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Finventory Insights

From data to risk management in inventory financing

FINVENTORY

Pieter de Kok
Head of Risk & Reporting

This edition

In this second edition of Finventory Insights, we will discuss how a diverse set of risk parameters in inventory financing can easily be managed using the automatic combination and evolution of several data sources in a day-to-day practice.

Enabling automated and digitized inventory financing solutions

Due to the heterogeneity of inventory itself, the risks related to inventory based lending are also quite diverse. For example, financing frozen fish has many different risk drivers compared to all products originating from a complex manufacturing process. Especially related to another, more homogeneous type of working capital financing, factoring, inventory financing often receives the label of being cumbersome and costly. The reason for this is often two-fold.

- First of all, the **operational aspect of getting the correct data in time** is almost undoable without an automated approach. Our first Finventory Insights discusses solutions for this.
- The second reason is related to **risk monitoring.** The risks are often multi-dimensional and filtering the correct information from the data to manage these risks is time consuming.

In this article, we will elaborate on an automated way of monitoring inventory financing that can directly help on a day-to-day basis to get the correct insights into the risk drivers of inventory financing, even across borrowers. First of all, we will discuss what the risk drivers are. Second, the data required to monitor these risk drivers are discussed. Finally, advice is given for a structural risk management approach using an automated credit facility calculation and periodic review of risk drivers over time.

What are the risk drivers of an inventory based loan?

The borrowers' inventory inherits of course case specific types of risks dependent on the industry and circumstances, however, on a high level all inventory risk driving characteristics can be brought back to items that effect the probability of default (PD) and / or loss given default (LGD). Moreover, they can also indicate changing business processes or circumstances and plausibility of the data.

Risk drivers of inventory financing	Effects the...	For example by...
Existence	LGD	Is the stated inventory that you finance really there?
Location	LGD	In case of liquidation, can you get relatively easy access to the inventory that you have financed?
Valuation	LGD	Is the inventory that you finance worth the value given by the borrower with respect to market circumstances or net orderly/forced liquidation value?
Composition	LGD/PD	Are the goods you finance tradeable? Are they, for example, seasonal, fashionable or not stand-alone sellable.
Ageing	LGD/PD	Do you finance obsolete goods?
Perishability	LGD/PD	Are the items you finance perished or are they going to perish soon?
Turnover rate	LGD/PD	How long will it take and therefore how many costs are related to selling the inventory in case of liquidation?
Gross margins	LGD/PD	Is there enough willingness to pay in the market to carry all costs related to the liquidation and the inventory valuation?
Debts towards third parties	LGD/PD	Is there a retention of title, claim of a third parties logistic provider or other potential debts that might influence the pledge on the inventory?

What data sources should be gathered to manage those risks?

So, how can you be sure that you have enough information available to be in control over all these risk parameters? In the end, you can get the information from a limited number of data sources. Per risk driver, they are given in the table below.

Risk drivers of inventory financing	Data required
Existence	Quantity of stock keeping unit (SKU) per location (and sometimes a physical check).
Location	Physical address of storage, ownership of location and contractual agreements with third-parties.
Valuation	Valuation per stock keeping unit
Composition	(Hierarchy of) groups or categories that the SKU belongs to.
Ageing	Product receipts-, assembly- or manufacturing dates.
Perishability	Per inventory batch an expiration date.
Turnover rate	Sales on SKU level (units and price)
Gross margins	Sales on SKU level (units and price)
Debts towards third parties	Accounts payable and other general ledger data

Of course, a lot of information can already be distilled from a snapshot of all this data. However, to be able to detect implausible data, evolving risk patterns or circumstances, this data should be gathered on a frequent, preferably, daily basis. By accumulating all these datapoints one after another, you generate a time-series of relevant inventory data where trends, seasonality or volatility of data will highlight important events. Where the level of the time-series indicates the current value of a risk-driver, the volatility of data is a measure of the level of fluctuations. Larger volatility often indicates more risk, as it is hard to know what the value in the future will be when there is more uncertainty in the data.

