Supply Chain Metrics That Matter: A Closer Look at the Cash-To-Cash Cycle (2000–2012)

Using Financial Data from Corporate Annual Reports to Better Understand the Cash-To-Cash Cycle

11/11/2013

By Abby Mayer
Research Associate

Supply Chain Insights LLC

Contents

Research

Supply Chain Metrics That Matter is a series of reports published throughout the year by Supply Chain Insights LLC. They are traditionally a deep focus on a specific industry. These reports are based on data collected from financial balance sheets and income statements over the period of 2000–2012.

This report takes a different perspective than previous publications in that it focuses upon a single metric across several industries. This report is a cross-industry analysis of the Cash-To-Cash Cycle (C2C).

In this report, we analyze how companies and industries managed their cash-to-cash cycle performance as well as the individual components of the metric, i.e. Days of Inventory (DOI), Days of Payables (DOP), and Days of Receivables (DOR).

Within the world of Supply Chain Management (SCM), each industry is unique. We believe that it is dangerous to list all industries in a spreadsheet and declare a supply chain leader. Instead, we believe that we have to evaluate change over time by peer group. Thus, we discuss the cash-to-cash cycle in regard to five specific industry peer groups.

Disclosure

Your trust is important to us. As such, we are open and transparent about our financial relationships and our research process. This independent research is 100% funded by Supply Chain Insights.

These reports are intended for you to read, share and use to improve your supply chain decisions. Please share this data freely within your company and across your industry. All we ask for in return is attribution when you use the materials in this report. We publish under the Creative Commons License Attribution-Noncommercial-Share Alike 3.0 United States and you will find our citation policy here.

Research Methodology

The basis of this report is publicly available information from corporate annual reports from the period of 2000–2012 for publicly-owned companies involved in five separate industries: automotive, chemical, consumer packaged goods, consumer electronics and pharmaceutical. The analysis takes a closer look at the cash-to-cash cycle performance over three distinct time periods:

2000–2006: Start of the Decade and the Rise of Enterprise Automation

2007–2009: Recession and Economic Downturn

2010–2012: Economic Recovery

In picking companies for the *Supply Chain Metrics That Matter* reports, we traditionally rely on companies recently listed in the Fortune Global 500. In addition, we use the Morningstar industry sector classifications to inform our decision. Finally, we intended to provide a fresh analysis of several companies profiled in last year's report titled: Supply Chain Metrics That Matter: The Cash-to-Cash Cycle (published November 26, 2012).

We use the financial data to help readers learn from past trends, to better understand current operating environments, and we provide recommendations for the future. We augment the financial data analysis with information from our quantitative and qualitative research studies as well as our work with clients operating within the industry.

Executive Overview

When it comes to metrics that matter, the cash-to-cash cycle is one of the top metrics cited by supply chain professionals. It is among the best financial metrics to provide a comprehensive picture of a company's supply chain and the management of working capital.

The supply chain is a complex system. Successful management requires both orchestration and balance. To drive supply chain excellence, companies are required to balance four competing priorities: growth, profitability, cycle management and complexity. Several popular metrics, including the cash-to-cash cycle, for a variety of industries are presented in table 1.

Table 1. A Review of Industry Progress from 2000–2012

Industry	Average Operating Margin	Average Cash-to-Cash Cycle	Cash-to-Cash Cycle Percentage Change (2000-2012)	Average Inventory Turns	Inventory Turns Percentage Change (2000-2012)	Average SG&A Cost/ Revenue	Average SG&A Cost/ Revenue Percentage Change (2003-2012)
Pharmaceutical	0.25	190.3	25%	2.0	-47%	0.31	-7%
Medical Device Manufacturers	0.18	211.6	7%	2.2	6%	0.36	4%
Consumer Packaged Goods	0.17	28.3	-68%	5.6	9%	0.31	-4%
Food	0.16	37.4	-29%	6.2	6%	0.23	-2%
Consumer Electronics	0.12	9.3	-45%	43.8	-35%	0.14	-12%
Apparel	0.10	127.7	3%	3.2	-4%	0.35	20%
Chemical	0.09	78.1	-12%	5.3	5%	0.09	-14%
Automotive	0.04	75.9	-28%	9.9	-16%	0.13	-18%

Source: Supply Chain Insights LLC, Corporate Annual Reports 2000-2012
Apparel: American Apparel, Inc., Columbia Sportswear Co., Hanesbrands, Inc., PVH Corp, Ralph Lauren Corp., VF Corp.
Automotive: Daimler AG, Ford Motor Co., General Motors Co., Honda Motor Co., Ltd., Toyota Motor Corp., Volkswagen AG
Chemical: BASF SE, E. I. du Pont de Nemours and Co., The Dow Chemical Co.
Consumer Electronics: Apple Inc., Dell Inc., Intel Corp., Motorola, Inc. (now Motorola Solutions, Inc.)
Consumer Packaged Goods: Colgate-Palmolive Co., The Procter & Gamble Co., Unilever N.V./PLC
Food: Campbell Soup Co., General Mills, Inc., Kellogg Co., Mondelez International, Inc.
Medical Device Manufacturers: Boston Scientific Corp., Medtronic, Inc., St. Jude Medical, Inc. Zimmer Holdings Inc.
Pharmaceutical: Eli Lilly and Co., Merck & Co., Inc., Pfizer, Inc.

What Is Good?

Financial metrics are a valuable tool in examining and comparing supply chain performance. Ratios especially, offer a chance to compare across currencies, countries, and company size. The cash-to-cash cycle is one of the most popular metrics used to obtain a relatively holistic perspective of a company's supply chain performance. This metric is composed of three other separate metrics: days of inventory, days of payables and days of receivables. The cash-to-cash metric wraps these three separate metrics up into a big-picture understanding of the functioning of a supply chain. However, because of the different inputs, it's possible for the single cash-to-cash value to be misleading and not reflective of the underlying improvement or lack thereof of the company's performance. So while it's easy to look at the single numbers, we do ourselves a disservice by ignoring the individual components. Embedded within the cash-to-cash cycle is a much more complex story of inventory, payables and receivables management. That's why it's important to dig into the three "levers" of the cash-to-cash cycle.

