Early Warning Systems: A Risk of Increasing Managerial Myopia?

MICHELE BERTONI
University of Trieste, Italy
michele.bertoni@deams.units.it

BRUNO DE ROSA
University of Trieste, Italy
bderosa@units.it

LAURA PERESSIN
MIB *Trieste School of Management, Italy*
laura.peressin@mib.edu

The Italian legislator has recently approved a new Insolvency and Crisis Code (Legislative Decree 14/2019), introducing a compulsory *Early Warning System* to detect occurring crises. The new provisions are in accordance with the EU policies that require Member States to develop national insolvency frameworks, which force enterprises in financial difficulties to restructure at an early stage of the crisis (EU Directive COM(2016) 723). The aim of the new rules is to prevent, as far as possible, insolvencies, and therefore to maximise the total value to creditors, employees, owners, and the economy as a whole. Since the new rules imply more encompassing responsibilities for corporate supervisory bodies, these provisions are generally perceived as having the ability to induce a significant impact on Italian SMEs' management control systems. This is certainly to be welcomed, because this is an area where there is still room for much-needed improvements. Nevertheless, some concerns should also be expressed. As a matter of fact, possible misunderstandings and misuses of different sets of control could derive from this new focus on early warning indicators. Notably, a bureaucratic and formal approach in the design and use of companies' control structure could prevail, since generally, among practitioners, there is not enough knowledge and understanding of the rationale of management control systems. Different kinds of control, such as post-action controls, steering controls, and yes-no controls, could therefore be confused, with an almost assured negative effect on firm's ability to pursue its strategic aims. Another area of potential misconstruction could arise from the confusion between managerial control systems on one hand, and internal auditing on the other: their roles and aims should be clearly understood and kept separated, although within an integrated framework. This distinction is of a paramount importance because, with the new law, the monitoring of the occurring crisis is no longer a responsibility of the sole directors, but

it involves other subjects: the board of statutory auditors (or the single statutory auditor). These subjects will therefore have a set of incentives that make them focus all their attention on avoiding insolvency risks, with no or little interest in the pursuing of long-term goals, possibly leading to short-termism and a lack of strategic action. Early warning indicators are certainly useful, as they can be employed both as a diagnostic form of control, and as a strategic tool to detect in advance the evolutions of the environment and the competitive arena. Clearly, different sets of parameters should be adopted in the two instances, and, more importantly, different logics and ways of interpreting them. Regrettably, the new rules concerning early detection of crises could determine a too narrow focus on the short term, therefore causing managerial myopia. Building on previous literature, this article aims to develop a set of indications that could lead to a better understanding of the purposes and rationales of different kinds of managerial controls, and therefore to help practitioners to design their managerial control systems in a more informed and balanced way.

Key words: early warning systems, crisis, management control systems, diagnostic and strategic measurement of performance, risk management, managerial short-termism
https://doi.org/10.26493/1854-4231.14.306-323

Introduction: Crisis and Insolvency

Crises in businesses are preceded by warning signals, sometimes ignored or not recognised by managers (Scherrer 1988). When promptly detected and addressed, however, these signals can stop the degenerative process, or even lead to a turnaround. Situations of decline or crisis may typically arise from inefficiency, overcapacity, from marketing errors, from the inability to programme, from errors in strategy, and from a lack of innovation (Riva et al. 2018). In some cases, especially in some legal frameworks, and in management practice, the concept of crisis is the same as that of insolvency (Quagli 2016). On the other hand, a generic decline or deterioration in a business' performances is not always enough to lead to a crisis. Since it is difficult to define a crisis, and even more difficult to detect it, it is sometimes comforting identifying insolvency as the defining event of a crisis. In fact, insolvency is an objective event, verifiable by external parties, which could be described as a systematic default on the firm's obligations. This almost tautological equivalence of crisis with insolvency, however, is not very helpful when the purpose of the warning signals of a crisis is to prevent the very insolvency that

would be detrimental to the interest of creditors and other stakeholders. For this reason, current EU policies[1] require Member States to develop national insolvency frameworks, with the aim to prevent, as far as possible, insolvencies, and therefore to maximise the total value to creditors, employees, owners, and the economy as a whole.

The challenge, therefore, is to identify a system of early warning indicators that can allow determining the moment when a business faces a crisis, before this situation deteriorates into insolvency. However, since the ultimate goal of the framework devised by the EU is to detect crises before they turn into insolvencies, it is inevitable that these indicators will be skewed toward short-term liquidity and long-term solvency, rather than focusing on the firm's profitability. Following Quagli (2016), we can list three approaches to identifying a crisis: (1) external; (2) internal – backward-looking; (3) internal – forward-looking. The external approach relies on the impact of the crisis on third parties, namely the creditors. Signals of financial distress are delays in the settlement of debt, default on some particularly relevant obligations, such as those toward tax authorities and social security entities, and so on. This approach can be relatively simple to implement, given the consequences on the economy of the creditors, but it is too close to a generalized condition of insolvency to be useful in detecting crises early and reverting them.

