

THE TERMINOLOGY RELATED TO CONTROL ISSUES IN BUSINESS: DEFINITIONS AND APPLICATIONS

This article discusses the problems of the modern world-wide terminology of the business control on the economic entity's level. The definitions of terms 'control' and 'controls' are analyzed. The model of the control system is developed.

Keywords: business control terminology, 'control' and 'controls', internal control, the model of the control system.

Background

Up since the evolution created Homo sapiens out of an ignorant Australopithecus, humans attempted to control almost every step of their life and environment. Everything – starting from the crops growth, the body temperature stability and ending with the stringent system of state laws subjugation – was, is, and will be the subject of measurement, surveillance, comparison, and controlling.

Scientists as well as businessmen by the term «control» understand the huge variety of concepts: control as one of the main principles of management, control as the process (cycle) of management and, ultimately, the control function of management. However, despite the common use, the term «control» itself is one of the most poorly defined. The meaning ranges immensely depending on the sphere of its use. One of the most popular meanings of «control» and the related notion of «hierarchy» are frequently used to define a ferocious, authoritarian approach to management [8, 93]. Still, talking about the control, we will refer mostly to the theoretical category, and not to the certain manner of behavior or management style.

The purpose of the research

There are many definitions and meanings of control, and each tries to disclose its nature, purpose and objective. The aim of this article is to explore and systemize the control terminology that is used around the world, associated with business control and supporting activities.

Analysis of the contemporary sources and publications and explanation of the basic material

An Oxford English Dictionary¹ yields a fairly detailed description to the term «control». Namely,

this word comes from the expression «*the copie of a role*», which could most likely serve as an accounting information medium. This expression for its part stems from the Latin expression *contrarotulus*, where «*contra*» means «against», «counter», and «*rotulus*» – a roll. The dictionary also mentions that the term penetrated English no earlier than 17 cent. from French in the form of «*counter-roll*» when it carried an accounting sense – «A register or account kept by another officer, that each may be examined by the other».

Indeed, a numerous amount of nuances and shades of the definition may make «control» quite an enigma until defined more precisely. Thus from now on we will sort out only those definitions, which possess a direct relation to our further research (see Table 1).

As we see in the above definitions two basic understanding of control in economic and business sense are clearly differentiated: 1) control as an ownership and the related receiving of economic benefits, 2) control as a function of management.

On the first aspect of control (definitions 2, 4), even the international financial reporting standards (IFRS – www.ifrs.com) consider control as defining, decisive influence on financial and economic policies of the company to obtain benefits from its activities. This approach, used in the legislation of European countries, treats control as a direct or indirect ownership, providing the largest number of votes in the governing bodies of the company. Lawyers often use the criterion of ownership of capital, defining it from quantitative and qualitative sides in the control definition. Of course, one can see that this meaning of control is closely related to the other, because any serious decisions on investment, restructuring, entering new markets and other strategic issues are approved by the dominant (control) group.

¹ Oxford, 1991, VOL. III, p. 851–853.