Determining the right target requires study. The waters are murky. A good cash-to-cash value for a small medical device company is likely significantly larger than one good for a large and well-established consumer electronics company. Each industry and each company, to a certain extent, has its cash-to-cash potential. This will depend upon the specific structure of the company, the supply chain, its customers and supplier network.

Defining the Cash-To-Cash Cycle

The cash-to-cash cycle, cash conversion cycle or C2C cycle are all the same. The equation is as follows:

$$Cash - To - Cash\ Cycle = Days\ of\ Inventory + Days\ of\ Receivables - Days\ of\ Payables$$

The unit is in days and provides an approximation of the flow of cash through the company. A good cash-to-cash cycle, contrary to most other financial metrics, is as low as possible. It means that the company is efficiently using cash and not holding excess inventory, or allowing excessively lenient payables or receivables terms. The most advanced companies in specific industries have even demonstrated negative C2C values over the past decade.

Finally, notice that days of inventory (DOI) and days of receivables (DOR) are both positive numbers, while the days of payables (DOP) number is subtracted from the final C2C value. This small notation makes a large difference which we will examine in greater depth in the following section.

Days of Inventory

Days of inventory is by far the most popular of the three components or levers of the cash-to-cash cycle. The equation is shown below.

$$Days\ of\ Inventory = \frac{Average\ Inventory}{Cost\ of\ Goods\ Sold} * 365$$

Inventory management, as with most things in supply chain, is tricky. Too little inventory leads to stockouts and backorders. Too much represents cash locked up in inventory and a greater potential for write-offs or markdowns to move the product. DOI is positive within the C2C value because it represents cash the company possesses (although held up in the form of inventory).

Days of Receivables

Days of receivables is compiled from information available on the company's income statement and balance sheet, and is a value showing the amount currently outstanding and owed to the company by downstream customers.

$$Days\ of\ Receivables = \frac{Accounts\ Receivable}{Revenue} * 365$$

The addition of the 365 as a multiplier creates an approximation of a "daily" value. The goal of any company is generally to collect monies owed as quickly as possible and so a high performing DOR would be as low as possible while still enabling growth and good relations with downstream customers. This is positive money coming into the company and so it is a positive value in the cash-to-cash calculation.

Days of Payables

Days of payables is the final component of the C2C cycle and in my experience, the least understood. Again the information is available through public documents for any publicly owned company.

$$Days\ of\ Payables = \frac{Accounts\ Payable}{Cost\ of\ Goods\ Sold} * 365$$

Days of payables is a daily approximation (hence the 365) of the amount of money owed by the company to its suppliers. It is really just the opposite of days of receivables as discussed above. This is the trickiest metric for which to define a "good" value. If DOP is extremely low, the company is paying suppliers quickly, maybe too quickly, and not maximizing their cash flow. If DOP is extremely high, the

company is holding onto that cash, but as a result, may be jeopardizing or starving their upstream supply chain with a lack of cash flow.

Reasonable payments terms vary across countries, geographies, industries etc. so it can be especially valuable to compare the DOP value to close competitors to see how it matches up. DOP shouldn't be too low or too high and perhaps most importantly it shouldn't be wildly changing over short periods of time.

Managing the Inputs

Improvement in the cash-to-cash cycle can happen through one of three ways:

- **Reduction in Days of Inventory**. Most companies believe they have reduced inventory, but the financial results tell a very different story. The best way to improve the cash-to-cash cycle is to improve DOI. This requires commitment, discipline and a long-term focus.
- **Reduction in Days of Receivables**. A company can decrease the terms of receivables and collect payments owed more quickly. As waste has been pushed backwards in the supply chain, companies have been under intense pressure to improve receivables management. This can be an effective approach as long as the terms are comparable to other companies within the industry. A reduction in receivables, just as in inventory, would lead to a lower C2C value.
- **Increase in Days of Payables**. By increasing DOP, a company will retain their cash longer and reduce their C2C value, but withholding payment for too long can be costly to downstream suppliers. The automotive industry has provided several examples over the past decade of companies that increased DOP only to force downstream suppliers into bankruptcy because of a lack of healthy cash flow.

In the next sections, we examine the cash-to-cash performance of companies from five different industries in five separate case studies. We begin with a big-picture pattern analysis of trends seen in multiple industries.

The Big Picture

Over the past decade, we see several patterns in the data.

- **Each Industry Has Its Own Potential.** By definition, there are different drivers, constraints and risks in each industry. Each of these has an impact on the cash-to-cash potential of the industry.

While small changes in the potential can occur through process definition, significant improvements are generally achieved through new business models.

- **Slow and Steady.** The cash-to-cash cycle needs to be managed deliberately. Progress takes time. Supply chain leaders across many industries make small and incremental year-over-year improvements. Rapid changes in the cash-to-cash cycle should be viewed with some skepticism. Over the past decade, many companies had made drastic shifts in their management of payables and/or receivables which in turn, caused a large change in the cash-to-cash cycle.
- **Inventories Rising Post-Recession.** The greatest improvements in cash-to-cash cycles happen during recessions. As shown in table 2, post-recession cash-to-cash cycles are still improving (decreasing), but that trend is not driven by improved inventory management generally.
- **Most Companies Are Stuck.** In-depth analysis of the cash-to-cash cycle indicates that all five industries profiled in this report are performing below their potential. While some companies are doing better than others, the general consensus is that we are stuck. Small, sustainable year-over-year improvements in all three components—inventory, receivables and payables—are needed for supply chains to escape this rut.

Table 2. Cash-To-Cash Cycle Industry Averages (2000–2012)

Cash-to-Cash Cycle (2000-2012)				
Industry (2012 Annual Sales Greater Than $5 Billion)	2000-2006	2007-2009	2010-2012	Percentage Change (2000-2012)
Automotive (n=40)	58.7	44.6	35.1	-39%
Chemical (n=6)	95.6	83.2	79.8	-16%
Consumer Electronics (n=13)	67.3	41.3	48.6	-34%
Consumer Packaged Goods (n=13)	56.2	47.5	42.3	-39%
Pharmaceutical (n=24)	143.0	144.8	128.4	-1%

Table 3 illustrates that chemical, consumer electronics and consumer packaged goods companies have all allowed inventories to rise in the period of 2010–2012 compared to 2007–2009. Yet, cash-to-cash values for two of industries (chemical and consumer packaged goods) have continued to fall.