The internal – backward-looking approach is based on accounting information prepared by the firm itself, i.e. on financial statement analysis. Besides the problem of defining a set of financial indicators that can be used for this purpose, and the necessity of determining the thresholds that allow the analyst to declare a state of crisis, the main shortcoming of this approach is that it may not be timely. Financial statements, in fact, provide backward-looking information by definition, and by when the data become available and are subject to analysis, the crisis could have already degenerated into insolvency. This leaves the third approach, based on forward-looking information (plans and programs) prepared by the firm itself. This approach is not without limits, as we will illustrate in this article, but it is consistent with the goals of preventing a state of insolvency, and not just confirming it. Given the nature of the goal, special attention should be given to the capability of the firm to generate in the future enough cash flows to meet the firm's obligations.

In this article, we describe the new Italian framework for the early detection of crises and for the prevention of insolvencies. The new law, issued before the relevant EU directive was finalised, offers the opportunity to comment on the impact of the new provisions on the

management control systems of firms, especially those of small and medium-size. We also highlight the inherent risks in the way the EU requirements are implemented, since they could hinder the flexibility that would be instead required to face a crisis context, eventually leading to an additional layer of checks and controls that could 'bureaucratise' business crises, and eventually providing a strong incentive for the management to focus on the short-term.

Financial Ratios and Insolvency Prediction Models

Starting from the late 1960s, there has been considerable research into the use of ratios and cash flows to predict bankruptcy. Beaver (1966) examines 29 ratios in the five years preceding bankruptcy for a sample of firms, adopting a univariate approach, i.e. each ratio is considered alone in predicting bankruptcy. The cash flow/total liabilities ratio proved to be the best predictor. Later studies however employed a multivariate approach: Altman (1968) developed the well-known Z-score, based on five ratios: working capital/total assets, retained earnings/total assets, operating income/total assets, market value of equity/book value of debt, and sales/total assets. Altman, Haldeman, and Narayanan (1977) subsequently refined the model, including, among other improvements, several adjustments to the accounting information reported in the financial statements. Ohlson (1980) assigns to each firm a probability of bankruptcy, using logit analysis, leaving to the user of the model the choice of an acceptable level of probability to separate bankrupt firms from non-bankrupt firms. The lower the level, the higher the chance of misclassifying solvent firms as insolvent (false positive), while the greater the probability cutoff, the higher the chance of misclassifying insolvent firms as solvent (false negative). For bankruptcy prediction models, false negatives tend to be more costly than false positives. In fact, in case of a false negative, when the model predicts solvency, the creditor will extend a loan, and potentially lose 100% of the investment. In the second case, a false positive, the creditor will not extend a loan, but then the loss can be measured by the spread between the interest rate the incorrectly rejected firm would have paid and the rate actually earned (White, Sondhi, and Fried 1994, 1047). Casey and Bartczak (1985) show that operating cash flows aid in the prediction of bankrupt companies, but that accrual accounting measures are better predictors of non-bankrupt firms, because the use of operating cash flows tends to generate too many false positives (solvent firms misclassified as bankrupt). Zmijewski (1984), using a probit analysis, studies three ratios (net income/total assets, total debt/total

assets, and current assets/current liabilities) to develop a model that predicts the probability of default. Lau (1987), instead of using the solvent/insolvent dichotomy, identifies five different stages of financial distress, predicting the probability that a firm will enter each of the five stages. The relative merits of different statistical approaches to bankruptcy prediction have been discussed extensively over the years, and although more advanced methods (such as neural networks) have been developed in the meantime, less complex techniques (such as probit, logit and linear discriminant analysis) still perform reasonably well in bankruptcy prediction (Jones, Johnstone, and Wilson 2017).

The new Italian Framework for Crisis Management

Italy introduced in 2019 a 'Crisis and insolvency code' (legislative decree No. 14/2019) aimed at regulating insolvency procedures with the intent to safeguard the *going concern* principle (i.e. avoiding judicial liquidation), in order to achieve a better satisfaction of the interests of the creditor. The law, fully effective from August 15 2020, was approved before the EU Directive crisis and insolvency directive (Directive (EU) 2019/1023 of 20 June 2019) was finalised. The early application of the EU Directive in Italy offers a the opportunity to comment on the provisions devised for the early detection of crises that eventually all EU Member States will have to introduce in their regulatory framework.

The new framework introduces an early detection system for crises, to prevent insolvencies and encourage turnarounds. The provisions of the new law do not apply to banks, insurance companies, investment funds, pension funds, and other financial services, (article 12 of the legislative decree), because insolvency prevention is one of the tasks entrusted to the industry regulators to which these companies are subjected. The new framework, however, applies also to small companies and agricultural activities. In this section, we explain the main features of the new legal framework for crisis and insolvency, without the intent to cover all the details and intricacies of the new procedure, and of the (pre-existing) Italian bankruptcy law.

