

# On Development of SIFIs Theory and International SIFIs Regulation

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## Abstract

The goal of this paper is to demonstrate the development of SIFIs theory which enabled an important progress of SIFIs' regulation during the period of the last 15 years. At the same time we discuss selected problems related with the present state of domestic systemically important banks which is related to the actual implementation of D-SIB internationally accepted regulation measures in the open small countries economics. The paper (part Two) gives a brief characteristic of new approaches to systemic risk and its elementary feature (2.1), a characteristic of origins and development of SIFIs theory (2.2), and problem of SIFIs identification is explained (2.3). Practical problems of SIFIs regulation are high-lighted (part Three and Four). A tentative comparison of banking systems of Georgia and the Czech Republic is included (4.1).

**Keywords:** Basel 3, D-SIB, G-SIB, systemically important financial institution-SIFI, too-big-to-save

**JEL:** G21, G28, F33, F36

## Introduction

The goal of this paper is to demonstrate the development of SIFIs theory which enabled an important progress of SIFIs' regulation during the period of the last 15 years. At the same time we discuss selected problems related with the present state of domestic systemically important banks which is related to the actual implementation of D-SIB internationally accepted regulation measures in the open small countries economics.

Georgia and Czech Republic were elected to highlight similarities of banking sectors of both countries which can be relevant for the process of D-SIBs' identification by Regulatory Authorities.

## Systemic risk, creation of the SIFI theory and its importance for financial stability regulation

Such phenomena as *systemic risk*, *systemic importance of financial entities* and *financial stability* are closely interconnected. During the last years, interconnection of these processes has been analysed by many authors and/or international organisations. In the following paragraphs a brief survey of views on elements on which the present SIFIs theory and regulation policy are based is given.

### New approaches to systemic risk

Discussions of systemic risk as an economic and financial phenomenon have taken place for a long time and the term "systemic risk" has been gradually clarified from different aspects<sup>1</sup>. A brief list of systemic risk characteristics (period of 1994-2003) shows that the understanding of systemic risk was more complex. Let us quote some of the typical characteristics or definitions.

For example, American economist Kaufman originally described systemic risk as "the risk of a chain reaction involving the fall of interconnected dominoes." The Bank for International Payments in 1994 defined systemic risk by stating that "the risk that a participant in a financial transaction will not be able to meet his contractual obligations could prompt the failure of other participants and cause a chain reaction leading to more widespread financial difficulties" (Kaufman & Scott, 2003). In the G10 Group's report about consolidation in the financial sector (from 2001), it was stated that "systemic risk is the risk that a certain event will prompt the loss of economic value or confidence and then lead to an increase of uncertainty in a significant part of the financial system, which is so serious that it will very likely have major negative impacts on the real economy." In 2003, George G. Kaufman and Kenneth E. Scoot in an extensive examination of systemic risk

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<sup>1</sup> The term "systemic risk" was first used in the USA in 1994 by a World Bank economist in a book review. This term was often used at the time in political discussions and had not been defined more exactly.

wrote: “Systemic risk is related to the risk or probability of the collapse of the entire system, unlike the collapse of individual parts or components, and indicates a correlation between the majority or all parts of the system (Kaufman & Scott, 2003).

In the 81st Annual report of BIS, an amplified definition is used: „Systemic financial risk can be defined as the risk of disruption to financial services which results from an impairment of the financial system, with the potential to harm the real economy. It can arise anywhere in the financial system and may be amplified as market participants overreact to incomplete or incorrect information. How this risk is distributed across entities and sectors depends on the structure of balance sheet linkages, which can be complex“ (Bank for International Settlements, 2011). This concept is now generally accepted, and it can be applied both at microeconomic and macroeconomic levels.

Research of systemic risk enabled to elaborate new approaches to this complex phenomenon. New features of systemic risk were discovered. Important was the role of different international organizations and different ad hoc committees or bodies by whom systemic risk was studied from different sides. It is possible to enumerate some new elements from which a more meaningful definition of systemic risk could be put together. I tried to arrange the elements of systemic risk as of a complex phenomenon (See: Table 1).

