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White Paper

KEY PERFORMANCE
INDICATOR:
CASH-TO-CASH
CYCLE TIME

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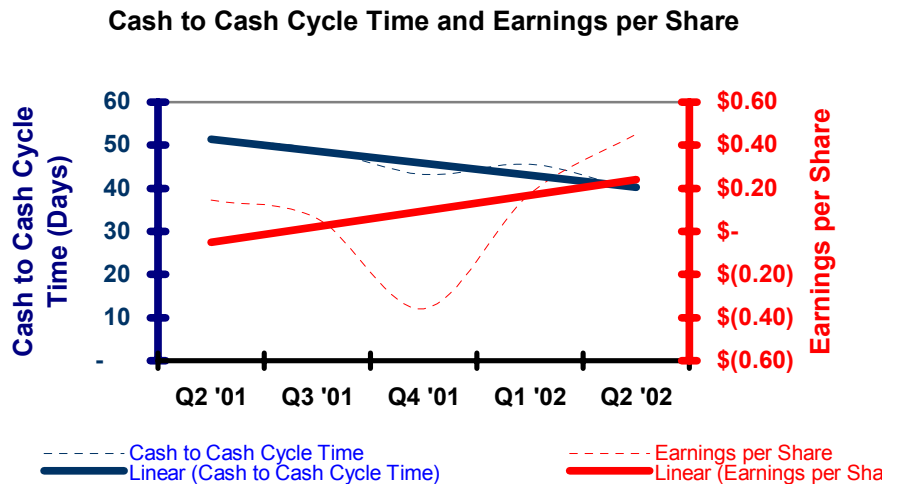
Cash-to-Cash Cycle Time May Be the Most Critical Indicator of All

Many firms – though still a minority – use Key Performance Indicators (KPI's) to measure operating performance. Typically these KPI's try to measure the operating output for each dollar of input or some other indicator. Forecast Accuracy; Line Item Fill Rate, Warehouse Labor Cost per Throughput Case, Transportation Cost per Pound Shipped, etc. all measure various components of Supply Chain performance, yet none offer the C-Level Executive a robust, yet easily understood, view of Supply Chain Performance.

This paper describes Cash-to-Cash Cycle Time and explains how it can provide C-Level executives the picture they need to manage the business and to measure the impact of Supply Chain performance improvement in terms that Financial Markets understand: Earnings per Share.

Using data from several publicly traded companies in three different industries over the last five quarters we can see good evidence – as Figure 1 shows – that close attention to managing Cash to Cash Cycle Time results in improved Earnings per Share.

Figure 1



Historically many firms have recognized – and Sears Roebuck was an early adopter – they are better off if their customers can pay them before they have to pay their suppliers. Yet that simple practice tends to diminish the increasing importance of Supply Chain performance improvement and collaboration both within the firm and across its extended trading network, extending from suppliers' suppliers to customers' customers.

The calculation of Cash to Cash Cycle Time is relatively straightforward; it is

- ❖ Inventory Days on Hand, plus
- ❖ Days Sales Outstanding (i.e. Receivables), minus
- ❖ Days Payables Outstanding (i.e. Payables).

The Formula is: $((\$ \text{Inventory} / \$ \text{Cost of Sales}) / 365) + ((\$ \text{Receivables} / \$ \text{Sales}) / 365) - ((\$ \text{Payables} / \$ \text{Cost of Sales}) / 365)$

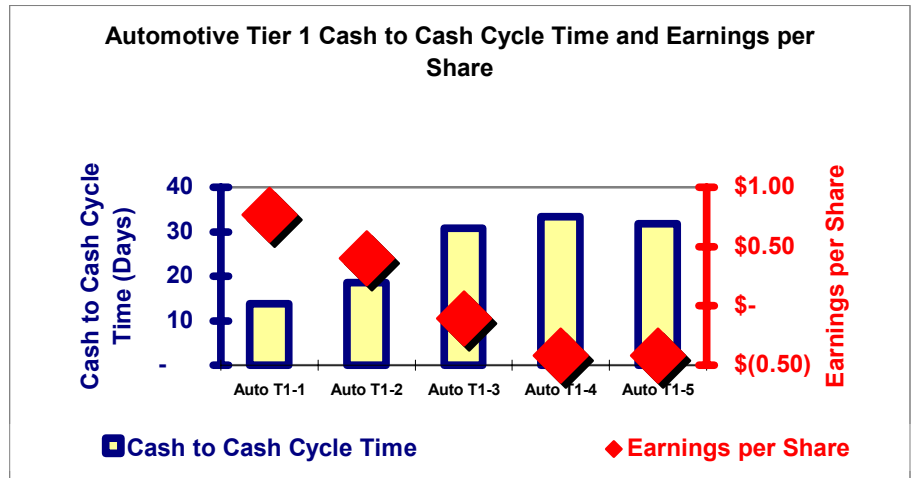
Even so, the operational activities of the Supply Chain are reflected in each of these numbers and performance improvement in each major Supply Chain function will impact on one or more of these three measurements as we show below.

