09 to ASI 2012-13 results focusing particularly on the **liquidity aspects** of industries. The calculations are based on items of information available in **Block D (Inventory/Current Assets/ Current Liabilities)** and **Block J (Product Sales)**. Industry-wise (Industry codes 10-32 at 4-digit NIC-2008) business parameters estimated for last five ASI years can be studied to get an idea about the range of industry bench-marks for these parameters. **Business parameters** defined below and calculated from ASI estimates give in a sense industry averages or benchmarks for a particular year as these are ratios of estimated industry aggregates of variables of individual firms pertaining to that year. As the benchmark varies widely across industries because of heterogeneous nature of industries, it can also vary over the years of the same industry because of the prevailing economic scenario (boom or slowdown in the economy). All business parameters defined below should be studied together and not in isolation within an industry to get an analytical picture about the performance of that industry. It is towards this end that we have provided an appendix Table to see estimates of these parameters at a glance for all industries (Industry codes 10-32 at 4-digit level) based on ASI 2012-13 results.

1.6 Individual firms can compute such parameters for themselves and compare with the industry average to see where they stood. It should also be borne in mind that the first two years of the period covered in the study i.e. ASI 2008-09 and ASI 2009-10 were the period of considerable global economic slowdown.

## 2. Definition of Business Parameters and analysis of related tables

2.1 In the following sections we have defined widely used business ratios related to liquidity of the firms and generated the tables based on some upper threshold and also on some lower threshold for these parameters. We have first calculated upper threshold for



each individual parameter based on ASI 2012-13 results and compared the corresponding estimates in the previous 4 years. Similarly, we have calculated some lower threshold for each individual parameter based on ASI 2012-13 results and compared the corresponding estimates in the previous 4 years. The idea is to see the consistency of performance or lack of it of individual industries with respect to these parameters. As already mentioned individual firms can compute these parameters for themselves and compare with the industry average to see where they stood.

## 2.2 Current Ratio

This is defined as

$$\frac{\text{Current Assets}}{\text{Current Liabilities}}$$

This gives an idea about how liquid a firm is. This ratio is also known as 'Working Capital Ratio'. It measures whether or not a firm has enough resources to pay its debts or current liabilities over the next 12 months. This ratio also varies widely across industries because of differing business practices in different industries. For example, while in one industry it may be common practice to take on a large amount of debt through leverage, another industry may strive to keep debts to a minimum and pay them off as soon as possible. Therefore, business firms within the two industries may have different current ratios although this will not necessarily mean that one is healthier than the other because of their differing business practices. It is, therefore, more useful to compare current ratios in the same industry over different years.

2.2.1 While a current ratio below 1 shows that the company is not in good financial health, it does not necessarily mean that it will go bankrupt. There are many ways for a company to access financing, and this is particularly so if a company has realistic expectations of future earnings against which it might borrow. For example, if a company has a reasonable amount of short-term debt but is expecting substantial returns from a project or other investment not too long after its debts are due, it will be able to stave off its debt in all likelihood. All the same, a current ratio below 1 is usually not a good sign. Current ratio somewhere between 1.2 and 2.0 is commonly considered a positive indication of adequate liquidity and good overall financial health. However, a ratio higher than 2.0 may be interpreted negatively. An excessively high ratio suggests the company is letting excess cash and other assets just sit idly rather than actively investing its available capital in expanding the company's business. This indicates poor financial management and lost business opportunities. However, Current Ratio, seen in isolation, is not a good indicator about the liquidity position of firms as it includes all of a company's assets, even those that cannot be easily liquidated. It should be studied along with Quick Ratio defined in the subsequent paragraph to get a better picture about the liquidity position of individual business entities or industries.

## 2.3 Quick Ratio

This is defined as

$$\frac{(\text{Current Assets}) - (\text{Value of Inventory})}{\text{Current Liabilities}}$$

This is an alternative measure about how liquid a firm is. The quick ratio is a liquidity indicator that filters the current ratio by measuring the amount of the most liquid current assets available to cover current liabilities (you can think of the “quick” part as meaning assets that can be liquidated fast). The quick ratio, also called the “acid-test ratio,” is calculated by adding cash & equivalents, marketable investments (e.g. securities) and accounts receivables, and dividing that sum (called quick assets) by current liabilities. Thus, the difference between the two ratios is the use (or non-use) of inventory. Inventory, which is a part of current assets, is a questionable item to include in an analysis of the liquidity of a business, since it can be quite difficult to convert into cash in the short term. Even if it can be sold within a reasonably short period of time, it is now a receivable (if sold on credit), and so there is an additional wait until the buyer pays the receivable. Consequently, the more reliable measure of short-term liquidity is the quick ratio. The only exception is when a business has a history of high inventory turnover (such as a grocery store), where inventory is not only sold off with great rapidity, but also where the resulting sales are converted to cash very quickly. Like current ratio, this ratio also varies widely across industries. Higher quick ratios are more favourable for companies because it shows there are more quick assets (i.e. excluding inventory) than current liabilities. A company with a quick ratio of 1 indicates that quick assets just equal current liabilities. A quick ratio of 2 shows that the company has twice as much quick asset as current liabilities. Obviously, as the ratio increases, so does the liquidity of the company. More assets will be easily converted into cash if the need arises. This is a good sign for investors, but an even better sign to creditors because creditors want to know whether they will be paid back on time. On the other hand, a company with a quick ratio of less than 1 cannot fully pay back its current liabilities.

2.4 But these ratios should be interpreted with caution. Ratios are tests of viability for business entities but do not always give a complete picture of the business’ health. If a business has large amounts in ‘accounts receivable’ which are due for payment after a long period (say 120 days), and also essential business expenses and accounts payable due for immediate payment, the quick ratio may look healthy when the business is actually about to run out of cash. In contrast, if the business has negotiated fast payment or cash from customers, and negotiated longer terms from suppliers, it may have a very low quick ratio and yet be actually healthy.

### 3. Ratio of Working Capital (WC) to Annual Sales

This is defined as

$$\frac{\text{Working Capital}}{\text{Annual Sales}} \times 100$$

The above ratio is a measurement comparing the depletion of working capital to the generation of sales over a given period. It is an asset utilization measure that provides some useful information as to how effectively a company is using its working capital to generate sales. In general, the lower the percentage, the better for the company. This ratio must be compared between businesses in the similar industry or can be compared against the industry average or historically tracking this ratio for the own company. Alternatively, *WC*

to *Sales Turnover Ratio* is also calculated by dividing 'Sales Turnover' by 'Working Capital'. In that case, the higher the ratio, the better for the company. In ASI schedule, (Gross Sale Value – Distributive Expenses) conforms to 'Annual Sales'

3.1 Working Capital' defined as 'Total Current Assets – Total Current Liabilities' measures the capital required to meet the day-to-day operational requirements of the business. Working capital is a measure of operating liquidity and refers both to cash in hand and assets a business can quickly convert to cash. Thus the above ratio measures the amount of working capital in Rupee terms required to generate 100 Rupees of Sales. Companies with ratios that are lower than their industry average, or have ratios that decrease over time, are performing well. On the other hand, a ratio on the higher side might mean that management is relying too much on accounts receivable and inventory assets to support its sales. This sort of situation could easily lead to an excessive amount of bad debt for the company, as well as obsolete inventory. While a lower ratio is preferred, if a company's WC to Sales ratio is excessively low, it may be an indication that their capital is insufficient to support their sales growth, and a collapse may be on the horizon.