Table 1. Definitions of 'control' in the business literature

№ 3/n	Definition of 'Control'	Source	Year and Source Type	Comments
1.	The policies, procedures, practices and organizational structures designed to provide reasonable assurance that business objectives will be achieved and undesired events will be prevented or detected and corrected.	Control Objectives for Information and related Technology 4.1. (COBIT), Executive Summary Framework – p.13.	2007. USA. Official set of practices for IT management created by ISACA Regulations regarding the use of automated control environment.	Control as a set of methods to provide reasonable assurance that management objectives will be achieved. Reducing risks.
2.	An ability to manage financial and operational activities of others with the intent to obtain benefits from these activities.	Dictionary of Accounting by Roger Hussey (ed.) Oxford University Press–1999.	1999. Great Britain. Specialized dictionary	Control–how to manage to get economic benefits.
3.	(1) A noun, used as a subject, e.g., existence of a control – a policy or procedure that is part of internal control. A control can exist within any of the five components. (2) A noun, used as an object, e.g., to effect control – the result of policies and procedures designed to control; this result may or may not be effective internal control. (3) A verb, e.g., to control – to regulate; to establish or implement a policy that effects control.	Committee of Sponsoring Organizations of the Treadway Committee (COSO). – 1992. Internal Control– Integrated Framework, Executive Summary // www.coso.org, p. 119.	1992. USA. Regulations (standard) to create a system of internal control.	Control as control system, and at the same time as its individual component, as well as action of establishing control systems. Organizational aspect.
4.	The process of seeing that plans are carried out; the ability of the investing company to determine the operating and financial policies of another company through ownership of more than 50 percent of its voting stock.	Needles, Belverd; Anderson, Henry R.; Caldwell, James P. Principles of Accounting. Wilmington, MA, Houghton Mifflin. 1990, Fourth Edition.–1220 p. P.G-5.	1990. USA. The book for students on accounting	Control as checking of the plans' fulfillment, and also as management, the ability to define policies through ownership of the major share of stocks.
5.	The intervention by the person responsible for control, to promote the desired behavior of the system.	Aken, J. E. van, On the Control of Complex industrial Organizations (Leiden: Nijhoff, 1978).–P. 46.	1978. Netherlands. Scientific paper on organizational control.	Control as a management influence. Goal–obtain the desired behavior of the controlled system.

Therefore talking about the control concerning business organizations, we can state the following. **Control** – is a process of testing, measurement, directing, restraint, and feedback provision implemented by certain policies, procedures, practices and structures in order to reach the goal of an organization.

As all management systems function inside the environment that is a source of disturbances and uncertainty, a certain mechanism must exist in order to monitor and respond to these disturbances to achieve the management goals. This mechanism is a **control system**. To elucidate the concept of this term, let us define what we mean by the word *system*. Schoderbeck et al. [15] proposes a quite concise general definition as a 'Set of objects together with relationships between the objects and their attributes related to each other and to their environment so as to form a whole.' Though this definition could be appropriate to a broad range of subjects such as politics, sociology, economics, biology, engineering etc., the

goal of this work directs us only to the management view. Therefore, we can define a **control system** as a component of a management system comprising of certain policies, procedures, practices and structures which enable managers to measure, test and compare the results of an entity's functioning to react accurately and timely to any disturbances in order to reach a certain objective.

Regarding the second, managerial understanding of control, to explain the nature and importance of managerial control in organizations, we developed a general control model based on the literature on cybernetics (see Fig. 1) such as by Beer [1, 1985], Espejo and Harnden [5], Harry [8, p. 140] and Schoderbeck [15].

The control system can be considered as a black box transformation of inputs into the output by a process where the internal details of the process ignored for simplification. Controlled process can be inside any system, from simple mechanical devices to biological systems and human organizations