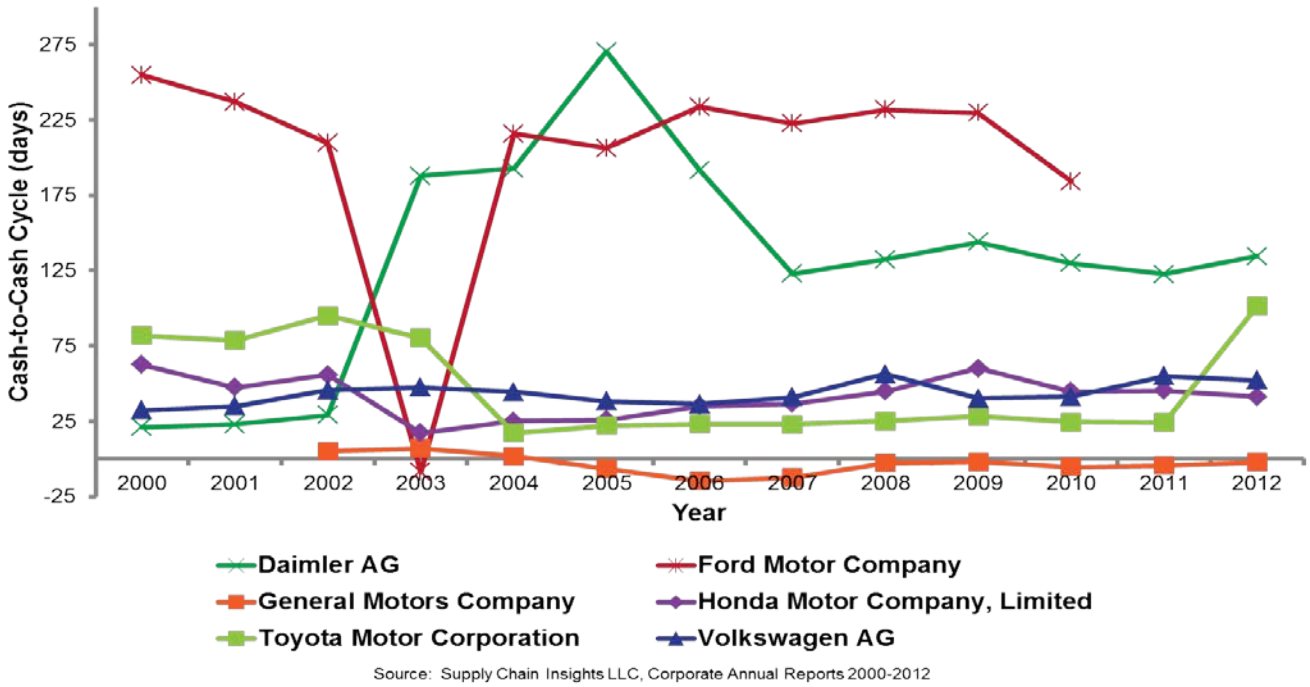
Table 3. Days of Inventory Industry Averages (2000–2012)

Days of Inventory (2000-2012)				
Industry (2012 Annual Sales Greater Than $5 Billion)	2000-2006	2007-2009	2010-2012	Percentage Change (2000-2012)
Automotive (n=40)	56.7	51.6	45.9	-21%
Chemical (n=6)	89.7	76.3	81.8	-5%
Consumer Electronics (n=13)	74.9	59.8	61.8	-30%
Consumer Packaged Goods (n=13)	90.9	89.5	91.9	-7%
Pharmaceutical (n=24)	170.6	169.2	153.9	0%

Case Study: Automotive

The automotive industry has had a rough decade. The cash-to-cash cycle demonstrates a part of that story, but for a more complete analysis of the industry, check out my recent report Supply Chain Metrics That Matter: The Automotive Industry. The six-company peer groups' performance is shown in graphical form in figure 1.

Figure 1. The Cash-To-Cash Cycle (2000–2012)



Source: Supply Chain Insights LLC, Corporate Annual Reports 2000-2012

Daimler AG, **Ford Motor Company**, and **Toyota Motor Corporation** each demonstrate jarring shifts in their performance. The remaining three companies (**General Motors Company**, **Honda Motor Company, Limited** and **Volkswagen AG**) seem stuck and have ended 2012 in very comparable positions to where they began the decade.

Inventory performance and receivables management offer two clues into the industry as demonstrated in table 4.

Inventory management is not only stagnant, but increasing throughout the industry. This is troubling, but it is not the sole reason for the large shifts demonstrated in figure 1. Management of days of receivables is also worth considering. Several companies are increasing DOR; in other words, increasing the amount of time to collect payment from customers. This has a negative effect by increasing the C2C cycle.

Table 4. Days of Inventory (2000–2012)

Days of Inventory (2000-2012)				
Company	2000-2006	2007-2009	2010-2012	Percentage Change (2000-2012)
Daimler AG	62.8	73.5	72.8	67%
Ford Motor Company	22.2	19.9	20.5	14%
General Motors Company	28.8	32.7	38.3	N/A
Honda Motor Company, Limited	50.4	58.5	55.5	14%
Toyota Motor Corporation	31.6	32.9	31.7	5%
Volkswagen AG	54.8	60.4	61.5	40%
AVERAGE	42.4	46.3	46.7	

Source: Supply Chain Insights LLC, Corporate Annual Reports 2000-2012

Overall, the automotive industry has struggled with supply chain performance. Several companies are stuck on their cash-to-cash performance, others have very low resiliency patterns, and nearly all individual companies profiled in this report have significantly increasing inventory stores since 2000. Small projects to prioritize include improved focus on inventory and an effort to improve DOR through faster receivables terms.