#### 4. Receivable days/Debtor days/ Days Sales Outstanding (DSO)

This is defined as

$$\frac{\text{Ending Accounts Receivable}}{\text{Annual Sales}} \times 365$$

It is also alternatively defined as 1) (Ending Accounts Receivable/Cost of Goods Sold) X 365 or 2) (Ending Accounts Receivable/Total Credit Sales in the period) X 365. But 'Total Credit Sales' are not generally available in the P & LA/ C. Some Companies use 'Average Accounts Receivable' in the numerator to calculate DSO. In the ASI schedule, 'Sundry Debtors' conforms to 'Accounts Receivable'. It is a measure of the average number of days that a company takes to collect revenue after a sale has been made. DSO is often determined on monthly, quarterly or annual basis and is an element of Cash Conversion Cycle (CCC) of the company. A low DSO value means that it takes a company fewer days to collect its accounts receivable. A high DSO means that it takes a company longer days to collect its accounts receivable. In general, a DSO below ninety (90) is considered acceptable. DSO can vary from month to month, and over the course of a year with a company's seasonal business cycle. Of interest when analyzing the performance of a company is the trend in DSO. If DSO is getting longer, customers are taking longer to pay their bills, which may be a warning that customers are dissatisfied with the company's product or service, or that sales are being made to customers that are less credit-worthy, or that salespersons have to offer longer payment terms in order to generate sales. DSO may vary considerably across industries. For example, shipment of manufactured items in ship-building industries, heavy machinery industries, to name a few, takes considerable time for delivery and subsequent testing and installation. Hence, after the installation is completed, the receiving company is in a position to pay off the invoice. It may be useful to study the performance of industries in terms of this ratio above the threshold of 200 and below the threshold of 50 based on ASI 2012-13 results and comparing it with the last four ASI years.

### 5. Payable days/Creditor days/ Days Payable Outstanding(DPO)

This is defined as

$$\frac{\text{Ending Accounts Payable}}{\text{Annual Sales}} \times 365$$

It is also alternatively defined as (Ending Accounts Payable /Cost of goods sold) X 365. Some companies also calculate DPO by taking ‘Average Accounts Payable’ in the numerator. In the ASI schedule, ‘Sundry Creditors’ conforms to ‘Accounts Payable’. It denotes a company’s average payable period and is also an element of Cash Conversion Cycle (CCC). Days payable outstanding tells how long it takes a company to pay its invoices from creditors, such as suppliers. Companies must strike a delicate balance with DPO. The longer they take to pay their creditors, the more money the company has in hand, which is good for working capital and free cash flow. But if the company takes too long to pay its creditors, the creditors will be unhappy. They may refuse to extend credit in future, or they may offer less favourable terms. Also, because some creditors give companies a discount for timely payments, the company may be paying more than needed for its supplies. If cash is tight, however, the cost of increasing DPO may be less than the cost of foregoing that cash earlier and the cost of having to borrow the shortfall to continue operations. In general, a DPO below ninety (90) is considered acceptable. DPO can vary by industry, and a company can compare its DPO to the industry average to see if it is paying its vendors too quickly or too slowly. If the industry standard is 45 days and the company has been paying its invoices in 15 days, it may want to stretch out its payment period to improve cash flow, as long as doing so won’t mean losing a discount from the vendor, getting hit with a price increase or harming the relationship with the vendor. DPO can vary significantly from year to year, company to company and industry to industry based on how well or how poorly the company, the industry and the overall economy are performing.

### 6. Inventory days/ Days Inventory Outstanding (DIO)

This is defined as

$$\frac{(\text{Opening Inventory} + \text{Ending Inventory}) / 2}{\text{Annual Sales}} \times 365$$

It is also alternatively defined as

$$\frac{(\text{Opening Inventory} + \text{Ending Inventory}) / 2}{\text{Cost of Goods Sold}} \times 365$$

Here, instead of ‘Ending Inventory’, ‘Average Inventory’ is taken in the formula to eliminate seasonality. For example, if in certain industries there is generally bumper sales in April or May, businesses will pile up inventory towards the close of accounting year and consequently, ‘Ending Inventory’ will be very high. **Days Inventory Outstanding (DIO)**, measures the number of days it takes a company to sell its entire inventory. In other words, the ‘days inventory outstanding’ ratio shows how many days a company’s current stock of

inventory will last. It is also an element of Cash Conversion Cycle (CCC). Shorter days inventory outstanding means the company can convert its inventory into cash sooner. Both investors and creditors want to know how valuable a company's inventory is. Older, more obsolete inventory is always worth less than current, fresh inventory. Therefore, it is important to know how fast the company is moving its inventory. DIO varies greatly across industries. For example, businesses that sell perishable or fast-moving products such as food items will have a lower DIO than those that sell non-perishable or slow-moving products such as heavy machinery or cars or furniture. Normally, a DIO below ninety (90) is considered good for most industries. However, a DIO above 180 may be considered as normal for ship-building industries, heavy machinery industries and many other similar industries.

## 7. Cash Conversion Cycle (CCC)

It is defined as

$$(\text{Inventory Days}) + (\text{Debtor Days}) - (\text{Creditor Days})$$

In management accounting, the **Cash conversion cycle (CCC)** measures how long a firm will be deprived of cash if it increases its investment in resources in order to expand customer sales. It is thus a measure of the liquidity risk entailed by growth. However, shortening the CCC creates its own risks: while a firm could even achieve a negative CCC by collecting from customers before paying suppliers, a policy of strict collections and tax payments is not always sustainable. The cash conversion cycle (CCC) is a measure that expresses the length of time, in days, that it takes for a company to convert resource inputs into cash flows. The cash conversion cycle attempts to measure the amount of time each net input dollar is tied up in the production and sales process before it is converted into cash through sales to customers. This measure looks at the amount of time needed to sell inventory, the amount of time needed to collect receivables and the length of time the company is afforded to pay its bills without incurring penalties. Usually a company acquires inventory on credit, which results in accounts payable. A company can also sell products on credit, which results in accounts receivable. Cash, therefore, is not involved until the company pays the accounts payable and collects the accounts receivable. So the cash conversion cycle measures the time between the outlay of cash and the cash recovery. The CCC cannot be observed directly in cash flows, which are affected as well by financing and investment activities; rather, the cycle refers to the time span between a firm's disbursing and collecting cash.

7.1 While the term applies to companies in any industry, the cycle is extremely important for retailers and similar businesses, as their operations consist of buying inventories and selling them to customers. The measure does not apply to companies for which this is not the case, such as those in the software or insurance industries. The measure illustrates how quickly a company can convert its products into cash through sales. The shorter the cycle, the less time capital is tied up in the business process, and thus the better for the company's bottom line.

7.2 **An important distinction is that the cycle applies to firms that buy and sell on account**, while cash-only firms will only reflect sales operations in the equation, as their disbursed cash is directly measurable as purchase of inventory, and their collected cash is

measurable as sale of inventory. A short cycle allows a business to quickly acquire cash that can be used for additional purchases or debt repayment. The lower the cash conversion cycle, the more healthy a company generally is. Businesses attempt to shorten the cash conversion cycle by speeding up payments from customers and slowing down payments to suppliers. CCC can even be negative; for instance, if the company has a strong market position and can dictate purchasing terms to suppliers (i.e. can postpone its payments).

