RIGA TECHNICAL UNIVERSITY

Faculty of Engineering Economics and Management

Institute of Civil Engineering and Real Estate Economics

Dmitrijs Skoruks

(Doctoral student ID Nr. 081RIB014)

MONOPOLISATION PROCESS ASSESSMENT UNDER MODERN ECONOMIC CONDITIONS

Doctoral Thesis

Field: Economics
Sub-field: Macroeconomics

Scientific supervisor
Professor Dr. oec.
Maija Šenfelde
Scientific consultant
Professor Dr. math.
Gaida Petere

RTU Press
Riga 2018

ANOTĀCIJA

Promocijas darbā sniegts kritisks monopolizācijas procesa mūsdienu ekonomiskajos apstākļos pārskats, kas veikts, aplūkojot to no vairākiem argumentētiem skatupunktiem un tādējādi nodrošinot attiecīgās tirgus parādības padziļinātu izpēti. Ir veikta tā izcelsmes avotu, virzītājspēku un veidojošo elementu kopas mijiedarbības analīze vienotā vērtējuma ietvara kontekstā, kā arī parādīts tā norises algoritms. Ir izstrādāta inovatīva metodoloģiska pieeja monopolistisko tendenču pastiprināšanos ietekmējošo faktoru identificēšanai un novērtēšanai, vienlaicīgi pievēršoties to izraisīto ekonomisko seku analīzei.

Promocijas darbs sniedz jaunu tirgus veidu tipoloģiskās stratifikācijas sistēmas redzējumu, kas vienlaikus atbilst zinātniski atzītākajām un starptautiski izmantotām attiecīgās problemātikas analīzes pieejām. Tiek nodrošināta pietiekamas empīrisko pierādījumu kopas sistematizētas bāzes izveidošana, kas ļauj pamatoti interpretēt monopolizāciju kā ekonomisko procesu un monopolu kā tirgus konjunktūras konfigurācijas tipu, kas gan atbilst, gan vienlaicīgi papildina mūsdienu ievērojamāko ekonomiskās domas skolu redzējumu attiecīgajā jautājumā.

Promocijas darba gaitā tika izstrādāta vispārēji piemērojama, funkcionāli daudzpusīga un uz rezultātu orientēta monopolizācijas procesa novērtēšanas metodoloģija, kas nodrošina iespēju ātri un holistiski veikt pētījumu par retrospektīvu un/vai pašreizējo ekonomiskās vides strukturēšanu izvēlētajā nacionālās tautsaimniecības sektorā, nozarē vai šaurāk definētajā konkrētajā tirgū. Tādējādi tiek piedāvāts izmaksu ziņā efektīvs veids, kā uzlabot valsts pārvaldes atbildīgo regulējošo iestāžu, privātā sektora uzņēmumu un bezpeļņas nodibinājumu, kā arī citu nevalstisko organizāciju un domnīcu analītisko kapacitāti un operacionālo sniegumu.

Promocijas darbs ir izstrādāts angļu valodā, tā sastāvā ir ievads, trīs nodaļas, secinājumi un priekšlikumi. Darba apjoms ir 180 lapaspuses, neskaitot pielikumus. Tajā ir iekļautas 37 tabulas, 20 attēli, 16 formula un 60 pielikumi, kas paskaidro un ilustrē pētījuma saturu. Bibliogrāfijas saraksts ietver 185 informācijas avotus.

ABSTRACT

The current Doctor Thesis provides a wide-scope perspective of and delivers an in-depth inquiry into the founding sources, the driving market forces the development progression algorithms and the comprising elements of modern monopolisation process, while simultaneously proposing an innovative methodological approach to assessing and evaluating the empirical factors of monopolistic trend escalation as well as quantifying the actual effects, projected by the progression of the relevant economical phenomenon' maturing onto the existing entrepreneurial environment.

The Doctoral Thesis enables a new perspective on typological market stratification systems, which nevertheless remains consistent with the scientifically acknowledged and internationally recognised approaches to analysing the relevant issue, eventually providing sufficient empirical evidence to redefine the interpretation of monopolisation as an economic process and monopoly as a market conjuncture configuration type in a manner, which seems suitable for and in-line with the most respected contemporary school of economic thought and their corresponding position on the relevant matter.

The Doctoral Thesis simultaneously develops a universally applicable, functionally versatile and implementation-orientated methodology of monopolisation process assessment, which delivers the opportunity to swiftly yet holistically conduct a study on the retrospective and/or current structuring of economic environment of a chosen sector, industry of defined relevant market, thus providing a cost-efficient way to enhance the performance of public regulatory institutions, private enterprises and non-profit endowments as well as non-governmental organisation and think-tanks.

The Doctoral Thesis had been written in the English language and comprises of 180 pages, not including 60 Annexes as well as 37 tables, 20 figures and 16 formulas, while the bibliography lists 185 reference sources.

CONTENT

INTRODUCTION

With the vast development of the modern business practices and the advent of the globalized trade system, numerous formerly unquestioned and unchallenged visions of the economy functioning paradigms, market mechanisms and conformity of natural laws had already been and still find themselves in a stage of productive transformation, re-evaluated and positively – critical analysis from various scholarly as well as practice perspectives. Based on the classic Adam Smith's theory, John Maynard Keynes approach and works of Paul Samuelson, economic research is further developing along with the endlessly flexible socially – economic agenda, causally following and quickly reacting to newly emerging global and regional challenges. As it had been stated in "An Inquiry into the Nature and Causes of the Wealth of Nations" Book IV, Chapter VIII: "Consumption is the sole end and purpose of all production and the interest of the producer ought to be attended to, only so far as it may be necessary for promoting that of the consumer". Thus, the father of "invisible hand" concept underlines that no form of competition, regardless of its specifics and market conjuncture composition, is free from or can neglect the maximum level of consumption capacity, made available by the current demand (Smith, 2007, 512).

Complementary, it had been stated by Paul Samuelson that "Every good cause is worth some inefficiency". (The Independent, 2009) Thus, it may be argued that for the sake of economic stability maintenance and social utility maximization, a shift from perfect or near – perfect competition can and to some extent, may, if certain contextual conditions are present, be considered tolerable if economically suboptimal. It is further explained in "The General Theory of Employment, Interest, and Money" that "the difficulty lays not so much in developing new ideas as in escaping from old ones". Consequentially, this undoubtedly widely respected author suggests the employing of a non – conventional approach to implementing new elements into the modern economic theory while being able to take a fresh, innovative look at many seemingly common aspects of market interactions (Keynes, 2011, 4).

While considering the previously mentioned quotations by some of the most notable scholars of modern day founding economic theory, one may reasonably argue that certain aspects of market interaction are justly defined as empirically – fundamental and thus may not be subjected to any sort of revisionary agendas, which do find their way and are widely accepted in the modern economist community. Without prejudice to acknowledging certain areas of economic analysis, such as the demand – supply based market equilibrium or the law

of diminishing returns, as indubitably empirical, a certain area of market functioning is indeed being addressed diversely by various scholars, professionals and interest group representatives due to the structural controversy, imbedded in the very essence of the relevant phenomenon. The issue in point is the process of monopolisation, taking place in an open market economy and seemingly contradicting with both the economic reasoning for competition – bases resource utilization, product distribution as well as means of production allocation, and the core benefit to society, brought by consumer choice possibilities, namely, need satisfaction in the context of market functioning efficiency.

While the presence of the full monopoly undoubtedly brings unrecoverable (deadweight) losses to the society, the process of monopolisation is a natural state of affairs, based on both resource limitations and enterprise struggle for profitability, with the mentioned tendencies becoming excessively persistent and particularly visible in time of economic downslide and external shock occurrences'. The first deviation from the situation of competition, sufficient in terms of intensity and efficiency, is the obtaining of a dominant market position, which is recognized by the European Union Competition Law as not an infringement per se, but rather as a potentially risky situation of possible future negative market trend development. As defined in the Article 102 of the Treaty on the Functioning of the European Union, "any abuse by one or more undertakings of a dominant position within the common market or in a substantial part of it shall be prohibited as incompatible with the common market insofar as it may affect trade between Member States". (TFEU, 1958) Therefore, it may be concluded that monopolisation tendencies are a potentially negative development, however, in certain situation, such state of affairs may be "the least of two evils" in regards to the only other economically efficient option being public body interference or even nationalization, the latter being highly uncompliant with the current developments in the European single market.

The question arises in defining the limits of monopolisation process remaining an economically natural and mostly tolerable, in terms of market functioning efficiency, development prospect enhancement and defining a boundary, which, if crossed, leads the industry down the path of excessive market power concentration and counterproductive entrepreneurial practices, creating a sufficient basis for public competition monitoring bodies to interfere with the goal of deterring further escalation of unfavourable monopolisation process.

The current Doctoral Thesis takes a step towards providing a methodologically comprehensive and scientifically justified answer to the mentioned empirical question, while

addressing the relevant problematic via supply-side multifactorial analysis, viewed through the prism of quantitative economic evaluation conduction via implementing a robust and reliable yet risk-aware and reasonably data-undemanding analytical framework.

The objective (aim) of the current Doctoral Thesis is to conduct an in-depth study on the nature of monopolisation process, the role of market power concentration in monopolisation tendencies' progression and define the contemporary influence factors, which accelerate the mentioned occurrences, while developing a unified methodological framework of monopolisation process analysis.

The Hypothesis of the Doctoral Thesis may be defined as follows: contemporary small open economies undergo a natural, economic reality-shaping factor-based and internal competition supported market consolidation process, which leads to the acceleration of individual monopoly power concentration in specified niches, particularly in those industries and relevant markets, which are excluded from participation in international trade and are therefore constrained in the scale of positive regional convergence and cross-border entrepreneurial cooperation effects, delivered by the interconnectedness of the modern global economy.

The Main Tasks of the Doctoral Thesis may be formulated as follows:

1. describe and conduct an assessment of the existing substantiations, causes and consequences of monopolisation process;
2. evaluate and explanation of the role, taken by market power as an economic phenomenon, in the development and evolution of the monopolisation process;
3. define of the existing market power concentration evaluation methods;
4. conduct an experimental study on empirical compatibility and mutual complementarity in terms of their functional applicability;
5. develop of a monopolisation process assessment methodology, which considers both market power concentration and contemporary redistribution patterns.

The Object of the Doctoral Thesis is the process of monopolisation, perceived as an economic phenomenon, its concentration forming trend, their structuring element and main influencing factors.

The Subject of the Current Doctoral Thesis is a framework of monopolistic tendency-driving market power-comprising element, relevant in the case of a modern open market economy.

Empirical Assumptions and Limitations. In order to establish a scientifically clarified field of analysis, the following assumptions are being established and further taken

into consideration, while conduction the current research: all market participants, especially ones operating on the supply side of the established equilibrium, tend to maximize their profits; a crisis situation, both structural and shock-triggered in its essence, does not trigger a significant shift of economic activity from the legally established and clearly defined fiscal field to the realm of "shadow economy"; in order to focus the research effort on those segments on the analysed industries that factually enable a macroeconomic drive for long-term sustainable development, the supply-side market actors with market shares below a five percent benchmark shall be grouped in statistical data cluster units, sufficient to satisfy the mentioned minimum volume criteria.

Theoretical Framework of the Research. The theoretical, analytical and methodological framework of the current research is based on the works and contribution to the modern economic theory by such authors as: Arrow K. J., Boehm–Bawerk, E.v., Boettke, P. J., Buchanan, J., Stubblebine, Wm. C., Chamberlin, E. H., Davis, J. B., Dimand, R. W., Fisher, I., Friedman, M., Harcourt, G. C., Kerr, P., Hayek F. A., Jensen, R. T., Miller, N. H., Keynes, J. M., Krilovs, L., Marshall, A., Menger, C., Mises, L. v., Motta, M., Nothbard, M. N., Peitz, M., Valletti, T., Robinson, J., Rutherford, M., Salerno T. J., Samuels, W. J., Biddle, J. E., Say, J.-B., Selgin, G. Shionoya, Y., Sraffa, P., Dobb, M. H., Stiglitz, J. E., Stucke, M.E., Sullivan, A., Sheffrin. S. M., White, L. and others.

Methodological Framework of the Research. The following assessment methods shall be used to conduct the current research: monographic analysis, graphic analysis, experemental modelling, mathematical criteria analysis, quantitative economic pattern analysis, qualitative resulting range analysis, data harmonisation and grouping, expert method as well as other technically-suitable method.

