

# Information technology in the area of insolvency proceedings

An example from the environment of the Czech Republic

[Luboš Smrčka]

**Abstract** – this work describes endeavours to implement modern information technologies into the system of insolvency proceedings in the Czech Republic. It concerns the problem of cooperation of scientific workplaces with state institutions in the field of refining legislation and improvement of collection of statistical data. It also outlines the possibilities of usage of mathematical methods, especially regression analyses, for planar analysis of large sets data with the aim, among others, of defining such cases of insolvency proceedings whose results or course could indicate contravention of laws, or indicate the rise of situations which would be apposite to examine from the sides of auditing bodies.

**Keywords**—information system, insolvency proceedings, insolvency court, regression analyses, statistics,

## I. The significance of insolvency proceedings

Insolvency proceedings are the closing phase of a business' existence and one of the forms by which businesses dissolve. It occurs when an entrepreneurial subject does not succeed on the market; in exceptional cases, the reason behind insolvency is a coincidence of external circumstances, such as the consequence of a natural catastrophe or accident.

Insolvency proceedings are usually commenced when the debtor is bankrupt or if its creditors believe it is bankrupt. In special cases, insolvency proceedings could be misused from the sides of creditors or third subjects to pressure the debtor, although these are non-systemic variants and are essentially criminal, and we will not concern ourselves with them at present.

Bankruptcy is usually distinguished as evident or latent. Evident bankruptcy is inability to repay, i.e. the debtor has for a longer period of time been unable to meet its liabilities duly and to the full extent. The creditors are thus informed regarding a debtor's inability to pay by the mere fact of absence of adequate instalments.

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The second form is latent insolvency, which is known as *over-indebtedness*, in which the debtor's liabilities exceed its assets. The creditor in fact need not necessarily notice these situations for a relatively long time, for the debtor could be able to meet its liabilities – thanks, for instance, to a recently accepted credit, thanks to the sale of property, or simply thanks to the favourable development of cash-flow. [1]

Insolvency proceedings have considerable macroeconomic significance, for it is in this sense of the word its task to mediate an expedient and cheap transfer of the debtor's assets to their new proprietors, the creditors (it is mostly a transfer in the form of a pay-out from proceeds gained by monetising these assets). The faster this process and the more effective it is, the sooner the debtor's assets (deadened in insolvency proceedings or inactivity in the debtor's business) will find their ways into active economic cooperation and thus produce yet again.

They are of great importance also for the entrepreneurial sphere, as significant volumes of property pass through such proceedings in every economy. For instance, in the Czech Republic these are annual sums exceeding ten billion crowns; we can by a very rough estimate speak of assets at an amount of about 0.5% of the country's gross domestic product, whilst these assets are, via insolvency proceedings, transferred from the control of debtors to the creditors' sphere of control. Understandably, then, insolvency proceedings are often the place of very sharp lawsuits, both between the debtor and its creditors and between the creditors themselves, or between individual groups of creditors. An important sign of insolvency proceedings is the fact that they are marked by highly divergent or even thoroughly contrasting interests of the individual participants thereof. [2]

In all developed countries it applies that only a very limited set of information is available on insolvency proceedings. These are data on the number of commenced insolvency proceedings, on the manners in which the court ruled on the proposal – whether it dismissed it (the proposal) or whether the debtor's bankruptcy and bankruptcy on its property or reorganisation, for instance, was declared; we also mostly have information as to the duration of insolvency proceedings in a given country. Besides specialised studies, however, we do not have any general information on the results of insolvency proceedings and other economic aspects. [3, 4]

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## II. The state of utilization of information technologies in insolvency proceedings

Act No. 182/2006 Coll. on bankruptcy and methods towards its settlement (the insolvency act) has been effective in the Czech Republic as of 1 January 2008. [5] An integral part thereof is openness of information concerning proceedings, which is based upon several fundamental postulates:

