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DURLINGER ESSENTIAL

Inventory turnover as a performance indicator?

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1. Introduction

In the context of inventory management as part of working capital management, inventory turnover is often used as a performance indicator. In this Essential we want to take a closer look at this indicator, paying attention to the different ways of looking at it within the company. Why doesn't everyone see stock in the same way as the CFO? What is at stake?

2. Working capital: a focus of attention

For many decades, working capital has been a subject of interest for many companies in general and for CFOs in particular. Inventory plays a prominent part here, especially at production and distribution companies. It is interesting to note that, despite all the attention given to inventory reduction, inventories have not decreased on a global scale. In fact, the opposite is true (see Figure 1). But we can also see that the creditors have increased: apparently we are attempting to make our suppliers finance the extra inventory that we create in our system.

Because stock is so important, it is also important to monitor the stock level. A classic indicator is the inventory turnover; this represents the ratio of the *Cost Of Goods Sold* [COGS] to the (average) value of the inventory:

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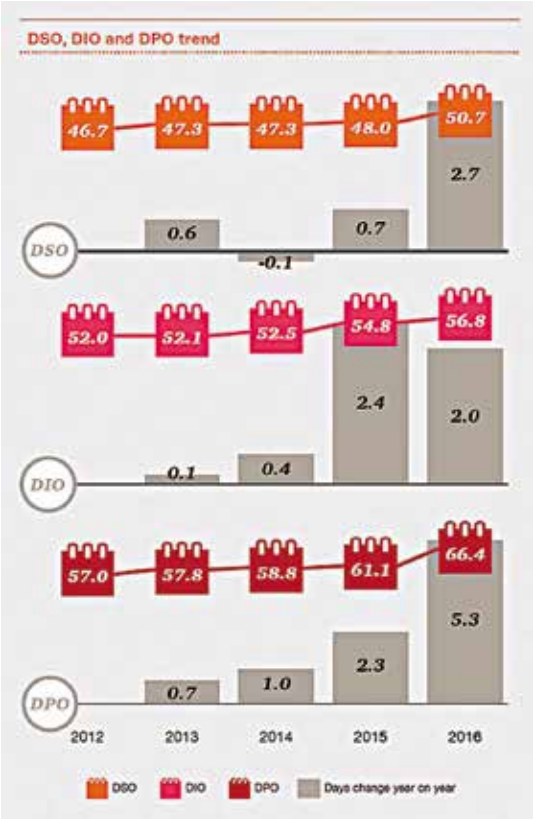

Figure 1: The evolution of DSO, DIO and DPO from 2012 to 2016 (PwC Working Capital Study, 2017-2018)

Inventory turnover = COGS / Inventory value

That value can be measured at one specific moment (for example at the close of the financial year) or it can be an average throughout the year (which is more useful, certainly in the case of a seasonal demand and / or stock pattern). Another way to look at this value is to consider it the number of times that the stock is 'refreshed' per year.

Another commonly used indicator, *Days Inventory Outstanding* [DIO] is obtained by relating the inventory turnover to the number of days in a year:

DIO = 365 / Inventory turnover

Inventory rotation and DIO are therefore equivalent indicators, although DIO may have a somewhat more intuitive meaning. It is of course important that the inventory turnover can be measured at different levels. You can calculate it for the entire stock, to obtain a helicopter view that allows you to compare yourself with other companies. But you can also calculate at the individual product level. When you do that, it becomes even more interesting – especially if you compare this to the *supply chain* characteristics of that particular product to decide whether the level is now within acceptable limits.

3. From the CFO's point of view

Stock has no special attraction as far as CFOs and financial directors are concerned. They usually just want to have as little as possible. This is certainly the case for listed companies, where market analysts are constantly doing benchmarking exercises – often without any in-depth knowledge of the specific strategy of the company in question. This leads to constant pressure from the market to keep working capital in general and inventory in particular sufficiently low.

But inventory does have a function in the company, of course, and sometimes that function is really of vital importance. The desired stock level chosen has immediate implications for the growth of the company (as a result of the service level associated with that stock) or for the efficiency (as a result of the production changeovers associated with the choices regarding batch sizes).

This trade-off between working capital, efficiency and growth was clearly understood in the early twentieth century when Dupont launched the ROE formula. Today, this idea lives on in modern financial indicators such as *Return On Capital Employed* [ROCE] and *Economic Value Added* [EVA].

The ROCE diagram shown in Figure 2 can help to clarify this.