Scientific Novelty of the Research:

1. The research provides in-depth insight into the stance, acknowledgements and attitude of various schools of economic thought towards monopolisation as a dynamic market phenomenon as well as the corresponding rationale behind the positions taken.
2. The current research establishes a fact-based unified comparative summary of consensus between the mentioned schools of economic thought, regarding the defined research object, which serves as an empirical "common denominator" of conceptual understanding of the relevant market phenomenon, thus enabling the creation of a unified definition of both monopoly as an empirical market type and the process of monopolisation as a dynamic market phenomenon,

consequentially leading to a fundamental consensus among the variating yet conceptually non-contradicting views of various schools of economic thought on the relevant matter.

3. The research establishes and proposes an innovative, multifactorial framework of market type definition and typological stratification, enhancing the existing scientific literature on the relevant topical issue and simultaneously enabling a more quantitative approach in terms of addressing the corresponding matter in future research.
4. The current research enabled the development of a unified monopolisation process assessment methodology, which had been experimentally proven to be a reliable, low-cost, easy-to-use, robust and efficient tool for conducting typological evaluation of markets via stratification, while quantifying the existing level of monopolisation and evaluating its further progression potential.
5. The research enabled the development of a flexible and functionally versatile monopolisation process assessment tool, which may be beneficially used by both public-sector institutions and private sector organisations, as well as think-tanks and non-profit endowments.

Statements of the Current Doctoral Thesis:

1. The process of monopolisation is a natural economic phenomenon, emerging from and simulated by competing enterprises striving for business process profitability, market position strengthening and gaining the desired entrepreneurial competitive advantages.
2. Monopolisation trends are most likely to emerge in situations of disproportionate individual market power distribution between supply-side market actors, engaged in economic activities within a defined relevant market and mutually competing, while implementing price-related engagement strategies.
3. Contemporary macroeconomic conditions enable the emergence of an empirical situation, in which small open economies undergo an objective business environment, factor-based and internal competition-driven process of market consolidation, which leads to an accelerated concentration of individual monopoly power in specified niches, particularly in those industries and relevant markets, which are excluded from participation in international trade

and are therefore constrained in the scale of positive regional convergence and cross-border entrepreneurial cooperation effects, delivered by the interconnectedness of the modern global economy.

4. Monopolisation tendencies may be detected through the analysis of individual market power mutual compensation effect in the context of the business cycle evolution.
5. Applying harmonised quantitatively-analytical methods and their qualitative interpretation algorithms in the context of synergetic modelling proved to be an efficient methodological approach of monopolisation trend detection, recording and evaluation.

List of Publications

Generally recognised peer-reviewed publication:

1. Skoruks, D., Šenfelde, M. The Empirical Methodology of Modern Monopolization Process Assessment as a Sustainable Consumption Ensurance Tool. No: Economic Science for Rural Development No. 40, Latvia, Jelgava, April 23–24, 2015. Jelgava: Latvia University of Agriculture, 2015, pp. 14–26 ISBN 978-9984-48-183-8. [Indexed in ISI Web of Science]
2. Skoruks, D., Šenfelde, M. Empirical Methodology of Modern Monopolisation Process Assessment: an Extended Commentary. No: Economic Science for Rural Development No. 45, Latvia, Jelgava, April 27–28 2017. Jelgava: Latvian University of Agriculture, 2017, pp. 360–366. ISBN 978-9984-48-261-3. ISSN 1691-3078. [Indexed in ISI Web of Science]
3. Skoruks, D., Šenfelde, M. Econometric Methodology of Monopolization Process Evaluation. Business, Management and Education, 2014, Vol. 12, No. 1 (2014), pp.47–59. ISSN 2029-7491. e-ISSN 2029-6169. Available from: doi:10.3846/bme.2014.04 [Indexed in EBSCO]
4. Skoruks, D., Nazarova, J., Šenfelde, M. Monopolistic Trend Analysis in the Context of Efficient Entrepreneurial Decision Making. Journal of System and Management Sciences, 2015, Vol. 5, No. 2., pp. 33–58. ISSN 1816-6075. e-ISSN 1818-0523.
5. Skoruks, D., Nazarova, J., Šenfelde, M. Monopolisation Trend Conditionality under Modern Economic Conditions: A Case Study of Road Construction Public Procurement Conjuncture. Procedia Engineering, 2017, Vol. 172(1), pp. 1007–1014. ISSN 1877-7058. doi:10.1016/j.proeng.2017.02.151.
6. Skoruks, D., Nazarova, J., Šenfelde, M. Evaluating Monopolisation Tendencies through Quantitative Analysis of Market Power Distribution. No: MMK 2015: International Masaryk Conference for Ph.D. Students and Young Researchers, Czech Republic, Hradec Králové, December 14–18, 2015. Hradec Králové: Magnanimitas, 2015, pp. 614–623. ISBN 978-80- 87952-12- 2. e-ISBN 042-15-75-12- 9.
7. Skoruks, D., Nazarova, J., Šenfelde, M. Detecting Monopolisation Tendencies in the Context of Modern Business Cycles: a Quantitative Perspective. No: Economic Science for Rural Development No. 43, Latvia, Jelgava, April 21–22, 2016. Jelgava:

Latvian University of Agriculture, 2016, pp. 197–205. ISBN 978-9984-48-255-5. ISSN 1691-3078. [Indexed in ISI Web of Science]

8. Skoruks, D., Nazarova, J., Šenfelde, M. Detecting Monopolisation Tendencies in the Context of Modern Business Cycles: Elaboration via Implementation. No: Economic Science for Rural Development No. 45, Latvia, Jelgava, April 27–28, 2017. Jelgava: Latvian University of Agriculture, 2017, pp. 367–374. ISBN 978-9984-48-261-3. ISSN 1691-3078. [Indexed in ISI Web of Science]
9. Skoruks, D., Nazarova, J., Šenfelde, M. Countervailing Market Power Analysis: an Assessment of Monopolisation Tendencies in Modern Business Environment. No: CER Comparative European Research 2015, UK, London, October 26–30, 2015. London: Science Publishing, 2015, pp. 67–71. ISBN 978-0-9928772-8-6.
10. Skoruks, D., Nazarova, J., Šenfelde, M. Countervailing Market Power Analysis: Assessing Monopolisation Tendencies in Business Environment of the Modern Financial Service Sector. CER: Comparative European Research 2016, UK, London, March 26–30, 2016. London: Science Publishing, 2016, pp. 89–93. ISBN 978-0-9928772-9-3.
11. Skoruks, D. Complex Econometric Model of Monopolization Process Evaluation. Procedia – Social and Behavioral Sciences, 2014, Vol. 110, pp. 202–214. ISSN 1877-0428. doi:10.1016/j.sbspro.2013.12.863
12. Šenfelde, M., Skoruks, D., Nazarova, J. Multifactorial Assessment of Monopolisation Trends through the Analytical Prism of Price-Based Market Power and Business Cycle Fluctuation Quantitative Evaluation. Inzinerine Ekonomika-Engineering Economics. Inžinerinė ekonomika – Engineering Economics, 2016, Vol. 27, No. 5, pp. 538–545. ISSN 1392-2785. e-ISSN 2029-5839. doi:10.5755/j01.ee.27.5.14921. [Indexed in ISI Web of Science and SCOPUS]

Other publication:

13. Skoruks, D. Monopolizācijas process mūsdienu ekonomikā. No: Rīgas Stradiņa universitātes 2014. gada zinātniskā konference: tēzes, Latvija, Rīga, 10. –11. aprīlis, 2014. Rīga: Rīgas Stradiņa universitāte, 2014, 401. –401. lpp. ISBN 978-9984-793-52-8.

List of Conferences:

1. Riga Technical University, 54th International Scientific Conference "Scientific Conference on Economics and Entrepreneurship: SCEE'2013", 2013, October 11–16, Riga, Latvia, paper "*Monopolization Process Evaluation under the Modern Market Conditions*".

2. Riga Stradins University, 6th Interdisciplinary Scientific Conference "Eiropas Savienība un Latvija: uzņēmējdarbības sociāli ekonomiskie aspekti", 2013, May 9–10, Riga, Latvia, pape*r "Monopolizācijas process mūsdienu ekonomikā".*

*3. Vilnius Gediminas Te*chnical University, International Scientific Conference "Contemporary issues in Business, Management and Education '2013", 2013, November 14–15, Vilnius, Lithuania, paper "*Complex Econometric Model of Monopolization Process Evaluation".*

4. *Riga* Stradins University, 13th Scientific Conference-2014, 2014, April 10–11, Riga, Latvia, paper "*Monopolizācijas process mūsdienu ekonomikā*".

5. Vilnius Gediminas Technical University, 8th International Scientific Conference "Business and Management' 2014", 2014, May 15–16, Vilnius, Lithuania, paper "*Econometric Methodology of Monopolization Process Evaluation*".

6. Riga Technical University, 55th International Scientific Conference "Scientific Conference on Economics and Entrepreneurship: SCEE'2014", 2014, October 14–17, Riga, Latvia, paper "*Globalization as a market failure remedy: the case of modern monopoly"*.
7. Vilnius Gediminas Technical University, International Scientific Conference "Contemporary Issues in Business, Management and Education 2015", 2015, November 12–13, Vilnius, Lithuania, paper "*Monopolistic Trend Analysis in the Context of Efficient Entrepreneurial Decision Making*".
8. Latvia University of Agriculture, 16th International Scientific Conference "Economic Science for Rural Development-2015", 2015, April 23–24, Jelgava, Latvia, paper "*Quantitative Methodology of Modern Monopolization Process Assessment as a Sustainable Consumption Insurance Tool*".
9. Riga Technical University, 56th International Scientific Conference "Scientific Conference on Economics and Entrepreneurship: SCEE'2015", 2015, October 14–16, Riga, Latvia, paper „*Economic integration as a market failure remedy: the issue of monopolisation*".
10. SCIEMCEE, International Scientific Conference "Comparative European Research: CER-2015", 2015, October 14–16, London, UK, paper "*Countervailing Market Power Analysis: an Assessment of Monopolisation Tendencies in Modern Business Environment*".
11. International Masaryk Conference for Ph.D. Students and Young Researchers: MMK-2015, 2015, December 14–18, Hradec Králové, Czech Republic, paper "*Evaluating Monopolisation Tendencies through Quantitative Analysis of Market Power Distribution*".
12. Latvia University of Agriculture, 17th International Scientific Conference "Economic Science for Rural Development-2016", 2016, April 21–22, Jelgava, Latvia, paper "*Detecting Monopolisation Tendencies in the Context of Modern Business Cycles: a Quantitative Perspective*".
13. SCIEMCEE, International Scientific Conference "Comparative European Research: CER-2016", 2016, March 28–31, London, UK, paper "*Countervailing market power analysis: assessing monopolisation tendencies in business environment of the modern financial service sector*".
14. Latvia University of Agriculture, 18th International Scientific Conference "Economic Science for Rural Development-2017", 2017, April 27–28, Jelgava, Latvia, papers "*Detecting monopolisation tendencies in the context of modern business cycles: elaboration via implementation*" and "*Empirical Methodology of Modern Monopolisation Process Assessment: an Extended Commentary*";
15. Sapienza University of Rome, 22nd Eurasia Business and Economics Society Conference, 2017, May 24–26, Rome, Italy, papers "*Evaluation of Monopolisation Trends in Contemporary Markets: Employing Price-Based Market Power and Business Cycle Fluctuation Assessment Methods to Generate Analytical Synergy*" and "*Non-Parametric Techniques of Spectral Analysis as a Corrective Factor of Stock Price Forecasting Combined Stochastic Models*".

The Content and Volume of the Current Doctoral Thesis. The current Doctoral Thesis consists of three Chapters:

1. Theoretical Context and Background of the Monopolisation Phenomenon;

2. Analysis of the Methods, Commonly Used to Address the Relevant Problematic;
3. The Proposed Methodological Solutions and Their Experimental Justification.

The volume of the current Doctoral Thesis is 180 pages, not including annexes. The Thesis contains 37 tables, 20 figures and 16 formulas as well as 60 annexes that provide detailed information of the progression of the conducted research that simultaneously transparently reflect the relevant intermediate findings and acquired results. While conducting the mentioned research, the information and data of 185 bibliographic, data and other relevant sources were employed, all of which are listed in the bibliography.

Chapter 1 of the current Doctoral Thesis provides an analytical overview on the relevant topical issue, while particularly concentrating on providing an in-depth insight into the stance and attitude of various schools of economic thought towards the defined research object and the research subject, resulting in an facts-based unified comparative summary, which enables the creation of a unified trans-scholar definition of both monopoly as a modern market type and the process of monopolisation as a dynamic market process.

Chapter 2 of the current Doctoral Thesis provides a combined qualitatively-quantitative overview of the methods, currently and commonly used to the widest extent in cases of defining market concentration levels and the levels of monopolisation in the mentioned markets, while providing evidence of their unilateral efficiency, accompanied by an embedded inability to provide positive synergetic effects when applied simultaneously, thus justifying the need for both redefining of the market typological stratification approach, currently in use and a unified model of comprehensive, transparent and functionally versatile monopolisation process assessment.