Table 5. Days of Receivables (2000–2012)

Days of Receivables (2000-2012)				
Company	2000-2006	2007-2009	2010-2012	Percentage Change (2000-2012)
Daimler AG	117.8	91.8	94.6	430%
Ford Motor Company	220.8	252.5	219.2	N/A
General Motors Company	31.5	21.7	24.2	N/A
Honda Motor Company, Limited	46.1	33.9	35.5	-51%
Toyota Motor Corporation	71.6	29.4	60.0	14%
Volkswagen AG	22.9	24.5	25.4	14%
AVERAGE	87.8	75.7	58.6	

Source: Supply Chain Insights LLC, Corporate Annual Reports 2000-2012

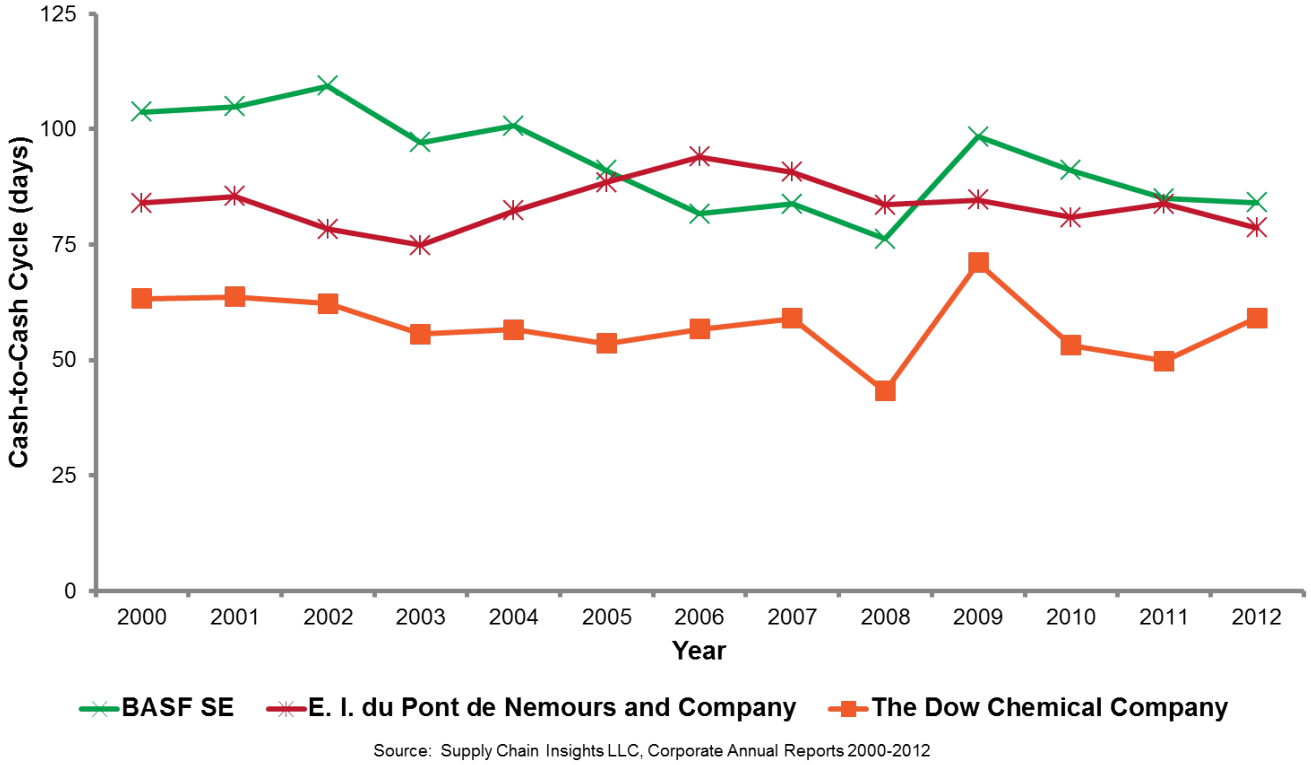
Case Study: Chemical

The chemical industry as a whole has avoided some of the instability seen in the automotive industry, but the industry's performance on the cash-to-cash cycle is faltering. For a more exhaustive look at the industry, check out the complete report Supply Chain Metrics That Matter: A Focus on the Chemical Industry.

BASF, **DuPont**, and **Dow** are three large chemical industry leaders. The large fluctuations of the automotive industry are not found here and instead each company has charted its own slow and steady path over the past thirteen years.

Days of payables shows significant decrease across all three companies in percentage terms. However, **DuPont**'s averages over the period indicate that they are squeezing their suppliers and manipulating the C2C cycle by lengthening payables. For **BASF** and **Dow**, they are doing a better job of managing inventory and payables—good news for value chain relationships these companies have with their suppliers.

Figure 2. Cash-To-Cash Cycle (2000–2012)



Source: Supply Chain Insights LLC, Corporate Annual Reports 2000-2012

Table 6. Days of Payables (2000–2012)

Days of Payables (2000-2012)				
Company	**2000-2006**	**2007-2009**	**2010-2012**	**Percentage Change (2000-2012)**
BASF SE	45.1	28.0	33.8	-41%
E. I. du Pont de Nemours and Company	49.5	55.8	72.5	-26%
The Dow Chemical Company	39.6	32.6	35.7	-14%
AVERAGE	44.7	38.8	47.3	

Source: Supply Chain Insights LLC, Corporate Annual Reports 2000-2012

Receivables management also illustrates that the companies are collecting more quickly from customers and generally improving their management of cash flow within the company.

Table 7. Days of Receivables (2000–2012)

Days of Receivables (2000-2012)				
Company	2000-2006	2007-2009	2010-2012	Percentage Change (2000-2012)
BASF SE	67.7	53.8	54.3	-30%
E. I. du Pont de Nemours and Company	47.3	50.0	47.6	-7%
The Dow Chemical Company	40.6	36.9	31.3	-27%
AVERAGE	51.8	46.9	44.4	

Source: Supply Chain Insights LLC, Corporate Annual Reports 2000-2012

Comparable decreases in days of payables and days of receivables balance each other and have the ultimate effect of holding the C2C cycle steady. In order to match the performance illustrated in figure 2, we would also expect inventory management to be largely stagnant across the three chemical companies. Table 8 illustrates that is true.