The new crisis and insolvency code provides precise definitions of crisis and insolvency: a crisis is a state of financial difficulty that makes a debtor's insolvency probable and that consists in the inadequacy of prospective cash flows to meet planned obligations regularly. It is clear that the definition provided by the new law is consistent with the 'internal – forward looking' approach, as described in

section 1. A debtor is defined as insolvent when it is no longer able to meet its obligations on a regular basis, as evidenced by defaults or other external factors (article 2). The external and internal corporate supervisory bodies, i.e. the external auditors and the internal board of statutory auditors (*collegio sindacale*), have the obligation to verify that the board of directors ensures that the company has an adequate organisational structure, and a functioning system of internal controls, included a reliable and effective dashboard of indicators that monitors all the parameters and thresholds identified by the new law (Riva et al. 2018). This should allow the directors to detect the early signals of a crisis, and the supervisory bodies to informally alert the directors of deficiencies in the managerial control system.

In case the crisis reaches maturity, and the corporate supervisory bodies identify strong indications of a state of crisis, they must send an official written notice to the board of directors, to which the board is expected to reply within 30 days. In their reply, the directors should list the actions that they will take in order to address the issues raised by the supervisory bodies (article 14). If the board of directors provides an inadequate answer, or in case of inertia, the corporate supervisory bodies must inform a specific third party, called the OCRI (from the Italian *Organismo di composizione della crisi d'impresa*), or Crisis settlement body for companies, that must be established by every Chamber of Commerce. At this stage, the crisis is considered to be in full development, and it is important to highlight that the timely reporting to the body responsible for the settlement of the crisis constitutes a cause for exemption from liability for the corporate supervisory bodies for actions or omissions taken by the board of directors after the initial communication. The Crisis settlement body for companies appoints a board of three independent professionals who summon the directors and identify the possible measures to be taken to remedy the crisis, setting a deadline by which the directors must report with regard to their implementation (article 18). The goal is to identify a specific route for the settlement of the crisis, by means of out of court agreements with the creditors, within three months (extensible to six months in case of positive responses from the creditors) from the date when the directors reported their plan of actions to the three professionals.

The law also introduces the position of 'qualified public creditor,' to which it attributes significant powers and obligations in the early stage of detection of the crisis. They are the Italian Internal Revenue Service (*Agenzia delle entrate*), the National Social Security

Institute (INPS), and the tax collection agent (article 15). When the company exceeds the critical thresholds of unpaid payables specified by the law itself,[2] the qualified creditor must send a notice to the debtor (i.e., the board of directors, not the corporate supervisor bodies). If the debtor does not comply with the requests of the creditor, the qualified creditors must send an alert to the Crisis Settlement Body for Companies. This procedure is external and separated from the internal procedure envisaged for the corporate supervisory bodies. It is also automatic, since it is triggered by an objective event (exceeding the thresholds), and there are penalties for the qualified creditors if it fails to act. They consist, for the Internal Revenue Service and the National Social Security Institute, in the loss of the right of pre-emption in case of insolvency procedure, and, for the tax collection agent, the unenforceability of the receivables for collection charges and expenses.

In case the out of court negotiations with the creditors, assisted by the professionals appointed by the Crisis settlement body for companies, are not successful, the crisis enters the stage of reversible insolvency. Italian bankruptcy law regulates this passage, with several court-assisted restructuring reorganisation procedures devised according to the principle that a debtor with a potentially profitable business should be given the opportunity to demonstrate that there is a greater benefit for the creditors in the long term in avoiding judicial liquidation (Riva et al. 2018).

If the above-mentioned measures do not have the desired outcome, or if the directors do not access them, the insolvency becomes overt and irreversible, leading to judicial liquidation, i.e. bankruptcy.

Early Warning Indicators in Italy's Crisis and Insolvency Code

The new Italian crisis and insolvency law states that situations of imbalance in a firm's profitability, solvency, and liquidity are signal of a crisis. Appropriate indicators to detect a crisis are (article 13):

1. those that allow to offer an insight on the sustainability of debt for at least the following six months, and;
2. those that allow to assess the existence of the going concern principle for the current reporting period (or for the following six months, if the remaining part of the current reporting period is shorter than six months).

All indicators should be adjusted to consider the specific characteristics of the firm, i.e. the industry in which it operates, and its age.

The law only mentions explicitly two financial ratios: financial sustainability of interest expenses (cash flows/interest expense), and the financial leverage ratio (total debt/equity).