Chapter 3 of the current Doctoral Thesis provides a detailed description of the quantitative outline, the comprising elements, the functional composition and the principles, embedded in the structure of the developed unified monopolisation process assessment model, followed by an experimental implementation of the proposed analytical instrument, which delivered positive results, while simultaneously reaching the defined research objective (aim) and confirming the defined research hypothesis.

In the final Chapter of the current Doctoral Thesis the main finding, empirical acknowledgements and crucial conclusions, obtained during the conduction of the relevant research are summarised in a transparent and comprehensive manner, thus enabling the drafting and presentation of the corresponding recommendations.

Practical Significance of the conducted research.

1. The Doctoral Thesis enables a higher level of empirical and methodological consensus

between various esteemed historical and contemporary schools of economic thought, enabling a scientific consensus regarding the understanding and applicable utilization of such definition as monopoly power, the process of monopolisation, full monopoly and total level of market monopolisation, all of which had been used as conceptual background of the conducted monopolisation evaluating methodology creation, imbedded in its qualitative components and quantitative elements.

2. The Doctoral Thesis enables the development of a scientifically verified (in both qualitative and quantitative terms) market typological stratification system, which greatly enhances the existing commonly used market type definitions, allowing a higher level of interpretational precision and understating of the existing causality of business process conduct within the evaluated economic environment internal, thus establishing the possibility to conduct a significantly more accurate market conjuncture analysis.
3. The Doctoral Thesis enables the development of a scientifically verified monopolisation process assessment methodology, which governmental institutions and public agencies, especially those entrusted with regulatory and competition protection functions, may make extensive use of for policy planning, implementation and assessment as well as other general analytical functions.
4. The Doctoral Thesis enables the development of a scientifically verified monopolisation process assessment methodology, which private for-profit organisations and enterprises as well as entrepreneurial associations may make extensive use of for business strategy, market screening and analytical purposes of competition environment, particularly while making decision on the possibility of current operation expansion, rationality of entering new markets and conducting a general assessment of operational activity challenges, including that of a regional/local branch level.
5. The Doctoral Thesis enables the development of a scientifically verified monopolisation process assessment methodology, which research institutions, academic bodies, non-for-profit organisations and think-tanks may make extensive use of for business environment, competition intensity and industry/market studies in order to enhance the available analytical and methodological capacities, providing an opportunity to utilize a low-cost, robust assessment methodology, while enabling the use of the obtained results in consultations with governmental representatives, public official and/or for lobbying activities and making a case for further progression of the defined organisational agenda.

1. THEORETICAL CONTEXT AND BACKGROUND OF THE MONOPOLISATION PHENOMENON

1.1. General characteristics and economic essence of the monopolisation phenomenon

The word "monopoly" is formed from the Greek μονο (mono) - one and πωλέω (poleo) - to sell, in the broadest sense is used as a concept that describes a unique and in a sense peculiar situation in a country, sector or organization, which makes it possible to take advantage of the given state of affairs. It is widely believed that such situation is desirable for every entrepreneur because the mentioned position allows, firstly, to avoid the open market competition – related problems and risks, leverage the rising marginal costs of production and utilization of the limited available resources, and, secondly, through occurring benefits of imposing a certain, dominant position enhancing and, therefore, beneficial behaviour and decision making pattern on their potential and effective competitors, not rarely – public and governmental bodies, even, to a certain extent, to the consumers, who make up the seemingly dominant and by far the largest structural cluster of any liberal market community. (Friedman, 1962, 119-137)

Nevertheless, in the realm the economic science the phenomenon of monopoly is treated ambiguously, with the empirical descriptive perceptions of the origin, nature, functioning causality, logical outputs and outcomes, caused by the relevant state of market composition vary considerably, depending on the basic postulates and preferred research paradigms of a given school of economic thought, scholar of competent individual. Simultaneously, the economic phenomenon of a full or complete monopoly is defined as a distinct market position, enabling the so called excessive gain generation and subsequent extraction, resulting in an almost guaranteed profit with the “excessive exploitation” of the “leading market position”, frequently referred to as the monopoly advantage. (Friedman, 1962, 112-114).

The above given characteristics of the full monopoly, from the modern point of view, is not entirely correct, which inter alia had been verified by various national and international experts (see Annexes 57-59) during the rounds of consultations, conducted over the course of current research development. The monopolist remains dependant on the final consumer's total level of income, therefore, from a wider perspective, it is impossible to surpass the

aggregated consumption amount above the cumulative the level goods, services and adjunct benefits that each individual consumer is able to afford, in other word, it is economically unjustified to claim the appearance of "endless" monopoly due to the general limitless of both financial and natural resources.

However, the stereotype of the monopoly – imposed "price dictation" as evidenced by all the recent years of social studies, has been deeply enriched into social subconscious, resulting in a trend of instant negative reaction to the very definition used without reference to scientifically justified and conceptually provided evidence of the absolute and unexceptional economic harm, imposed by the existence of the monopoly phenomenon in each and every market type, conjectural form and trading system.

The current Doctoral Thesis shall be devoted to consistent evaluation of the phenomenon of monopoly as a market occurrence, the case of full monopoly as a divisional type of the former and the process of monopolisation as a strictly economic and causally justified conduction of the liberal trading process. Furthermore, Chapter 1 of the current Doctoral Thesis shall provide an in-depth insight of the above mentioned general problematic, taking a theoretically – qualitative approach in order to determine, evaluate and consequentially systematise the currently dispersed and mutually irreconcilable perceptions of the empirical phenomenon of monopoly, developed by a number of schools of economic thought point with the specific purpose of developing a commonly – objective analytical framework, which is deriving from the individually – subjective scientifically – philosophical research paradigm, thus establishing a single evaluation system, aimed of achieving a greater level of conceptual coherence between various scholarly approaches, simultaneously demonstrating the need to distinguish between the two closely related definitions of a complete monopoly and monopolised industries.

The phenomenon of monopoly and the process of monopolisation from the scientific perspective of the Classical school of Political Economy

The Classical school of Political Economy or the School of Classical economics, as it is sometimes referred to, is widely regarded and generally accepted by esteemed scholars and academic authors as the first modern school of economic thought, being based on the consensual assumption that markets, with an even stronger emphasis on those of commodity trading, are self-regulating and autonomously adjusting "naturally" structured economic transaction – upholding systems, functioning in the most efficient way, possible in a current

state of macroeconomic affairs and their respective development stage, if provided the necessary degree of freedom of internal conjuncture re-composition to take place. (Smith, 2007, 7-73) (Sraffa, Dobb, 2004, 88-111)

The major developers of the currently analysed school of economic thought as well as the most significant contributors to its empirically – methodological basis formation, not mentioning the undoubted revolutionary visionaries of their historic period, who were the first to acknowledge the shift of economic power and political bargaining ability, enabled by the social process of the time, from the Medieval feudal proto – capitalistic structure to a more market orientated one of the emerging Industrialism, include the thinkers Adam Smith, David Ricardo, Thomas Malthus and John Stuart Mill. (University of Sussex, 2015, 1-8)

Classical political economy emerged in the context of the dissolution of feudalism and the rise of commerce in Northwest Europe. The urban merchant class, or bourgeoisie, associated with this transformation, tended to emphasize that unlike the feudal nobility, its wealth derived from work, labor, not inherited property rights in a way, closely related to the pattern that sought to distinguish itself from, as an example, the colonial conquest of South America, by claiming that its business was trade, not violent appropriation. Thus, emerged the labor – centered theory of value, and the notion of trade as equal exchange of items measured by invested labor, that is, the gross input amount of labor and labor time spent, while both the former and the latter were seen as emanating "from nature". (Smith, 2007, 17)

The basic, if not core, axiom of classical political economy, later extrapolating to various subdivision movements of the Neoclassic school of economic thought, is the presumption that all humans are by nature self – interested, utility – maximizing subjects of economic process, seeking individual need satisfaction in the most full and convenient manner available or potentially possible, consequentially, creating the theoretical foundation for the presently widely accepted consensual concept of "the rational consumer". As A. Smith, the chief figure and, in a sense, the first herald of the economic thought Enlightenment, stated in his epochal treatise "*An Inquiry into the Nature and Causes of the Wealth of Nations*": "Man has almost constant occasion for the help of his brethren, and it is in vain for him to expect it from their benevolence only. He will be more likely to prevail if he can define the economy interest their self-love in his favour, and shew them that it is for their own advantage to do for him what he requires of them. Whoever offers to another a bargain of any kind, proposes to do this. Give me that which I want, and you shall have this which you want, is the meaning of every such offer; and it is in this manner that we obtain from one another the far greater part of those good offices which we stand in need of." (Smith, 2007, 19)

In this respect, it may be argued A. Smith defines economics as a field in which rational, highly personalized, self – interested individuals are socializing and engaging in resource, good and service transition process with the goal of maximizing ones need satisfaction through the prism of mutual means of production and labor exchange, unconsciously stimulating the common flexibility of the economic system as a wholesome entity and creating a framework of common welfare.

Simultaneously, A. Smith perceives market volatility and defines the conduction of the business cycle in the following manner: "As every individual, therefore, endeavours as much as he can, both to employ his capital in the support of domestic industry, and so to direct that industry that its produce maybe of the greatest value; every individual necessarily labours to render the annual revenue of the society as great as he can. He generally, indeed, neither intends to promote the public interest, nor knows how much he is promoting it. By preferring the support of domestic to that of foreign industry, he intends only his own security; and by directing that industry in such a manner as its produce may be of the greatest value, he intends only his own gain; and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention. <…> By pursuing his own interest, he frequently promotes that of the society more effectually than when he really intends to promote it. I have never known much good done by those who affected to trade for the public good." (Smith, 2007, 19)

Thus, in can be seen that A. Smith is the first advocate of the "natural order" doctrine, seeing market transactions as the "natural rational" for economically active individuals to engage into mutual "barter, truck and exchange", followed by another "natural" market interaction conjuncture's components – the famous "invisible hand" concept – which reconciles individual pursuits into a coherent system of common economic well – being.

From the Author's point of view, the above given quotation, while not directly providing an equivalent defining, addresses not only the issue of business cycles and economic volatility, but indirectly formulates the common position of all the classic economists, regarding trade and the role of institutionalized structures in a capitalistic market system. A. Smith argues that the "public good", which, in this particular case is an empiric notion of social benefit, not a non – tradable commodity, implies a certain degree of anti – individuality, a class or cluster of populace generalization, meaning that the state of perfect competition between individualized and rational economic agents is disturbed, hence disturbing the delicate self – governance balance of the market's internal conjuncture, consequentially disabling the "invisible hand" that is a direct mechanism of creation and

preservation of the fragile price consistency, on which the general equilibrium market equilibrium is based. Therefore, all forms of protectionist measures, including tariffs, licensing, trading restrictions and other types of "artificial" economic transaction influence are being seen not only as counterproductive and efficiency – undermining, but, far more importantly, "unnatural" and, based on that logic, inconsistent by nature. Furthermore, addressing social inefficiency, commonly known as market failures, in the way of the classic Smithian tradition, would imply the creation of precondition of the involved party mutual bargaining, not a top – down legislative decision on economic process recalibration. In this respect, it is important to note that it was, in fact, the Father of the Scottish economic Enlightenment, who predicted and even, to a limited extent, sketched the resolution of the civic bargaining issue, later addressed and successfully resolved by R. Coase. (Coase, 1937, 386-405) (Coase, 1960, 1-44).

While A. Smith denies all form of denies public engagement in any form, opposed to the principal or individual utility rising rationalism, an elaborator of the Classic economic methodological tradition D. Ricardo, in line with his competitive advantage theory, mentions that: "If by law every human being wanting support could be sure to obtain it, and obtain it in such a degree as to make life tolerably comfortable, theory would lead us to expect that …such laws change wealth and power into misery and weakness" (Ricardo, 2001, 57) In the respective regard, in may be stated that D. Ricardo sees the Smithian "unnatural" restriction or obligation imposition as a threat not only to the stability of the economic system in terms of market equilibrium, but, to a much greater extent, as a "comforting" factor, undermining output productivity.