Table 8. Days of Inventory (2000–2012)

Days of Inventory (2000-2012)				
Company	2000-2006	2007-2009	2010-2012	Percentage Change (2000-2012)
BASF SE	75.8	60.4	66.2	-23%
E. I. du Pont de Nemours and Company	90.6	92.1	106.0	1%
The Dow Chemical Company	56.2	53.5	58.5	2%
AVERAGE	74.2	68.7	76.9	

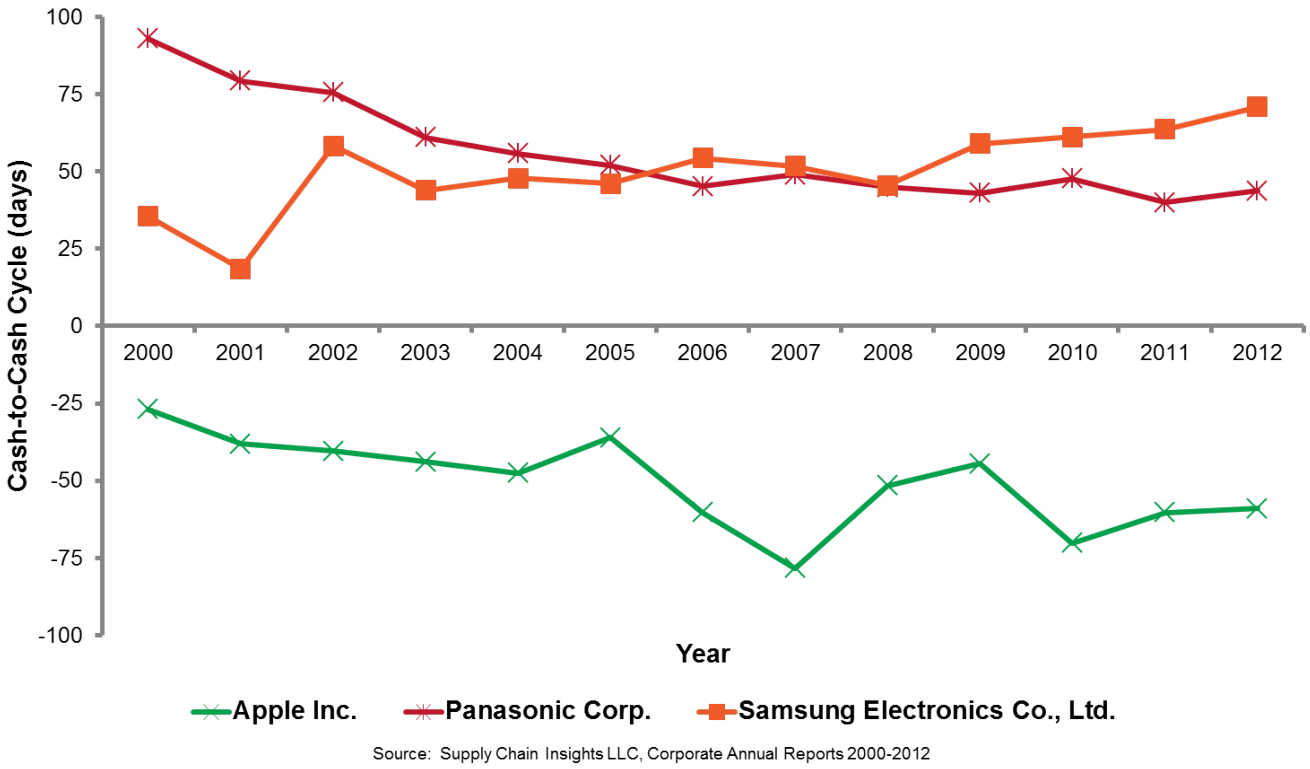
Source: Supply Chain Insights LLC, Corporate Annual Reports 2000-2012

The net result is that chemical companies have improved receivables management by decreasing DOR, improved value chain relationships by paying downstream suppliers more quickly, but have seen no overall improvement in the cash-to-cash cycle. The opportunity for these companies lies in improved inventory management.

Case Study: Consumer Electronics

The consumer electronics industry is generally recognized as one of the most advanced industries when it comes to supply chain management, and their cash-to-cash cycle performance is a testament to that excellence. A more complete analysis of the industry is available here: Supply Chain Metrics That Matter: A Focus on Consumer Electronics.

Figure 3. Cash-To-Cash Cycle (2000–2012)



Source: Supply Chain Insights LLC, Corporate Annual Reports 2000-2012

Some of the lowest C2C values are often seen in this industry, with some companies even going so far to have negative C2C values. Figure 3 illustrates the performance of the peer group over the past decade.

Apple Inc. is especially noteworthy because of its ability to not only begin with a negative C2C cycle in 2000, but to push that value lower over the past thirteen years. This is an example of the definition of a new business model and its potential to redefine the C2C potential.

A common thread in the consumer electronics industry is the use of payables to distort the C2C value. As mentioned earlier, increasing DOP has a desired impact on the cash-to-cash cycle because of the

fact that DOP is subtracted from the other two components. However, increased DOP, as mentioned in the automotive industry example, can threaten the viability of downstream suppliers.

Table 9. Days of Payables (2000–2012)

Days of Payables (2000-2012)				
Company	2000-2006	2007-2009	2010-2012	Percentage Change (2000-2012)
Apple Inc.	80.2	90.7	93.7	21%
Panasonic Corp.	45.6	50.4	57.3	7%
Samsung Electronics Co., Ltd	39.6	28.5	31.4	-52%
AVERAGE	55.1	56.6	60.8	

Source: Supply Chain Insights LLC, Corporate Annual Reports 2000-2012

This is a pattern that often appears in relatively advanced companies and industries. Both **Apple Inc.** and **Samsung** show increasing DOP values in 2010–2012 compared to the 2000–2006 time period.

As table 10 illustrates, the consumer electronics industry has done one of the best jobs of managing inventory over the decade. **Panasonic Corp** has made great strides and **Apple Inc.** has held DOI at single digit levels for over a decade.

