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The potential of internal information in credit risk management

systematic evaluation and beneficial effects

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1 Introduction

The current turbulence on the stock markets and its as yet unpredictable consequences are keeping investors and companies alike in suspense. The effects of the recent international economic crisis are still very present. The increase in company insolvencies from 2008 to 2010 reversed in 2011[1], but the effects of the current financial market developments on the economic situation cannot yet be predicted.

In times of crisis, there is increased fear that the risks that have been taken may materialize negatively, thereby jeopardizing the soundness of one's own company. In the B2B sector, the credit default risk is particularly important in this context. It is common practice to allow payment on credit terms. For the creditor, this frequently implies the risk that the debitor may not comply with his payment obligations as agreed, i.e. that he may pay late, less than the full amount or not at all.

Risk early identification systems are intended to help in recognizing risks at an early stage in order to be able to initiate appropriate measures. But any early identification system can only be as good as the early warning indicators that it is based on. In the context of creditworthiness checks and continuous monitoring, the available in-house information about the individual customers and customer relationships is a particularly valuable resource.

From the point of view of value-orientated corporate management, however, creditworthiness analysis and the associated rating as the sole instrument of customer evaluation and limit assignment does not go far enough. In addition, the question should be asked as to which

[1] Creditreform specifies about 14,500 company insolvencies for the first half of 2008, 16,820 for the first half of 2010 and almost 2,000 company insolvencies less for this year. See: Creditreform (2011): Unternehmensinsolvenzen, Entwicklung der Unternehmensinsolvenzen in Deutschland, www.creditreform.de.

customers are significant for the company's success. These do not necessarily have to be those customers with outstanding creditworthiness. Therefore, an analysis of the actual cost-revenue ratio under consideration of the incurred risks has to be made.

2 Creditworthiness checks and monitoring

The passing of the Corporate Sector Supervision and Transparency Act (KonTraG) in Germany more than ten years ago brought about the obligation – primarily for public limited companies – to install an adequate risk management system for the early identification and assessment of negative developments.

This change in legislation has also had corresponding consequences for private limited companies and (large) partnerships.[2] After all, well-founded credit risk management is indispensable for safeguarding one's own financial situation. As a consequence, companies have to pay particular attention to their debitor portfolio in order to avoid bad debt losses as far as possible. This includes the thorough checking of potential new customers as well as the monitoring of existing customers.

Proper checking of new customers requires external information of high quality. Priority has to be given to the evaluation of hard facts. Possible sources of information are business information reports, bank reports and self-provided personal details, but also annual reports and inter-yearly financial reports. Ideally, this provides the basis for precise creditworthiness assessment, which – possibly complemented by commercial credit insurance – will determine the credit limit and the payment conditions under consideration of the in-house credit policy.

In the case of longer-term business relationships, one's own knowledge of the activities and the business conduct of the customer, as well as any possible observations about relevant changes in behaviour, are additionally available for the purpose of comprehensive customer monitoring. The advantage of this internal information is that it is very up-to-date: for example, a member of staff may have been at the customer's premises just recently, so that the corresponding appraisal of the customer's shop fittings is fairly recent. The payment information from the accounting department is also updated daily. In many cases, however, these potential sources of information are not yet being utilized, although they would be particularly valuable for continuous creditworthiness monitoring. This applies especially to customers with whom turnover is generated frequently and on a level that is high in comparison to the size of the customer's company. In many cases, external information or additional security instruments may even become unnecessary.

3 Valuable internal information for evaluating creditworthiness and assigning limits

3.1 Preliminary remarks

Companies frequently have extensive in-house information about their existing customers. The available information (potentially) includes hard facts, such as the accounting data, as well as supplementary soft facts, such as discussion notes, observations and/or systematically collected sales questionnaires. All this holds an often untapped potential for analyzing the customer or the existing business relationship in various regards.