Regarding the main analytical area of the current research, that is, monopolisation as a market process and the phenomena of monopoly as a typological form of market conjuncture structuring, the position of D. Ricardo would best be described by the following quotation: "When a commodity is at a monopoly price, it is at the very highest price at which the consumers are willing to purchase it. Commodities are only at a monopoly price, when by no possible device their quantity can be augmented; and when therefore, the competition is wholly on one side—amongst the buyers. The monopoly price of one period may be much lower or higher than the monopoly price of another, because the competition amongst the purchasers must depend on their wealth, and their tastes and caprices. Those peculiar wines, which are produced in very limited quantity, and those works of art, which from their excellence or rarity, have acquired a fanciful value, will be exchanged for a very different quantity of the produce of ordinary labor, according as the society is rich or poor, as it

possesses an abundance or scarcity of such produce, or as it may be in a rude or polished state. The exchangeable value therefore of a commodity which is at a monopoly price, is nowhere regulated by the cost of production." (Sraffa, Dobb, 2004, 249-250) Therefore, as perceived by the Author, it is reasonable to argue that adherents of the Ricardian and Neo – Ricardian economic paradigm see the monopoly as a "semi – natural" in term that, if, for the sake of example, good, produced in scares quantities have a natural tendency for higher sales prices do to deficit that stimulates the excessive demand, the "natural way" of the market is not disturbed, at least, not until the mentioned good becomes provided by a single, irreplaceable supplier, which may happen due to, again, the "natural", real labor cost related, tendency for such commodity monopolisation. On the other hand, both D. Ricardo and the followers of the respective methodological economic process assessment tradition, see real production costs, with a significant emphasis on the cumulative share of labor costs, as the main price and related market value determining factors, thus, making a monopoly price on a regular commodity both market conjuncture functioning efficiency undermining and "natural order of economic process disturbing.

The Smithian paradigm expresses a very similar view of the currently addressed issue of monopoly prices: "The price of monopoly is upon every occasion the highest which can be got. The natural price, or the price of free competition, on the contrary, is the lowest which can be taken, not upon every occasion indeed, but for any considerable time together. The one is upon every occasion the highest which can be squeezed out of the buyers, or which it is supposed they will consent to give; the other is the lowest which the sellers can commonly afford to take, and at the same time continue their business." (Smith, 2007, 56) Similarly to the position of the Ricardians, A. Smith defines monopoly price as consequence of limited competition, which roots upon artificial individual market actor and transition agents' freedom of economic action restriction, leading to the distortion of the "invisible hand" self – organizing regulatory market efficiency upholding mechanism, resulting in a state of economically and production costs undetermined prices "which can be squeezed out of the buyers", a direct opposition of the efficient and "natural" case of perfect market competition.

The common attitude and final resolution of the Classic school of economic thought, regarding monopoly as a typological form of market internal structure composition, can be summarized as follows: "A monopoly granted either to an individual or to a trading company, has the same effect as a secret in trade or manufactures. The monopolists, by keeping the market constantly understocked by never fully supplying the effectual demand, sell their

commodities much above the natural price, and raise their emoluments, whether they consist in wages or profit, greatly above their natural rate." (Smith, 2007, 56)

With the goal of achieving greater transparency of the Classic school's vision of monopoly as a form of market conjuncture, the summary of relevant information (created by the Author) in available in the below provided Table 1.1.:

Table 1.1.

The key positions of the Classic school of Political Economy on major monopoly influencing factors

Nr.	Influence factors	Position
1	*Market conjuncture*	Market emerge from marginal "use values" (modern equivalent – marginal utility) of trading operations and are shaped by fluctuations of effectual demand
2	*Price*	Natural prices, which have a constantly great effect of market prices, are determined by the objective costs of production
3	*Competition*	Competition is one of the main driving forces of market development and has the most positive effect on trade relations, their conjuncture and efficiency and therefore should not undergo interference if not encouragement
4	*Trade*	External trade flows as well as governmental budget should remain balanced while trading treaties and custom charges play a decisively negative role in the upholding of the mentioned stability
5	*Economic & Business cycles*	Business cycles as well as short – termed market volatility is the causal outcome of economic activity shifts, caused by the "invisible hand", thus, they emerge, adjust and stabilize with a great degree of autonomy that could and, furthermore, should be left to its natural cause of conduction
6	*Role of the State in a market economy*	Minimal interference in trading operations in order to not disturb the functioning of the "invisible hand of the market"
7	*Role of individual initiative in a market economy*	Every individual unintentionally acts in a mercantilist manner in order to ensure one's own prosperity, security and overall need satisfaction, thus, putting his action in line with the rationalist position of adjusting to the prevailing external circumstances, consequentially integrating all actors in a mutually independent market system, subjected to a common economic logic action framework – "the invisible hand". As defined by A. Smith: *"By preferring the support of domestic to that of foreign industry, he intends only his own security; and by directing that industry in such a manner as its produce may be of the greatest"* (Smith, 2007, 349)

Therefore, it is possible to provide a definition of monopoly, while distinguishing it from the process of monopolisation, through the prism of Classic school of Political Economy:

Monopoly – a privileged single supplier trading position, similar to one of scares and indispensable production means possession, leading to a distortion in the state of perfect competition that results in artificial market understocking with the goal of raising the sales prices far above their natural and, therefore, economically justified rate levels, which culminates in both free trade system's configuration counterproductive disturbance and consumer disposable income level reduction.

Monopolisation – the process of market competition level consequent diminution, rooting from artificial economic process distortion and governmental restriction imposture on self – organizing trading interaction system, resulting, in its final development stage, into the emergence of monopoly as a typological form of market conjuncture structuring, consequentially leading to even further marker inefficiencies due to the highest possible and utterly unnatural level of goods sales prices.

The above provided definitions are qualitative analytical outcomes of the conducted original treatise, created by great founding thinkers of the relevant methodological paradigm, content evaluation. They represent the empirical perspective on the researched topic by the respective academic tradition's greatest and most significant contributors in the context of the main topic of the current Doctoral Thesis. The acquired results shall be further used in testing of the research hypothesis of the currently conducted empirical research, as well as incorporated into the structure of currently developed monopolisation process assessment methodology as essential elements of its theoretical functioning justification.

The phenomenon of monopoly and the process of monopolisation from the scientific perspective of the Neoclassical school of economic thought

The Neoclassical school of economic thought is a methodological approach that relates supply and demand to an individual's rationality and one's ability to maximize the effectual product or service use utility or, in case or business entities, profits from engaging in economic activities. While being closely related to the conceptual findings of the Smithian paradigm, both in terms of free trade and individual market behaviour patterns, the Neoclassical school distinguishes itself from the presumption of a "natural order of thing" concept and, in this respect consequentially emerging imperfect competition market conjuncture composition form as an imperative reality by focusing on the determination of prices, outputs, and income distributions through the bilateral and, to a certain extent, biased supply and demand relations, often mediated through a hypothesis of marginal utility by income – constrained individuals and profits by cost optimisation – constrained enterprises, both constantly employing all of the available information and means of production, in full empirical accordance with common logical framework of the rational choice theory. (Chamberline, 1947, 177-204) (Freedman, 1970, 3-9) (Robinson, 1932, 544-554)

A substantial portion of the above mentioned methodological derivatives, enabling the shifting from philosophical assumption of market process "naturalism" to a more topical

reality – case related visions of objective economic developments were possible due improvements in, on one hand, calculations, allowing a greater quantitative accuracy of proposed theorem testing and, on the other, a distinction between microeconomic and macroeconomic level of market processes of industry conjuncture functioning as well as the occurrence of a new perspective on the market typological stratification.

The respective factors simultaneously lead to the emergence of a new movement in economic theory and were addressed in the ground-breaking works of such highly esteemed and, without a shadow of a doubt, visionary scholars of historical significance as Alfred Marshal, Joan Robinson, Edward Chamberlin, Johan R. Hicks and Paul Samuelson. (Chamberline, 1947, 11-113) (Robinson, 1934, 671– 674) (Samuelson, 1939, 75-78) (Samuelson, 1948, 163-184)

From the analysis of scientific treatise's by above mentioned authors, in may be concluded that, although there are certain mediations in some of the various sub – movements like, as an example, the Chicago schools of economics tradition, the Neoclassical school of economic thought lays of three empirically – central methodological assumptions: (1) Economically active individuals have rational preferences, based on identified outcomes of their action or inaction and those values, which are directly associated with the course of action taken; (2) Economically active individuals are determined to maximize their utility, while enterprises are devoted to profit maximization; (3) Economically active individuals act independently on the basis of full and relevant information.

Consequentially, neoclassical economists have built a methodological framework, explaining principles of scarce resources allocation among alternative scenarios of inputs in a way that maximizes the utility of the processed outputs, deriving directly from the three above listed assumptions. In fact, it may be further elaborately argued that understanding the rationale behind such means of production allocation is often considered the definition of economics as the neoclassical theorists see the empirical issues of the modern economic challenges.

Simultaneously, the Neoclassical school of economic thought had been subject to detractions, most critics pointing out that Neoclassical economics as a theory is based on unfounded and unrealistic assumptions that do not represent actual market situations. For example, the assumption that all parties will behave rationally overlooks the fact that human nature is vulnerable to other forces, which cause people to make irrational choices as well as the notion that all parties, involved in economic activities in each and every situation have

access to full, relevant and completely accurate information is also quite doubtful. **(**Stiglitz, 2001, 552-524) (Friedman, 1970, 9)

The common position of the Neoclassical school on the issue of prices in the modern economics were summarized in J. Robinsons "*The philosophy of prices*" (University of Vermont Department of Economics, 2015), stating that the equilibrium price develops in the process of interactions between the suppliers and the consumers, leading to a bargaining consensus between the cost and ambitions of the supply party and the presumption on "fair profit levels" and objective disposable income level of the demand side of the market. As put by G. C. Harcourt: "The inescapable facts of life of any society in which commodities are exchanged, having been produced by labor and commodities, and a price mechanism rules: that there is a two – way interchange between incomes and prices and that the appropriate price structure for the desired development of the economy may not throw up for significant sections of the population incomes that are consistent with society's perception of what is a decent, acceptable and humane standard of life". (Harcourt, Kerr, 2009, 75) Therefore, it may be argued that the Neoclassical school acknowledges the irrelevance of the "natural order" concept and outdatedness of the perfect competition state of market conjuncture as benchmark for measuring market efficiency in terms or real – life actual realities and the conduct of the economic process as early as in the beginning of the XXth century. Hence, the price is seen not only as the *de facto* general market equilibrium determining influence factor, but also as the indicator of populace income level and, more importantly, the empirical cause of prefect competition distortion, resulting in emergence of imperfect or, as E. Chamberlin defined them, monopolistic competition market structures with various degrees of leaning toward the internal state of full monopoly.

P. Samuelson, while severely stressing the fact that "under the broad conditions assumed, free trade must have no less profound effects than free movements of population" has a negative effect on wages and the disposable income of the population, nevertheless stated the following: "Under free commodity trade it is possible for world – factor combination to be exactly the same as under perfect factor-mobility conditions. No one needs to migrate if food can be cheaply carried from America to Europe in exchange for clothing. Farmers all over the world will be using exactly the same methods and will be receiving exactly the same pay; the same is true of land or labor in clothing production. World productivity is again "optimal"." (Samuelson, 1948, 176-177) In this respect, it is fair to argue that the neoclassical economist views of trade can be defined as flexible equilibrium foundation, thus, emphasizing both the severe changes that no boundary exchange of good

would result in, regarding the regional distribution of resources and the wage standards, which shall be subject to dual aligning and enhancing the level of competition in various interconnected market. In other words, the Neoclassical school of economic thought sees free trade as the sole rational instrument for international and regional cohesion, in a sense indirectly continuing the Smithian "natural" economic conduct paradigm, though more importantly stressing the curtail positive effect of market adaption to external turbulence via an integrated access to the global trading system. Hence, it may be stated that the neoclassical scholar have not only foreseen the advent of modern day globalization, spearheaded by no – customs trading agreement, but have also visualized an important trend of free trade stimulation competition on a new, international and regional level that forced local market structure to react by becoming more efficient in order to withstand external pressure of the non – mercantilist age of business cycles and, simultaneously, re – shaping the in a structure, less founded on internal monopolisation tendencies, thus, making the state of imperfect competition as close to that of a perfect one as it can possibly occur in the currently existing economic reality.

Consequentially, the Author suggests that it may be concluded that the Neoclassical school diminishes the role of the state to a bare minimum of physical market protection in case of external political turbulence in order to ensure the internal rationale's enables efficient functioning of the market and, while J. Robinson advocated the need for governmental interference in the realms of education, healthcare and "the basic need" industries, the following quote by P. Samuleson summarizes the vast controversial discussion with the prevailing attitude of the neoclassical economists in the most accurate way: "Every good cause is worth some inefficiency". (The Independent, 2009)

Furthermore, one may argue that the key difference between the Classic school Political Economy and Neoclassical school of economics lies within the rejection by the latter of the "natural order" doctrine, thus, denouncing the vision of a market as an empirical superstructure, possessing it's on free willingly changes rules of conduct, and consequentially replacing it with a more up – to – date concept of imperfect competition, projecting the turbulence of the market as well as its functioning principle of the course of action or inaction of the involved interest groups, bargaining parties and economic agents, resulting in theoretical background, deriving from individual – based interaction analysis rather than institutionalized assumptions. Such analytical paradigm, of course, roots from its own set of, arguably, artificial and purely theoretical assumptions and is by no means complete and

flawless, but, without a doubt, represent a clearly massive step forward to a more flexible, reality – based and scientifically consistent tradition of economic philosophy.