**Table 1**  
*The Elements of Systemic Risk*

1 Variety of origins
2 Variety of forms and manifestations
3 Independence on time – systemic risk is not bound to a certain phase of economic cycle
4 Independence on space – systemic risk is not bound to a distinct geographical location, it is not confined to national boundaries - it can appear anywhere
5 Independence on type of institutions

6 Independence on different types of financial activities
7 Dynamic, rapid development, according to the circumstances
8 The consequences of systemic risk differ – they depend on existing conditions/circumstances

*Source: Pavlat, V. Will SIFIs Regulation Succeed or Fail? In: Proceedings of the 7th International Conference on Currency, Banking and International Finance. Conference Proceedings, September 2012. pp. 258-269.*

The above definitions define “quality”, however, they are not operational for practical use. Systemic risk has to be measured to be able to use the measurement result for regulation and supervision of different institutions (Acharya, Pedersen, Philippon, & Richardson, 2010).

At present, different approaches to systemic risk measurement can be found in a vast literature on this topic. There are two main streams: 1. Adherers to the first stream consider the system as a portfolio of institutions, and search for suitable measurement methods of total system-wide risk; 2. Adherers to the second stream lay stress on procedures for attributing total system-wide risk to individual institutions.

Systemic importance can be measured either by bank’s participation in systemic events, or to the bank’s contribution to systemic risk (Drehman & Tarashev, 2011). The first approach is called “participation approach” (PA): systemic importance is measured as the expected losses generated by a bank in systemic events which are losses leading to disruptions in the real economy. The second approach is called “contribution approach” (CA): it is possible to measure, how much a bank contributes to systemic risk<sup>5</sup>.

**Origins and development of SIFIs theory**

Practical needs of economic policy and financial regulation in the first decade of the new century prompted efforts to reflect considerations about systemic risk in the national economic dimension involving more exact definition of entities in the banking sector who are bearers of this risk.

This discussion led to the first elements of the current SIFI theory, replacing the originally prevailing theory of “too big to save” (TBTS) and often also applied in practice by various countries’ governments).

<sup>2</sup> If the bank is not interconnected with other banks, its contribution of systemic risk can be measured using the so-called Shapley methodology which stemmed from the theory of games.

The problem of systemic risk is closely related to the issue of financial stability not only from the point of view of a certain corporation or from the point of view of the national economy of a particular country, but also due to the influence of continuing internationalisation and major globalisation tendencies: it has an international dimension. If permanently changing and developing (international) systemic risk is to be limited, then it is necessary to create conditions for restoring financial equilibrium (financial stability)<sup>3</sup>.

However, if the financial equilibrium (stability) is to be restored, then it is necessary to know which financial institutions are important enough actually to be able to influence it. This logically leads to the conclusion that for conscious influencing of financial stability it is necessary to identify financial entities, which are important for financial stability, meaning that based on an analysis *it is necessary to identify systemically important financial institutions*. One of the first aspects considered is the "size" of financial corporations.

#### Identification of SIFIs: the problem of correct criteria and indicators

Properly defining *what should be considered "systemically important"* is necessary at least for three reasons: (1) it is essential for management of systemic risk, which exists among systemically important institutions, and for reduction of the risk of the spread of affliction prompted by potential failure, (2) it is necessary for adoption of measures to reduce the number of institutions with high systemic risk, (3) it is necessary also because approaches must be available to deal with potential insolvency of systemically important financial institutions with the lowest total costs for the economy.

With the sizes of corporations, the potential macroeconomic systemic risk grows. The role of regulatory and supervisory bodies is to monitor this risk and attempt to keep it under control. One of the practical issues related to regulation is how to identify ways to neutralise the losses of large financial institutions, ways to limit the "domino effect" caused by their failure and ways to carry out their resolution in a legal manner with the lowest possible costs.