The in-house information can make valuable contributions to assessing creditworthiness in credit management. Ultimately, the objective of identifying selective internal characteristics and indicators and integrating them into the risk early identification system is always the (improved) detection of good and bad customers with the aim of minimizing or avoiding risks by initiating preventive measures. Individual, up-to-date key figures or characteristics as well as historical or portfolio-based comparisons and the analysis of trends can contribute substantially to the distinction between customers with a high risk of default and those with no risk.

In credit management, creditworthiness is the determinant that is given priority. In addition, the strategic objective of making profit, as well as the generation or increase of turnover that is necessary for making profit and that is aimed at

[2] See: Beinert, Claudia: Bestandsaufnahme Risikomanagement, Page 29.

by the sales department, should also be integrated into the practice of limit assignment. In the economy, the prospect of high profits is frequently accompanied by a comparatively high risk. Therefore, doing business with high-risk customers can often be successful, but adequate risk assessment and the assignment of appropriate limits are indispensable. The company must recognize, by using early warning indicators, in time when it is necessary, due to risks incurred or to pass on it.

3.2 Internal payment records for evaluating creditworthiness and assigning limits

3.2.1 Assessing the payment behaviour on the basis of individual key figures

From the available accounting data, various key figures that appear to be well-suited to interpreting a customer's payment behaviour can be derived. Is easy to determine, for example, the monthly turnover, the currently open items, the average payment duration, the maximum or average payment delay, the number of invoices for which a reminder has been sent, the number of direct debits returned unpaid, as well as the sum of the claims that have been passed to a debt collection agency or the total amount of disputed claims.

The question as to which key figures are actually meaningful has to be answered using statistical analyses. The answer will differ from customer to customer. Regardless of company-specific peculiarities, it is certain that not all the key figures, if considered separately, will yield a gain in knowledge with regard to creditworthiness assessment.

Certainly, reminders, disputed claims and especially direct debits returned unpaid can be negative signals in their own right and indicate exhausted or exceeded credit lines with the customer's main bank, or simply poor cash or creditor management. But the exclusive consideration of a single turnover parameter or of a customer's current amount of open items will not yield any gain in knowledge that helps in assessing creditworthiness. To this end, historical data would also have to be included in order to reveal any specific changes, to eliminate seasonal fluctuations and to make trends visible.

3.2.2 Internal key payment record figures in the course of time

Various key figures that describe the payment behaviour towards one's own company allow precious knowledge to be gained about a customer's creditworthiness development if they are systematically historized and evaluated using statistical methods. The continuous consideration of payment delays and their comparison with the number of days allowed for payment and those for discounts to apply makes it possible to identify the switch by the customer from discounted payment to net payment, a step that necessarily has to be examined critically. Such supplier credit is conveniently available, but frequently very expensive. Especially in the case of customers who have previously always been first-class payers and have thus saved costs it must therefore be assumed that they have a financing shortfall.

The already mentioned monthly turnover may[3] allow an interpretation to be made, for example if it is compared with the (moving) average of the turnover of the past three or six months. This approach is appropriate if the turnover of the company under consideration is predominantly independent of the season. Otherwise, the corresponding figures from the previous year should be used. Furthermore, it is a well worth systematically checking the development of certain characteristics for (negative) trends. In many cases, IT-based risk early identification systems include statistical models, which allow the prediction to be compared to the actual development. A time series analysis provides the option to record seasonal regularities as well as trends.

In the context of IT-based risk early identification systems, complex statistical prediction models are frequently developed on the basis of historical figures and integrated into the creditworthi-

[3] The question as to what extent turnover affects creditworthiness has to be answered for each individual case and certainly deserves critical examination. An assessment of the turnover development usually makes sense only if the turnover generated with the supplier concerned accounts for a sufficient fraction of the total turnover (see section. 3.2.4). It can at least be used to assess the significance of the internal payment records.

ness assessment process. A time series analysis provides the option to record seasonal regularities as well as trends[4]. The models allow the predicted values of the characteristic under consideration to be compared to the actual values. In this way, the values of key figures can be analysed in retrospect using the values derived from prognoses made with the benefit of hindsight. In the context of risk early identification, however, the values derived from prognoses made in advance are of particular importance. They allow conclusions to be drawn about future developments. If the predicted values exceed either the limits of the tolerable variance or specific limit values, the necessary risk reduction measures regarding the customer in question can be taken in time.