Notably, Joan Robinson and Edward H. Chamberlin had quite different vision of the essence of imperfect or monopolistic competition in terms of evaluation the impact such form of market conjuncture structuring has of the general functioning efficiency of the economic system. E. Chamberlin saw virtually all markets as having elements of monopoly and competition, but did not see this condition as a market failure. J. Robinson, on the contrary, tended to see every departure from perfect competition as a nail in the intellectual coffin of free market capitalism. **(**Bellante, 2004, 19**)**

The following quote reflect the approach, taken by E. Chamberlin to effectively define the main elements of monopolistic competition: "Differentiation may be based on certain characteristics of the product itself such as exclusive patented features; trademarks; trade names; peculiarities of the package or container, if any; or singularity in quality, design, colour or style. It may also exist with respect to the conditions surrounding its sale. In the retail trade, to take only one instance, these conditions include such things as the convenience of the seller's location, the general tone or character of his establishment, his way of doing business, his reputation for fair dealing, courtesy, efficiency and all the personal links which attach his customers either to himself or to those employed by him. In so far as these and other intangible factors vary from seller to seller the "product" in each case is different, for buyers take them into account more or less and may be regarded as purchasing them along with the commodity itself." (Chamberline, 1947, 56)

According to E. Chamberlin, practically no market exists that is not, to some relevant degree, characterized by some of the monopoly elements, which are manifested by various form of differentiation: product, placement, corporate service provision policy. As a comparison, whereas A. Marshall regarded the price as the sole analytical variable of the value theory, E. Chamberlin had addresses the elements of both price and the product as variables, falling under the influence of enterprises that provide them, thus, extending the very definition of the market as characterized by composing structures of both monopoly power, more of less limited in each particular case, and competition between the involved supplier parties. Simultaneously, J. Robinson noted that: "It is much easier to organize control over one industry serving many markets than over one market served by the products of several industries." (Robinson, 1978, 167) Therefore, it may be argued that the respectful author recognized the natural monopolistic tendencies, prevailing in certain industries and exposing themselves more evidently under certain circumstances, such as external shock or in the case

of structural economic crises, while viewing it as a distinguished market failure, nevertheless, acknowledging the existence of individual enterprise limited monopoly power over the price and qualities of their offered products as the sole rationale of imperfect competition market conjunctures composition development. In this respect, the following quote by M. Freedman would be justified for summarizing the common methodological approach toward full monopoly, taken by the Neoclassical school of economic thought, while simultaneously highlighting the analytical paradigm, prevailing in the currently researched academic paradigm: "A firm is monopolistic if the demand curve for its output is not infinitely elastic at some price for all outputs. If it is a monopolist, the firm is the industry". (Friedman, 1970, 22)

With the goal of achieving greater transparency of the Neoclassical school's vision of monopoly as a form of market conjuncture, the summary of relevant information (created by the Author) is available in the below provided Table 1.2.:

Table 1.2.

The key positions of the Neoclassical school of economic thought on major monopoly influencing factors

Nr.	Influence factors	Position
1	*Market conjuncture*	An ideal market is that of perfect competition based on equilibrium of supply and demand marginal utility overlap in the context of full information availability to all parties involves, however, due to various subjective perceptions of the common objective situation (imperfect information/its misperception) as well as a set of market conjuncture disturbance, models of imperfect competition have replaced the "ideal form of economic interaction self – adjustment
2	*Price*	Determined by the equilibrium of supply and demand in the context of marginal utility parity
3	*Competition*	Competition is one of the main driving forces of market development and delivers only positive outcomes both on individual, systematical and empirical level, therefore, the state of "perfect competition" shall be interpreted as the benchmark for measuring the effectiveness of economic processes and state of beneficial market development
4	*Trade*	Free trade with no boundaries as the ideal environment for development of fully functional and effective markets of most perfect competition possible in a certain industry
5	*Economic & Business cycles*	Introduction of the real business cycle theory, stating that the level of national output necessarily maximizes expected utility, and government should therefore concentrate on long-run structural policy changes and not intervene through discretionary fiscal or monetary policy designed to actively smooth out economic short-term fluctuations. Thus, business cycles are therefore "real" in that they do not represent a failure of the market
6	*Role of the State in a market economy*	Minimal, in ideal case, zero short – and medium-term governmental interference in economic processes, ensuring that the market is functioning in the most efficient, self – governing way
7	*Role of individual initiative in a market economy*	Rational economic actor theory: all market stakeholders act independently on the basis of full and relevant information

Therefore, it is possible to provide a definition of monopoly, while distinguishing it from the process of monopolisation, through the prism of Neoclassical school of economic thought:

Monopoly – a single supplier market conjuncture composition form, similar to the case of external economic process disruption, presenting a situation of imperfect competition extreme escalation, resulting in synthetic market understocking by the enterprise that, in fact,

is the entire industry and consequent rise of sales process, which culminates in both trading system's configuration counterproductive functioning and consumer net disposable income level significant reduction.

Monopolisation – the process of imperfect competition consequent diminution to an extreme and minimum, if not zero, level, based on either external economic process conduction distortion or internal failure of the market to overcome the short – term functioning inefficiencies, often stimulated by governmental restriction imposture on self – organizing trading systems, resulting, in its final development stage, into the emergence of full monopoly as a typological form of market conjuncture with all the outgoing negative consequences of an such an extreme case of imperfect competition prevalence as the established typological economic process structuring.

The above provided definitions are the resulting outcomes of the conducted analysis of original and supplementary works by esteemed and, at their time, revolutionary scholars of the Neoclassical school of economic thought. The mentioned results represent the empirical perspective on the researched topic by the respective academic tradition's greatest and most significant contributors in the context of the main research interest of the current Doctoral Thesis. The acquired results shall be further used for testing of the research hypothesis of the currently conducted complex research, as well as coherently incorporated into the structure of the developed monopolisation process assessment methodology in the wider context of theoretical functioning justification of the quantitative elements of the said methodology.

The phenomenon of monopoly and the process of monopolisation from the scientific perspective of the French Liberal school of economic thought

The French Liberal School, sometimes referred to as the "Optimist School" or the "Orthodox School" is a XIXth – century school of economic thought, originally developed and traditionally centred in the *Collège de France* and the *Institut de France*, advocating free trade, economic process self – governance and market cyclical adjustment with strong and determined opposition to any direct or derivative forms of protectionist, interventionist and collectivist ideas, thus putting it at odds with the at – the – time momentum gaining French Socialist doctrine. It's strongly positioned *laissez – faire* approach to economic process causality analysis and market system self – organizing capabilities assessment is established, developed and promoted in works of such widely acknowledged scholars of their time as

Frédéric Bastiat, Michel Chevalier, Jean-Baptiste Say, Destutt de Tracy and Charles Dunoyer. (Salerno, 2006) (Krilovs, 2014, 56, 216) (Bibliothèque Nationale de France, 2015)

The most notable aspect, distinguishing the French Liberal School from its counterpart, namely, the closely related Austrian paradigm, is the opposition of all governmental restriction and control over market transaction between economically active individuals, rooting on the presumption of delegated empowerment, stating that any form of governmental involvement is institutionalized by nature, consequentially requiring public monitoring and social control. In such respect, the "leach on the watchdog" may be relocated to directly affect both economic process and market interactions, meaning that it is far more efficient to engage in production and trading rather that ensure institutional functioning of regulatory superstructures, consequentially advocating adherence to self – adjustment of market conjunctures in a seemingly Smithian manner of "spontaneous order". (Salerno, 2006)

Deriving from fundamental idea of the French Physiocrats, the mentioned theory emphasizes the need for personal freedom of all market agents, acting in a mutually beneficial way, deriving from individual initiative and ambitions, consequentially ensuring economic equilibrium through the establishment of social class harmony. In this respect, it is important to mention that the role of the State in this respect, while still remaining in line with the public monitoring doctrine, is crucial in the field of property rights preservation and guaranteeing physical security of industries from external non – economic threats and artificial disturbance of natural free – trade market conjunctures by non – individualized forms of economic engagement, undoubtedly, derived from the social shock and property ownership insecurities of the French Revolution. (Crossley, 2014, 1-45) (Dunoyer, 1825, 181-185) (Salerno, 2006)

The main postulates of the French Liberal School derive from the above described principles of economic interaction organizational fundamentals and may be summarized as follows: (1) The individual, not a populace cluster unit, is the basic unit in society; (2) The individual has a natural freedom right, including the right for a personalizes decision making, regardless of its overall rationality; (3) The physical order of nature is a harmonious and self – adjusting system; (4) Institutions are artificial creations of the State and therefore must be overseen by the citizenry in order to disable their legislative ability to disrupt the equilibrium of the spontaneous order by restrictive and/or recalibrating measures.

The above introduced axioms constitute both the leading proclamations of the French Liberal School and form the basic elements of *laissez-faire* approach to economic system analysis, while not being contrary to the empirical assumption, exceptionally stressed and numerously emphasized by the followers of the analysed economic system evaluation

tradition, stating that all markets should remain in the most competitive state consistently possible in order to achieve and preserve the near – optimal functional efficiency of economic process conduction and resource distribution pattern rationality, viewed in the context of means of production utilization freedom. (Salerno, 2006) (Salerno, 1978, 65-68) (Salerno, 1988, 113–156)

Therefore, it may be argued that the French Liberal School views on the market conjuncture composition are in full line with the citizenry self – governance principle, promoted during the middle stage of the *Révolution française*, advocating individual freedom of action and personal initiative as the driving forces of economic process, market transaction conduction and resource utilization paradigm shaping. Consequentially, the described doctrine simultaneously emphasizes the need for unrestricted competition conduction in order to insure efficient market functioning and the strictly "natural" conduction of any economic process, crucial for enabling the "self – organizing" market mechanism of derivatively Smithian "spontaneous order" to take place and effectively preserve the positive growth and continues development of a given industry as an economic entity. In this respect, it would be important to note that, while the followers of the currently analysed methodological tradition acknowledge the existence of minor market failures, any type of governmental involvement, regardless of presumed intentions and seeming benefits, is seen as a distortion of the quite phisiocrating "natural process" concept that is based on individual interaction freedom of action and ambitious initiative to actually make the decision for taking the said action, and, therefore, tended to be assessed as an even greater menace, fundamentally harmful to the very core of the market. (Say, 1971, 161-167)

Regarding the issue of trade, the position of the French Liberal School is best described by the words of one of the most significant contributors to its development and a thinker, undoubtedly critical in his importance, regarding the methodological trajectory of the relevant economic school of thought evolution, J. – B. Say: "Again, it is affirmed, and what absurd positions have not been advanced to involve these questions in obscurity? that, since almost all the nation are at the same time consumers and producers, they gain by prohibition and monopoly as much in the one capacity as they lose in the other; that the producer, who gets a monopoly profit upon the object of his own production, is, on the other hand, the sufferer by a similar profit upon the objects of his consumption". (Say, 1971, 163) The French Liberal scholars presume any "artificial" restriction, imposed on the free trading system, as having a decisively negative, even crippling effect on the means of production distribution and resource utilization efficiency, consequentially, opposing any and all form of protectionist

measures or state – granted monopolist advantages. Assessed from a different analytical angel, the current issue may be seen as an extrapolation of the "self – organization" market mechanism to a macroeconomic level, preserving all of the earlier described assumptions and continuing the "spontaneous order" line of thought in a related, yet, more complex realm of economic engagement, where market agents are not only individuals and profit – seeking organizations, but also States and its institutions, granted the decision making power by *délégation par les citoyens*. In line with the restriction of the State's function to property rights insurance and guaranteed preservation, the French Liberal School sees competition as the driving force of any economic process and, as a derivative of individual freedom utilization, expressed in the form of market interactions, is the natural way of "self – organization" mechanism implementation. (Say, 1971, 170-176)

However, it is important to mention that while the ideologists of the currently assessed economic school of thought opposes the very essence of monopoly existence, their main reasoning lies in the realm of monopoly creation prohibition, not already created entity momentous destruction. As J. – B. Say states in his "*Treatise of Political Economy*": "Monopolies are an abuse, but an abuse in which enormous capital is vested, and numberless industrious agents employed, which deserve to be treated with consideration". (Say, 1971, 170)

Such position roots from the opposition of the French Liberal scholars to any "artificial" policies, including those, aimed on enhancing the markets to function in a more "natural" way. From the respectful point of view, an already existing monopoly is a "monstrous institution", which, if single – handedly destroyed, will cause the collapse of the entire industry, in which it is involved. Thus, abolishment of the monopoly's competitive advantages, most notably, legislative measures that uphold the distinguished position of the anti – competition entity, would be the first and, sometimes, only required step, leading to its dissolution. Put in another way, in order to gradually dissolve a monopoly, one must abolish all of the "artificial" advantages and, so to speak, "let the market nature do the rest".