The problem of identifying systemically important large financial corporations has become urgently necessary to deal with as a result of the crisis that erupted in the United States in 2007. Although at that time there were already various theoretical and empirical analyses of systemic risk, these mainly focused on this risk at a microeconomic level. At that time there was not yet a more targeted idea for how regulatory bodies should act if the macroeconomic systemic risk increased.

The first document offering proposals for solving the problem of identifying systemically important financial institutions was published in 2009 by the Federal Reserve Bank in Cleveland. In that document, proposals were presented for discussion regarding a new approach to regulating large financial institutions, which threaten the U.S. economy because of great systemic risk created as a result of such institutions being too big. At that time they began being referred to as systemically important financial institutions (SIFI) (Thomson, 2009).

In 2011 it was proposed "systemic importance" of large financial companies (including conglomerates) to be identified according to *five features*: 1. *size*, 2. *interconnectedness*, 3. *substitutability*, 4. *global activity*, 5. *complexity*.

The discussions about systemic importance and the methodology of determining it, which were held within the Basel Committee on Banking Supervision (2013), culminated into two basic approaches: 1. identification of systemically important financial institutions with application of a model approach, 2. identification with the use of simple indicators (such as bank size, interbank loans and lines of credit, etc.).

In December 2011, the Financial Stability Board (FSB) approved a new methodology for identification of global systemically important financial institutions<sup>4</sup>.

This methodology is based on *five main indicators, which are: size, interconnectedness, complexity, substitutability (together with financial infrastructure) and cross-jurisdictional activity*. Each indicator has a weight of 20%.

For measuring systemic importance, the key indicator is size, and it can be quantified based on the overall exposure of the bank to risk. Interconnectedness is measured with the help of three individual indicators, which are: a) the share in financial system assets, b) the share in financial system liabilities and c) wholesale funding ratio. Substitutability and financial institution infrastructure is also determined with the help of three individual indicators, which are: (a) assets in management, (b) payments settled via payment systems, (c) the value of underwritten transactions on the bond and stock markets. Complexity is determined based on (a) notional values of derivatives outside of exchanges (b) the determined level of quality of assets and (c) the value of assets intended for trading, which can be sold. Cross-jurisdictional activity is monitored with the help of two individual indicators: the indicator of cross-border receivables and the indicator of cross-border obligations. These indicators express the importance of a bank's activities outside of the country of its headquarters in relation to the overall activities of other banks.

<sup>3</sup> One of the interesting recently published analysis of macro- financial systemic risk, financial stability and the forms of central banks' macro-prudential policy can be found in: Frait, J., Komarkova, K. (2012). Financial stability, systemic risk and macro-prudential policy. CNB Financial Stability Report. ISBN 978-80-87225-34-9.

<sup>4</sup> See: BCBS. (2011). Global systemically important banks: assessment methodology and the additional loss absorbency requirement. Rules text. Basel: BCBS, ISBN 92-9197-893-0; BCBS (2012). A framework for dealing with domestic systemically important banks. ISBN 92-9197-141-3 (online). <http://www.bis.org/publ/bcbs224.pdf>; Basel Committee on Banking Supervision. Global systemically important banks: updated assessment methodology and the higher loss absorbency requirement. July 2013. <http://www.bis.org/publ/bcbs255.pdf>; Basel Committee updates its assessment methodology for global systemically important banks and issues disclosure requirements. 3 July 2013. <http://www.bis.org/press/p130703.htm>

## Practical problems of SIFIs regulation

Regulation of systemically important financial institutions represents a serious problem: finding appropriate means and ways to minimise potential negative effects of the failure of these giants is not easy. The following table presents a comparison of the advantages and disadvantages of regulation of SIFI from the position of regulators and from the position of SIFI themselves.

The advantages and disadvantages are linked to various phases of the economic and crisis cycle. The crisis cycle can be described as a closed circle, part of which is a financial crisis (banking), which is followed by an economic crisis (business) and a social crisis (households) and a political crisis (government). The specified advantages and disadvantages are not distributed proportionately between both sides. Experience from the global crisis shows that during the crisis, disadvantages are predominant for both sides. The specified advantages and disadvantages exist at both national and international levels.