In addition to the previously described customer-specific historical averages and reference values as well as the values predicted by theoretical models, non-customer-specific and industry-specific benchmarks can also be used as reference values for interpretations.

3.2.3 Assessment of payment behaviour using benchmarks

Benchmarking means the analysis of customer-specific characteristics in comparison with reference values, which are either determined on the basis of one's own customer portfolio or derived from external sources. The latter method will be disregarded here because this article focuses on the consideration of the internally available information.

Provided one's own customer portfolio is of a sufficient size, it is perfectly suited for specifying benchmarks. A reference value could be determined as the average of the entire customer portfolio or of a specific customer segment (defined by the industry, the company size, the age of the company etc.). The ratio of the volume of disputed claims to the turnover or to the volume of open items is frequently regarded as a potential indicator of financial difficulties and thus of a deterioration of creditworthiness[5]. But the actual significance of this statistic can only be assessed by way of comparison with (selected) other customers.

The same applies to the parameter "payment delay". In principle, one could argue that a payment delay has to be taken into account in the rating process as a negative attribute. The customer in question may previously have always paid before the agreed payment date, and the development over the course of time may support the currently negative impression. But the question as to whether the customer's financial situation really is particularly bad requires further consideration. Is the customer "only" suffering – like the entire industry – from typical seasonal effects or effects of the overall economic situation,[6] or has a crisis affected him with particular severity? A suitable comparison of the individual customer with the reference group is necessary in order to find this out.

3.2.4 Assessment of the significance of internal payment records

In the practice of creditworthiness assessment, the internal payment records are an essential component. In many cases, this aggregated information will be more important than external business information reports or bank reports, or the evaluated annual report data, but one needs to examine if or when the internal payment records are to be regarded as meaningful. In practice, a minimum number of months with a certain minimum turnover in the previous year is frequently demanded. This specification should be viewed with caution, however, because it completely disregards company size. In other words: the percentage of the customer's turnover is not clear. As a consequence, the supplier who is making the assessment of creditworthiness cannot tell whether he is an important or an unimportant supplier for this customer. The customer's payment behaviour in dealing with other business partners may be much worse or much better. In practice, the payment moral and the resulting payment behaviour sometimes vary depending on the business partner's relevance.

[4] See in detail Eickemeyer, A.: Ansätze für ein effizientes Kreditrisikomanagement für Verbundgruppen in Zeiten der Krise, Pages 45-68.

[5] Of course, it is possible that the customer tries to obtain additional liquidity or to achieve an extension of the payment term by sending unjustified notices of defects.

[6] This could be checked by a time series analysis and simulated in an individual prediction model.

Information about this may be sought, for example, in payment record pools, which compare the individual characteristics that have been reported with the entirety of the corresponding data that is available in the pool. The question remains, however, as to how many of the relevant suppliers actually report data to the pool. This problem can easily be avoided: from his accounting data, the supplier can find out the volume of his business with a particular customer over the course of time. Individual balance sheet data such as the accounts payable for deliveries and services can easily be collected via the German Electronic Federal Gazette and can then be used as a basis for establishing the relative size of the claims. The supplier can then estimate whether he is an A supplier or a B supplier for the customer in question and whether the in-house payment records are significant or not. [7]

3.3 Internal information as a determinant of the credit limit

3.3.1 Creditworthiness as the main determinant of the credit limit

Generally, the evaluation of a (potential) customer's creditworthiness stands in the foreground when determining a credit limit. As a rule, credit rating and credit limit are positively correlated. The limit is further influenced by such criteria as turnover or company size. A lower estimation of creditworthiness, representing a comparatively higher default risk, leads to a lower credit limit and less favourable payment conditions. Possibly the customer will not even be allowed to buy on credit terms, but will be asked to pay cash.