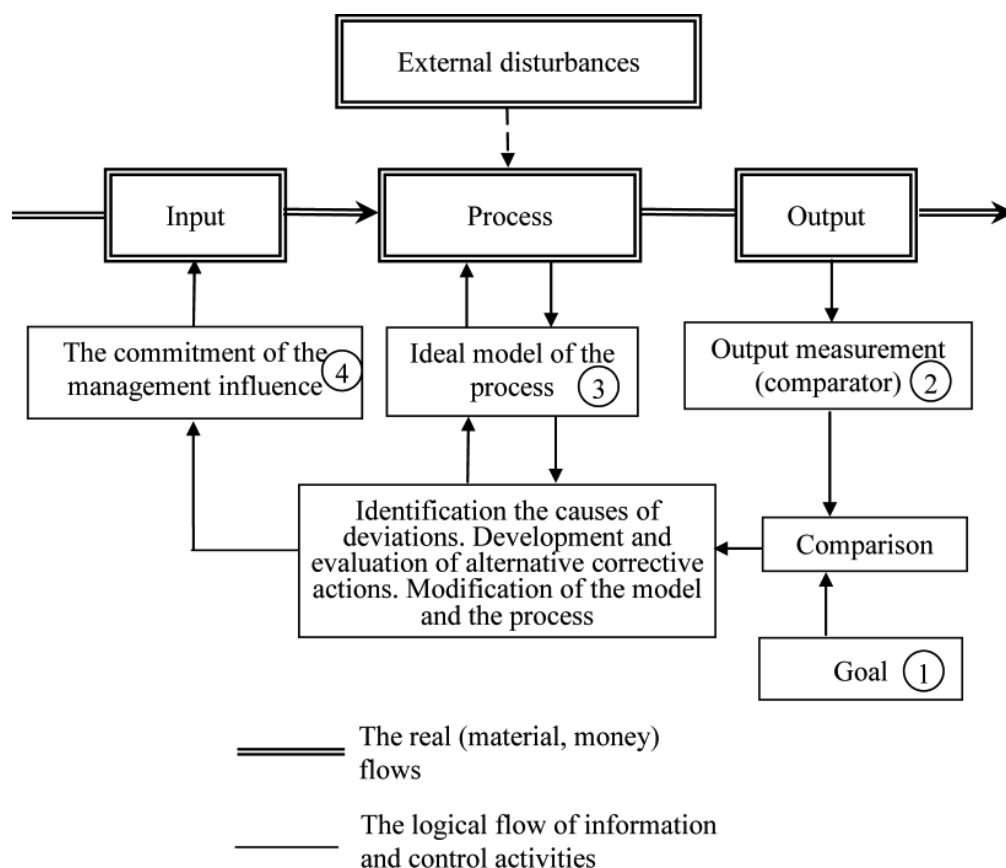


Fig. 1. The control model of management

(corporations). However, our model is concerned primarily with business organizations. There are four necessary conditions that must be satisfied for any process that could be called consciously controlled: 1) there should be a goal for the controlled process—without objective control has no sense, 2) the output must be measured by the measures that are defined by the goal and objectives, 3) there must be a perfect, ‘ideal’ model of the controlled process, in order to compare the actual process with the desired one, 4) there should be a possibility for the corrective action so that deviation could be eliminated.

As was mentioned before, the broad range of control definitions is caused by a wide variety of control spheres. Emmanuel et al. proposes the classification of this term depending on its level [4]. He distinguishes three main levels of control, like:

- Individual control – an individual’s control of mechanical devices or his own actions;
- Organizational control – an organization controlling its internal activities in response to the environment in which it operates;
- Social or governmental control – a society controlling the activities of organizations or individuals within it.

Again, the prime focus of this paper is based on just one of these levels, namely organizational con-

trol and thus **organizational control system**. The human resource, facilities and financial subsystems support the central-purpose subsystem, with the corporate planning and control subsystem co-ordinating the whole.

However, availability of organizational system components does not automatically mean a process to be controlled. There four necessary conditions must exist for any process to be controlled:

- Objectives/aim/purpose for control;
- The output of the process must be measurable in terms of the dimensions defined by the objectives;
- A predictive model of the process being controlled is required so that causes for the non-attainment of objectives can be determined and proposed corrective actions evaluated;
- There must be a capability of taking action so that deviations of attainment from objectives can be reduced.

To get a clearer view of what these conditions mean in practice, let’s study an example. An average firm is operating in the market economy – say it produces mineral water. Most likely it has an objective – profit maximization (component 1). This profit can be easily measurable with the help of financial statement prepared by its chief accountant (component 2). It is known that gross profit gener-

ally equals the difference between total revenue from sales and the total cost of purchases or materials. Total revenue from sales can be easily derived from the number of products sold and price per item. Thus we can create a predictive model, which could show us how much will our gross profit increase (i.e. to what extent will our goal be reached) in case of price per item raise or total cost decrease (component 3). Finally, this model works as an important instrument in the hands of top-manager who has the authority to change the prices per mineral water bottle, set the number of items to be produced or

regulate the quality of water to reach the needed cost (component 4). No sooner than all these 4 conditions are met the firm owner can say that the firm is 'under control'.