Table 10. Days of Inventory (2000–2012)

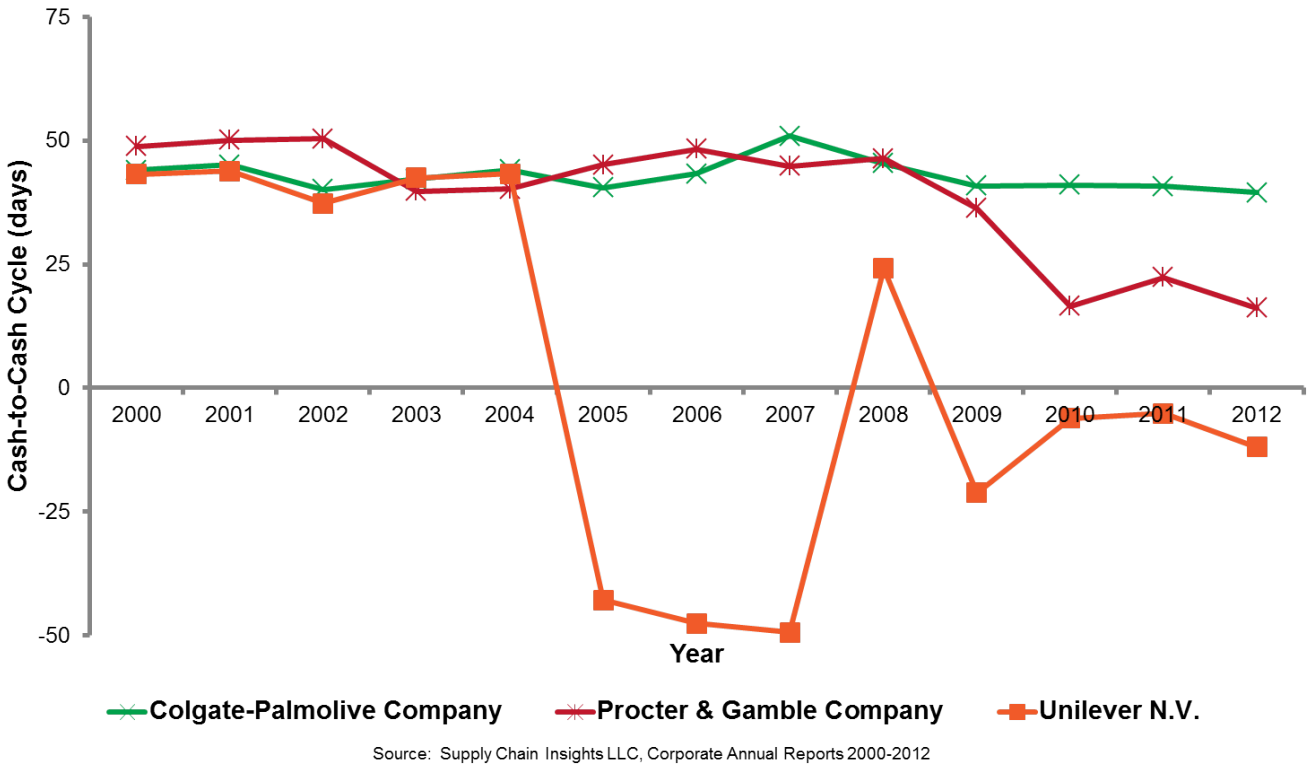
Days of Inventory (2000-2012)				
Company	2000-2006	2007-2009	2010-2012	Percentage Change (2000-2012)
Apple Inc.	4.4	7.2	5.8	59%
Panasonic Corp.	58.5	53.7	54.9	-31%
Samsung Electronics Co., Ltd	47.0	44.3	55.3	3%
AVERAGE	35.9	33.2	37.1	

Source: Supply Chain Insights LLC, Corporate Annual Reports 2000-2012

Case Study: Consumer Packaged Goods

Along with the chemical industry, the consumer packaged goods industry is generally recognized as a leader in supply chain management. A more holistic analysis of the industry is available in Supply Chain Metrics That Matter: Consumer Products. An industry overview of the cash-to-cash cycle is shown in figure 4.

Figure 4. Cash-To-Cash Cycle (2000–2012)



Source: Supply Chain Insights LLC, Corporate Annual Reports 2000-2012

The outliers in performance are clear in the graphic as **Unilever N.V.** and **Procter & Gamble Company**. Both demonstrate a significant decline in the cash-to-cash cycle at the end of the decade. These patterns are driven by two different by equally drastic changes at the two companies as seen in tables 11 and 12.

All three of the companies profiled in this case study have increased days of payables to some extent since 2000. **Procter & Gamble** has taken the most extreme approach and the result is a falling C2C value as seen in figure 4. **Unilever N.V.** has also increased payables over the time period, but the real instability in their performance is due to management of receivables.

Table 11. Days of Payables (2000–2012)

Days of Payables (2000-2012)				
Company	2000-2006	2007-2009	2010-2012	Percentage Change (2000-2012)
Colgate-Palmolive Company	63.8	64.0	65.4	4%
Procter & Gamble Company	45.9	59.4	71.0	78%
Unilever N.V.	94.3	102.8	88.6	9%
AVERAGE	68.0	75.4	75.0	

Source: Supply Chain Insights LLC, Corporate Annual Reports 2000-2012

Table 12. Days of Receivables (2000–2012)

Days of Receivables (2000-2012)				
Company	2000-2006	2007-2009	2010-2012	Percentage Change (2000-2012)
Colgate-Palmolive Company	45.2	40.4	36.6	-26%
Procter & Gamble Company	28.2	30.8	26.6	0%
Unilever N.V.	35.8	28.4	29.4	-52%
AVERAGE	36.4	33.2	30.9	

Source: Supply Chain Insights LLC, Corporate Annual Reports 2000-2012

The significant decrease in DOR for **Unilever N.V.** helps to explain the swings in C2C performance beginning in the middle of the decade. Rising inventory levels are a different, but equally troubling problem for **Colgate** as shown in table 13.

Resiliency is one of the most challenging, but also critical pieces of supply chain excellence. A lack of resiliency is especially clear in **Unilever's** performance. The lesson for consumer packaged goods companies is that supply chain excellence can only happen with consistent long term vision and year-over-year stability.