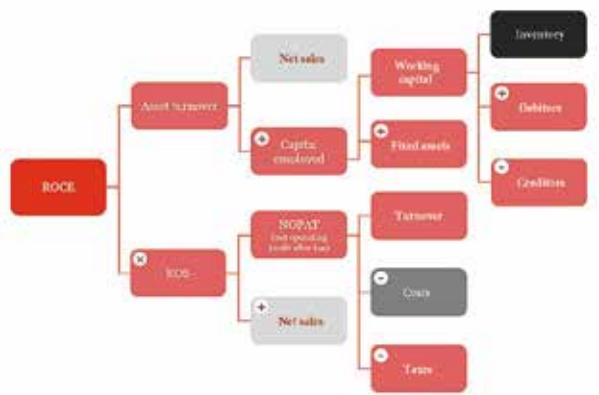

Figure 2: ROCE (return on capital employed) model

- Stock is in the denominator of the *asset turnover rate*. Stock reduction will increase that turnover rate, but only insofar as the turnover in the numerator of this fraction isn't also reduced by too much. Market knowledge is very important here: to what extent is this turnover influenced by product availability and service level? Is the customer prepared to wait a little longer for his products? Is 95% availability acceptable or should it be more like 98%? Questions like these deserve an answer.

- On the other hand, costs in the lower half of this model are also an important factor. If we demand a specific efficiency target from the production department, it can

cause problems if the stock has to be reduced. A reduction in production batch sizes makes sense only as long as the extra operational costs (caused by more changeovers) do not negatively impact the ROCE. As an indicator, ROCE does have some shortcomings because it only gives a relative indication. Value-based indicators (such as EVA) will provide a more accurate picture of where the optimum lies.

● The trick is therefore to make the right decisions to benefit company strategy. For this very reason a blind comparison with the competition is extremely dangerous. If you are pursuing a strategy of growth and customer loyalty then it should not be surprising that your stock position is slightly higher than that of a company that positions itself as 'operationally excellent'. The extra margin and extra sales that are generated in this context can perfectly justify that amount of extra stock, seen from an EVA perspective. The 'inventory turnover' indicator must be used correctly, in relation to your particular strategy.

4. From the COO's point of view

Capacity utilisation is top of the list for the Chief Operations Officer [COO]. There are two aspects to be considered here. There is the time required for production on the one hand and, on the other hand, the time required to changeover the machines. Where capacity is limited, this can lead to larger

Van de Velde

Van de Velde is a manufacturer of luxury lingerie, with the well-known brands Marie-Jo, PrimaDonna and Andres Sarda. Stock is a permanent challenge for Van de Velde for several reasons:

1. These are fashion sensitive products, which makes it extremely difficult to estimate in advance which products will be successful in the coming season.

2. At the same time, production is based in the Far East or in Tunisia, and this makes for considerable lead times.

3. Raw materials are often exclusive fabrics that are typically made to order and are often only used in a single product line.

It is a particularly delicate balance for Van de Velde to determine the correct stock levels: too little stock means a risk of missed sales, too much stock implies leftover stocks at the end of the season that either have to be sold out at low prices through alternative channels or in the worst case even destroyed.

series so that fewer changeover hours are required.

Unfortunately, larger series have two adverse effects on the inventory level. In the first place, the series size inventory increases; secondly, lead times increase for larger series, leading in turn to higher *Work In Progress* [WIP] levels. In some cases capacity can be adjusted to meet the demand: overtime during peak periods and sending staff home earlier at others. But this type of capacity adjustment also comes at a cost.

5. From the CCO's point of view

Looking at it from the Sales side of the story (as Chief Commercial Officer), we are dealing with customer wishes and requirements that have a major impact on the necessary stocks. An important concept here is the Push-Pull Point, which relates to anticipated demand (forecasts) versus actual demand (firm orders). How far in your distribution and production processes do you allow a customer order to 'penetrate'? At what level in the process will you keep inventory? If the customer does not wish to accept any extra delivery time, the organisation is forced to produce from stock or deliver from stock (wholesalers, distributors). This inevitably leads to maintaining security stocks, because demand is rarely known exactly in advance. But there can be interesting differences within the same branch: Apple can afford to market the Apple X in quantities that Apple chooses themselves, even though this means that the customer will have to wait. Huawei or Samsung can only dream of this situation. They must ensure that there is sufficient stock. The level of stock required depends on the irregularity of the demand with the associated forecasting error, the reliability of the supplier and the desired delivery reliability to the market. The latter in particular is regarded by Sales as a given, it should be 100%. This is of course utopian, but it is often stated in this way. Given unreliable suppliers, irregular sales and a high desired delivery reliability, this demand inevitably leads to high stocks.