Also, there exists some confusion of notions '*control*' and '*controls*', which needs clarification. Totally, we've studied more than two dozen English-language sources (books, scientific articles, sites of professional organizations), to find out how to understand the term '*controls*'.

Some definitions of '*controls*' in the English-language sources are listed in the table (Table 2).

Table 2. Interpretation of the term '*controls*' in the English-language professional sources

№	The Term	Definition	Year, Source Type	Comments
1.	<i>Control procedures</i>	Control procedures are specific actions taken by a client's management and employees to help ensure that management directives are carried out [12, p.164].	2008. USA. Auditing Guide	Understanding as tools that are needed to achieve the goal of management.
2.	<i>Control procedures</i>	Techniques and procedures implemented to achieve the appropriate goal of control. (http://www.isaca.org/glossary).	2008. Site of the international professional organization of IT auditors	Understanding as tools that are needed to achieve the goal of management.
3.	<i>Control procedure</i>	Policies and procedures established to provide reasonable assurance of the success of management control. (http://www.businessdictionary.com/definition/control-procedure.html).	2008. On-line dictionary	Understanding as tools that are needed to achieve the goal of management.
4.	<i>Control procedures</i>	Those policies and procedures in addition to the control environment which management has established to achieve the entity's specific objectives [9, p. 654].	2005. USA, Netherlands. Auditing Guide	Understanding as tools that are needed to achieve the goal of management.
5.	<i>Controls</i>	All the organizational activities, aimed at having organizational members cooperate to reach the organizational goals [9, p. 654].	2005. USA, Netherlands. Audit Guide	Here the shortened term has the meaning that is different from the «control procedures». It is explained here as a means of organizational, managerial control.
6.	<i>Ccontrol activities</i>	The policies and procedures used to ensure that appropriate actions are taken to deal with the organization's identified risks [7, p.23].	2005. USA. IT Auditing Guide	Understanding as the means necessary to reduce the risks of the organization.
7.	<i>Internal controls</i>	Internal controls are needed and being established as a self-regulating mechanism to achieve the desired business objectives and response to external or internal business risks and threats. [13].	2004. USA. Article in the professional journal	Understanding as tools that are needed to achieve the goal of management.
8.	<i>Control activities</i>	Policies and procedures that help to ensure that internal control objectives are achieved [16, p.552].	1997. USA. Textbook on the theory and practice of auditing.	Understanding as tools that are needed to achieve the aims of the internal control.
9.	<i>Controls</i>	The controls are the means of regulation. They enable a system as a firm to monitor operations and processes, so as to identify and correct deviations from plans. Thus controls help to achieve the stated objectives [18, p.32].	1997. USA. Accounting Information Systems Guide	Understanding as tools that are needed to achieve the goal of management.
10.	<i>Control procedures</i>	Additional procedures and policies established by management to provide assurance that the objectives of internal control are achieved [14, p.G-5].	1990. USA. Accounting Guide	Understanding as tools that are needed to achieve the goal of management.
11.	<i>Control procedures</i>	The term control procedures encompasses both policies and procedures that management has established, in addition to the control environment and the accounting system, to provide reasonable assurance that company objectives will be achieved [2, p. 158].	1989. USA. Textbook on the theory and practice of auditing.	Understanding as tools that are needed to achieve the goal of management.

Hayes et al. [9, p. 654] define *controls* as all the organizational activities aimed at having organizational members cooperate to reach the organizational goals. Wilkinson and Cerullo [18, 32] emphasize on the subsidiary nature of controls for the entity regulation. They enable a system such as a firm to monitor operations and processes, so as to identify and correct deviations from plans. Drucker defines 'controls' as the instruments that lead towards the objective of overall 'control' [3]. Moreover, 'control' is not just a matter of generating 'controls', but a process of continual monitoring of the position of the enterprise as a whole.