By nature, if multiple external data sources are added, one can give the data more context and assess if movements in the figures are within expected bandwidths. For example, by using industry or macroeconomic data sources, distribution patterns in the time series can be compared to those of competitors. Anomalies can then be identified and discussed with the borrower.

How can data help to manage the risks on a day-to-day basis?

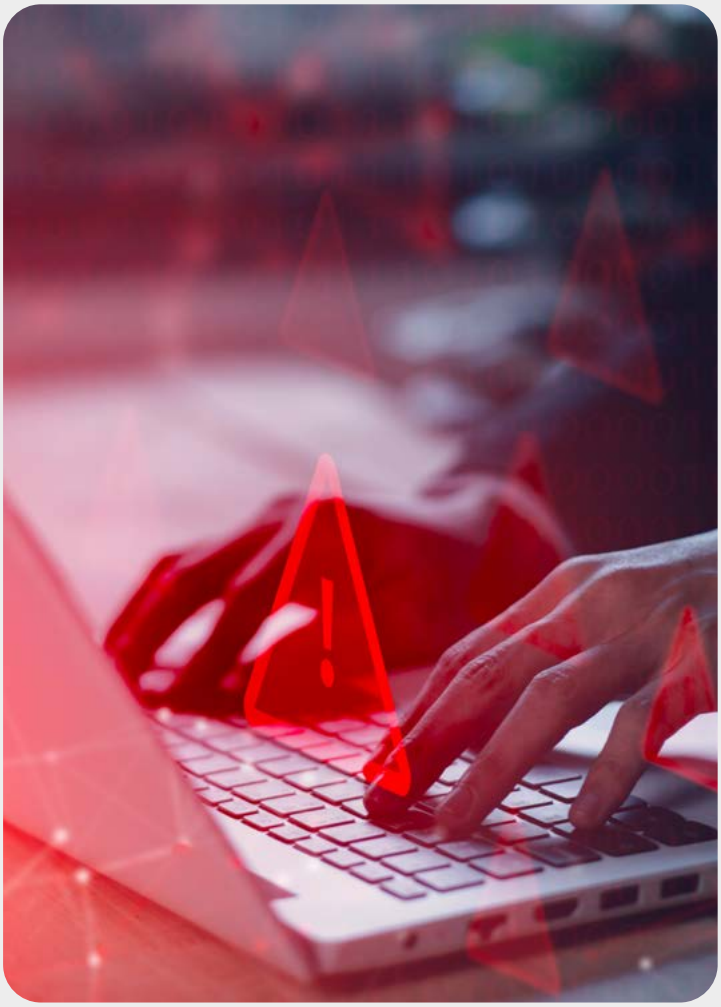
If data as described for the different risk parameters are available, it is advisable to have a combination of an automated solution and a periodical review of the configuration in a risk management framework to reduce exposure to high risk elements and pro-actively evaluate the credit worthiness of the borrower.

Automated day-to-day calculations:

- By **incorporating risk drivers as a parameter in an automated borrowing base calculation.** For example, to prevent exposure to obsolete stock, exclude all stock older than one year from the finance or only finance locations that are owned by the borrower in the home country.
- For **risk drivers not involved in the borrowing base calculation, however still exposed to, define Key Risk Indicators (KRI's) that are updated automatically on every new data entry.** For these KRI's one should define a warning and critical threshold. If one of these levels has been overshot, generate a notifications automatically.

Periodical review of the configuration:

- Evaluate all relevant **evolutions and combinations of risk drivers** over a time span of 2 years to indicate any structural changes
- Analyse the **evolution and combinations of the borrowing base calculation components**
- Perform **a deep dive for several article (groups) and creditors** by random checks and validations with the borrower and market data



As an example, depending on the availability of data, in the table below one of the most relevant evolutions of risk drivers and credit facility components are given to include in the periodical review or in a KRI.