In this context, a company needs to ask itself whether the setting of limits and the more restrictive payment conditions have a negative effect on sales. This accusation is frequently levelled against credit managers by the sales department. The latter tends to believe that credit management induces "hindrance of sales". The justification from the credit managers is usually that defaults must be avoided, whether through more securities, payment in cash or, in the worst case, by not concluding the sale.

From a strategic perspective, it is essential that profit-generating sales are carried through. This requires that the (seemingly) competing goals of credit management and sales be reconciled. A differentiated risk-benefit analysis including internal information can help to achieve this.

3.3.2 Foundations of a value-orientated credit limit decision

3.3.2.1 Customer value and contribution margin

From the point of view of the management, it is important to conclude sales that have a positive impact on the company's success. One therefore has to identify the customers that contribute to those sales. In this context, measures like the customer value or, more concretely, the contribution margin play an important role. Both measures can be calculated using internal information and integrated into the decision-making process.

Customer value measures the value that a single customer brings to achieving the (company-specific) goals. This includes the current payments, but also the expected payments throughout the lifetime of the business relationship.[8] The loss of a customer results in opportunity costs if it leads to the company missing out on sales. This means that activities that negatively influence the customer's satisfaction and therefore increase his willingness to change supplier reduce the customer value. Profitable future sales are possibly lost. Restrictions based on creditworthiness should therefore be implemented very carefully in order to avoid long-term negative effects.

From the short-term perspective, it is worthwhile examining the contribution margin (CB) of a customer. Generally, the contribution margin calculation uses the elements and results of the direct cost calculation and compares the revenues of business done to the respective

[7] If it is evident that the supplier is the decisive business partner, i.e. the A supplier, he can utilize further valuable internal information, for example because this means he has detailed information about the customer's product range. It may even be possible to carry out a product analysis, from which further conclusions about creditworthiness could be drawn.

[8] See: Schroeder, N.: Kundenwert als zentrale Größe zur wertorientierten Unternehmenssteuerung, Hamburg 2006, Page 31.

variable costs.[9] A positive contribution margin contributes to covering fixed costs. When all the fixed costs are covered by positive contribution margins, the company has reached the break-even point.

The absolute periodic customer contribution margin can be found by comparing all revenues generated (in a period) by a client to the total costs resulting directly from the client. The sales department may have used its competence to make concessions in exceptional cases regarding pricing or the payment conditions, such as extended payment terms. A payment term extension leads to an increase in the average amount of outstanding payments. This in turn means higher risk and refinancing costs and can quite possibly induce a negative contribution margin. It is important that the overall business relationship yields a positive profit contribution.

To allow a direct comparison between customers and the use of threshold values, the absolute contribution margin needs to be standardized. The relative customer contribution margin is calculated by dividing the absolute customer contribution margin in a period t by the customer-specific revenues in the same period and is given in percent.

$$\textit{relative contribution margin}_t = \frac{\textit{contribution margin}_t}{\textit{revenues}_t} \times 100$$

The results of a contribution margin or customer value-orientated customer analysis will in many cases diverge from the creditworthiness evaluation. Customers with a very low default risk, meaning an impeccable creditworthiness, do not necessarily make an outstanding contribution to the success of the company. It is more often the case that customers with a high creditworthiness use their position of strength to negotiate better conditions and therefore might have a lower contribution margin.[10] It is therefore important to look at customers whose creditworthiness is lower to see whether it might nevertheless be advantageous to allocate them a limit.