This is also where the *product life cycle* comes in. In the beginning, during the introduction and the growth phase, delivery is a prime condition. Not being able to deliver can be fatal. The problems during the introduction of the Senseo and the accompanying coffee pads are well-known, when Philips and Douwe Egberts couldn't meet the demand. So Sales will demand sufficient availability at the introduction of a new product. Again, inventory costs are subordinate to possible out-of-stock costs. For intro products the inventory turnover will be close to zero: a large stock but nothing sold yet. At the other end of the product life cycle we run into the problem of obsolescence. The customer doesn't want the product but there are still a few left in stock. The economic value is practically zero, but at this point many controllers refuse to cut their losses and immediately proceed to writing

off the remainder. Even though this would be the best way by far to improve the inventory turnover.

So the CCO also considers inventory turnover less important than his main objective: sales are what matter most!

6. From the CPO's point of view

The position of the Chief Purchasing Officer [CPO] should be based on an integral perspective. The total of purchase costs, order costs and stock costs should be minimised. Unfortunately, we often see the opposite in practice. It seems that 'price' is the one and only criterion. Logistical aspects such as delivery reliability from the supplier, short delivery times or the possibility of purchasing small series are rarely discussed. The result is that we have to deal with large stock series and an unpredictable demand in conjunction with possibly poor supplier performance that leads to large safety stocks and high risks of obsolescence.

7. From the CMO's point of view

A further problem is the insatiable urge to provide wide assortments. This is where we enter the province of the Chief Marketing Officer [CMO]. Albert Heijn has some 150 types of shampoo on offer in its stores in Belgium, Delhaize more

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than 200 even! A drugstore chain like DIO has close on 400! At a DIY retailer like Praxis we can choose from 100 different hammers or 200 screwdrivers. Their competitor Gamma gets by with about half of these assortments; and often these two stores are side by side in a retail park. Too wide a selection in our opinion. Product ranges like these rarely lead to a greater demand for shampoo, hammers or screwdrivers, but they do lead to fragmentation of the demand. And this in turn leads to the negative stock effects discussed earlier.

8. Cause and effect

All in all, it appears that the CFO is the only person who is really interested in inventory turnover. From a logistical point of view, this is not surprising. The Supply Chain Manager can calculate what stocks are needed, based on the associated market characteristics (demand and demand variations, customer wishes / requirements and supplier performance) and the chosen stock strategy (how much to order and when). As has become clear from the above, inventory and inventory turnover are not a goal in themselves. They are the result of the business context and a series of management decisions. If inventory turnover is less than what analysts or shareholders require, for whatever reason, this can be a problem.

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9. A single target number or differentiate?

It is often the case that an 'average' number doesn't have much real meaning, and this also applies to inventory turnover. It often happens that a CFO states that inventory rotation must have a certain value (12 for example). But we are convinced that we should differentiate in one way or another.

A practical example: how *not* to do things

An inventory turnover of 10 was demanded for a wholesale trader in the agro-industry. This led to bizarre results for slow movers. Products that were purchased at the rate of 100 Euro per year were suddenly purchased every month in order to meet this inventory turnover criterion. The result was that expensive, highly skilled planners suddenly became orderers, buying in large quantities of SKUs in small series on a weekly basis. Inventory turnover was achieved at the expense of high order costs, which do not appear anywhere in the calculations. Not to mention the inherent frustration.

We have already seen the role of the product life cycle, but the importance of a product is also a factor. A well-known method for distinguishing between important and unimportant products is the ABC classification or Pareto analysis. (Note that ABC in this connection has nothing to do with Activity Based Costing!) Here, 'A' products are the important products that are traded in large quantities, whereas 'C' products sell less. You can normally expect A products to be ordered more frequently than C products. It is not uncommon for the ideal ordering frequency to range from weekly for the fast movers to quarterly or half-yearly for slow movers. Disregarding safety stocks for the moment, this would imply that for A products there may be an average stock for only a few days to a week, corresponding to an inventory turnover of more than 50! The C products, on the other hand, would have an inventory turnover of only 2 to 5.

The variation between these values will be less extreme in actual practice, but they will nevertheless be far apart. A first improvement would be to set different turnover rates, based on actual demand.

10. Conclusion: The vision and strategy, as defined by the MT, determine inventory turnover

Something interesting can be concluded from the above. The MT, or the CFO at least, sets a specific target for inventory turnover. The determining factor here is the stock value, and it is the MT itself that is responsible for this value. They are responsible for the assortment, they choose the suppliers, they determine the capacities, they determine strategic stocks and presentation stocks, etc. In many cases, the MT refuses to cut the losses in obsolete stocks and so misses the chance to increase inventory turnover. Instead of pushing the tactical or operational level to achieve the desired inventory turnover, the MT should realise that in most cases they themselves hold the key!

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Paul lectured at several universities and has twenty years of experience as a senior consultant. He sees it as his mission to make difficult concepts readily understandable.

He is also attached to the Slimstock Academy.

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