### **References**

<http://www.accountingcoach.com/blog/current-ratio-2>

<http://www.accountingtools.com/quick-ratio>

<http://www.businessdictionary.com/definition/working-capital-to-sales-ratio.html#ixzz3zl89Hm8e>

<http://www.investopedia.com/terms/c/currentratio.asp#ixzz3zk71t81o>

<http://www.myaccountingcourse.com/financial-ratios/current-ratio>

[https://en.wikipedia.org/wiki/Current\\_ratio](https://en.wikipedia.org/wiki/Current_ratio)

**Table 1: Current Ratio (above 2) based on ASI 2012-13 and comparative estimates from ASI 2008-09 to ASI 2011-12.**

NIC 2008	NIC Description	2008-09	2009-10	2010-11	2011-12	2012-13
2670	Manufacture of optical instruments and photographic equipment	1.96	2.93	2.12	2.71	3.03
2818	Manufacture of power-driven hand tools	0.98	1.31	1.93	1.28	2.64
1103	Manufacture of malt liquors and malt	1.62	1.50	1.84	1.70	2.56
3220	Manufacture of musical instruments	1.96	2.66	1.76	6.10	2.39
1420	Manufacture of articles of fur	4.20	4.01	5.14	1.42	2.34
1200	Manufacture of tobacco products	1.76	1.94	1.86	2.17	2.32
3040	Manufacture of military fighting vehicles	2.37	1.89	2.36	1.92	2.22
2640	Manufacture of consumer electronics	1.52	2.02	1.79	1.94	2.19
3212	Manufacture of imitation jewellery and related articles	2.08	1.77	1.59	2.25	2.17
1910	Manufacture of coke oven products	1.99	1.91	1.73	1.75	2.10
2392	Manufacture of clay building materials	1.78	1.75	1.49	1.87	2.06
2023	Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	1.40	2.05	1.57	1.55	2.04
3250	Manufacture of medical and dental instruments and supplies	1.71	2.02	1.76	1.82	2.04

**Table 1A: Current Ratio (below 1) based on ASI 2012-13 and comparative estimates from ASI 2008-09 to ASI 2011-12**

NIC 2008	NIC Description	2008-09	2009-10	2010-11	2011-12	2012-13
2029	Manufacture of other chemical products n.e.c.	1.00	0.96	1.16	1.01	0.97
2680	Manufacture of magnetic and optical media	1.64	1.75	1.32	2.48	0.97
3012	Building of pleasure and sporting boats	0.90	3.03	1.83	1.18	0.94
1104	Manufacture of soft drinks; production of mineral waters and other bottled waters	1.28	1.12	1.59	0.82	0.86
2652	Manufacture of watches and clocks	1.55	1.86	2.37	0.95	0.69
2394	Manufacture of cement, lime and plaster	1.45	1.42	1.54	1.17	0.39

**Table 2: Quick Ratio ( 1.50 and above) based on ASI 2012-13 and comparative estimates from ASI 2008-09 to ASI 2011-12**

NIC 2008	NIC Description	2008-09	2009-10	2010-11	2011-12	2012-13
2670	Manufacture of optical instruments and photographic equipment	1.34	2.28	1.82	1.88	2.66
1103	Manufacture of malt liquors and malt	1.08	1.11	1.38	1.33	2.20
1420	Manufacture of articles of fur	3.21	3.19	3.23	1.01	2.18
2818	Manufacture of power-driven hand tools	0.42	0.71	1.16	0.62	1.82
3250	Manufacture of medical and dental instruments and supplies	1.15	1.44	1.11	1.31	1.52
2640	Manufacture of consumer electronics	0.99	1.30	1.23	1.42	1.50

**Table 2A: Quick Ratio (0.75 and below) based on ASI 2012-13 and comparative estimates from ASI 2008-09 to ASI 2011-12**

NIC 2008	NIC Description	2008-09	2009-10	2010-11	2011-12	2012-13
1080	Manufacture of prepared animal feeds	0.77	0.76	0.84	0.93	0.75
1399	Manufacture of other textiles n.e.c.	1.00	0.92	1.11	1.08	0.75
3099	Manufacture of other transport equipment n.e.c.	0.76	1.25	1.57	0.93	0.75
1701	Manufacture of pulp, paper and paperboard	0.74	0.85	0.91	0.68	0.74
2211	Manufacture of rubber tyres and tubes; retreading and rebuilding of rubber tyres	0.86	0.81	0.64	0.73	0.74
1020	Processing and preserving of fish, crustaceans and molluscs	0.67	0.86	0.73	0.82	0.74
1709	Manufacture of other articles of paper and paperboard	0.79	0.79	0.94	0.62	0.73
1512	Manufacture of luggage, handbags and the like, saddlery and harness	0.69	0.74	0.96	0.89	0.69
1610	Sawmilling and planing of wood	0.95	0.88	1.10	0.93	0.68
1391	Manufacture of knitted and crocheted fabrics	0.89	0.90	1.03	0.73	0.68
2396	Cutting, shaping and finishing of stone	0.90	1.22	1.27	0.89	0.67
2910	Manufacture of motor vehicles	0.77	0.62	0.41	0.60	0.67
1311	Preparation and spinning of textile fibres	0.73	0.75	0.53	0.67	0.66
2029	Manufacture of other chemical products n.e.c.	0.70	0.66	0.82	0.69	0.66
1061	Manufacture of grain mill products	0.45	0.56	0.64	0.47	0.66
1511	Tanning and dressing of leather; dressing and dyeing of fur	0.65	0.60	0.65	0.81	0.65
2013	Manufacture of plastics and synthetic rubber in primary forms	0.68	0.71	0.63	0.77	0.65
1030	Processing and preserving of fruit and vegetables	0.80	0.65	0.87	0.54	0.64
3011	Building of ships and floating structures	1.02	1.06	0.60	0.68	0.64
1104	Manufacture of soft drinks; production of mineral waters and other bottled waters	0.82	0.72	1.29	0.54	0.59
1920	Manufacture of refined petroleum products	0.59	0.42	0.63	0.45	0.54
1074	Manufacture of macaroni, noodles, couscous and similar farinaceous products	1.04	0.69	0.44	0.82	0.53
3012	Building of pleasure and sporting boats	0.46	1.56	1.40	0.63	0.39
2652	Manufacture of watches and clocks	0.81	0.76	0.94	0.42	0.25
2394	Manufacture of cement, lime and plaster	0.95	0.92	0.99	0.74	0.23
1072	Manufacture of sugar	0.34	0.35	0.32	0.27	0.22

**Table 3: WC to Sales Ratio (50 and above) based on ASI 2012-13 and comparative estimates from ASI 2008-09 to ASI 2011-12**

NIC 2008	NIC Description	2008-09	2009-10	2010-11	2011-12	2012-13
1820	Reproduction of recorded media	10.05	14.43	125.58	83.81	197.41
2670	Manufacture of optical instruments and photographic equipment	63.44	91.20	95.60	118.48	121.10
2630	Manufacture of communication equipment	31.74	65.80	0.26	45.52	86.76
3040	Manufacture of military fighting vehicles	63.81	48.57	51.22	132.54	69.74
1420	Manufacture of articles of fur	100.53	211.33	59.46	17.18	69.72
2818	Manufacture of power-driven hand tools	-3.50	15.24	37.15	22.37	65.43
2520	Manufacture of weapons and ammunition	22.02	23.46	42.67	60.83	58.63
1103	Manufacture of malt liquors and malt	20.88	16.49	28.27	25.79	57.06
3250	Manufacture of medical and dental instruments and supplies	31.88	38.08	41.40	45.01	55.84