The system of national regulation and supervision of large financial companies originally had a microeconomic dimension: it involved regulation and supervi-

sion over individual large financial units. International regulation and supervision was performed in the same way; the Basel I and Basel II agreements are evidence of this approach. At the end of the 1990s, the situation began changing in favour of a new, systemic approach, which was based on considerations regarding financial stability: a macroeconomic element entered the system of regulation. The need to change the system eventually culminated in the creation of new national and international regulatory institutions (the Financial Stability Board, etc.).

Already during the financial crisis, a series of measures related to SIFI were applied at the national level. These were mainly the following types of measures: 1. Liquidation (i.e. resolution) of SIFIs in the event of failure; 2. Re - structuring SIFIs' organisation; 3. SIFIs' size reduction, 4. Setting up limits on SIFIs' activities; 5. Increase of taxes leading to de-motivation of further growth of SIFI<sup>5</sup>.

The gradual introduction of an extensive set of tools, methods and indicators for regulation of SIFI is being carried out under the Basel III agreement. The purpose of these measures is to 1.reduce the probability of SIFIs failures (and to limit the consequences of such failures), if they occur; 2.reduce public sector

**Table 2**

*Advantages and disadvantages of systematically important financial institutions*

Advantages from the point of view of the regulator	Advantages from the point of view of SIFI
1. Ability to influence proportional development of all financial industry sectors in the country.	1. Inclusion of an individual SIFI in the list contributes to improving its reputation and to increasing its trustworthiness among clients.
2. Prevention of disruption of financial stability	2. Boosting of competitiveness of SIFI in the financial industry and increasing its economic strength.
Disadvantages from the regulator's point of view	Disadvantages from the point of view of SIFI
1. Risk of incorrect forecasting of development of proportionality in the financial industry.	1. Higher costs prompted by greater requirements for regulation of SIFI.
2. Risk of decline of the country's economic strength in international competition.	2. Probability of a less flexible approach by the regulator (greater bureaucracy).

Source: Pavlát, V. (2011). *Too big to fail, or too big to save? Proceedings of EUBA Electronic Conference. Bratislava: Euba, p.4.*

<sup>5</sup> One of the best contribution to the problem of SIFIs resolution can be found as soon as in 2009 in: Brunneimeier, M., Crocket, M., Goodhart, Ch., Persaud, A.D., Shin, H. (2009). *Fundamental Principles of Financial Regulation*. Geneva: Reports on the World Economy. Actual solutions of SIFI resolution is analysed in: FSB. (2011). *Key Attributes of Effective Resolution Regimes for Financial Institutions*. Basel: FSB. [10]

costs for potential interventions, if applied.

Instead of the original non-differentiated identification of SIFI, global SIFI were divided into two categories: 1. *Global SIFI (G-SIFI)*, which has significant sizes and importance in the world and

2. *Domestic SIFI (D-SIFI)* which has an impact only on a particular country's economy. A different type of regulation is expected for each of these groups.

*Global SIFI (G-SIFI) in the banking sector are now referred to as G-SIB* (systemically important global banks), and national (domestic) systemically important banks are abbreviated D-SIB (Basel Committee on Banking Supervision, 2012).

From SIFI in both categories greater absorption capacity will be expected in the future, along with an effective approach in the event of their liquidation, intensive supervision and robust infrastructure of the financial market, which should enable reduction of risk of institutions being afflicted. In order to influence the behaviour of D-SIB, differentiated measures are being introduced gradually by national regulatory bodies.

Regulation of global SIFI includes a series of new measures: 1. large financial institutions will be required to prepare plans for restoration and liquidation; the obligation to enter into specific cooperation agreements on cross-border liquidation of corporations; 2. implementation of regulation will be monitored by a special body (Peer Review Council).