Conclusions are the following: in spite of the wide use, this term is quite ambiguous. Interestingly, in some guides (even on the information systems auditing), the definition of 'controls' is not available at all, e.g. [10], although the term itself is widely used. Then, actually in English the letter 's' in the end of the word often refers to the plural form. But the corresponding term in singular form, namely 'control' means something different (see above). That's why the on-line business dictionary uses a singular term 'control procedure' defining 'controls' where others use just 'controls' (definition 3). Thus, in the article by scientists from the Netherlands and the UK on organizational management [6, p.582] term 'controls' are stated as 'control mechanisms'. It is also quite interesting that the textbook on the International standards on auditing (ISAs), that is published in Britain by authors from the USA and Netherlands differs definitions of 'controls' (definition 5) and 'control procedures' (definition 4). 'Controls' here are the tools of the organizational control, i.e. management control, but 'control procedures', surprisingly, is a more general term, which includes procedures that management has established to ensure the achievement of the companies objectives.

It is paradoxical that in several sources (definitions 3, 4, 10, 11) the term "control procedures" encompasses not only procedures but also the of control policies. Probably, it would be more precisely name these two criteria together as an integrated category 'control measures' or 'control activities', as it is done by the definitions 6 and 8.

Some sources don't explain the definition of 'controls' at all (definition 9; also [10]), while others tell us about 'internal controls' (definition 7). This term is often interpreted as the 'control activities' (definitions 6, 8), but more frequently as 'control procedures'. However, in this regard, the authors of the essential American textbook on the internal control assessment state that as the management and reporting system of an enterprise includes policies, procedures, and tools of monitoring compliance, then collectively, the policies and procedures are to be defined as internal controls, because they operate within the enterprise as means of reducing its vul-

nerability to business, financial and accounting risks [11, p. 2].

On the basis of stated definitions, we can infer that **control procedures** are the specific actions, policies, principles, rules, and guidelines implemented by the entity's management in order to reach the organization's short- and long-term goals.

Obviously, at some stage the term 'controls' had became wider then just 'control procedures' and now covers the whole set of control measures in the business operations (procedures, regulations, and policies of the company, and fragments of the software algorithms, and physical equipment – safes, locks, etc.). Thus, the most appropriate interpretation could be enough general 'methods and tools of control'.

Note that the internal control tools and methods typically are not divided clearly into the pure managerial (organizational) and such that reduce risk. Actually, all of them should be established by the management, and checked by the external auditors.

Another way of consideration of controls is, as it is done in engineering, systems theory and, to a certain extent in the literature on management. From this perspective, the true control – is an independent feedback mechanism that compares the outputs and inputs. When there is a deviation from expected outcomes, the causes are identified and the corrective action is applied. Thus control includes the distribution of responsibilities and independent verification of performance. However, certain qualitative aspects of internal control, such as competent and reliable personnel, physical security, and related records do not meet this definition of true control. Instead, they are factors that increase system reliability. Controls are management tools which do not directly add to assets and corporate profits. However, they are essential to the work of modern enterprises and to the avoidance of substantial misdirections and loss. Implied that the controls will act as a warning mechanism against unwanted events and enable the process of identifying events and corrections to the business processes. This logically means that controls reduce the likelihood of occurrence of unwanted events, limit the loss if an event occurs and / or exercise remediation to prevent the recurrence of the events.

Ideal cybernetic management model (Fig. 1) – actually is the state when all controls are in place and working. Control procedures, then are the system restraints that should prevent its unwanted behavior. In terms of the cybernetic model of control, control procedures are the regulated elementary activities or regulated sequences of actions that limit unwanted system behavior and designed to achieve the appropriate goal of control.

In our opinion, the main characteristics of the control procedure is its clear formal description,

which enables its understanding by the various categories of professionals who play different roles in the control process: 1) precise quantitative characteristics: either true (T) / false (F) or specific number, 2) clearly written description of the sequence of actions, which provides clear understanding of procedure by the person who regulate it, by the person who establishes it, and by the auditor.

Control procedures need to be distinguished from the accounting system. A company needs accounting system, for example, for the shipment of goods to customers and billing, recording of individual transactions, and their summation for recording in the general ledger. Control procedures are added to ensure that the accounting system produces accurate and reliable data. For example, control procedures can be added to the billing system to ensure that all the shipments are billed, and that all bills have correct amounts.