**Table 3A: WC to Sales Ratio (20 and below) based on ASI 2012-13 and comparative estimates from ASI 2008-09 to ASI 2011-12**

NIC 2008	NIC Description	2008-09	2009-10	2010-11	2011-12	2012-13
1621	Manufacture of veneer sheets and wood-based panels	17.94	19.36	24.70	21.63	20.07
3220	Manufacture of musical instruments	23.98	64.81	122.45	164.09	19.90
2816	Manufacture of lifting and handling equipment	15.31	15.18	28.30	18.30	19.36
2395	Manufacture of articles of concrete, cement and plaster	16.41	25.90	26.00	22.05	19.27
2511	Manufacture of structural metal products	18.98	22.71	13.07	8.35	19.08
1410	Manufacture of wearing apparel, except fur apparel	23.89	23.80	26.54	25.09	19.01
1075	Manufacture of prepared meals and dishes	9.95	14.20	14.21	-2.89	18.83
2022	Manufacture of paints, varnishes and similar coatings, printing ink and mastics	17.36	13.11	16.75	10.89	18.81
2593	Manufacture of cutlery, hand tools and general hardware	33.09	22.16	23.20	23.47	18.64
2720	Manufacture of batteries and accumulators	19.69	75.85	21.26	17.86	18.40
2393	Manufacture of other porcelain and ceramic products	10.42	14.53	17.77	12.50	18.38
3211	Manufacture of jewellery and related articles	13.89	-8.66	21.18	21.29	18.35
1394	Manufacture of cordage, rope, twine and netting	15.69	15.97	16.02	14.74	18.11
2030	Manufacture of man-made fibres	7.83	9.92	15.12	13.26	17.95
1061	Manufacture of grain mill products	8.24	13.23	22.36	6.74	17.21
1512	Manufacture of luggage, handbags and the like, saddlery and harness	10.26	13.86	25.89	19.58	16.77
1430	Manufacture of knitted and crocheted apparel	10.18	11.16	12.57	13.67	16.62
3100	Manufacture of furniture	18.78	15.56	14.76	30.24	16.60
2599	Manufacture of other fabricated metal products n.e.c.	14.11	22.96	20.62	20.27	16.58
1073	Manufacture of cocoa, chocolate and sugar confectionery	5.27	8.11	4.07	14.48	16.48
1629	Manufacture of other products of wood; manufacture of articles of cork, straw and plaiting materials	20.01	25.08	37.94	44.01	16.40
1102	Manufacture of wines	35.43	4.15	15.33	10.90	16.32
2023	Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	14.40	17.96	12.42	12.71	16.24
2410	Manufacture of basic iron and steel	10.51	10.33	18.48	17.87	15.84
1062	Manufacture of starches and starch products	4.10	13.86	15.65	11.47	15.24
2814	Manufacture of bearings, gears, gearing and driving elements	28.51	24.25	36.86	23.87	14.92
3290	Other manufacturing n.e.c.	24.62	24.09	37.68	23.43	14.88
2822	Manufacture of metal-forming machinery and machine tools	18.27	-11.37	-8.91	3.41	14.40
2011	Manufacture of basic chemicals	11.94	15.48	27.47	11.57	14.35
2431	Casting of iron and steel	14.71	14.34	17.18	16.31	14.23
3092	Manufacture of bicycles and invalid carriages	9.46	19.41	16.73	12.95	14.16
2219	Manufacture of other rubber products	12.05	22.04	12.56	17.95	13.60
2821	Manufacture of agricultural and forestry machinery	17.73	10.65	10.09	12.44	13.53
1702	Manufacture of corrugated paper and paperboard and of containers of paper and paperboard	13.71	18.64	21.27	13.04	13.50
1079	Manufacture of other food products n.e.c.	9.31	11.11	18.38	16.06	13.41
2732	Manufacture of other electronic and electric wires and cables	17.13	15.27	21.70	21.23	13.19
1623	Manufacture of wooden containers	27.29	17.43	14.49	22.62	12.72
2815	Manufacture of ovens, furnaces and fumace burners	25.12	16.33	17.92	26.65	12.48

**Table 3A: WC to Sales Ratio (20 and below) based on ASI 2012-13 and comparative estimates from ASI 2008-09 to ASI 2011-12 (Contd)**

NIC 2008	NIC Description	2008-09	2009-10	2010-11	2011-12	2012-13
1101	Distilling, rectifying and blending of spirits	10.05	18.55	16.86	11.54	12.41
2396	Cutting, shaping and finishing of stone	26.91	39.06	38.11	25.57	12.38
1312	Weaving of textiles	13.85	27.67	21.54	20.13	12.23
2740	Manufacture of electric lighting equipment	15.74	14.04	17.74	10.72	11.82
1610	Sawmilling and planing of wood	19.71	16.22	20.25	12.92	11.76
1071	Manufacture of bakery products	8.30	9.96	11.58	10.56	11.46
1020	Processing and preserving of fish, crustaceans and molluscs	6.34	20.99	9.67	9.91	11.42
1520	Manufacture of footwear	14.59	13.35	12.69	17.45	10.44
1311	Preparation and spinning of textile fibres	9.51	13.53	3.40	9.98	10.30
2432	Casting of non-ferrous metals	14.27	20.40	8.35	8.27	9.91
1511	Tanning and dressing of leather; dressing and dyeing of fur	9.46	3.68	5.83	10.88	9.67
1010	Processing and preserving of meat	9.54	8.39	14.40	8.50	9.39
2930	Manufacture of parts and accessories for motor vehicles	6.97	8.81	11.10	7.11	9.28
1030	Processing and preserving of fruit and vegetables	16.17	19.66	39.02	2.97	9.21
1701	Manufacture of pulp, paper and paperboard	8.18	14.65	15.14	6.87	8.59
1040	Manufacture of vegetable and animal oils and fats	3.75	5.78	10.05	10.96	8.27
2750	Manufacture of domestic appliances	12.40	4.89	14.20	7.30	7.98
1050	Manufacture of dairy products	3.94	7.10	7.83	8.62	7.71
1072	Manufacture of sugar	12.46	13.89	12.83	7.40	7.13
2211	Manufacture of rubber tyres and tubes; retreading and rebuilding of rubber tyres	11.01	13.37	8.06	7.76	7.06
1080	Manufacture of prepared animal feeds	7.33	7.53	8.16	9.00	6.54
1391	Manufacture of knitted and crocheted fabrics	14.44	16.38	20.49	8.52	6.25
2013	Manufacture of plastics and synthetic rubber in primary forms	2.56	6.28	1.88	6.08	4.74
1399	Manufacture of other textiles n.e.c.	19.06	14.63	16.87	24.26	4.25
1709	Manufacture of other articles of paper and paperboard	14.69	11.49	18.57	1.94	3.87
3091	Manufacture of motorcycles	-5.08	-4.90	4.12	-1.01	3.82
3099	Manufacture of other transport equipment n.e.c.	8.07	35.46	39.53	28.69	3.44
1074	Manufacture of macaroni, noodles, couscous and similar farinaceous products	6.93	2.97	-0.74	4.64	2.34
1920	Manufacture of refined petroleum products	3.17	3.22	5.77	3.10	2.30
2731	Manufacture of fibre optic cables	-2.89	9.18	21.05	-6.85	2.17
2910	Manufacture of motor vehicles	1.99	-6.75	-17.26	-1.69	1.09
2680	Manufacture of magnetic and optical media	12.03	6.85	9.20	44.40	-0.70
3011	Building of ships and floating structures	158.83	215.96	70.73	14.98	-1.46
2029	Manufacture of other chemical products n.e.c.	-0.08	-2.05	7.89	0.36	-1.70
3012	Building of pleasure and sporting boats	-19.31	108.22	66.23	33.70	-8.30
1104	Manufacture of soft drinks; production of mineral waters and other bottled waters	9.92	5.68	35.31	-14.07	-9.33
2652	Manufacture of watches and clocks	16.78	15.85	25.43	-2.22	-16.87
2394	Manufacture of cement, lime and plaster	11.48	10.85	16.33	5.62	-58.29