Besides the two ratios described above, the law also mentions that 'repeated' and 'significant' delays in the settlement of debt are indicators of a crisis. Considering, as we described above, that the new crisis and insolvency framework chooses an 'internal – forward-looking' approach in defining a state of crisis, we can observe that the indicators mentioned are mostly, but not exclusively, consistent with this definition. Indicators listed under (1) and (2) are based on the firm's financial plans, and can be therefore considered 'internal' and 'forward-looking.' Financial ratios, however, can also be calculated with reference to an 'internal – backward-looking' approach to financial information (i.e. on financial statements). Finally, delays in the settlement of debt are certainly external indicators of crisis. In a summary, the law explicitly considers all the three approaches in order to identify a crisis (Quagli and Panizza 2019).

In addition to the indicators mentioned above, the law requires the Italian National Council of Chartered Accountants and Accounting Experts (CNDCEC) to develop a set of indicators, capable of identifying, when considered together, a state of crisis. These indicators should be differentiated by industry (as identified by the Italian National Institute of Statistics, or ISTAT), and reviewed at least every three years. The professional body should identify separate indicators for special cases, such as 'innovative' start-ups, small and medium-sized firms, firms founded by less than two years, and companies undergoing liquidation. The CNDCEC published a draft proposal in October 2019, listing a set of seven indicators, along with their thresholds, divided by industry, with a precise internal hierarchy (CNDCEC 2019). According to the proposal, the first indicator that should be considered is a situation of deficit, i.e. the presence of a negative equity, when the liabilities are greater than the assets.[3] The proposal considers this situation, regardless of the actual liquidity of the firm, as a threat to the going concern of the business. Although it is true that a deficit is a signal of a deep imbalance in the long-term solvency of the firm, the implication is not immediate on the liquidity of the firm, defined as the capacity of the business to generate enough cash to meet its short-term obligations, without compromising its profitability. It is possible, however uncommon, for businesses to remain liquid even in a situation of negative equity, if, for example, most of the liabilities are noncurrent, or if the business holds or generates enough cash to meet at least its most pressing short-term

obligations. Italian company law, however, requires companies with losses that decrease their share capital (par value of common and preferred stock issued) below the minimum level[4] to recapitalise, or, if it is not possible, to undergo liquidation or to transform into partnerships (articles 2447 and 2482-ter of the Italian Civil Code). A deficit is without doubt a situation when the losses are so large that the share capital has fallen below its acceptable legal minimum, therefore it is effectively a threat to the company's very survival, in case the shareholders cannot or do not intend to recapitalise.

If the equity is positive, a debt service coverage ratio (DSCR, i.e. the ratio of cash flows over total debt service) lower than one for the following six months is considered an indicator of crisis. The document prepared by the CNDCEC prescribes two methods for calculating this ratio:

1. cash and cash equivalents + inflows of cash – outflows of cash (with the exclusion of debt repayments), divided by outflows of cash for financial debt repayment (excluding interest);
2. cash and cash equivalents + available lines of credit + free cash flow from operations (operating cash flow – investing cash flow), divided by outflows of cash for financial debt repayments (including interest), payments for tax and social security payables, and payments for accounts payable to suppliers overdue by more than a 'physiological' threshold.

The choice of using, in its more complex formulation (method 2), the so called 'free cash flow from operations,' i.e. the operating cash flow less the investing cash flows, seems commendable. It is a more readily computable measure than the probably more appropriate 'free cash flow to the firm,' calculated as operating cash flows less outflows for the investments necessary to maintain the current level of operational capability. In fact, if capital expenditures necessary to sustain the operations were excluded from the numerator, a ratio equal to one could signal a situation in which the firm can service its debt, but at the expense of its future profitability. Future earnings (and cash flows) would be compromised by the impossibility to make indispensable capital expenditures, as the entire cash flow generated by the operations would be absorbed by servicing the debt. In such a case, the firm could not be said to possess a healthy liquidity position.

Another issue arises in relation to the consistency between the numerator and the denominator of the DSCR, when it is calculated using the second approach listed above. The distinction between

the operating cash flows used in the numerator and the financing cash flows reported at the denominator of the ratio should be clear, to avoid double-counting. The separation of operating and financial items is a requirement can be traced back to the seminal work of Modigliani and Miller (1958), whose model, under the assumption of perfect financial markets and fixed capital expenditures in each period, shows how the value of the firm is not affected by its capital structure. Accounting standards generally require the separate reporting in financial statements of flows and obligations arising from the provision of finance to the firm, from those, called (in a broad sense) 'operating,' deriving from all the other activities (Barker 2010). However, operating cash flows in financial reporting are often calculated *after* and not *before* interest expenses.[5] Since the cost of debt is part of the cash flows necessary to its service, reporting at the numerator an operating cash flow after interest payments leads to a double count of this component in the debt service coverage ratio. A necessary adjustment, therefore, is not to include payments of interests in the operating cash flow (White, Sondhi, and Fried 1994, 1030; Nurnberg and Largay 1998), contrary to what Italian accounting standards require, but consistently with the options offered by the International Financial Reporting Standards.