Table 13. Days of Inventory (2000–2012)

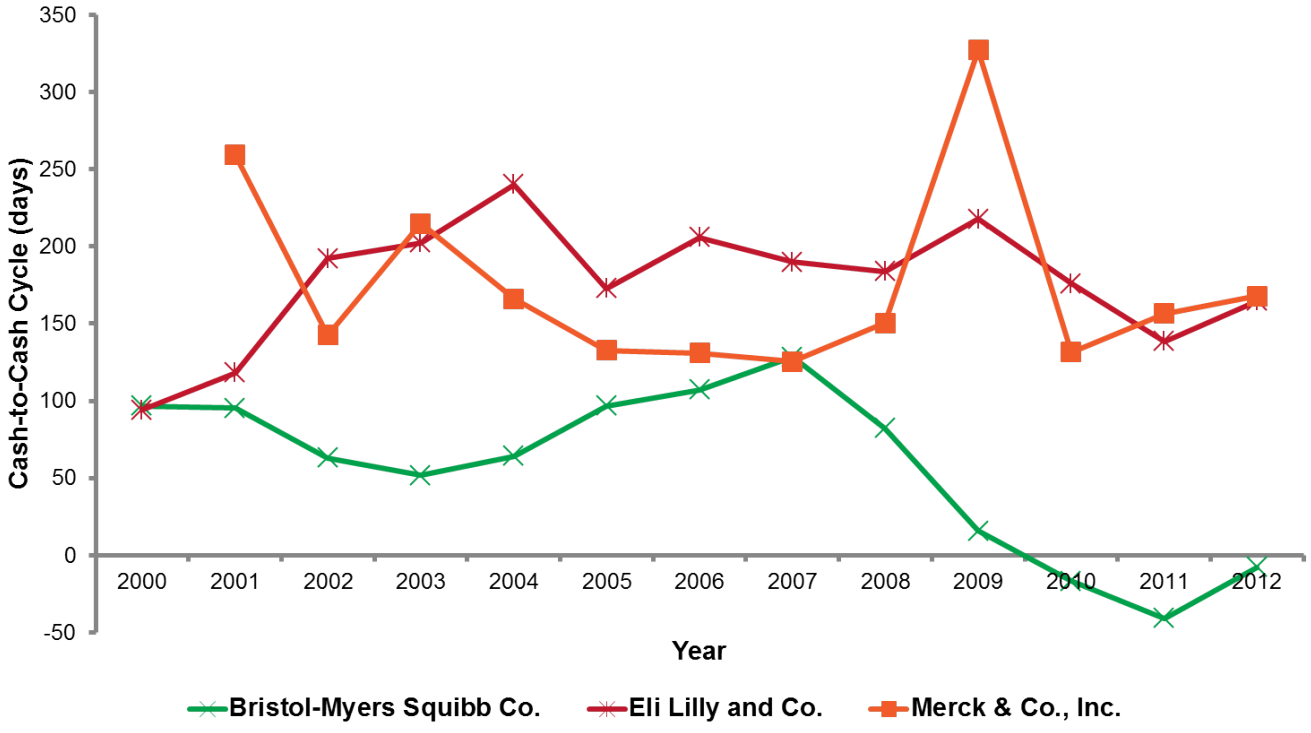
Days of Inventory (2000-2012)				
Company	2000-2006	2007-2009	2010-2012	Percentage Change (2000-2012)
Colgate-Palmolive Company	61.3	69.4	69.2	18%
Procter & Gamble Company	63.7	71.2	62.8	-5%
Unilever N.V.	75.5	58.9	59.8	-32%
AVERAGE	66.9	66.5	63.9	

Source: Supply Chain Insights LLC, Corporate Annual Reports 2000-2012

Case Study: Pharmaceutical

The pharmaceutical industry operates with very large margins making supply chain excellence less of a priority.

Figure 5. Cash-To-Cash Cycle (2000–2012)



Source: Supply Chain Insights LLC, Corporate Annual Reports 2000-2012

A more complete examination of the industry is available in Supply Chain Metrics That Matter: A Focus on the Pharmaceutical Industry.

As one would expect, a lower priority on supply chain means that cash-to-cash values are generally higher in this industry than in others. Figure 5 illustrates the industry's performance since 2000. The greatest improvement is demonstrated by **Bristol-Myers Squibb.**

The patterns seen here are some of the least resilient of all of the companies profiled in this report, showing constant fluctuation across the decade. Inventory remains a low-hanging fruit for this industry as it does for the whole of the healthcare value chain.

Table 14. Days of Inventory (2000–2012)

Days of Inventory (2000-2012)				
Company	2000-2006	2007-2009	2010-2012	Percentage Change (2000-2012)
Bristol-Myers Squibb Co.	116.7	127.3	101.6	-7%
Eli Lilly and Co.	222.4	223.2	192.4	27%
Merck & Co., Inc.	179.2	191.4	132.3	195%
AVERAGE	172.8	180.6	142.1	

Source: Supply Chain Insights LLC, Corporate Annual Reports 2000-2012

Table 15. Days of Payables (2000–2012)

Days of Payables (2000-2012)				
Company	2000-2006	2007-2009	2010-2012	Percentage Change (2000-2012)
Bristol-Myers Squibb Co.	107.8	111.3	160.4	35%
Eli Lilly and Co.	99.0	78.8	87.0	-23%
Merck & Co., Inc.	94.3	56.1	42.8	N/A
AVERAGE	100.7	82.1	96.8	

Source: Supply Chain Insights LLC, Corporate Annual Reports 2000-2012

Days of payables for the pharmaceutical industry offers an interesting contrast to the more advanced industries as demonstrated in the chemical and consumer electronics case studies. Here the tendency has not veered towards increasing DOP for quick gains on the C2C cycle. Both **Eli Lilly** and **Merck** show significant declines in payables from their 2000–2006 average compared to the more recent 2010–2012 average.

Recommendations

It is our hope that these case studies have allowed you to better understand the intricacies of the cash-to-cash cycle. Many industries are treading water. Here are our recommendations:

- **Each industry has its own potential.** The possibilities and limitations for a superior cash-to-cash cycle are unique to each industry. Cross-industry analysis can be helpful but also misleading. Companies should focus on the three levers as they relate to their own operating environment and making the right decisions for their specific situation.
- **Align with strategy.** Management of the cash-to-cash cycle should be done in tandem with supply chain strategy decisions. Each of the component metrics should be set based on an analysis of growth, risk and market drivers. The cash-to-cash cycle is more than a single number, and inventory, receivables and payables decisions should be aligned with larger corporate strategy.
- **Inventory management remains a priority across industries.** Demand volatility, supply volatility, and product complexity are all increasing. Each has a significant impact on inventory levels. With high levels of outsourced manufacturing, inventory remains an important buffer in the supply chain. The right amount of inventory is impacted by inventory form (raw material, semi-finished, finished) and function (cycle stock, seasonal, safety stock, promotional). Evaluation of inventory levels is not sufficient without understanding the form and function.
- **Days of Payables can pose a difficult balancing act.** The most mature industries (consumer electronics and consumer packaged goods) both include companies that have used manipulation of DOP to decrease their cash-to-cash value. However, the result can be a weakened end-to-end value chain and it's simply not worth the risk in the short or long term.