**Table 4: Debtor Days (200 and above) based on ASI 2012-13 and comparative estimates from ASI 2008-09 to ASI 2011-12**

NIC 2008	NIC Description	2008-09	2009-10	2010-11	2011-12	2012-13
1820	Reproduction of recorded media	73	167	282	123	720
2630	Manufacture of communication equipment	260	346	247	180	452
1420	Manufacture of articles of fur	98	163	79	88	399
3011	Building of ships and floating structures	374	398	163	226	302
2513	Manufacture of steam generators, except central heating hot water boilers	185	190	94	109	277
2670	Manufacture of optical instruments and photographic equipment	219	148	243	172	245
1103	Manufacture of malt liquors and malt	67	63	74	109	212
2520	Manufacture of weapons and ammunition	93	87	230	219	207

**Table 4A: Debtor Days (50 and below) based on ASI 2012-13 and comparative estimates from ASI 2008-09 to ASI 2011-12**

NIC 2008	NIC Description	2008-09	2009-10	2010-11	2011-12	2012-13
1311	Preparation and spinning of textile fibres	49	51	46	46	49
1061	Manufacture of grain mill products	34	44	49	45	49
2410	Manufacture of basic iron and steel	39	39	45	46	49
2023	Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	62	45	39	36	47
2821	Manufacture of agricultural and forestry machinery	75	49	45	49	46
1073	Manufacture of cocoa, chocolate and sugar confectionery	18	16	18	54	46
1062	Manufacture of starches and starch products	44	42	38	39	46
2750	Manufacture of domestic appliances	69	48	77	43	45
1910	Manufacture of coke oven products	42	80	70	66	44
2392	Manufacture of clay building materials	52	47	98	42	42
2030	Manufacture of man-made fibers	25	29	23	37	40
1040	Manufacture of vegetable and animal oils and fats	23	36	50	117	40
2013	Manufacture of plastics and synthetic rubber in primary forms	19	27	36	51	38
1079	Manufacture of other food products n.e.c.	29	33	32	37	37
2211	Manufacture of rubber tyres and tubes; retreading and rebuilding of rubber tyres	73	65	29	33	36
1200	Manufacture of tobacco products	23	21	25	31	36
1020	Processing and preserving of fish, crustaceans and molluscs	36	68	41	42	34
1080	Manufacture of prepared animal feeds	26	26	27	29	34
2680	Manufacture of magnetic and optical media	47	6	10	112	30
3220	Manufacture of musical instruments	67	109	697	555	28
3091	Manufacture of motorcycles	28	26	25	23	28
1071	Manufacture of bakery products	17	23	21	23	27
1050	Manufacture of dairy products	15	18	17	30	26
2420	Manufacture of basic precious and other non-ferrous metals	23	30	31	35	24
2910	Manufacture of motor vehicles	44	31	21	24	24
2394	Manufacture of cement, lime and plaster	16	18	45	28	24

**Table 4A: Debtor Days (50 and below) based on ASI 2012-13 and comparative estimates from ASI 2008-09 to ASI 2011-12 (Contd)**

NIC 2008	NIC Description	2008-09	2009-10	2010-11	2011-12	2012-13
1920	Manufacture of refined petroleum products	10	15	18	16	23
2652	Manufacture of watches and clocks	31	24	30	33	23
1072	Manufacture of sugar	17	17	20	22	17
1074	Manufacture of macaroni, noodles, couscous and similar farinaceous products	7	21	8	6	8

**Table 5: Creditor Days (200 and above) based on ASI 2012-13 and comparative estimates from ASI 2008-09 to ASI 2011-12**

NIC 2008	NIC Description	2008-09	2009-10	2010-11	2011-12	2012-13
1820	Reproduction of recorded media	77	64	54	98	450
2630	Manufacture of communication equipment	189	207	231	148	277
2394	Manufacture of cement, lime and plaster	33	31	49	54	274
3011	Building of ships and floating structures	416	426	464	392	249

**Table 5A: Creditor Days (50 and below) based on ASI 2012-13 and comparative estimates from ASI 2008-09 to ASI 2011-12**

NIC 2008	NIC Description	2008-09	2009-10	2010-11	2011-12	2012-13
1103	Manufacture of malt liquors and malt	48	53	61	60	50
1040	Manufacture of vegetable and animal oils and fats	36	56	64	137	50
1701	Manufacture of pulp, paper and paperboard	57	56	53	46	50
2817	Manufacture of office machinery and equipment (except computers and peripheral equipment)	25	251	60	79	49
2219	Manufacture of other rubber products	51	62	49	60	46
3211	Manufacture of jewellery and related articles	101	100	84	51	46
3091	Manufacture of motorcycles	45	50	48	57	44
2593	Manufacture of cutlery, hand tools and general hardware	77	81	78	75	44
2392	Manufacture of clay building materials	47	48	69	42	44
1920	Manufacture of refined petroleum products	19	34	42	38	44
2029	Manufacture of other chemical products n.e.c.	41	46	54	45	43
2012	Manufacture of fertilizers and nitrogen compounds	53	46	46	46	43
3092	Manufacture of bicycles and invalid carriages	55	55	43	57	43
1101	Distilling, rectifying and blending of spirits	43	40	40	45	40
2030	Manufacture of man-made fibres	24	36	26	40	40
1394	Manufacture of cordage, rope, twine and netting	41	68	62	77	38
2420	Manufacture of basic precious and other non-ferrous metals	40	59	53	50	37

**Table 5A: Creditor Days (50 and below) based on ASI 2012-13 and comparative estimates from ASI 2008-09 to ASI 2011-12 (Contd)**