It is worth observing, moreover, that calculating this forward-looking ratio implies the existence of a structured managerial accounting system and of reliable financial planning capabilities, areas where not all companies, especially small and medium-sized enterprises, currently excel (Quagli and Panizza 2019). If the equity is positive, and if the DSCR is not available, or if the financial information on which it is calculated is not reliable (for example, due to the shortcomings of the managerial accounting system of the firm), the accounting professional body requires to refer to five ratios reported in table 1. Since, at the time of writing, these indicators are still under development by the national accounting professional body, they could differ from the final version of the document.

If *all the five* indicators are, depending on the ratio, below or above the thresholds defined by the document, a state of crisis can be inferred. Since the five ratios represent an alternative course of action in case the debt service coverage ratio cannot be reliably calculated (because the firm's plans and forecasts are not deemed reliable), they are intended to be applied to the most recent financial statements. They are therefore consistent with an 'internal – backward-looking' approach to crisis detection.

The Italian accounting profession, in developing this proposal,

TABLE 1 Early Warning Indicators of Crisis

Industry	(1)	(2)	(3)	(4)	(5)
Agriculture, forestry and fisheries	2.8	9.4	92.1	0.3	5.6
Extracting activities; manufacturing; production of gas and energy	3.0	7.6	93.7	0.5	4.9
Transmission of gas and electricity; water supply, waste disposal, wastewater treatment	2.6	6.7	84.2	1.9	6.5
Constructions	3.8	4.9	108.0	0.4	3.8
Specialized constructions; civil engineering	2.8	5.3	101.1	1.4	5.3
Wholesalers; sale of vehicles; distribution of gas and electricity	2.1	6.3	101.4	0.6	2.9
Retailers; bars and restaurants	1.5	4.2	89.8	1.0	7.8
Transportation and storage; hotels	1.5	4.1	86.0	1.4	10.2
Services to firms	1.8	5.2	95.4	1.7	11.9
Services to persons	2.7	2.3	69.8	0.5	14.6

NOTES Column headings are as follows: (1) interest expenses/total revenues, (2) equity/total debt, (3) current assets/current liabilities, (4) cash flow/total assets, (5) tax and social security payables/total assets. In percent.

tried to minimize the number of false positives, i.e. the errors consisting misclassifying healthy firms as in a state of crisis, accepting instead a higher chance of false negatives (i.e., crises not detected by the model). This choice, which is contrary to what the theory normally dictates,[6] can be explained with the intent to minimize the exposure to the potentially serious consequences for firms in case of activation of the new early warning system. In fact, highlighting a situation of crisis when the firm in reality does not run the risk of being insolvent, could hinder the firm's access to credit, or even induce banks to revoke existing credit lines, thus enhancing the risks of *creating* a crisis.

It is outside the scope of this article commenting the adequateness of indicators and their thresholds, and on their calculation methods, as described by the accounting professional body in its draft proposal. It is however clear that what emerges, in application of the new crisis and insolvency code, is a deterministic approach to the early warning detection of crises.

Impact of the New Provisions on Management Control Systems

In this section, we aim to devise some initial reflections about the possible effects of the requirements established by the new insolvency and crisis code on Italian SMEs' Management Control Systems.

In order to establish properly the boundaries within which these considerations are developed, one needs to select a specific framework of Management Control Systems used as a reference. As a matter of fact, the same concept of Management Control Systems (MCS) has not been unquestionably stated yet, and the process of analytical conceptualizations of this area of knowledge could be described as in a constant flux. The reason for this level of ambiguity is probably due to the fact that 'the control needs of the current environment are significantly different from those developed in an earlier period' (Nixon and Burns 2005, 260). Moreover, different types of significant contingent factors are held responsible nowadays, by a vast majority of Authors, for the existence of structural differences between distinct control systems.

Although we are well aware of the criticism expressed by some to Simons' (1995) Levers of Control framework (Ferreira and Otley 2009), we are going to use this structure as the basis for our considerations. Our perspective, based also on direct field experience, is that this framework has ability to provide an outstanding reference for the design and the enhancement of real control systems. Part of this adequateness is linked, in our opinion, to the fact that Simons conceive MCSs as the effect of the interplay of four distinct 'levers' that managers can use to influence people behaviour, and therefore achieve and develop business strategies.

The stress, here, is not on the single components of the system, but on the interactions between each of them: 'The power of these levers in implementing strategy does not lie in how each is used alone, but rather in how they complement each other when used together. The interplay of positive and negative forces creates a dynamic tension between opportunistic innovation and predictable goal achievement that is necessary to stimulate and control profitable growth' (Simons 1995). As a matter of fact, there is a clear distinction between the idea of a Management Control *System* and that of a Management Control *Package*. Managers are normally inclined to set up different control mechanisms, in different times, under the pressure of different interest groups. One of the causes that normally leads to the implementation of new forms of control is undoubtedly represented by changes in legal environment following economic recessions and financial scandals. Malmi and Brown (2008) have correctly stated that the collection of these control mechanisms should not be called a system unless its components are designed and coordinated intentionally.[7] Since in real life the assembly of different control mechanisms is, nonetheless, usually referred as a Management

Control System, this has led the two Authors to define the collection of these different sets of controls and control systems as 'a package of systems.'