3.3.2.2 Customer contribution margin as an additional determinant for the credit limit

The credit limit decision is bound on one side by credit management and on the other by the sales department. Credit managers seek to minimize risk in order to avoid defaults, while the sales department strives for high turnover with high contribution margins. There is a potential conflict between credit limit decisions that are creditworthiness-driven and those that are contribution margin-driven. One can represent this situation in a simplified illustration with four possible creditworthiness/contribution margin combinations.[11]

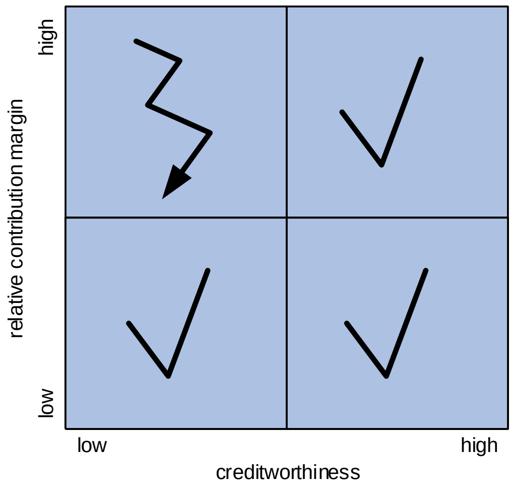

Illustration: creditworthiness/contribution margin combinations

The goals are only aligned for customers with high creditworthiness that are ready to pay high prices and thereby have a high contribution margin and for customers with insufficient creditworthiness and contribution margin. With the former, business should clearly be done; the latter are probably best avoided.

The third case, good creditworthiness and low contribution margin, at first glance seems to need no further discussion, because credit

[9] In a further contribution margin differentiation, certain fixed costs are included in stages. In order not to over-complicate the discussion this will not be dealt with here, although in practice companies decide which specific cost components are to be used.

[10] With risk-adjusted pricing, creditworthiness-dependent differences in the contribution margin would only appear when the risk costs are not adequately calculated and implemented. In practice however, risk-adjusted pricing and calculation of supplier credit is far from the norm and will therefore not be assumed here.

[11] See: Mohr, G.: Kundenerfolgsorientierte Bonitätsprüfung und Kreditlimitierung. Page 59-68, p. 68.

management would traditionally provide a sufficient credit limit – without considering success with customers. This also makes sense for value-orientated company management, because each positive contribution margin leads to an earlier achievement of the break-even point. However, all the costs associated with the sale should be studiously examined. When the contribution margin is narrow, even a payment term extension can turn a positive profit contribution negative. In this situation a critical value based on the current refinancing costs could be set for the relationship between contribution margin and payment duration; after all, the refinancing costs associated with the provided commercial credit must at least be covered.

Another interesting case, and one that requires special attention, is customers who are assigned a high default risk but have a relatively high contribution margin. The credit managers would like to limit or even eliminate the default risk; but through their actions they might generate dissatisfaction, disloyalty and therefore opportunity costs in the form of lost income due to mistakenly refused or lost sales. To the sales department, these sales are particularly attractive. Because of their poor creditworthiness and the weak negotiating position that ensues, these customers are often willing to pay relatively high prices, which can lead to high contribution margins for the company. To ensure sufficient success with customers, another critical value could be set here, for instance for the relationship between contribution margin and risk. Risk here could refer to outstanding payments (perhaps multiplied by the default risk). Assuming the ratio of absolute contribution margin to outstanding payments is 1/10, one could conclude that the customer would need to pay at least ten equally high invoices at the same conditions to compensate for defaulting on one bill. Given regular order rhythms, the duration could also be calculated and integrated into the evaluation or the credit limit decision. The time duration of the risk is defined as the time until the generated gross margins of the failure of a bill would be covered.

4 Integration of internal information into the early warning system

Risk early identification systems support a company in systematically and soundly analysing and monitoring the creditworthiness of its individual customers and form the basis for assigning limits and especially for adjusting these limits according to the actual situation. Because of the masses of data to be handled, risk early warning systems are IT-based nowadays. Any media discontinuities are ideally avoided. This means that not only the external information, which will not be dealt with in detail here, but also the entire internal information has to be suitably edited and made available to the early warning system in real time. For each customer there is an individual credit file, which serves as the central collecting point for all the current and historical information. The company's credit policy should be modelled using corresponding sets of rules and should then be integrated into the system. This allows the credit management workflow to be executed on an IT basis and manual interventions to be reduced to a minimum.