- All information on all insolvency proceedings underway is made public in the insolvency register ([www.justice.cz](http://www.justice.cz)), which is a public and remotely accessible place which can be utilised by anyone, without this usage being subject to a fee or registration.
- As of the moment from filing the insolvency proposal, all insolvency proceedings can be traced as an individual case, both according to the company title or its Id. No. (Identification number). After opening a particular case it is possible to examine other documents. All documents which were delivered to the court or which the court issued and concern this case are booked there. In the same mode one can also access all documents concerning incidental lawsuits conducted in connection with these particular insolvency proceedings.
- Insolvency proceedings are commenced by making public in the insolvency register a notice on commencement of proceedings; this takes place within two hours after the delivery of an insolvency proposal to the insolvency court; if it is delivered within a time shorter than two hours after the end of the office hours of the pertinent insolvency court, the notice is made public the following working day. The court is generally instructed to make other documents public “without unnecessary delays”. The documents are usually made public within several hours after their delivery to the court, or after their generation.
- Documents are placed into the insolvency register solely by the court; these are usually documents in the form of electronic copies (scans) of paper correspondence and, to a smaller extent, electronic documents. Even documents developed by the court are mostly in the register in the form of electronically generated copies (scans).

### A. Limitations of the present state of usage of information technologies

Even from the perfunctory description of the functioning of the insolvency register in the Czech Republic, it is clear to see the fatal limitations thereof given by the very principle of document storage. There exist practically no search possibilities in the system, for individually stored documents are not electronically processed, and these are mere

“photographs” of original paper documents. What is worse, however, is that fact that although the system enables analysis of individual cases – after studying the documentation, which is practically identical with the court dossier – it is unable to generate any data concerning the entire set of insolvency proceedings or a select group of cases. This means that although practically all individual items of information are contained in the register, it is impossible to work with them, for the register does not in any way behave as a database. [6]

This leads to an interesting paradox where, on the one hand, there is in the Czech Republic a thoroughly transparent system of informing the public (whether it is connected with a case or not); on the other hand, however, this system does not provide any relevant information on general trends in insolvency proceedings. In this sense, then, the result is absolutely the same as in countries where institutions similar to the Czech insolvency register are inaccessible, accessible only to a select group of users, or are subject to a fee.

Yet at the time the insolvency act was enacted in the Czech Republic, it was the legislators’ goal, among other things, to change the state where the level of awareness on previous bankruptcy proceedings or settlement proceedings was very low and the information on general outcomes of these proceedings was zero. Through a lack of thoroughness on the parts of the legislators, then, a state of affairs has arisen where one could indeed speak of the absolute transparency of individual proceedings, but not of the transparency of the entire system. [7]

## III. Proposals for a change of the system and an attempt towards a revolution of information

In 2012, attempts towards improvement of this state of affairs began thanks to financial support by the Technological Agency of the Czech Republic and interest declared by the Ministry of the Czech Republic to arrive at a change in the area of collection of statistical data on insolvency proceedings. A questionnaire system gradually arose, the goal of which was to capture in a simple and indisputable manner the key phases and especially the main results of insolvency proceedings. Although this task could at first glance seem relatively simple, it is in fact an unusually complex problem. One must bear in mind the fact that many individual economic steps occur in the course of insolvency proceedings; these have varying impacts on the participants of the proceedings; furthermore, it is fundamental that, during proceedings, certain creditor groups are satisfied sooner and to a greater extent, others at the close of proceedings, and so forth. [1] All these aspects – for instance, the fact that volumes of receivables are often changed during the course of proceedings as they are variously transferred, or that partial satisfaction occurs, are facts that needed to be captured in the questionnaire. At the same time, however, it was necessary to ensure that duplicate booking of individual numbers would not occur.

Just to illustrate, it was necessary, for instance, to solve the problem with the relatively frequent situation where a debtor

in bankruptcy vouched for a receivable of another business which, however, does not repay this receivable and is also in bankruptcy. This receivable therefore does not appear as contingent in the given insolvency proceedings and at the same time features in the insolvency proceedings with the original debtor. A relatively frequent situation, then, is that this receivable is partially satisfied in the proceedings with the original debtor; thus only the part which was not satisfied and which is being enforced from the party who vouched for it is submitted to the second proceedings. However, a large number of similar situations appear in the real world, and it is relatively difficult to capture them in a manner which is not deceptive in its final consequences.