In our opinion, one of the main functions of a theoretical framework in this field is to serve to practitioners as an 'ideal' reference for the designing and developing real Management Control Systems. The main idea behind the Levers of Control framework is that the components of the system must be designed and managed as a whole, using a holistic approach. In order to be able to apply such an approach, it is important to correctly understand and properly appreciate the aims of different 'levers' as well as the extension and depth of the possible interplays between them. If the linkages between the components are not adequately managed, then the system has a whole may not fulfil its intended functions and work badly, destroying value instead of maintaining and increasing it.

In this regard, we would like to stress that an early warning system as the one devised by the new Italian Insolvency and Crisis Code has to be classified within what Simons defines as a 'boundary system.' In his view, these systems are set up by manager in order 'delineate the acceptable domain of strategic activity for organizational participants.' Their aim is, therefore, to prevent that members of the organization, even while acting in the pursue of business strategy, can engage in activities that could potentially jeopardize the integrity of the business and dissipate resources (both tangible and intangible) through projects or actions that are not perfectly in line with the company's strategic intentions. At first glance, what differentiates the early warning systems required by the new law from those that could be spontaneously designed and implemented by managers, is their specific focus on the interests of creditors and other external parties, rather than on the sake of the company itself. Nonetheless, it is obvious that being able to fulfil the legitimate request from lenders and other investors is a prerequisite to survival, and therefore to the achievement of strategic goals in the long terms.

More specifically, the early warning systems described in this article pertain to a specific subset of 'boundary systems' that Simons defined as 'business conduct boundaries.' They are normally stated in proscriptive terms, and their specific aim is to ban those activities that could jeopardize the well-being of an organization by exposing it to loss of assets, loss of reputation or legal liabilities. Their effect is therefore 'to block action' or, more properly, 'to avoid that inopportune or wrong actions could be performed.' They keep the system under control, limiting the sets of activities that could be executed.

In this sense they could be metaphorically associated to brakes in a car, if it is agreed that the 'without them, cars (or organizations) cannot operate at high speeds' (Simons 1995).

The problem is that in order to have this 'drive for inaction' adequately compensated, control systems acting in the opposite direction must be implemented. The Levers of Control framework explicitly contemplates this point: as a matter of fact, two of the levers (the beliefs and interactive control systems) are responsible for providing positive energy to the system, while the remaining two (the boundary and diagnostic control systems) determine what could be called 'negative energy.' These two drives in opposite direction have to be adequately considered and managed by managers. As an example, Simons (1995) consider the interplay between Belief System and Boundary Systems in the second part of his book. Both systems aim to motivate employees' opportunity seeking; however, the beliefs systems do that in a positive way through inspiration, whilst the boundary systems do that in a negative way, through the demarcation of the opportunity domain. 'Beliefs and boundaries, if they are to be living systems, must be reinforced continually within the organization. Working together, these two levers create forces of yin and yang. The warm, positive, inspirational beliefs are a foil to dark, cold constraints. The result is a dynamic tension between commitment and punishment. Senior managers drive both processes' (Simons 1995).

One of the problems that could emerge from the adoption of an early warning system required by the Italian Insolvency and Crisis Code could be linked to the fact that these systems are likely to be designed and implemented using a 'package approach' instead of a 'system approach.' This could lead to an underestimation and a lack of understanding of the behavioural effect normally linked to these mechanisms of control. In the absence of a countervailing drive towards actions, these systems could determine a lack of initiatives and therefore provoke a diminished ability to innovate and compete.

Another significant risk is that a bureaucratic and formal approach in the design and use of companies' control systems could prevail. Since many provisions of the new law are directed to Statutory Auditors and give great importance to financial indicators, there is a likelihood that an over emphasis on accounting issues could follow. While formal controls are undoubtedly a core element in the structure of a Management Control System, informal controls as well are important in a system that should be designed to influence organizational performance. Time has passed from when there was no distinction between management accounting and managerial con-

trol (Flamholtz 1996; Merchant 1982). In the meanwhile, the focus of a management control system has clearly shifted from satisfying the needs of the accounting profession to satisfying the information demands of managers, in order to foster rational behaviour. Unfortunately, this fact is not necessarily always understood by Italian SMEs, and sometimes even by some fringes of the accounting profession. In that context, the prevailing idea of control is that of post-action (financial) controls. There is consequently a lack of attention and knowledge on steering and *yes-no* controls, that is to say on forms of control that pursue different aims and work with different logics. These deficiencies in understanding the rationale and the complexity of management control systems could determine confusion between different mechanisms of controls, with an almost assured negative effect on firm's ability to pursue its strategic aims.