The selective characteristics, key figures and criteria that can be derived from the internal information should be updated continuously. In order to serve as the basis for the customer-specific limits, they are aggregated and then automatically included in the assessment of creditworthiness. As explained in section 3.2.1 above, isolated key figures can also be used in the assessment process. But it is particularly the consideration of key figure development over the course of time and/or the comparison of the key figures within an industry or a portfolio that makes valuable findings regarding the probability of default possible. If, for example, specific threshold levels or benchmarks are defined for the identification of poor creditworthiness or of a drastic deterioration in creditworthiness, they can be used as a basis for concrete measures. These can include the generation of a message to the operator in charge, indicating that manual intervention is required or that specific measures are being initiated automatically. Here, the full range of potential measures is available, from the simple collection of additional information or securities to the passing of the case to a debt collection agency.

The system solution allows all the customers to be continuously and comprehensively monitored, thereby making a historic consideration of the rating development possible. The supplementary internal information also provides the basis for automatically addressing further strategically relevant decision parameters in a customer-specific way and displaying them in the risk file. What is of interest for the members of the sales staff is not primarily the probability of default that is attributed to a certain customer but rather the assigned limit, the payment conditions and the current contribution margin.

All in all, a system-based credit risk management solution allows a wide range of evaluations to be performed on the basis of a wide range of criteria, taking into account the entire customer portfolio. From these evaluations, recommendations for action at both the strategic and the operational level can be derived.

5 Beneficial effects

Systematically edited (aggregated) internal information has many uses in the context of value-orientated corporate management.

In credit management, automation and efficient workflow organization generally lead to a reduction of the operative costs. Numerous manual tasks, such as routine checks and evaluations of the available information, are carried out using system support, and any irregularities are reported on the basis of defined criteria. The obligation of the credit managers to discover on their own any critical changes in creditworthiness becomes an obligation for the system to provide the relevant information. This helps save precious time and allows the scarce resource of human capacity to be focussed on essential problems that cannot be solved automatically.

The targeted use of the available in-house information can have a particularly beneficial effect on the costs that arise from creditworthiness checking and monitoring. Especially in the case of longer-term business relationships with regular (high) turnover it is easy to recognize whether one's partner reliably pays on time. Especially if – as explained in section 3.2.4 – the payment record is classified as meaningful, and even more so if the supplier is also identified as an A supplier, external information that has to be paid for will become (partly) unnecessary. This opens up the perspective of realizing enormous savings in information costs. The internal information is available for free. Only the definition and implementation of the evaluation rules will give rise to costs when the system is introduced and for any updates that may become necessary. Furthermore, specific sales information, such as selected contents of a sales questionnaire etc., can be integrated into the assessment of creditworthiness and thus improve the rating quality.

In the case of a high frequency of business operations, internal information is by nature clearly superior to the various external information sources in terms of being up-to-date. On this basis, statistical models or (dynamic) benchmarks can reveal even a creeping deterioration of creditworthiness at an early stage so that it can be signaled to the credit managers, thus reducing or even preventing bad debt losses. Of course, the acceptance of the general terms and conditions of business frequently implies an agreement about a (prolonged) preservation of proprietary rights. But in practice, this is often worthless. Therefore, it is important to demand in good time that additional securities be provided, such as guarantees or advance payments. [12] Exactly this can be realized by way of the intelligent integration of one's own experiences with a customer's business conduct. In addition, the early identification of creditworthiness deterioration, combined with the consequent initiation of the corresponding risk reduction measures, can also lower the costs for enlisting external debt collection services.

In order to be able to pass on at least part of the default risk, companies frequently use commercial credit insurance. Here, the electronic credit management solution supports all the routine processes. Compliance with agreed obligations can be guaranteed automatically. For example, claims can be serviced cheaply via the system without any manual interference. Credit target

[12] See: Schumann, M.: Beiträge des Kreditmanagements zur Liquiditätsplanung und -steuerung im Unternehmen, Pages 81f.

overruns, credit worthiness deterioration and relevant revenues and balances are reported system-based. The contractual criteria in the field of standard insurance can also be checked automatically. These criteria frequently include a specified number of positive payment records of one's own. Furthermore, the automated and thus reliable cancellation of unneeded limits can reduce the costs enormously by saving fees.