Controls must always be considered in terms of benefits against costs, as well as within the requirements to safeguard the assets. The concept of reasonable assurance demands that the costs of internal controls should not exceed the benefits derived from them. Expected benefits are to reduce losses from the corporate and business risks. Expected costs are related to resources for the establishing and maintaining the control system. The actual calculation of these costs and benefits, however, is largely subjective because of the limited opportunity to measure the specific costs and benefits [17, 109].

Conclusions

Control is a complex subject because the benefits and costs of controls depend on how people react to those controls, and predicting human behavior is a far from exact science. The study and evaluation of control systems is also complicated by the probabilistic nature of controls.

By definition, the **goal of every control system** is good control. This can be taken to mean that an informed person can be reasonably confident that no major, unpleasant surprises will occur. An out-of-control situation is then one where there is a high probability of forthcoming poor performance, despite a reasonable operating strategy. However, good control is not synonymous with perfect control. Perfect control, which would mean a complete assurance that all individuals on whom the organization must rely will always act as the organization wishes, is not a realistic objective. Even if this were possible, it might not be cost-effective because the costs of the controls might exceed the benefits of the high degree of control obtained.

To achieve its objectives, no matter what type of internal control system is chosen, management has to implement certain control procedures (control activities). Though implementation of controls requires additional financial resources, the benefits it can bring can be considerable. It can prevent the misuse of organization's resources, promote reliable and accurate accounting records, resolve issues arising as a result of reporting errors and protect not only employer's interests but also interests of employees by segregating worker's duties and safeguarding them from against being accused of irregularities or misappropriations. In sum, internal control can lead an entity to the needed targets with the minimum losses along the way.

To reach the established objectives the entity has to maintain a favorable control environment, assess its risks timely and correctly, implement the appropriate control activities, supply these issues with a proper information and communication and monitor the control process since the first day of its application. Satisfying these conditions can be the only way to reach a truly efficient and strong control system.

1. Beer S. Diagnosing the System / S. Beer. – Wiley, Chichester, 1985.
2. Carmichael Douglas R. Auditing concepts and methods: a guide to current auditing theory and practice / Douglas R. Carmichael : [D. R. Carmichael, John J. Wiliingham]. – 5th ed. – 1989. – 591 p.
3. Drucker P. Control, controls and management, in (Eds. C. P. Bonini, R. K. Jaedieke and H. M. Wagner). Management Controls : New directions in basic research McGraw-Hill, Maidenhead, Berks, 1964.
4. Emmanuel C., Otley D., Merchant K. Accounting for Management Control / C. Emmanuel, D. Otley, K. Merchant. – 2nd edition. – London, 1995.
5. Espejo I., Harnden R. The Viable Systems Model / I. Espejo, R. Harnden. – Wiley, Chichester, 1989.
6. Groot Tom L. C. M.; Merchant Kenneth A. Control of international joint ventures / Tom L. C. M. Groot; Kenneth A. Merchant // Accounting, Organizations and Society. – № 25. – 2000. – P. 579–607.
7. Hall J. A., Singleton T. Information Technology Auditing and Assurance / J. A. Hall, T. Singleton. – Mason, OH: Thomson Corporation, South-Western, 2005. – 568 p.
8. Harry M. Business Information : A Systems Approach / M. Harry. – London : Pearson Education limited, 2001. – 420 p.
9. Hayes R., Schilder A., Dassen R., Wallage P. Principles of Auditing : An International Perspective / R. Hayes, A. Schilder, R. Dassen, P. Wallage. – 2nd ed. – London, McGraw-Hill, 2005. – 692 p.
10. Hunton J. E., Bryant S. M., Bagranoff N. A. Core Concepts of Information Technology Auditing / J. E. Hunton, S. M. Bryant, N. A. Bagranoff. – John Wiley & Sons Inc, 2004. – 282 p.
11. Johnson K. P., Jaenicke H. R. Evaluating Internal Control : Concepts, Guidelines, Procedures, Documentation / K. P. Johnson, H. R. Jaenicke. – New York : John Wiley & Sons, 1980.
12. Louwers T., Ramsay R., Sinason D., Strawser J. Auditing and Assurance Services / T. Louwers, Ramsay R., D. Sinason, J. Strawser. – 3rd edition. – London : McGraw-Hill Higher Education, 2008. – 865 p.