Regarding the issue or price as a market influence factor, the common position of all respective scholars may best be summarized by a quote of J. – B. Say: "Whatever be the general or particular causes, that operate to determine the relative intensity of supply and demand, it is that intensity, which is the ground-work of price on every act of exchange; for price, it will be remembered, is merely the current value estimated in money. The demand for all objects of pleasure, or utility, would be unlimited, did not the difficulty of attainment, or price, limit and circumscribe the supply. <…> Demand and supply are the opposite extremes

of the beam, whence depend the scales of dearness and cheapness; the price is the point of equilibrium, where the momentum of the one ceases, and that of the other begins". (Say, 1971, 290)

It is worthwhile noting that the position of the French Liberal School on the issue of price and pricing is, in general, close to one of the Austrian School of economic thought, the main difference being the introduction of the trade-off concept, which states that the market equilibrium obtained price derives from the mutual bargaining between the involved parties in the context of utility and value harmony.

In the context of the main goal of the current research, the position on the phenomena of monopoly, as expressed by various scholars of the French Liberal School, may be summarized as a quote by C. F. Bastiat: "Monopoly implies someone to enjoy it, and someone to pay for it." (Bastiat, 2007, 116) Simultaneously, the same author notes that: "Let us note that man is so organized as to seek enjoyment and avoid suffering. From this source I allow that all social evils take their rise—war, slavery, monopoly, privilege; but from the same source springs all that is good, since the satisfaction of wants and repugnance to suffering are the motives of human action." (Bastiat, 2007, 28) As it can be seen, monopoly is placed alongside such social cataclysm as war, is held as immoral as slavery and seen as a synonym of privilege from the social opportunities egalitarianism advocacy perspective.

With the goal of achieving greater transparency of the French Liberal school's vision of monopoly as a form of market conjuncture, the summary of relevant information (created by the Author) in available in the below provided Table 1.3.:

Table 1.3.

The key positions of the French Liberal school of economic thought on major monopoly influencing factors

Nr.	Influence factors	Position
1	*Market conjuncture*	Emerge and are being upheld and developed by free individuals through their personal initiative and ambition in the context of the "self – organization" principle
2	*Price*	Determined by the equilibrium of supply and demand in the context of free trade-offs between the producers and the suppliers
3	*Competition*	Competition is one of the main driving forces of market development and has the most positive effect on market relations, their conjuncture and functioning efficiency, thus should not be subjected to any type of artificial regulations or external "unnatural" interference
4	*Trade*	Free trade under the terms of perfect competition among the involved parties
5	*Economic & Business cycles*	Market volatility is a natural cause of free individual interactions in context of political liberties and acceptance of personal choice; thus, business cycles are a vital part of the market's "self – adjusting governance" system, based on individual action and stakeholder initiative
6	*Role of the State in a market economy*	*Laissez-faire* doctrine: minimal to zero governmental interference and participation in the "natural" market processes
7	*Role of individual initiative in a market economy*	*Laissez-faire* doctrine, projected on socially – economic platform: effective political freedoms in terms of engaging in economic activities and participating in market interaction, combined with near – zero governmental regulatory involvement in business processes form the driving force of efficient and equilibrium reaching market economy.

Therefore, it is possible to provide a definition of monopoly, while distinguishing it from the process of monopolisation, from the perspective of the French Liberal School of economic thought:

Monopoly – an empirical state of unnatural, often artificially imposed market conjuncture that constitutes of a supplier, providing a good or a service by the means of concentrated position of the relevant means of production and a group of consumers, whose natural freedom of economic interactions is being actively limited by the imposition of the monopoly structure, preventing the market from further shifting to a more efficient, competition – based functioning level, while, simultaneously neglecting the involved economic agents, both of supply and demand camp, to participate in its self – organization.

Monopolisation – the process of counterproductive economic development that may best be described as artificial of quasi – natural market conjuncture imposition, leading to the limitation of competition which, in the final stage of conduction, will result in the creation of a full monopoly, depriving the market of the necessary efficiency provision in the form of self – organization, which, as a natural economic mechanism, is possible only while the involved market agents and parties are fully free in their actions or inactions as well as economic engagement within said market or industry.

The above provided definitions are consequent results of the analysis of original works of internationally most recognized scholars of the relevant school of economic thought, conducted in the 1.1. Section of the current research and represent the empirical perspective on the researched topic by the respective academic tradition in the context of the main topic of the current Doctoral Thesis. The acquired results shall be further used for testing of the research hypothesis of the currently conducted complex research, as well as coherently incorporated into the structure of the developed monopolisation process assessment methodology in the wider context of theoretical functioning justification of the quantitative elements of the said methodology

The phenomenon of monopoly and the process of monopolisation from the scientific perspective of the Austrian school of economic thought

The Austrian School is a school of economic thought that is based on the analysis of the purposeful actions of individuals or methodological individualism (Boettke, 2010, 3-39) (Arrow, 1994, 1–9), an empirical concept that advocates the understanding of any social phenomena by conducting analytical examination of the resulting motivations and actions of

individual agents. It originated in late XIX and early XX century Vienna with the work of such established and justly acknowledged for their achievements scholars as Carl Menger (Megner, 2007, 51-285), Eugen von Böhm-Bawerk (Böhm-Bawerk, 1890, 13-107), Friedrich von Wieser, as well as others contributed to the global realm of economic theory. (Shionoya, 2005, 3–13) Modern day economists working in line with the tradition, established, developed and popularized in works and by the above-mentioned scholars may and, to a great part, are located in various countries, but their work, following the Viennese economist (Schumpeter, 2006, 502-719) – set trend is commonly being referred to as the Austrian economic paradigm.

Among the internationally recognized and most significant theoretical contributions to the development of topical issues assessment of efficient functioning of established economic systems of the early Austrian School are: (1) the subjective theory of value; (2) marginalism in price theory; (3) the formulation of the economic calculation problem.

The main methodological principles of the Austrian school of thought play, in some cases, a rather contrast role regarding their more quantitatively – centred counterpart, that is, the Austrian school uses logic of a priori thinking as a research mechanism and an assessment tool for conducting in – depth study of universal economic laws of empirical application, whereas other schools of economic tradition, like, for instance, the earlier analysed Neoclassical school or new Keynesians' approach, make use of data and mathematical models to prove their point objectively. (Nothbard, 2009, 1–79) In this respect, the Austrian school can be more specifically contrasted with the German historical school that rejects universal application of any economic theorem. (Mises, 1966, 72–99) (Shionoya, 2005, 31–65)

Consequentially, the Austrian school sees the free, both politically and in terms of consumption preferences, individual as the cornerstone of any truly liberal economic system, thus, making the course action or inaction, decision making paradigm, sympathies and prejudices of the said individual as crucial in the assurances of functioning of a free – market economy as are the respective retaliation of other free individual to the steps taken by other market stakeholders. In other words, the Austrian economists see the free market not as an objective quantitatively – analytical self – calibrating system, but rather as a sublimation of subjective situation visions of various stakeholders in the given market, creating a tradition of assessing the subjective relativeness of economic conjunctures in order to develop an empirical model of market actor behaviour that, form the currently analysed schools' of economic thoughts point of view, leads to a higher level of overall objectiveness in the context of economic process evaluation. (Hayek, 1948, 220–251) (Megner, 2007, 236–285)

While taking into account the formerly provided information, it may be stated that the Austrian school views the market mechanism as a process and not an outcome of design, meaning that economic actors and their actions, ambitions, subjective views and multilateral interactions create markets and shape their internal conjunctures, rooting on their intentions for higher living standards and the individual desire to satisfy one's needs better their lives, which, in most cases, lead to decision making, based on presumptions, visions and emotions and not by any conscious rational. (Hayek, 1945, 519– 530) (Mises, 1966, 143-177)

Following the above-mentioned paradigm, the Austrian School holds that business cycles are subjected to undergo their condition in a manner, derived from the subjective credit and financial resource allocation of the loaner institutions such as commercial banks and are caused by distortion in interest rates, in many cases due to the government's attempt to control money. From this point of view, the misallocation of capital takes place if the interest rates are kept artificially low or high by the intervention of the government, ultimately causing the economy to go through recession in order to restore the natural fiscal and monetary equilibrium. (Boettke, 2010, 14-61) (Megner, 2007, 175–190)

Notably, the Austrian school rejects the classical view on capital equilibrium which states that interest rates are determined by supply and demand of capital by suggesting that interest rates are determined by subjective decision of individuals to spend money at a particular time or in the foreseen future as a result of profit seeking or, in cases of crisis, due to panic in the market. In other words, interest rates are determined by the spending time preference of the borrowers and the lenders at a given market. (Megner, 2007, 177–189)

Consequentially reflecting the same concept of individual – centred economic process development, the Austrian school holds that prices are determined by subjective factors like an individual's preference to buy a particular good or to restrain from doing so, whereas the Classical school of economics holds that objective costs of production determine the price and the Neoclassical school argues that prices are determined by the equilibrium of supply and demand amounts in the context of natural and market price bilinear correlations. Simultaneously, the Austrian school rejects both the Classical and the Ricardian views by saying that costs of production are also determined by subjective factors based on value of alternative uses of scarce resources, and the equilibrium of demand and supply is also determined by subjective individual preferences. That is to say, the utility of a certain good is determined in a momentous way by preferences and personal state of consumption equilibrium of a certain potential buyer or an adjunct spenders' cluster. (Megner, 2007, 77–171) (Mises, 1966, 194–229)

Regarding the main researched issue of the current thesis, the Austrian economists as strong and consistent advocates of personal libertarianism are unbiased supporters of free trade and “natural” competition that is not being nor regulatory restricted, nor “artificially” compared to “ideal models” such as, for instance, the concept of perfect competition. (Hayek, 1948, 92–118)

In this respect, the common Austrian economist’s opinion on the currently discussed matter may best be described by words of E.A. Hayek: “concentration on maximum monopoly profits rather than on making the best use of the available factors is the necessary consequence of making the right to produce a good itself a "scarce factor of production." In a world of such monopolies this may not have the effect of reducing production all around in the sense that some of the factors of production will remain unemployed, but it will certainly have the effect of reducing output by bringing about an uneconomic distribution of factors between industries.” (Hayek, 1948, 164) To be put in a different context, E.A. Hayek’s argument reflects the wider perception of monopoly as a “framework of capitalism hope to "rationalize" the so-called "chaos" of free competition.” (Hayek, 1948, 163)

Simultaneously, Carl Menger states in his fundamental work “*Principles of Economics*”: “The higher a monopolist sets the price of a unit of a monopolized good, the larger will be the class of competitors for the monopolized good who are excluded from acquiring it, the less completely will the other classes of the population be provided with it, and the smaller will be the sales of the monopolist.” (Megner, 2007, 210)

Therefore, from the analysis of the above provided information, it is possible to conclude that both the founding scholars of the Austrian school of economic thought and their methodological followers see the monopoly, the classic case of full monopoly to be precise, as an undesirable state of a free trade system that is likely to enable an inefficient use of means of production while at the same time resulting in decrease of production outputs, available to the actors within the mentioned economic system both in terms of price – based opportunities exclusion and the creation of artificial shortage of goods. In this respect, it is worthwhile to elaborate on the current issue by underlining the fact that the Austrian scholars’ perception of good deficit is not only a sign of a market failure, but rather a logic consequence of individual pursuit for personal benefit maximization by means of actions, aimed on short – term goal achievement. The advocacy for personal freedom, to which the Austrian school adheres, demands the provision for possibility of an egocentric approach to decision making, but it is that same ideology that emprises the role of individual initiative in remedying the possible flaws of social process conduction. As stated by Carl Menger: “Monopoly,

interpreted as an actual condition and not as a social restriction on free competition, is therefore, as a rule, the earlier and more primitive phenomenon, and competition the phenomenon coming later in time. Anyone wishing to expound the phenomena prevailing under competition will therefore find it to his advantage to begin with the phenomena of monopoly trade." (Megner, 2007, 217). In other words, no market will be able to adjust to internal turbulence or commence further development if freedom of individual actions and business initiative is restricted in a legislative manner that the Austrian scholars see as artificial and counterproductive. The most remarkable economics process conduction perception, which distinguishes the Austrian school of economic thought from its various counterparts and, sometimes, rival methodological ideologies is the thesis of competition between free and independent individuals as the driving force of any market which allows it to move on from ineffective forms of resource distribution to a more efficient, in this respect higher standing, market equity creation paradigm, meaning that, in the context of the current research, the mentioned economic process evaluation approach begins with the monopoly as a natural starting point of good exchange, transitioning from barter to monetary payments and further, to a stage of free trade in a free market between free people in a liberal manner that eventually develops in a consistent state of near – perfect, business efficient and economically justified competition.