Measurement	Factor	Supply Chain Function Improvement
Inventory Days on Hand	Lower Inventory	<ul style="list-style-type: none"> • Better Forecasting Tools • Better Forecasting Accuracy • Closer Collaboration in Sales & Operations Planning Process across Extended Supply Chain (Suppliers to Customers) • Closer Matching of Supply to Demand <ul style="list-style-type: none"> ○ Shorter Order Cycle Times ○ Shorter Product Development Cycles ○ Better Inventory Yield
	Lower Cost of Sales	<ul style="list-style-type: none"> • Better Supply Chain Network that Optimizes Locations, Products, processes & Transportation • Optimized Manufacturing Runs / Lean Manufacturing • Higher First Pass Yields • Lower Warehouse Space Costs • Lower Transportation Costs • Increased Resource (Labor and Equipment) Utilization <ul style="list-style-type: none"> ○ Incentive Pay Structures ○ Total Productive Maintenance ○ Improved Workplace Safety & Lower Absenteeism
Days Sales Outstanding	Lower Receivables	<ul style="list-style-type: none"> • Higher “Perfect Order” Rate (On-Time, As Ordered, Invoice Match) <ul style="list-style-type: none"> ○ Better Order / Line Item / Item Fill Rate ○ Efficient Pick, Pack, Ship ○ Fewer In-Transit Svc Failures ○ Invoice that Exactly Matches Delivery • Better Real-Time Event Management to Reduce Frequency and Severity of Unplanned Service Failures
	Higher Sales	<ul style="list-style-type: none"> • Better Measurement of Profitability by Customer, SKU, sales person, etc. supports taking care of “Best” Customers • Fewer Out-of-Stocks from Real-time Inventory Accuracy
Days Payables Outstanding	Lower Payables	<ul style="list-style-type: none"> • Better Strategic Sourcing and Supplier Monitoring to Reduce Redundant Suppliers • Better e-Procurement through Improved Content Management • Better Off-Shore Procurement by combining Duty and Tax Planning and Cargo Security with Inbound Logistics Planning
	Lower Cost of Sales	<ul style="list-style-type: none"> • Closer Matching of Raw Material Supply to Demand (see Closer Collaboration) • Lower Transportation Costs

There are opportunities to reduce Cash to Cash Cycle Times by policy. For example, a firm might extend its payables cycle to 60 days or more when cash is tight. Nonetheless, such policy gambits usually indicate deeper problems in the Supply Chain such as a failure to forecast sales downturns in a specific product group, or an internal breakdown between manufacturing and distribution. Even then, extending the payables cycle nearly always results – at some point – in higher prices from suppliers.

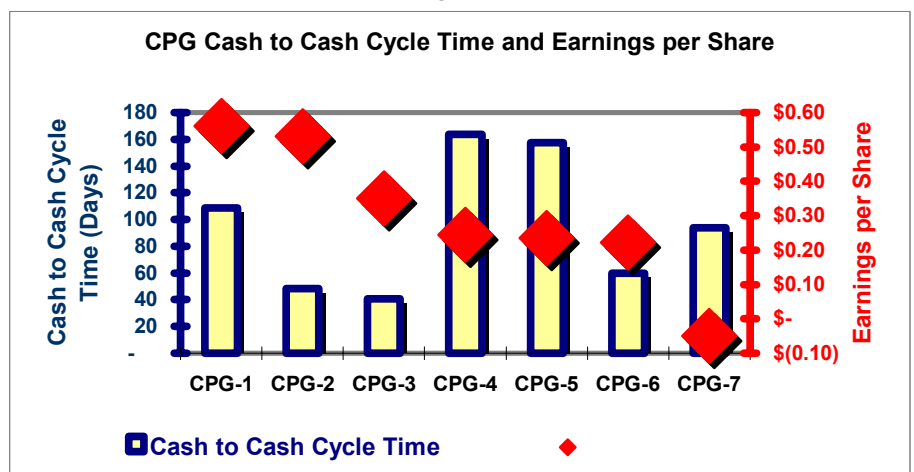
The firms in our sample appear not to have employed such policies; Days Payables Outstanding times are roughly comparable within industries. There are however differences in Inventory Days on Hand and Days Sales Outstanding among these firms. This would indicate – particularly for the firms with the highest Earnings per Share in each industry -- that significant attention is paid to Supply Chain performance improvement. There is anecdotal evidence to support this: One major consumer products group company recently credited Supply Chain performance improvements for its recent financial performance improvements. Industry-specific comparisons of Cash to Cash Cycle Times are shown in the Figures below:

Figure 2



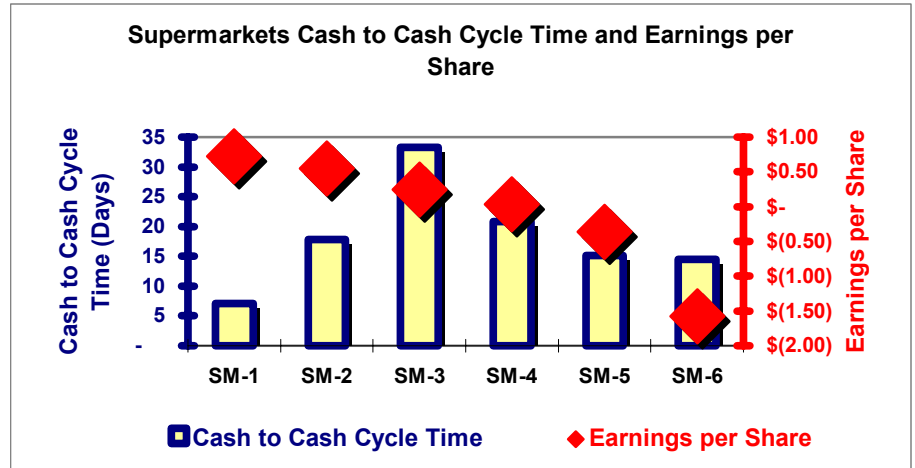
The Tier 1 automotive firms have faced intense pressure from their customers, the major car and truck manufacturers, to improve service and reduce costs. Figure 2 shows that the financial performance of these companies has been decidedly mixed. It does appear though that the performance of companies Auto T1-1 and Auto T1-2 help prove the point: reduced Cash to Cash Cycle Times result in increased Earnings per Share. It is interesting that each company in the group has Cash to Cash Cycle Times that are relatively low, at less than 40 days. This may represent evidence of the intense pressure from customers for better operating performance and more collaboration. By comparison, similar heavy industrial companies in other less pressured industries have Cash to Cash Cycle Times of 200 days or more.

Figure 3



The evidence is less clear in the Consumer Goods sector. Both companies CPG-2 and CPG-3 show very impressive Cash to Cash Cycle Times with comparably strong Earnings per Share. Company CPG-1's EPS performance is strong too, however but this may be more attributable to its product mix compared to other firms in this group rather than Supply Chain performance. Its Inventory Days on Hand numbers were higher than others in the group; and in fact are closer to that of cosmetics companies, while the others in the group have a broader mix of household and personal care products.

Figure 4



Supermarkets tend to have lower Cash to Cash Cycle Times than many other segments. Most of their sales are in cash or cash equivalents and even the increasing use of credit cards at supermarkets does not change the Days Sales Outstanding measurement significantly. As in the other sectors, the companies with higher Cash to Cash Cycle Times tend to have lower Earnings per Share, but in this sector other factors may be at work. Of these factors, non-Supply Chain related competitive pressure may be the most significant. The performance of SM-1 is however notable. Its Inventory Days on Hand were markedly lower (put another way, its Inventory Turns much higher) – on the order of 50% -- than others in the group. This is one of the largest chains in the group, with a multi-facility distribution network, indicating that attention to Supply Chain-wide performance improvement is paying off.

Managing Cash to Cash Cycle Time Drives Profitability

The conclusion to be drawn from this paper is that C-Level executives, many driven by Earnings per Share growth, would be well served to measure Cash to Cash Cycle Time closely, because improvement in this KPI likely will lead to improved profits and higher Earnings per Share.

Since the measurement data for this KPI can readily be drawn from the Balance Sheet and Income Statement, data collection and graphing should be relatively straightforward, meeting the test for a robust, yet easily understood KPI. Recommended practices to take advantage of measuring this KPI include:

- ❖ Track performance trends (e.g. using a spreadsheet-based graph) in Cash to Cash Cycle Times
- ❖ Track the individual measures as well, particularly Inventory Days on Hand
- ❖ If the trends are adverse, use the Table above to see if there are Supply Chain Functional Improvements that can be applied for corrective action.

Companies that have used this approach have seen the benefits in short order:

- ❖ A major telecommunications company lowered its Days Sales Outstanding by using Optum's Tradestream to enable Real-Time Event Management in its

Engineer, Furnish and Install business, and reduced the Frequency and Severity of Unplanned Service Failures

- ❖ A supplier to the mobile phone industry lowered its Inventory Days of Supply and that of its trading partners by using better forecasting and production planning tools to shorten order cycle times
- ❖ A metals distributor lowered its Days Payables Outstanding by using Better Strategic Sourcing and Supplier Monitoring to Reduce Redundant / Under Performing Suppliers.

In each of these cases, these actions lead to reduced Cash to Cash Cycle Times, and consequently improved Earnings per Share. With similar close attention to the underlying Supply Chain Performance Improvement opportunities shown here, C Level executives should look for reward from financial markets for continuously improving Earnings per Share.

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