13. Muthukrishnan R. The Auditor's Prerogative to Review Internal Controls / R. Muthukrishnan // Information Systems Control Journal. – Volume 2. – 2004.
14. Needles B., Anderson H. R., Caldwell J. P. Principles of Accounting / B. Needles, H. R. Anderson, J. P. Caldwell. – 4th edition. – Wilmington, MA, Houghton Mifflin, 1990. – 1220 p.
15. Schoderbeck P. P., Schoderbeck C. G., Kefalas A.G. Management Systems / P. P. Schoderbeck, C. G. Schoderbeck, A.G. Kefalas. – Business Publications, Homewood, IL, 1990.
16. Strawser J. R. Auditing theory and practice / Jerry R. Strawser, Robert H. Strawser. – Houston : Dame Publications, 1997. – 8th ed. – 2046 p.
17. Vasarhelyi Miklos A., Lin Thomas W. Advanced Auditing: Fundamentals of EDP and Statistical Auditing Technology / Miklos A. Vasarhelyi, Thomas W. Lin. – Addison-Wesley, 1988. – 600 p.
18. Wilkinson J. W., Cerullo M. J. Accounting information systems : essential concepts and applications / J. W. Wilkinson, M. J. Cerullo. – 3rd ed. – New York : Wiley&Sons, 1997. – 984 p.

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ТЕРМІНОЛОГІЯ, ПОВ'ЯЗАНА З ПРОБЛЕМАМИ КОНТРОЛЮ В БІЗНЕСІ: ВИЗНАЧЕННЯ ТА ЗАСТОСУВАННЯ

У статті розглянуто проблеми сучасної світової термінології в галузі контролю бізнесу на рівні суб'єктів господарювання – підприємств, проаналізовано поняття контролю та контрольних процедур, запропоновано модель контрольної системи.

Ключові слова: контроль бізнесу, контрольні процедури, внутрішній контроль, модель контрольної системи.

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Лук'яненко І. Г.

МЕТОДОЛОГІЧНІ ПІДХОДИ ДО МОДЕЛЮВАННЯ ІНФЛЯЦІЙНИХ ПРОЦЕСІВ

У статті розглянуто методологічні підходи до моделювання інфляційних процесів у періоди економічних підйомів і спадів. Проаналізовано недоліки та переваги застосування різних типів економетричних моделей. Розроблено практичні рекомендації щодо їх практичного застосування в Україні в умовах фінансової кризи.

Ключові слова: моделювання інфляційних процесів, економічне зростання та рецесія, економетричні моделі, фінансова криза.

Вступ

В умовах фінансової кризи зростає актуальність передбачення розвитку негативних явищ в економіці для того, щоб попереджати та згладжувати їх. У перше чергу це стосується поведінки інфляційних процесів, яка впливає на всі сфери економічного і соціального життя країни. Економісти сперечаються про «ціну» інфляції для суспільства, але можна сказати, що найбільшої шкоди вона завдає тоді, коли є несподіваною, несистематичною, нестабільною. Звичайно, і сам рівень інфляції має негативні наслідки,

але вони менші порівняно з її нестабільністю [1; 11; 14; 16]. Високі темпи інфляції, і зокрема гіперінфляція, мають негативний ефект тому, що вони настільки обмежують функції грошей, що останні фактично втрачають своє значення. Без такого посередника економіка, безсумнівно, зірветься у прірву кризи. На жаль, нульова інфляція є також негативним явищем, оскільки пов'язана в короткотерміновій перспективі з високим рівнем безробіття. Такий висновок впливає з розгляду кривої Філіпса [12, 15]. Виходячи з цих міркувань, багато економістів поділяють думку, що помірні інфляції краще за нульову чи гіпер-