NIC 2008	NIC Description	2008-09	2009-10	2010-11	2011-12	2012-13
1312	Weaving of textiles	57	53	42	37	37
1061	Manufacture of grain mill products	32	38	37	76	32
2211	Manufacture of rubber tyres and tubes; retreading and rebuilding of rubber tyres	40	79	51	40	32
1073	Manufacture of cocoa, chocolate and sugar confectionery	25	21	31	40	32
1311	Preparation and spinning of textile fibres	39	39	40	37	32
1062	Manufacture of starches and starch products	30	30	27	32	32
1079	Manufacture of other food products n.e.c.	36	32	33	29	31
1080	Manufacture of prepared animal feeds	25	29	24	34	30
3220	Manufacture of musical instruments	54	47	120	51	30
1020	Processing and preserving of fish, crustaceans and molluscs	30	40	31	32	29
3240	Manufacture of games and toys	58	52	45	60	29
1200	Manufacture of tobacco products	39	38	42	36	28
1010	Processing and preserving of meat	23	32	39	28	28
2023	Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	85	34	39	42	26
1050	Manufacture of dairy products	21	21	20	24	26
1071	Manufacture of bakery products	30	22	27	24	23
2652	Manufacture of watches and clocks	40	22	14	23	17
1074	Manufacture of macaroni, noodles, couscous and similar farinaceous products	11	20	14	13	14
2680	Manufacture of magnetic and optical media	45	15	82	74	13

**Table 6: Inventory Days (200 and above) based on ASI 2012-13 and comparative estimates from ASI 2008-09 to ASI 2011-12**

NIC 2008	NIC Description	2008-09	2009-10	2010-11	2011-12	2012-13
3011	Building of ships and floating structures	437	684	498	289	443
1820	Reproduction of recorded media	33	79	122	159	421
3012	Building of pleasure and sporting boats	262	251	120	293	242
1072	Manufacture of sugar	234	203	229	220	236

**Table 6A: Inventory Days (50 and below) based on ASI 2012-13 and comparative estimates from ASI 2008-09 to ASI 2011-12**

NIC 2008	NIC Description	2008-09	2009-10	2010-11	2011-12	2012-13
2030	Manufacture of man-made fibres	59	54	46	46	50
2732	Manufacture of other electronic and electric wires and cables	43	47	49	52	50
1040	Manufacture of vegetable and animal oils and fats	46	60	57	54	50

**Table 6A: Inventory Days( 50 and below) based on ASI 2012-13 and comparative estimates from ASI 2008-09 to ASI 2011-12 (Contd)**

NIC 2008	NIC Description	2008-09	2009-10	2010-11	2011-12	2012-13
2930	Manufacture of parts and accessories for motor vehicles	48	47	43	115	48
2211	Manufacture of rubber tyres and tubes; retreading and rebuilding of rubber tyres	53	57	59	47	47
1103	Manufacture of malt liquors and malt	57	50	50	44	46
2750	Manufacture of domestic appliances	72	57	53	44	41
2013	Manufacture of plastics and synthetic rubber in primary forms	36	37	35	40	41
1050	Manufacture of dairy products	33	37	31	32	40
1420	Manufacture of articles of fur	100	184	133	51	39
2910	Manufacture of motor vehicles	40	33	32	39	39
1080	Manufacture of prepared animal feeds	37	37	35	34	39
3092	Manufacture of bicycles and invalid carriages	37	40	31	43	39
2432	Casting of non-ferrous metals	52	42	35	44	39
2023	Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	69	43	42	49	38
3099	Manufacture of other transport equipment n.e.c.	58	101	83	108	38
1920	Manufacture of refined petroleum products	27	31	37	36	34
1073	Manufacture of cocoa, chocolate and sugar confectionery	30	32	37	34	34
1071	Manufacture of bakery products	33	26	27	30	34
1075	Manufacture of prepared meals and dishes	41	37	24	31	29
2680	Manufacture of magnetic and optical media	31	35	72	77	26
1074	Manufacture of macaroni, noodles, couscous and similar farinaceous products	22	25	17	18	22
1010	Processing and preserving of meat	30	31	32	28	21
3091	Manufacture of motorcycles	23	21	19	19	20

**Table 7: Cash Conversion Cycle (200 and above) based on ASI 2012-13 and comparative estimates from ASI 2008-09 to ASI 2011-12**

NIC 2008	NIC Description	2008-09	2009-10	2010-11	2011-12	2012-13
1820	Reproduction of recorded media	30	182	350	184	691
3011	Building of ships and floating structures	394	656	197	122	496
2630	Manufacture of communication equipment	120	225	99	115	350
1420	Manufacture of articles of fur	104	184	173	30	298
2513	Manufacture of steam generators, except central heating hot water boilers	218	165	24	61	297
3240	Manufacture of games and toys	137	156	142	322	274
2520	Manufacture of weapons and ammunition	95	98	136	336	265
3040	Manufacture of military fighting vehicles	290	227	191	288	256
2670	Manufacture of optical instruments and photographic equipment	214	180	215	244	247
3012	Building of pleasure and sporting boats	248	362	137	164	222
1103	Manufacture of malt liquors and malt	77	59	63	94	208

**Table 7A: Cash Conversion Cycle (50 and below) based on ASI 2012-13 and comparative estimates from ASI 2008-09 to ASI 2011-12**

NIC 2008	NIC Description	2008-09	2009-10	2010-11	2011-12	2012-13
2821	Manufacture of agricultural and forestry machinery	62	30	27	42	50
1073	Manufacture of cocoa, chocolate and sugar confectionery	23	27	24	49	48
1010	Processing and preserving of meat	53	41	41	48	47
1520	Manufacture of footwear	85	79	80	82	45
1075	Manufacture of prepared meals and dishes	67	46	46	18	45
2420	Manufacture of basic precious and other non-ferrous metals	37	28	39	47	45
1511	Tanning and dressing of leather; dressing and dyeing of fur	50	16	56	57	44
2680	Manufacture of magnetic and optical media	33	26	1	115	43
1080	Manufacture of prepared animal feeds	39	33	37	29	43
2930	Manufacture of parts and accessories for motor vehicles	48	44	41	118	43
1040	Manufacture of vegetable and animal oils and fats	33	41	43	34	39
1050	Manufacture of dairy products	27	34	29	38	39
1071	Manufacture of bakery products	20	27	21	29	38
1610	Sawmilling and planing of wood	83	76	71	39	37
2750	Manufacture of domestic appliances	84	44	73	40	32
2013	Manufacture of plastics and synthetic rubber in primary forms	14	24	11	23	23
1074	Manufacture of macaroni, noodles, couscous and similar farinaceous products	17	27	12	10	16
1920	Manufacture of refined petroleum products	18	12	13	14	14
3099	Manufacture of other transport equipment n.e.c.	33	147	115	117	14
3091	Manufacture of motorcycles	6	-3	-3	-14	4
2910	Manufacture of motor vehicles	21	-5	-50	-9	4
1104	Manufacture of soft drinks; production of mineral waters and other bottled waters	24	22	69	57	3
2394	Manufacture of cement, lime and plaster	25	30	52	24	-199

Appendix Table A: Industry-wise Business Parameters (with special reference to liquidity) based on ASI 2012-13 Results