Conclusion

The cash-to-cash cycle remains one of the best single metrics for quickly gaining an understanding of a company's supply chain and its management of cash flow. However, there are complexities behind those single value numbers that are worth investigating. A decrease in days of inventory and an increase in days of payables have the same net result, but create a very different supply chain in terms of resiliency and relationship to suppliers. It is worth a deeper look to understand what is driving the cash-to-cash cycle.

Company Profiles

Company	Stock Exchange: Ticker Symbol	2012 Revenue (billions USD)	2012 Global Employees (thousands)	Country Where Based
Daimler AG	FWB: DAI	146.9	275.1	Germany
Ford Motor Company	NYSE: F	134.3	171.0	USA (Michigan)
General Motors Company	NYSE: GM	152.3	213.0	USA (Michigan)
Honda Motor Company, Limited	NYSE: HMC	100.7	187.1	Japan
Toyota Motor Corporation	NYSE: TM	235.4	326.0	Japan
Volkswagen AG	FWB: VOW	247.6	549.8	Germany

Source: Supply Chain Insights LLC, Corporate Annual Reports 2012 from One Source

Company	Stock Exchange: Ticker Symbol	2012 Revenue (billions USD)	2012 Global Employees (thousands)	Country Where Based
BASF SE	FWB: BAS	101.2	113.3	Germany
E. I. du Pont de Nemours and Company	NYSE: DD	35.3	70.0	USA (Delaware)
The Dow Chemical Company	NYSE: DOW	56.8	54.4	USA (Michigan)

Source: Supply Chain Insights LLC, Corporate Annual Reports 2012 from One Source

Company	Stock Exchange: Ticker Symbol	2012 Revenue (billions USD)	2012 Global Employees (thousands)	Country Where Based
Apple Inc.	NASDAQ: AAPL	156.5	72.8	USA (California)
Panasonic Corp.	TYO: 6752	99.4	330.8	Japan
Samsung Electronics Co., Ltd	LSE: SMSN	178.5	90.7	South Korea

Source: Supply Chain Insights LLC, Corporate Annual Reports 2012 from One Source

Company	Stock Exchange: Ticker Symbol	2012 Revenue (billions USD)	2012 Global Employees (thousands)	Country Where Based
Colgate-Palmolive Company	NYSE: CL	17.1	37.7	USA (New York)
Procter & Gamble Company	NYSE: PG	83.7	126.0	USA (Ohio)
Unilever N.V.	NYSE: UN	65.9	172.0	Netherlands/ United Kingdom

Source: Supply Chain Insights LLC, Corporate Annual Reports 2012 from One Source

Company	Stock Exchange: Ticker Symbol	2012 Revenue (billions USD)	2012 Global Employees (thousands)	Country Where Based
Bristol-Myers Squibb Co.	NYSE: BMY	17.6	28.0	USA (New York)
Eli Lilly and Co.	NYSE: LLY	22.6	38.4	USA (Indiana)
Merck & Co., Inc.	NYSE: MRK	47.3	83.0	USA (New Jersey)

Source: Supply Chain Insights LLC, Corporate Annual Reports 2012 from One Source

Other Reports in This Series:

Supply Chain Metrics That Matter: A Focus on Retail
Published by Supply Chain Insights in August 2012.

Supply Chain Metrics That Matter: A Focus on Consumer Products
Published by Supply Chain Insights in September 2012.

Supply Chain Metrics That Matter: A Focus on the Chemical Industry
Published by Supply Chain Insights in November 2012.

Supply Chain Metrics That Matter: The Cash-to-Cash Cycle
Published by Supply Chain Insights in November 2012.

Supply Chain Metrics That Matter: A Focus on the Pharmaceutical Industry
Published by Supply Chain Insights in December 2012.

Supply Chain Metrics That Matter: Driving Reliability in Margins
Published by Supply Chain Insights in January 2013.

Supply Chain Metrics That Matter: A Focus on Hospitals
Published by Supply Chain Insights in January 2013.

Supply Chain Metrics That Matter: A Focus on Brick & Mortar Retail
Published by Supply Chain Insights in February 2013.

Supply Chain Metrics That Matter: A Focus on Medical Device Manufacturers
Published by Supply Chain Insights in February 2013.

Supply Chain Metrics That Matter: A Focus on Consumer Electronics
Published by Supply Chain Insights in April 2013.

Supply Chain Metrics That Matter: A Focus on Apparel
Published by Supply Chain Insights in May 2013

Supply Chain Metrics That Matter: A Focus on Contract Manufacturing
Published by Supply Chain Insights in August 2013

Supply Chain Metrics That Matter: A Focus on the Automotive Industry
Published by Supply Chain Insights in October 2013

About Supply Chain Insights LLC

Founded in February, 2012 by Lora Cecere, Supply Chain Insights LLC is focused on delivering **independent, actionable and objective advice for supply chain leaders**. If you need to know which practices and technologies make the biggest difference to corporate performance, turn to us. We are a company dedicated to this research. We help you understand supply chain trends, evolving technologies and which metrics matter.

About Abby Mayer

Abby Mayer (twitter ID @indexgirl), Research Associate, is one of the original members of the Supply Chain Insights LLC team. She is also the author of the newly-founded blog, Supply Chain Index. Her supply chain interests include connecting financial performance and supply chain excellence, as well as talent management issues and emerging markets.

Abby has a B.A. in International Politics and Economics from Middlebury College and a M.S. in International Supply Chain Management from Plymouth University in the United Kingdom. She has also completed a thru-hike of Vermont's 280 mile Long Trail, the oldest long distance hiking trail in the United States. As part of the planning and food prep process, she became interested in supply chain management when she was asked to predict hunger pangs for the entire three-week trip before departure. If that isn't advanced demand planning, what is?!?!