Thanks to the cooperation of the Insolvency Research (www.vyzkuminsolvence.cz) scientific team, which was formed for the solution of the above-mentioned projects supported by the Technological Agency of the Czech Republic, and the Ministry of Justice of the Czech Republic, preparations during 2014 reached a phase where formulation of legislative changes necessary for the implementation of a mandatory questionnaire survey was underway. In this way, all insolvency proceedings will be recorded not only through documentation in the insolvency register, but also with the aid of an electronic questionnaire. Its implementation into the insolvency register system will in principle occur inasmuch as the questionnaire will become an electronic version of the closing report on insolvency proceedings or another document by which the proceedings close from a factual perspective. [5]

#### A. *Expected possibilities of the new system*

As of the implementation of this mechanism for collecting statistical data, state bodies expect several significant changes and the opening of numerous possibilities to gradually improve the entire insolvency system in the country. Such improvement is considered necessary especially due to the unacceptable state of affairs in the area of satisfying secured and non-secured creditors. [8, 9] Especially the following aspects of the situation are at issue:

- Thanks to the possibility of analysing in a structured and continuous manner the development of insolvency proceedings and their general results, it will be possible to ascertain current trends in proceedings.
- This means, for instance, that state bodies will be able (of course, after a certain time when the system has been functioning and when it has thus become “filled” with items of information on already closed insolvency proceedings) to ascertain the development of the main parameters of insolvency proceedings – thus, among other things, the level of satisfaction of receivables beyond property, receivables placed on a par with receivables beyond property, secured creditors and, finally, non-secured creditors also; it will be possible to analyse the duration of proceedings and the time that elapses between certain crucial steps in insolvency proceedings. It will be possible to monitor the development of remuneration of

insolvency administrators and the development of insolvency proceeding costs besides.

- As can be seen from a perfunctory outline, considerable possibilities for detailed survey of ongoing processes are opened. It will be possible to define groups of insolvency proceedings according to debtor characteristics (for instance, its size, number of employees, legal form) and then analyse these groups individually; it will be possible to earmark individual proceedings according to the length thereof and search for regularities which lead to the fact that certain proceedings are especially lengthy as opposed to others and analyse whether this fact is connected, for instance, with the volume of receivables, number of creditors or, contrariwise, with the person of the insolvency administrator or insolvency judge.
- Yet another possibility opens given an adequate number of data and the possibility to analyse also relatively small sets of mere hundreds of cases – the detection of such insolvency proceedings in which certain parameters diverge from the standard framework. One can then consider that, on the basis of documents in the insolvency register, such cases will be subjected to more detailed scrutiny by analysts from the Ministry of Justice, and in the event of suspicion of a non-standard course they (the analysts) will then investigate such proceedings in cooperation with state authorities or, as the case may be, with police bodies. [10]
- Of course, however, clearly the most essential usage of the statistical system from the perspective of state institutions will be the possibility to propose further amendments to the insolvency act on the basis of thorough knowledge of real results of insolvency proceedings.

#### iv. **An example of analytical utilisation of data**

Methods of micro-analytical analysis and other mathematical methods (especially regression analysis) offer significant possibilities of working with data on insolvency proceedings. Very briefly, we now offer several basic suggestions for handling these figures in the future and really only a few tips on how to interpret results of analyses. The list of real potential would be far too long, which is why we will only name some at random:

- Key parameters of any insolvency proceedings in which a debtor’s bankruptcy is declared include satisfaction of individual types of creditors, the time the proceedings took, and finally, costs which were expended on the proceedings as such, as well as the insolvency administrator’s remuneration. Thanks to the knowledge of these parameters one can find dependencies between the duration of proceedings and the yield, between yield in proceedings in which there are only non-secured creditors and where there are

secured and non-secured creditors and in numerous other combinations. With the aid of regression analysis and other methods, one can find the depth of reciprocal dependencies and their development in time.