NIC 2008	NIC Description	Current ratio	Quick ratio	(WC/Sale) X 100	Debtor days	Creditor days	Inventory days	CCC
1010	Processing and preserving of meat	1.57	1.20	9.39	54	28	21	47
1020	Processing and preserving of fish, crustaceans and molluscs	1.45	0.74	11.42	34	29	60	65
1030	Processing and preserving of fruit and vegetables	1.17	0.64	9.21	61	61	102	102
1040	Manufacture of vegetable and animal oils and fats	1.31	0.77	8.27	40	50	50	39
1050	Manufacture of dairy products	1.36	0.83	7.71	26	26	40	39
1061	Manufacture of grain mill products	1.56	0.66	17.21	49	32	96	112
1062	Manufacture of starches and starch products	1.60	0.88	15.24	46	32	57	71
1071	Manufacture of bakery products	1.74	1.14	11.46	27	23	34	38
1072	Manufacture of sugar	1.09	0.22	7.13	17	84	236	170
1073	Manufacture of cocoa, chocolate and sugar confectionery	1.96	1.33	16.48	46	32	34	48
1074	Manufacture of macaroni, noodles, couscous and similar farinaceous products	1.27	0.53	2.34	8	14	22	16
1075	Manufacture of prepared meals and dishes	1.56	1.32	18.83	78	62	29	45
1079	Manufacture of other food products n.e.c.	1.54	0.86	13.41	37	31	58	63
1080	Manufacture of prepared animal feeds	1.35	0.75	6.54	34	30	39	43
1101	Distilling, rectifying and blending of spirits	1.36	0.93	12.41	56	40	53	69



Appendix Table A: Industry-wise Business Parameters (with special reference to liquidity) based on ASI 2012-13 Results (Contd)

NIC 2008	NIC Description	Current ratio	Quick ratio	(WC/Sale) X 100	Debtor days	Creditor days	Inventory days	CCC
1102	Manufacture of wines	1.35	0.91	16.32	89	89	69	69
1103	Manufacture of malt liquors and malt	2.56	2.20	57.06	212	50	46	208
1104	Manufacture of soft drinks; production of mineral waters and other bottled waters	0.86	0.59	-9.33	76	140	66	3
1200	Manufacture of tobacco products	2.32	1.16	26.56	36	28	77	85
1311	Preparation and spinning of textile fibres	1.30	0.66	10.30	49	32	74	91
1312	Weaving of textiles	1.32	0.82	12.23	71	37	66	100
1313	Finishing of textiles	1.39	0.83	22.14	117	103	132	146
1391	Manufacture of knitted and crocheted fabrics	1.15	0.68	6.25	69	54	68	83
1392	Manufacture of made-up textile articles, except apparel	1.75	1.06	29.99	102	52	92	142
1393	Manufacture of carpets and rugs	1.67	1.07	26.43	72	51	84	105
1394	Manufacture of cordage, rope, twine and netting	1.60	0.95	18.11	61	38	72	95
1399	Manufacture of other textiles n.e.c.	1.09	0.75	4.25	95	69	58	84
1410	Manufacture of wearing apparel, except fur apparel	1.46	0.85	19.01	74	59	80	95
1420	Manufacture of articles of fur	2.34	2.18	69.72	399	140	39	298
1430	Manufacture of knitted and crocheted apparel	1.37	0.80	16.62	70	69	86	87
1511	Tanning and dressing of leather; dressing and dyeing of fur	1.15	0.65	9.67	105	172	112	44

Appendix Table A: Industry-wise Business Parameters (with special reference to liquidity) based on ASI 2012-13 Results (Contd)

NIC 2008	NIC Description	Current ratio	Quick ratio	(WC/Sale) X 100	Debtor days	Creditor days	Inventory days	CCC
1512	Manufacture of luggage, handbags and the like, saddlery and harness	1.28	0.69	16.77	78	99	114	93
1520	Manufacture of footwear	1.19	0.77	10.44	92	125	78	45
1610	Sawmilling and planing of wood	1.23	0.68	11.76	95	151	94	37
1621	Manufacture of veneer sheets and wood-based panels	1.40	0.76	20.07	94	85	110	119
1622	Manufacture of builders' carpentry and joinery	1.51	1.02	33.58	142	105	115	152
1623	Manufacture of wooden containers	1.35	0.89	12.72	80	69	57	67
1629	Manufacture of other products of wood, manufacture of articles of cork, straw and plaiting materials	1.52	0.99	16.40	62	60	58	60
1701	Manufacture of pulp, paper and paperboard	1.22	0.74	8.59	62	50	68	80
1702	Manufacture of corrugated paper and paperboard and of containers of paper and paperboard	1.38	0.89	13.50	77	59	60	78
1709	Manufacture of other articles of paper and paperboard	1.07	0.73	3.87	64	62	67	69
1811	Printing	1.33	1.00	23.29	130	97	80	113
1812	Service activities related to printing	1.79	1.34	35.74	131	71	71	131
1820	Reproduction of recorded media	1.79	1.25	197.41	720	450	421	691
1910	Manufacture of coke oven products	2.10	0.87	27.36	44	52	126	118

Appendix Table A: Industry-wise Business Parameters (with special reference to liquidity) based on ASI 2012-13 Results (Contd)

NIC 2008	NIC Description	Current ratio	Quick ratio	(WC/Sale) X 100	Debtor days	Creditor days	Inventory days	CCC
1920	Manufacture of refined petroleum products	1.15	0.54	2.30	23	44	34	14
2011	Manufacture of basic chemicals	1.38	0.95	14.35	65	63	57	59
2012	Manufacture of fertilizers and nitrogen compounds	1.48	1.13	20.91	118	43	54	129
2013	Manufacture of plastics and synthetic rubber in primary forms	1.21	0.65	4.74	38	57	41	23
2021	Manufacture of pesticides and other agrochemical products	1.58	1.05	24.71	108	82	81	106
2022	Manufacture of paints, varnishes and similar coatings, printing ink and mastics	1.66	1.10	18.81	82	60	54	77
2023	Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	2.04	1.31	16.24	47	26	38	59
2029	Manufacture of other chemical products n.e.c.	0.97	0.66	-1.70	65	43	53	74
2030	Manufacture of man-made fibres	1.95	1.15	17.95	40	40	50	51
2100	Manufacture of pharmaceuticals, medicinal chemical and botanical products	1.48	0.99	23.12	89	59	79	110
2211	Manufacture of rubber tyres and tubes; retreading and rebuilding of rubber tyres	1.30	0.74	7.06	36	32	47	51
2219	Manufacture of other rubber products	1.35	0.97	13.60	74	46	51	79
2220	Manufacture of plastics products	1.54	1.12	21.84	93	62	60	91
2310	Manufacture of glass and glass products	1.74	1.18	36.22	104	71	85	118
2391	Manufacture of refractory products	1.53	1.05	31.70	95	105	102	92

Appendix Table A: Industry-wise Business Parameters (with special reference to liquidity) based on ASI 2012-13 Results (Contd)

NIC 2008	NIC Description	Current ratio	Quick ratio	(WC/Sale) X 100	Debtor days	Creditor days	Inventory days	CCC
2392	Manufacture of clay building materials	2.06	0.94	26.08	42	44	93	91
2393	Manufacture of other porcelain and ceramic products	1.35	0.89	18.38	105	92	85	99
2394	Manufacture of cement, lime and plaster	0.39	0.23	-58.29	24	274	51	-199
2395	Manufacture of articles of concrete, cement and plaster	1.42	0.96	19.27	66	56	71	81
2396	Cutting, shaping and finishing of stone	1.21	0.67	12.38	85	75	108	118
2399	Manufacture of other non-metallic mineral products n.e.c.	1.57	1.01	25.40	91	64	91	119
2410	Manufacture of basic iron and steel	1.34	0.85	15.84	49	68	80	61
2420	Manufacture of basic precious and other non-ferrous metals	1.81	1.17	21.57	24	37	58	45
2431	Casting of iron and steel	1.37	0.83	14.23	75	55	74	94
2432	Casting of non-ferrous metals	1.31	0.97	9.91	74	54	39	58
2511	Manufacture of structural metal products	1.28	0.86	19.08	144	128	100	116
2512	Manufacture of tanks, reservoirs and containers of metal	1.43	0.97	23.55	120	76	93	137
2513	Manufacture of steam generators, except central heating hot water boilers	1.57	1.22	41.34	277	81	101	297
2520	Manufacture of weapons and ammunition	1.63	1.17	58.63	207	72	130	265
2591	Forging, pressing, stamping and roll-forming of metal; powder metallurgy	1.56	0.94	30.72	103	87	113	129