In 2011, the Financial Stability Board (FSB) first published a list of global S-IB, and in November 2012 this list was revised and replaced by a new one<sup>6</sup>. The lists will be published annually (always at the end of a calendar year). The publication of these lists has a major influence on the rating of G-SIB and stemming from that also on a lot of other events in the banking sector.

## Regulation of D-SIBs

As far regulation of D-SIBs is concerned, in principle *three possible regulation patterns exist*: 1. *D-SIBs identification by a Central Regulatory Authority (normally by a Central Bank) based on all the five BCBS standard criteria followed by publishing an official list of D-SIBs*; 2. *D-SIBs identification by a Central Regulatory Authority based on a limited number of the BCBS criteria (omission of one of these criteria) and followed by publishing an official list of D-SIBs*; 3. *D-SIBs identification by a Central Regulatory Authority based on the BCBS criteria, without publishing an official list of D-SIBs*.

All these three possible models already exist. Since 2013, the first model is applied in bigger countries where some G-SIBs are officially located (example: Canada). The second model is applied for example in smaller EU member countries such as Denmark. The third model was recently applied in the Czech Re-

public (non-EURO country).

The application of a differentiated approach in D-SIBs regulation reflects the countries' banking system special features. Regulatory Authorities have the right to choose specific instruments differing from the general instruments prescribed by BCBS. This approach seems to be very promising, as it practically could exclude situations arising during the world financial crisis, i.e. difficulties arising from breaking the accepted regulation rules without any sanction and preferring national interests against the interests of the international financial community.

## D-SIBs regulation in small open economy countries in Europe

Financial sectors of individual countries differ in their sizes, structures and many other parameters, including different types of financial regulation. The "smaller" the country economically is, the more important these differences are.

Majority of smaller EU countries have a population of 5-10 million inhabitants. These countries can be divided into two groups: 1. the group of small open economy "old" EU member countries; and 2. group of "newcomers" – new EU member countries. The second group can be divided into two sub-groups: (a) small open economy countries with relatively developed financial sector (Cyprus); (b) small open transitory economy countries with a less developed financial sector. From this classification it is evident that it would not be wise to force unified regulation rules on all countries.

Georgia belongs to independent non-EU countries of Eastern Europe. Czech Republic is one of the (b)-subgroup countries according to the above classification. Both countries are small open economy countries; as such, both countries have many common problems to be solved.

## Comparison of selected specific banking sector features in Georgia and Czech Republic

International comparison of banking sectors in different countries is very difficult: the aim, methods and instruments of such comparisons have to be defined. Actually, there is lot of different comparisons most of which serve to produce countries' ranking according to one or more criteria.

In this paragraph we do not present an all-embracing comparison. The aim of our comparison is based on a few selected characteristics which we consider to be relevant for identification of D-SIBs and for their regulation. Our comparison in table 4 is only a tentative one. It reflects the actual situation which has its origin in the transition period of both countries.

<sup>6</sup> For the first global S-IB list see: [http://www.financialstabilityboard.org/publications/r\\_111104bb.pdf](http://www.financialstabilityboard.org/publications/r_111104bb.pdf); for the second global S-IB list see: FSB. Update of group of systemically important banks (G-SIBs). November, 2012. Document: r\_121103ac.

**Table 3**

*Similar features of banking sectors in Georgia and Czech Republic*

<ul style="list-style-type: none"> <li>- Universal banking system model</li> <li>- High degree of concentration</li> <li>- Low number of banks</li> <li>- Oligopolistic type of competition</li> <li>- Adequate size of banking system in national economy structure</li> <li>- Strong position of central bank</li> <li>- Inflation targeting</li> <li>- Institutional infrastructure corresponding to IMF requirements</li> <li>- Open entry of banks to the country</li> <li>- Own currency</li> </ul>
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Source: own elaboration

A brief comment on similar features follows:

Banking system is based on universal model. At the beginning of the transition period the continental model of banking was introduced in both countries, for instance a system based on universal banks. Banking sector concentration is high. In both countries the degree of concentration in banking sector is high. In Georgia, 3 big banks concentrate approx. 80% of total turnover. In Czech Republic, 3 big banks concentrate approx. 60% of total turnover. Number of banks is low. In Georgia the number of banks is relatively low (in comparison with number banks in countries of similar economic size) and does not exceed 20 banks. In the Czech Republic with its approx.40-45 banks the proportion is similar (given that Czech population is 10,5 mil. inhabitants). Oligopolistic competition prevails. The competition of banks in both countries - as reflected in their entrepreneurial methods and behaviour -is oligopolistic. Size of banking system is adequate. The size of banking system in both countries is not excessive, as it is in some other countries (Island etc.).