With the goal of achieving greater transparency of Austrian schools' vision of monopoly as a form of market conjuncture, the summary of relevant information (created by the Author) in available in the below provided Table 1.4.:

Table 1.4.

The key positions of the Austrian school of economic thought on major monopoly influencing factors

Nr.	Influence factors	Position
1	*Market conjuncture*	Emerges and develops as a cause of interaction between individuals, driven by their subjective vision and the desire for a greater need satisfaction
2	*Price*	Determined by individual consumption preferences and, consequentially, levels of personal income
3	*Competition*	A free – will interaction between suppliers and various market stakeholders, based on individual perceptions of objective industry, micro - and macrolevel economic situation
4	*Trade*	Free trade under the conditions of "economized individuals" personal initiative
5	*Economic & Business cycles*	Business cycles are the consequence of excessive growth in bank credit, due to an artificially low market rate of interest, i.e. a sustained period of low interest rates and excessive credit creation result in a volatile and unstable imbalance between saving and investment, unfolding in the following way: low interest rates tend to stimulate borrowing from the banking system, leading to an increase in capital spending funded by newly issued bank credit. Consequentially, a credit-sourced boom results in widespread "malinvestment", followed by a correction or "credit crunch" – commonly called a "recession" or "bust", which occurs when the credit creation has run its course and resources are due for reallocation back towards their former owners.
6	*Role of the State in a market economy*	Should be limited as to not "artificially" reduce the competition to a "backward" state of a monopoly
7	*Role of individual initiative in a market economy*	Individual vision and the subjective evaluation of objective situations in the context of choice and spending's freedoms lead to both development of new businesses and creativity, while may still be the cause of short – term market irregularities, rooting on decision made irrationally

Therefore, it is possible to provide a definition of monopoly, while distinguishing it from the process of monopolisation, from the perspective of the Austrian school of economic thought:

Monopoly – a state of underdeveloped or artificially imposed market conjuncture that constitutes of a supplier, providing a unique and indispensable good by the means of concentrated position of the relevant means of production and a group of consumers, limited by the imposition of fixed monopoly price vis – a – vis their purchasing financial abilities, while all the market participants unconsciously act as economized individuals.

Monopolisation – a process of retrospective economic development that may best be described as regressive evolution of the market conjuncture, leading to the naturally or artificially imposed limitation of competition which, in the final stage of conduction, will result in emergence or creation of a full monopoly.

The above provided definitions are consequences of the resulting analysis of original works of internationally most recognized scholars of the relevant school of economic thought and represent the empirical perspective on the researched topic by the respective academic tradition. The acquired results shall be further used for testing of the research hypothesis of the currently conducted complex research, as well as coherently incorporated into the structure of the developed monopolisation process assessment methodology in the wider context of theoretical functioning justification of the quantitative elements of the said methodology

The phenomenon of monopoly and the process of monopolisation from the scientific perspective of the Keynesian school of economic thought

The Keynesian school of economics or Keynesianism is the cumulative theory of several macroeconomic finding aggregation, forming the basis of first presented by the British economist John Maynard Keynes in his book *The General Theory of Employment, Interest and Money* (Keynes, 1936, 3-472), published in 1936, greatly influenced by the Great Depression and directly deriving from the empirical findings, topical during the corresponding time period. The main acknowledgement of Keynesian economics is the view that the short – term (short run, as defined by J. M. Keynes himself), economic output is strongly influenced by aggregate demand, that is, the total level of spending's in particular economy, seen as a wholesome equity, which is especially obvious in times of recessions. Simultaneously, the Keynesian analytical paradigm emphasizes the fact that the aggregate

demand does not necessarily equal the maximum productive capacity of a certain economy during a specified period of its positive or negative development, instead, arguing that the mentioned macroeconomic phenomenon is influenced by a host of various internal put before external influence factors and is often subject to erratically behaving conduction, greatly affecting such fundamental composing elements of any macroeconomic system as production, employment, and inflation. (Keynes, 1919, 27-135) (Keynes, 1924, 17-27) (Keynes, 1936, 289-315) (Keynes, 1937, 209-223) (Ferguson, 2013)

The advocates of Keynesian economics often argue that the decisions made in the private sector of a national economy sometimes and quite frequently lead to inefficient macroeconomic outcomes, emerging simultaneously with the indeed achieved and desired microeconomic outputs, which requires an active responses in the form of relevant policy, implemented through the involvement of the public sector with the goal of mitigating the negative effects and unwelcome consequences of the emerged market failure, in particular, active or passive monetary central bank policy and stimulating or restraining governmental fiscal policy, aimed on stabilizing the outputs and outcomes, produced by the current stage of the general business cycle. (West Virginia University Department of Economics, 2013) In this respect, it may be argued that Keynesian economic methodology is the first to advocates a mixed economy, consisting of predominant private sector and full – scale government interventions during times of external economic shocks and internal recessions, calling for the State to become a legitimate business partner and a "bailout warrantor" during wider market inefficiencies, while strongly emphasizing the existential need for the public sector to become either a market failure Aesculapius, or the sole provider of the services of general economic interest, if private enterprises are unable or unwilling to undertake the respective functions, regardless of their motives for such free – willed restrain.

The interpretations of J. M. Keynes's titanic contribution to the development and, without overestimation, their caused revolution in the field of economic theory, are contentious and several schools of economic thought claim the Keynesian legacy, the most notable of those being the Neo – Keynesian and the New Keynesian traditions. (Samuels, Biddle, Davis, 2003, 304-305) (Krilovs, 2014, 132-183)

The Neo – Keynesian economics is largely a macroeconomic analytical doctrine that was developed in the post – war period from by a group of economists, notably John Hicks, Franco Modigliani, and Paul Samuelson, simultaneously attempting to re – interpret and structurally formalize J. M. Keynes's writings, while combining them the Neoclassical models of economic development analysis. Their works have become known as the Neo –

classical synthesis, which created the models that formed the core and basic ideas of Neo – Keynesian economics. These ideas formed the mainstream of macroeconomic thought in the 1950s and 1960s and dominated them until the events of the 1970s. (Krilovs, 2014, 164-179)

The New Keynesian economics is a school of contemporary macroeconomic thought that is aimed at providing a sound microeconomic foundation for the original Keynesian methodological paradigm of economic event evaluation, based on two main assumptions. Like the Neoclassical school, New Keynesian macroeconomic analysis usually assumes that households and enterprises have rational expectations, based on full and relevant information, while simultaneously acknowledging the existence of a large variety of market failure, which are seen as inevitably occurring essential element of modern market function and their structural conjuncture composition. (Samuels, Biddle, Davis, 2003, 422-426)

Regarding the issue of pricing and general price equilibrium, J. M. Keynes had stated in the preface to the French edition of his *magnum opus The General Theory of Employment, Interest and Money*: "I regard the price level as a whole as being determined in precisely the same way as individual prices; that is to say, under the influence of supply and demand. Technical conditions, the level of wages, the extent of unused capacity of plant and labour, and the state of markets and competition determine the supply conditions of individual products and of products as a whole. The decisions of entrepreneurs, which provide the incomes of individual producers and the decisions of those individuals as to the disposition of such incomes determine the demand conditions. And prices, both individual prices and the price – level, emerge as the resultant of these two factors." (Keynes, 1936, 9-10) Therefore, it may be argued that the Keynesian school of economics stresses the importance of supply and demand for a certain type of product or service and the amount of said production in a given market, while not disregarding the effect of the consumer ability and will to acquire certain types of goods under prevailing market conditions, thus, leading to an important feature, which distinguishes the Keynesian approach from the Neoclassical school of economic thought, being the "decisions of entrepreneurs" and the "decisions of individuals" to create the demand and the supply respectfully, consequentially introducing, if such an assumption may be made, the concept of the not – fully rational market actor into the field of macroeconomic structural analysis. (Keynes, 1924, 17-27) (Sullivan, Sheffrin, 2007, 310-334) (Dimand, 1955, 23-42)

While addressing the issue of market conjuncture structuring, J. M. Keynes wrote the following: "The reconciliation of the identity between saving and investment with the apparent "free – will" of the individual to save what he chooses irrespective of what he or

others may be investing, essentially depends on saving being, like spending, a two – sided affair. For although the amount of his own saving is unlikely to have any significant influence on his own income, the reactions of the amount of his consumption on the incomes of others makes it impossible for all individuals simultaneously to save any given sums. Every such attempt to save more by reducing consumption will so affect incomes that the attempt necessarily defeats itself." (Keynes, 1936, 48) Therefore, there is no guarantee that the goods that individuals produce would be met with demand, unemployment would be an example of a natural consequence especially in the instance of an economy undergoing contraction (Marshall, 1888, 219), hence the economy may become unable to maintain itself at full employment and believed that it was necessary for the government to step in and put under – utilized savings to work through government spending. Simultaneously, the direct correlation between the amount of saving and the level of investment in a certain industry is the source of both economic growth or, in an undesirable case, seizure of operations and, as a consequence, a sharp decline in economic activity, which may lead to a full – scale recession. Thus, one may argue that the Keynesian school of economic thought envisions the market as a direct consequence of individual decision to peruse certain goal via engagement in economic activities, which leads to aggregated demand emergence that stimulates the adequate reaction from the supply – forming enterprises.

While seeing full employment as the only natural state at which the economy functions at maximum capacity and provides the optimal efficient outputs, J. M. Keynes incorporated the above described concept into the delicate fabric of enterprise multilateral interaction in the framework of a certain market: "Competition between entrepreneurs would always lead to an expansion of employment up to the point at which the supply of output as a whole ceases to be elastic, i.e. where a further increase in the value of the effective demand will no longer be accompanied by any increase in output. Evidently this amounts to the same thing as full employment." (Keynes, 1936, 21) Thus, in may be stated that the Keynesian school views competition not only as an integral and vital process that has a great effect on market conjuncture composition, in fact, the respectful methodological tradition finds competition as the sole instrument of market flexibility and efficiency emergence, development and preservation, extrapolating the issue to the projection on labour as a form of scares means of production, stressing the positive role or competitive stage of the labor market in terms of it reactions to employment and wages.

The most important element, distinguishing the Keynesian school from its mainstream counterparts is the recognition of the role, which the State must uptake not only in times of

crisis and recession, but, ideally, act in a pre-emptive manner in order to influence the state of economic development so that the economy does not overheat in times of rapid growth or slide into further recession at periods of consumption decline. As written by the founder of the relevant school of economic thought: "A decline in income due to a decline in the level of employment, if it goes far, may even cause consumption to exceed income not only by some individuals and institutions using up the financial reserves which they have accumulated in better times, but also by the government, which will be liable, willingly or unwillingly, to run into a budgetary deficit or will provide unemployment relief; for example, out of borrowed money. (Keynes, 1936, 53)

Thus, when employment falls to a low level, aggregate consumption will decline by a smaller amount than that by which real income has declined, by reason both of the habitual behaviour of individuals and also of the probable policy of governments; which is the explanation why a new position of equilibrium can usually be reached within a modest range of fluctuation. Otherwise a fall in employment and income, once started, might proceed to extreme lengths." (Keynes, 1936, 53) Therefore, it may be stated the Keynesian economist see the public sector as the driving force of economic recovery or market failure containment, thus, being the first to accept the necessity of collaboration between the business and the State at an official level, consequentially pioneering the advent of a mixed type of economy.

It is worthwhile mentioning that New Keynesian economists fully agree with New Classical economists that in the long run, the classical dichotomy holds: changes in the money supply are neutral. However, because prices are sticky in the New Keynesian model, an increase in the money supply (or equivalently, a decrease in the interest rate) does increase output and lower unemployment in the short run. Furthermore, some New Keynesian models confirm the non-neutrality of money under several conditions.