- It is possible to form time series of results – for instance, according to the year in which the proceedings were commenced and according to the year in which the proceedings were closed; in this way, one can prove whether the court system manages insolvency proceedings better or worse over time (for instance, from the perspective of creditor satisfaction).
- It will be possible to discover differences between individual regions according to various parameters such as duration of proceedings or yield for creditors.
- It will be possible to find “usual paths” of the course of events delimited by frequently appearing proceeding parameters (in groups of proceedings with similar debtors), and in the event of fundamental straying of certain insolvency proceedings from the path, such cases can be subjected to stricter analysis from the perspective of abidance to regulations.

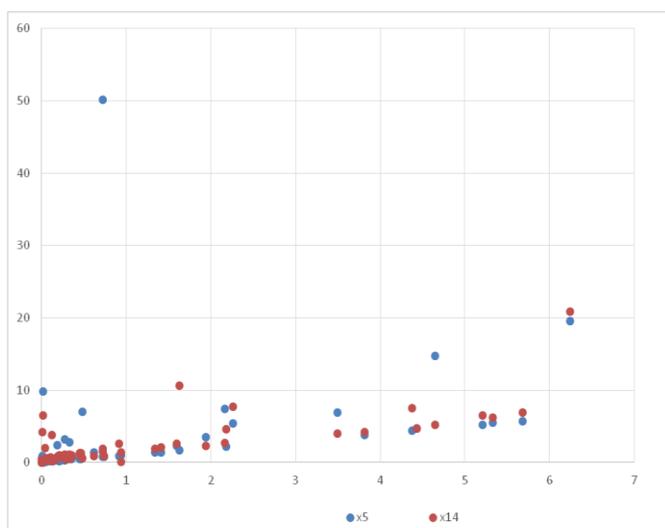


Figure 1. Graph of dependency of yield for a secured creditor, volume of registered, ascertained receivables and the total volume of monetisation of the debtor's property.

The graph shows an analysis of dependency between yield in millions of crowns (y-axis) and parameters of proceedings x5 (in millions of crowns, volume of registered secured receivables) and x14 (in millions of crowns, yield from monetisation of all debtor property, including securing). Values appearing on the same y-axis value are values from the same insolvency proceedings. This sample concerns 54 debtors who were declared bankrupt between 2008-2013 and whose bankruptcy was settled by bankruptcy on the debtor's property; and finally, these proceedings were also bindingly closed during the given timeframe, whilst the condition for classification into the sample was the presence of at least one non-secured and at least one secured creditor. From the perspective of irregularity, one could in this case speak

especially of cases where we will find a relatively high value of monetisation of the debtor's property, yet with a low y-axis value, i.e. a low pay-out to a secured creditor. It naturally applies that in some cases, the volume of secured receivables could truly be very low in comparison with the debtor's property, which can easily be ascertained in the insolvency register and in the actual graph (with the aid of the x5 parameter) besides. Nevertheless, it is more probable that this reciprocal state of parameters will rather indicate certain specific events in insolvency proceedings, whilst this particularity could also be contravention of regulations.

In any event, one can here observe indications of future possibilities and other possible combinations of comparisons (at present, models have been developed for six variables on the y-axis and for a combination of a total of sixteen variables placed under various numerical significations of x, always in absolute values). However, a more complex comparison of relationship variables (of the type of total volume of receivables / volume of secured receivables with parameters such as total costs of insolvency proceedings / costs for maintenance and monetisation of collateral in a time series) is offered.

## v. Conclusion

Even a mere indication of the potential harboured by analytical processing of sets of data describing insolvency proceedings shows that, thanks to better and more consistent utilisation of information technologies, it will be possible to rationalise to a marked extent our consideration of the insolvency system as a whole. Besides this, however, unusual and hitherto unknown arguments for legislative work will be gained, which should to a significant extent rationalise the decision-making processes of the political representation. It will also be possible to anticipate such cases of insolvency proceedings which should take priority in becoming the centre of attention on the parts of auditing bodies.

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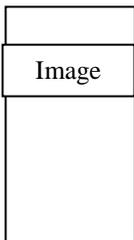
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