Position of central bank is strong. In both countries the position of central banks is very strong. Central banks dispose of adequate instruments and methods necessary for influencing financial stability. Inflation targeting is applied. Central banks of both countries are using progressive method of setting up inflation targets which helps to financial stability maintenance. Institutional infrastructure corresponds to IMF requirements. Both countries supply the IMF with requested data. Both countries take part in the international payments system (Schlossberger, 2011). Both countries publish transparent reports on financial stability, on inflation etc. Open entry of banks from abroad to the country is possible. Both countries are open to foreign banks' entry, if foreign banks are prepared to follow local requirements and regulations (licensing is needed). Own currency is used. Both countries maintain their national currencies<sup>7</sup>.

It is our persuasion that the enumeration of differences between the banking system of both Georgia and the Czech Republic is not necessary, because for SIFIs' identification and regulation the differences are less important than the above analysed similarities<sup>8</sup>.

### Conclusion

It is possible to conclude, first, that during the period of 1998-2007 the SIFIs theory was constituted. The main actual elements of this theory include (a) a generally accepted SIFI definition, (b) SIFI characteristic containing SIFIs main features which can be used for SIFIs identification, (c) methodology for SIFIs classification and classification models, (d) quantitative measurement methods and recommendable indicators, and (e) principles, methods and instruments of SIFs regulation.

Second, it is possible to conclude that within a short time (2009-2012) SIFIs regulation policy was created. One of the actual regulatory policy positive features is a possibility to differentiate regulatory measures and instruments on the international and national levels.

Third, the actual D-SIB methodology of SIFI identification has opened the way to differentiate the recognized identification procedures according to needs of small countries (open economy countries). The Czech National Bank as a representative of the above mentioned group of countries without EURO already decided to apply its own specific approach of D-SIB identification: big banks located in the Czech Republic have to declare and to proof to be SIFIs. It is probable that the Czech national bank will apply all 5 criteria

<sup>7</sup> The above information is mostly based on central banks data. For example, Georgia, National Bank of Georgia. Bulletin of Monetary and Banking Statistics. No. 177- January-November, 2013. FINANCIAL STABILITY REPORT. National Bank of Georgia. Tbilisi 2011. <http://nbg.ge/index.php?m=351>  
<http://www.nbg.gov.ge/uploads/publications/bulletinstatistics/statbiul/2013/bulletinnovember2013eng.pdf>  
 Important data on the transformation process of banks in Georgia draw on the following paper: Gelaschwili, S., Nastansky, A. Development of the Banking Sector in Georgia. In: STATISTISCHE DISKUSSIONSBEITRÄGE Nr. 36. Potsdam 2009. ISSN 0949-068X. <http://opus.kobv.de/ubp/volltexte/2009/4021/>

<sup>8</sup> The majority of differences reflect the different economic structure of both countries which is mainly due not only to the historical development in the more distant past, but also to the political, ethnical, financial etc. disturbances by which Georgia was hit in the last decennium.

used for SIFI identification. It is possible to expect that the regulatory authority of Georgia – which is a country outside EU with own currency and a small open economy as well – will be free to use its own specific method of D-SIB identification; it is probable that all 5 identification criteria will be applied and a list of D-SIB published, because the list of D-SIBs is a positive signal for foreign investors and a proof of regulators' transparent approach.

Fourth, because of the fact that SIFIs regulatory methodology is still being improved and upgraded, validity of our above conclusions is related to late autumn 2013 situation.

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