Apart from the advantages for credit management, which essentially consist of an increase in the cost reduction potential, there are also advantages for the sales department when looking in detail with regard to safeguarding the company's overall success. The crucial point is the harmonization of the goals of credit policy and sales policy in accordance with the concept of value-orientated corporate management. The extensive evaluation of internal information and its integration into the credit management system, as well as the associated well-founded rating, makes the risk-appropriate pricing of supplier credits possible. Even if this varying of the payment conditions has not gained general acceptance yet, or cannot be put into practice, there is nonetheless a sensitization of the sales staff to the objectives of credit policy. In turn, the integration of absolute and relative contribution margins or of customer value make it clear to the credit management staff that high risks are frequently associated with high and/or regular contribution margins and that they can therefore be quite important for the company's success.

Especially in times of crisis, the sales department frequently uses the payment conditions as a tool of its sales policy; a typical example is the extension of the payment term that is associated with supplier credit. Longer payment terms imply additional uncertainty and necessarily entail a higher volume of outstanding payments, accompanied by a higher credit default risk due to the overall economic situation, while sales stagnate or slightly decline at the same time.[13] This scenario makes close coordination between the sales department and the credit managers indispensable. This can easily be realized using a system-based solution as already described. Recommendations for action may be derived from selected key figures that interrelate internal data relevant to credit policy and to sales policy.

Internal information can be used not only for assessing individual risks, but also for analyzing the entire customer portfolio and thus the company's strategic orientation. An important non-customer-specific key figure is the DSO (Days Sales Outstanding), which describes the average number of days between invoicing and the receipt of payment for the entire claims portfolio. The continuous monitoring of the average period for which payments are outstanding and of the associated capital lockup or the induced calculatory interest is particularly relevant from the strategic perspective. This key figure is affected positively by an efficient organization of the debitor management workflows. A difficult economic situation will have a negative effect. Furthermore, sophisticated and well-founded management and evaluation of the customer portfolio can have positive effects on one's own refinancing, e.g. in factoring or in the availability of credit from one's own bank.

6 Concluding remarks

In general, it can be stated that internal information is a valuable resource for credit management. If it is systematically edited and specifically integrated into an IT-based credit management system, it can be shown that it provides various advantages and beneficial effects.

In the monitoring of existing customers, the company-specific internal key figures should be valued particularly highly because their use can make expensive external information unnecessary. High quality of the early warning system, however, can only be achieved by using suitable, selective key figures. There is a range of different characteristics and evaluation variants to choose from. For example, isolated individual key figures such as direct debits returned unpaid, can be included into the creditworthiness analysis as warning signals, depending on the respective individual situation. Current data on the customer's payment behaviour in comparison with

[13] See: Schumann, M.: Beiträge des Kreditmanagements zur Liquiditätsplanung und -steuerung im Unternehmen. Pages 80f.

historical (average) values for the same customer, for the entire portfolio or for a selected reference group is also frequently a very useful rating criterion.

In addition to the various approaches to ensuring the informational value of the creditworthiness assessment and of the quantification of the credit default risk, the extensive editing and evaluation of internal data can contribute – in the context of value-orientated corporate management – to harmonizing the objectives of the sales policy and the credit policy. Both fields will profit from the data collected in each of them. For example, a customer's payment behaviour should also be of interest to the sales department. And the information provided by a member of the sales staff about, for example, the fittings in a customer's shop can quite possibly be included in the evaluation of creditworthiness. Both the credit managers and the sales department can access the customer-specific data whenever necessary and profit from the resulting synergies.

The interrelation of success with customers in the form of the contribution margin and the customer-specific credit default risk will lead to the assignment of a well-founded limit. The aim is to do profitable business as long as the risk early warning system ensures that risks are incurred deliberately and that they are appropriately secured whenever necessary.

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