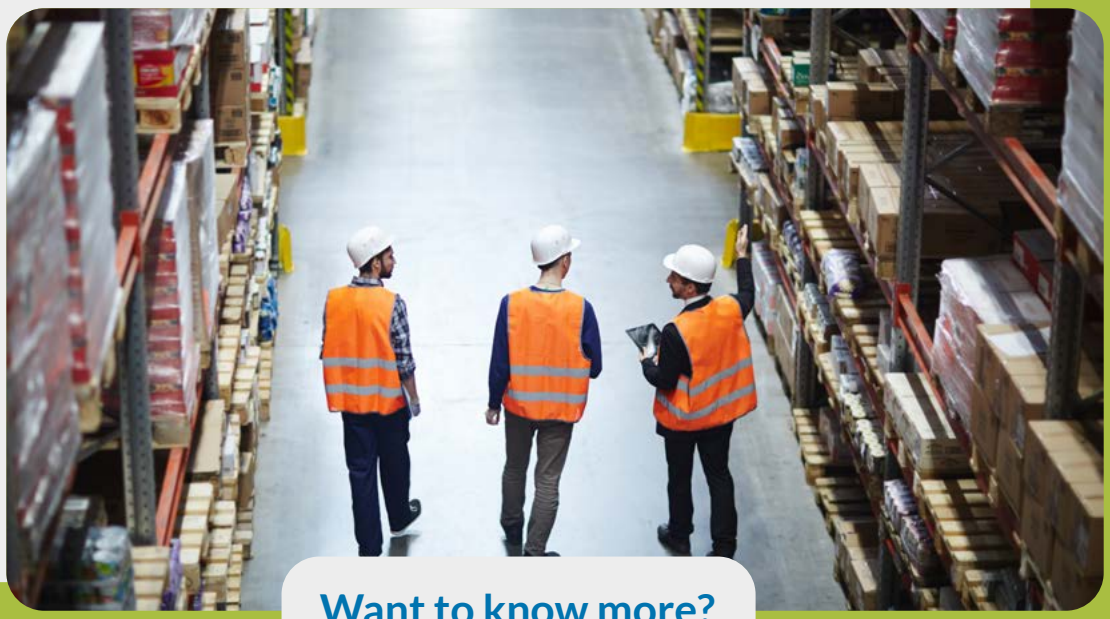
More knowledge can be gained by analysing the risk drivers at a product group level instead of aggregated level. By this, one can directly identify which product groups have a higher risk profile due to more ageing, perishability or a lower sales margin. Using this information, one can enter into dialogue with the borrower to take action and eventually adjust credit line parameters.

Risk drivers of inventory financing	Evolution to monitor	Indicator of among others...
Existence	Total quantities in inventory	Changing business strategy or circumstances
Location	% of inventory stored on (eligible) location	Shift in partnerships, activities or supply chain.
Valuation	Inventory balance sheet value	Potential revaluations.
Composition	% of inventory in certain (eligible) product group	Change in business strategy, suppliers, market conditions or manufacturing process.
Ageing	% of inventory older than a year	If you have increased exposure to obsolete stock.
Perishability	% of inventory to perish within 6 months	If you have increased exposure to perished stock in the upcoming months.
Turnover rate	Inventory value / 12-months total Cost of Sales	A decline in sales with respect to capital locked in inventory, increasing PD.
Gross margins	% sold with negative gross margin	An inventory that is valued too high or declining willingness to pay.
Debts towards third parties	Unpaid inventory / Inventory value	If there is an increase in unpaid stock or claims, influencing the PD.

Some concluding remarks

This issue of Finventory Insights covered the second problem in inventory financing from a lender perspective, being the structural monitoring of heterogenous risks. We identified the nine most important risk drivers and the required data to monitor these. Finally, a combination of automated borrowing base and KRI calculations in combination with periodical review of risk driver evolutions provides an adequate risk management framework to make inventory bankable.
Finventory offers all tools to allow for automated credit facility calculations, KRI's and analysis of evolutions of risk drivers in inventory financing.

In the next Finventory Insights, we will compare the developments and potential in inventory financing with respect to its working capital brother, factoring.



Want to know more?

finventory21.com
info@finventory21.com
+31 (0) 85 303 73 00