One typical example of misunderstanding concerns the differences between Internal Auditing and Managerial Control. According to Simons (1995), internal controls are 'designed to safeguard assets from misappropriation and ensure reliable accounting records and information systems.' They are 'different from boundary systems, which specify risks to be avoided.' Internal controls specify instead the detailed procedures and safeguards for information handling, transaction processing, and recordkeeping. Staff groups typically install and maintain internal controls, which are then evaluated periodically by internal and external auditors. Internal controls are essential to ensure the integrity of the other systems that managers use to implement strategy.

Conclusions

Changes in the legal environment can represent significant opportunities for improving the level of efficacy of Managerial Control Systems. This increase in performance may arise from an increase in the coverage of the systems (so that they put under control a broader set of phenomena or actions) or from an improvement of the functioning logic of existing control mechanism (so that the organizational behaviour prompted by the mechanism itself is closer to the one desired). Such an enhancement, however, is anything but certain, since even the correct implementation of a component of the system could decrease the performance of the systems as a whole, if its relations with other components are not adequately taken into consideration. Therefore, the design and implementation of early warning systems required by the new Italian insolvency and crisis code will determine an increase of the control capability of Italian SMEs only if these sys-

tems are set up using a holistic approach. If this will not happen, chances will turn in missed opportunities, and a series of inappropriate organizational behaviours could emerge.

One of the possible negative effects is that the new rules concerning early detection of crises could determine too narrow a focus on the short period, therefore causing short-termism and a lack of strategic action. The new regulatory framework extends the responsibility for the crisis to the board of statutory auditors (or the single statutory auditor). Therefore, these subjects will have a set of incentives that make them focus on avoiding insolvency risks, with no or little interest in the pursuit of long-term goals. If this drive to short-termism is not properly counter-balanced, the management control systems will probably induce a sort of management myopia.

Another possible negative effect is that a bureaucratic and formal approach in the design and use of companies' control structure could prevail, since generally, among practitioners, there is not enough knowledge and understanding of the rationale of management control systems.

To decrease the probability of these effects is nevertheless possible: one must remember that organizations require complex control systems and that these systems are composed by different parts linked together by different logics in different environments. There is no easy, one-fits-all, way of designing a control system of any kind.

Acknowledgements

This article is the result of the joint work of the authors. However, sections 1, 3, and 4 can be attributed to M. Bertoni, sections 5 and 6 to B. De Rosa, and section 2 to L. Peressin.

Notes

1 We refer to the 'Proposal of a Directive of the European Parliament and of the Council on Preventive Restructuring Frameworks, Second Chance and Measures to Increase the Efficiency of Restructuring, Insolvency and Discharge Procedures and Amending Directive 2012/30/EU' (EU Directive COM(2016) 723). At the time of writing, the proposal was finally approved as Directive (EU) 2019/1023 of 20 June 2019.

2 The thresholds for considering a debt exposure as significant are: (a) for the Internal Revenue Service, when the total amount of expired debt for value added tax is equal to at least 30% of the total sales revenue of the same period, and in any case if the debt is greater than an additional threshold differentiated by total sales (more than €25,000 for companies with total sale revenues up to €2 million; more than €50,000 for companies with total revenues up to €10 million; and more than

€100,000 for companies with total sale revenues greater than €10 million); (b) for the National Social Security Institute, when the debtor is overdue by more than 6 months in the payment of national insurance contributions of an amount greater than half of those due in the previous year, and in any case, greater than €50,000; (c) for the tax collection agency, when the sum of the receivables assigned for collection from the debtor and expired by more than 90 days exceeds the threshold of €500,000 for individual businesses, and that of €1 million for partnerships and corporations (article 15).

3 It is interesting to observe that any receivables from shareholders for partly paid shares should be deducted from the equity. Moreover, equity should not include the reserve for cash flow hedge, and, for company adopting IFRS, any equity components deriving directly from 'other comprehensive income' (OCI) items. They include: changes in the fair value of financial instruments (IFRS 9), changes in the fair value of non-monetary assets measured according to the revaluation model (IAS 16), and actuarial gains and losses on employee benefits (CNDCEC 2019).

4 Minimum share capital for corporations in Italy is €50,000, while for limited liability companies it can be as low as €1 or as high as €10,000, depending on the cases.

5 IAS 7 *Statement of Cash Flow* states that interest paid and received 'are usually classified as operating cash flows for a financial institution' but that there is 'no consensus on the classification of these cash flows for other entities' (IAS 7.33). The standard thus allows firms to report cash flows from interest paid in the operating, investing, or financing section of the cash flow statement (IAS 7.31). Other accounting standards, such as US GAAP (ASC 230) and Italian national accounting standards (OIC 10.41) prescribe instead a more rigid classification of cash flows, requiring reporting cash flows from interest paid as operating cash flows.

6 In bankruptcy prediction models, false negatives tend to be more costly than false positives, because in case of a false negative the creditor will extend a loan, and potentially lose 100% of the investment.