Appendix Table A: Industry-wise Business Parameters (with special reference to liquidity) based on ASI2012-13 Results (Contd)

NIC 2008	NIC Description	Current ratio	Quick ratio	(WC/Sale) X 100	Debtor days	Creditor days	Inventory days	CCC
2592	Treatment and coating of metals; machining	1.74	1.29	41.22	147	131	81	97
2593	Manufacture of cutlery, hand tools and general hardware	1.62	1.03	18.64	65	44	62	83
2599	Manufacture of other fabricated metal products n.e.c.	1.29	0.86	16.58	100	80	80	101
2610	Manufacture of electronic components and boards	1.34	1.01	20.27	133	89	70	115
2620	Manufacture of computers and peripheral equipment	1.41	1.06	23.17	164	125	69	108
2630	Manufacture of communication equipment	1.55	1.23	86.76	452	277	176	350
2640	Manufacture of consumer electronics	2.19	1.50	40.97	62	82	81	62
2651	Manufacture of measuring, testing, navigating and control equipment	1.61	1.20	34.25	145	106	79	118
2652	Manufacture of watches and clocks	0.69	0.25	-16.87	23	17	83	89
2660	Manufacture of irradiation, electromedical and electrotherapeutic equipment	1.37	1.06	29.99	82	93	86	75
2670	Manufacture of optical instruments and photographic equipment	3.03	2.66	121.10	245	73	75	247
2680	Manufacture of magnetic and optical media	0.97	0.81	-0.70	30	13	26	43
2710	Manufacture of electric motors, generators, transformers and electricity distribution and control apparatus	1.53	1.13	31.92	176	130	87	132

Appendix Table A: Industry-wise Business Parameters (with special reference to liquidity) based on ASI 2012-13 Results (Contd)

NIC 2008	NIC Description	Current ratio	Quick ratio	(WC/Sale) X 100	Debtor days	Creditor days	Inventory days	CCC
2720	Manufacture of batteries and accumulators	1.55	1.05	18.40	60	60	59	59
2731	Manufacture of fibre optic cables	1.03	0.77	2.17	136	84	56	107
2732	Manufacture of other electronic and electric wires and cables	1.35	0.95	13.19	89	73	50	67
2733	Manufacture of wiring devices	1.35	1.01	23.37	180	150	80	110
2740	Manufacture of electric lighting equipment	1.25	0.89	11.82	98	93	61	65
2750	Manufacture of domestic appliances	1.34	0.80	7.98	45	55	41	32
2790	Manufacture of other electrical equipment	1.52	1.08	21.78	117	81	67	102
2811	Manufacture of engines and turbines, except aircraft, vehicle and cycle engines	1.50	1.13	32.01	167	108	94	153
2812	Manufacture of fluid power equipment	1.60	1.12	28.96	118	87	80	111
2813	Manufacture of other pumps, compressors, taps and valves	1.53	1.05	23.78	98	76	78	100
2814	Manufacture of bearings, gears, gearing and driving elements	1.28	0.86	14.92	89	84	82	87
2815	Manufacture of ovens, furnaces and furnace burners	1.15	0.76	12.48	108	95	117	129
2816	Manufacture of lifting and handling equipment	1.36	0.99	19.36	101	109	65	57

Appendix Table A: Industry-wise Business Parameters (with special reference to liquidity) based on ASI2012-13 Results (Contd)

NIC 2008	NIC Description	Current ratio	Quick ratio	(WC/Sale) X 100	Debtor days	Creditor days	Inventory days	CCC
2817	Manufacture of office machinery and equipment (except computers and peripheral equipment)	1.51	1.00	23.71	95	49	73	119
2818	Manufacture of power-driven hand tools	2.64	1.82	65.43	127	94	126	159
2819	Manufacture of other general-purpose machinery	1.51	0.94	26.00	88	110	97	75
2821	Manufacture of agricultural and forestry machinery	1.56	0.97	13.53	46	50	53	50
2822	Manufacture of metal-forming machinery and machine tools	1.16	0.84	14.40	64	101	99	62
2823	Manufacture of machinery for metallurgy	1.54	0.95	26.13	107	55	103	155
2824	Manufacture of machinery for mining, quarrying and construction	1.56	0.86	20.49	61	72	94	83
2825	Manufacture of machinery for food, beverage and tobacco processing	1.38	0.96	21.70	128	108	87	107
2826	Manufacture of machinery for textile, apparel and leather production	1.58	1.13	27.90	60	79	75	56
2829	Manufacture of other special-purpose machinery	1.41	1.01	26.93	113	123	97	87
2910	Manufacture of motor vehicles	1.04	0.67	1.09	24	59	39	4
2920	Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers	1.48	1.02	20.16	79	80	70	69
2930	Manufacture of parts and accessories for motor vehicles	1.25	0.88	9.28	66	71	48	43

Appendix Table A: Industry-wise Business Parameters (with special reference to liquidity) based on ASI 2012-13 Results (Contd)

NIC 2008	NIC Description	Current ratio	Quick ratio	(WC/Sale) X 100	Debtor days	Creditor days	Inventory days	CCC
3011	Building of ships and floating structures	1.00	0.64	-1.46	302	249	443	496
3012	Building of pleasure and sporting boats	0.94	0.39	-8.30	86	106	242	222
3020	Manufacture of railway locomotives and rolling stock	1.34	0.83	21.91	123	114	118	127
3030	Manufacture of air and spacecraft and related machinery	1.37	0.94	25.58	92	86	93	99
3040	Manufacture of military fighting vehicles	2.22	1.39	69.74	158	82	180	256
3091	Manufacture of motorcycles	1.20	0.92	3.82	28	44	20	4
3092	Manufacture of bicycles and invalid carriages	1.66	1.14	14.16	60	43	39	56
3099	Manufacture of other transport equipment n.e.c.	1.11	0.75	3.44	59	82	38	14
3100	Manufacture of furniture	1.39	0.90	16.60	85	84	76	77
3211	Manufacture of jewellery and related articles	1.54	0.93	18.35	68	46	67	89
3212	Manufacture of imitation jewellery and related articles	2.17	1.48	40.13	95	56	75	114
3220	Manufacture of musical instruments	2.39	1.38	19.90	28	30	63	62
3230	Manufacture of sports goods	1.55	0.98	25.48	88	82	91	96
3240	Manufacture of games and toys	1.48	0.95	31.76	160	29	142	274
3250	Manufacture of medical and dental instruments and supplies	2.04	1.52	55.84	134	66	94	163
3290	Other manufacturing n.e.c.	1.35	0.77	14.88	65	55	86	96