7 'As a general conception, a management control systems (MCS) package is a collection or set of controls and control systems. The individual control systems may be more traditional accounting controls such as budgets and financial measures, or administrative controls, for example organization structure and governance systems, along with more socially based controls such as values and culture. Organisations may have numerous controls present, and they all may be used to some extent to align individual's activities with organisational goals' (Malmi and Brown 2008, 287).

References

Altman, E. I. 1968. 'Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy.' *The Journal of Finance* 23 (4): 589–609.

Altman, E. I., R. G. Haldeman, and P. Narayanan. 1977. 'ZETATM Analysis: A new Model to Identify Bankruptcy Risk of Corporations.' *Journal of Banking & Finance* 1 (1): 29–54.

Barker, R. 2010. 'The Operating-Financing Distinction in Financial Reporting.' *Accounting and Business Research* 40 (4): 391–403.

Beaver, W. H. 1966. 'Financial Ratios as Predictors of Failure.' *Journal of Accounting Research* 4:71–111.

Bertoni, M., and B. De Rosa. 2018. 'Determinants of Cash Flow Classification Under IAS 7: An Analysis from a Weak Equity Country.' In *Nuove frontiere del reporting aziendale: La comunicazione agli stakeholders tra vincoli normativi e attese informative,* edited by S. Corbella, L. Marchi, and F. Rossignoli, 329–42. Milan: FrancoAngeli.

Casey, C., and N. Bartczak. 1985. 'Using Operating Cash Flow Data to Predict Financial Distress: Some Extensions.' *Journal of Accounting Research* 23 (1): 384–401.

CNDCEC. 2019. 'Crisi d'impresa. Gli indici dell'allerta.' https://commercialisti.it/documents/20182/1236821/codice+crisi_definizioni+indici+%280tt+2019%29.pdf/2072f95c-22a2-41e1-bd2f-7e7c7153ed84

Ferreira, A., and D. Otley. 2009. 'The Design and Use of Performance Management Systems: An Extended Framework for Analysis.' *Management Accounting Research* 20 (4): 263–82.

Flamholtz, E. 1996. 'Effective Organizational Control: A Framework, Applications, and Implications.' *European Management Journal* 14 (6): 596–611.

Jones, S., D. Johnstone, and R. Wilson. 2017. 'Predicting Corporate Bankruptcy: An Evaluation of Alternative Statistical Frameworks.' *Journal of Business Finance & Accounting* 44 (1–2): 3–34.

Lau, A. H.-L. 1987. 'A Five-State Financial Distress Prediction Model.' *Journal of Accounting Research* 25 (1): 127–38.

Malmi, T., and D. A. Brown. 2008. 'Management Control Systems as a Package – Opportunities, Challenges and Research Directions.' *Management Accounting Research* 19 (4): 287–300.

Merchant, K. A. 1982. 'The Control Function of Management.' *Sloan Management Review* (Pre-1986) 23 (4): 43.

Modigliani, F., and M. H. Miller. 1958. 'The Cost of Capital, Corporation Finance, and the Theory of Investment.' *American Economic Review* 48 (3): 261–97.

Nixon, W. A., and J. Burns. 2005. 'Management Control in the 21st Century.' *Management Accounting Research* 16 (3): 260–68.

Nurnberg, H., and J. A. Largay III. 1998. 'Interest Payments in the Cash Flow Statement.' *Accounting Horizons* 12 (4): 407–18.

Ohlson, J. A. 1980. 'Financial Ratios and the Probabilistic Prediction of Bankruptcy.' *Journal of Accounting Research* 18 (1): 109–31.

Quagli, A. 2016. 'Il concetto di crisi d'impresa come incontro tra la prospettiva aziendale e quella giuridica.' http://www.ilcaso.it/articoli/cri.php?id_cont=863.php

Quagli, A., and A. Panizza. 2019. 'Il sistema di allerta.' https://blog.ilcaso.it/news_789/21-05-19/Il_sistema_di_allerta

Riva, P., A. Danovi, M. Comoli, and A. Garelli. 2018. 'Corporate Governance in Downturn Times: Detection and Alert – The New Italian Insolvency and Crisis Code.' In *Crisis Management: Theory and Practice,* edited by K. Holla, J. Ristvej, and M. Titko. https://doi.org/10.5772/intechopen.74964

Scherrer, P. S. 1988. 'From Warning to Crisis: A Turnaround Primer.' *Management Review* 77 (9): 30–37.

Simons, R. 1995. *Levers of Control: How Managers Use Innovative Control Systems to Drive Strategic Renewal.* Boston: Harvard Business School Press.

White, G. I., A. C. Sondhi, and D. Fried. 1994. *The Analysis and Use of Financial Statements.* New York: Wiley.

Zmijewski, M. E. 1984. 'Methodological Issues Related to the Estimation of Financial Distress Prediction Models.' *Journal of Accounting Research* 22:59–82.