Regarding the issue of monopoly, it must be noted that Keynesian economic acknowledge the imperfect competition as the most common and economically justified type of market conjuncture structured composition and, while being both the cause and the remedy for market failures, the latter possible thought implementation of rational governmental fiscal and monetary policies, applicable in a certain market situation, (Sullivan, Sheffrin, 2007, 156-171) the common Keynesian scholars' attitude toward the phenomenon of full monopoly may be summarized in a citation by J. M. Keynes himself: "If money – wages are inflexible, changes in prices as occur, i.e. apart from "administered" or monopoly prices which are determined by other considerations besides marginal cost, will mainly correspond to the diminishing marginal productivity of the existing equipment as the output from it is

increased." (Keynes, 1936, 133) Therefore, taking in consideration the fact that J. M. Keynes views marginal costs as the only purely market instrument of economic process rationalization, a full monopoly is the case where such mechanism does not apply, consequentially, leading to a situation of market efficiency principle distortion. However, a public monopoly in terms of market failure neutralization may and often is seen as an efficient shot – term solution, whereas a persistent long – term monopoly, emerged due to inefficient competition condition is interpreted as a market failure and must be dealt with by administrative and legislation tool. (Sullivan, Sheffrin, 2007, 156-166)

With the goal of achieving greater transparency of the Keynesian school's vision of monopoly as a form of market conjuncture, the summary of relevant information (created by the Author) in available in the below provided Table 1.5.:

Table 1.5.

The key positions of the Keynesian school of economic thought on major monopoly influencing factors

Nr.	Influence factors	Position
1	*Market conjuncture*	There is no guarantee that the goods that individuals produce would be met with demand, unemployment would be an example of a natural consequence especially in the instance of an economy undergoing contraction, therefore the economy may become unable to maintain itself at full employment and believed that it was necessary for the government to step in and put under-utilized savings to work through government spending. Thus, some individually rational microeconomic-level actions such as not investing savings in the goods and services produced by the economy, if taken collectively by a large proportion of individuals and firms, can lead to outcomes wherein the economy operates below its potential output and growth rate
2	*Price*	Prices a not a mere result of supply meeting demand, but of individual preferences on spending's, hence, excessive saving may trigger lower consumption and result in a downward spiral, causing the liquidity levels of suppliers to drop and, on certain occasions, the investors to wait for the even lower prices to take place in order to actually to allocate their financial resources. Ultimately, prices are directly correlated to wages, while both of the mentions factors needs to be taken into account in terms of their "real" rather that nominal values
3	*Competition*	Assumption that companies are monopolistic competitors, which, without some monopoly power it would make no sense to assume sticky prices, because under perfect competition, any firm with a price slightly higher than the others would be unable to actually pose a market share, and any firm with a price slightly lower than the others would be obliged to sell much more than they can profitably produce. Therefore, firms use their market power to maintain their prices above marginal cost, so that even if they fail to set prices optimally they will remain profitable
4	*Trade*	Free trade, derived from the size of population which determines the gross market capacity, with substantial governmental monitoring of domestic employment, in ideal situation, upheld on optimal or full level in order to avoid slipping into domestic recession that greatly affects external economic relations
5	*Economic & Business cycles*	Fluctuations in aggregate demand cause the economy to come to short run equilibrium at levels that are different from the full employment rate of individual sector output, consequentially, expressing themselves as the observed business cycles
6	*Role of the State in a market economy*	Advocacy for mixed type of economy: ensuring macroeconomic stability by maintaining the optimal, near equilibrium levels of consumption, spending and saving by regulating money supply and the savings rates of interest via implementation of a combined set of efficient monetary and fiscal policies
7	*Role of individual initiative in a market economy*	The individual consumer is the driving force of the entire economic system due to the cluster demand grouped unit of market player generate that, in further view, stimulates the production of goods and services, resulting in occurrence of supply, cumulatively ensuring employment, which stimulates macroeconomic growth. Therefore, individual levels of disposable income in close correlation with personal consumption preferences as well as the willing ability to create financial saving as a means of financial resource allocation and availability level determination play the key if not most important role in the functioning of both market niches and entire industries, leading to promotion of individual saving and spending choices to play the central role in any given macroeconomic system

Therefore, it is possible to provide a definition of monopoly, while distinguishing it from the process of monopolisation, through the prism of the Keynesian school of economic thought:

Monopoly – a market of imperfect competition, consisting of a single supplier and various consumers, which, as a cluster unit, constitute the founding basis for the emergence of aggregate demand, often developed in case of a competition – undermining market failure or external under the influence of economic shocks, which leads to inefficiencies in wages and unemployment, having a grossly negative economic effect, unless it takes the form of a public monopoly, created by legislative means with the goal of redeeming existing market failure in a consumption – stimulation and economic activity promoting manner.

Monopolisation – the process of an individual private enterprise gaining excessive market power by exploiting influence, induced in its own provided products, cumulating in the acquisition of profit levels surpassing those rationalized by operational marginal costs and, therefore, regarded as a market failure or, in the alternative case, the process of public monopoly establishing with the use or regulatory and legislative power with the goal of ensuring critical industry supply output maximization in order to stimulate consumption in the wider context of precluding the market failure and/or economic recession – caused negative consequences.

The provided definitions and acquired results represent the empirical perspective on the researched topic by the respective academic tradition's greatest and most significant contributors in the context of the main topic of the current. The acquired findings shall be further used for testing purposes of the main research hypothesis of the currently conducted research, while being coherently incorporated into the functional structure of the developed unified monopolisation process assessment model in forms of theoretical justification of the operational structure quantitative elements of the developed model.

1.2. Enabling the development of a unified evaluation methodology of the contemporary phenomenon of monopolisation as a process

Considering the research topic – relevant information, provided in Sections 1.1., it may be concluded that the conducted analysis had enabled the possibility of monopoly as an economic phenomenon coherent assessment, while providing scientific reasoning for distinguishing between full monopoly as a type market conjuncture structuring, monopolisation as a consistent order of economic conduct and monopoly power as an objective rational for the emergence, prevalence and development of the above mentioned process and its final form of elaborate economic expressionism.

Before a conclusive statement, regarding the separation of the analytical issues, mentioned in the previous paragraph of the current Section of the conducted research, contextualized on a wider scale of disputed methodological approaches to monopoly as an objectively – realistic form of a market conjuncture composition may be made, an executive summary of persuasive evidence is in order and has been (developed by the Author) made available in the below – provided Table 1.6.:

Table 1.6.

The conclusive definitions of full monopoly and the process monopolisation, deriving from the conceptual positions on the addressed issue by various schools of economic thought

School of Economic Thought	**Definitions**	
	full monopoly	**monopolisation**
Classical (Smithian) School of Economic Thought	A privileged single supplier trading position, similar to one of scares and indispensable production means possession, leading to a distortion in the state of perfect competition that results in artificial market understocking with the goal of raising the sales prices far above their natural and, therefore, economically justified rate levels, which culminates in both free trade system's configuration counterproductive disturbance and consumer disposable income level reduction	The process of market competition level consequent diminution, rooting from artificial economic process distortion and governmental restriction imposture on self – organizing trading interaction system, resulting, in its final development stage, into the emergence of monopoly as a typological form of market conjuncture structuring, consequentially leading to even further marker inefficiencies due to the highest possible and utterly unnatural level of goods sales prices
Neoclassical School of Economic Thought	A single supplier market conjuncture composition form, similar to the case of external economic process disruption, presenting a situation of imperfect competition extreme escalation, resulting in synthetic market understocking by the enterprise that, in fact, is the entire industry and consequent rise of sales process, which culminates in both trading system's configuration counterproductive functioning and consumer net disposable income level significant reduction.	The process of imperfect competition consequent diminution to an extreme and minimum, if not zero, level, based on either external economic process conduction distortion or internal failure of the market to overcome the short – term functioning inefficiencies, often stimulated by governmental restriction imposture on self – organizing trading systems, resulting, in its final development stage, into the emergence of full monopoly as a typological form of market conjuncture with all the outgoing negative consequences of an such an extreme case of imperfect competition prevalence as the established typological economic process structuring
French Liberal (Laissez – faire) School of Economic Thought	An empirical state of unnatural, often artificially imposed market conjuncture that constitutes of a supplier, providing a good or a service by the means of concentrated position of the relevant means of production and a group of consumers, whose natural freedom of economic interactions is being actively limited by the imposition of the monopoly structure, preventing the market from further shifting to a more efficient, competition – based functioning level, while, simultaneously neglecting the involved economic agents, both of supply and demand camp, to participate in its self – organization	The process of counterproductive economic development that may best be described as artificial of quasi – natural market conjuncture imposition, leading to the limitation of competition which, in the final stage of conduction, will result in the creation of a full monopoly, depriving the market of the necessary efficiency provision in the form of self – organization, which, as a natural economic mechanism, is possible only while the involved market agents and parties are fully free in their actions or inactions as well as economic engagement within said market or industry.
Keynesian School of Economic Thought	A market of imperfect competition, consisting of a single supplier and various consumers, which, as a cluster unit, constitute the founding basis for the emergence of aggregate demand, often developed in case of a competition – undermining market failure or external under the influence of economic shocks, which leads to inefficiencies in wages and unemployment, having a grossly negative economic effect, unless it takes the form of a public monopoly, created by legislative means with the goal of redeeming existing market failure in a consumption – stimulation and economic activity promoting manner	The process of an individual private enterprise gaining excessive market power by exploiting influence, induced in its own provided products, cumulating in the acquisition of profit levels surpassing those rationalized by operational marginal costs and, therefore, regarded as a market failure or, in the alternative case, the process of public monopoly establishing with the use or regulatory and legislative power with the goal of ensuring critical industry supply output maximization in order to stimulate consumption in the wider context of precluding the market failure and/or economic recession – caused negative consequences
Austrian School of Economic Thought	A state of underdeveloped or artificially imposed market conjuncture that constitutes of a supplier, providing a unique and indispensable good by the means of concentrated position of the relevant means of production and a group of consumers, limited by the imposition of fixed monopoly price vis – a – vis their purchasing financial abilities, while all the market participants unconsciously act as economized individuals.	A process of retrospective economic development that may best be described as regressive evolution of the market conjuncture, leading to the naturally or artificially imposed limitation of competition which, in the final stage of conduction, will result in emergence or creation of a full monopoly

As it may be concluded from the previous analysis, conducted in Subsection 1.1 of the current Doctoral Thesis, which results had been transparently summarised in Table 1.6., each of the established Schools of economic thought has its own, to a certain extent, unique vision of the

full monopoly, its sources of emergence, specifics of development and structural long – term economic effects, deriving from a fundamentally – methodological approach of market conjuncture, resource allocation and trading of goods analysis. To state the former differently, each school of economic thought had developed and established its own philosophy of economic process evaluation and those unique features that distinguish more or less related paradigms of fundamental Economics are the direct cause of presumption variations, which take place in terms of separately defined perception and, if it may be described in such a way, individual or subjective judgment of the common or objective reality. However, what is especially important to note in the related context, is the quasi-common position, taken by all of the analysed schools of economic thought, regarding the matter of monopolisation, being a unified vision of its structural and functional characteristics.

All of the analysed schools of economic thought do not provide a clear and duly specific definitions of monopolisation process, monopoly power or full monopoly, sufficient in both empirical and applicable terms. They do, however, come to a common ground when evaluating the process of monopolisation, defining it, more or less consensually, as a market – wide full monopoly establishment process, rooting from the ability of distinct enterprises to influence market conjuncture composition and employ the major competition structure shaping factors to meet their respective goals and general benefit. What is especially important, is the fact that all of the researched paradigm of economic philosophy elaborately specified that the main rational and the functional base of the above mentioned process conduction is the willing loyalty or imposed lack of alternative choice of the consumers that form the client cluster of a certain profit – orientated equity, consequentially suggesting that the power of engaging in the development of the process of monopolisation is directly correlated to the ability of a certain supplier to retain and preserve the share of the effective solvent demand, which he may then expand by elimination of the closest competitors and ceasing the now under – supplied market niches.

Therefore, it may be argued that the driving force of the process of monopolisation are the dynamics of market share shifting, which result in a zero – sum imbalances of market influence and economic power. For the purpose of the current research, the aforementioned type of economic process influence, combined with the power of market conjuncture reshaping, deriving from the, willing or unwilling, but, in either case, consistent customer loyalty, resulting in the control over a solvent share of a certain market, shall be further referred to as the individual monopoly power.

The current stage of market monopolisation may be assessed as the sum of non – affiliated legal equities individual monopoly power concentration that significantly differs from the optimal state of equal or near equal individual monopoly power distribution between the suppliers in a

certain industry, sector of a national economy, market, market segment or even a market niche. In this respect, a perception of competition intensity being reversely correlated to the level of net monopoly power concentration in a certain supplier or supplier groups' field of influence or, looking from a different perspective, its deviation from a state of leveraged and relatively equal distribution between the involved economic agents, acting on the behalf of personal or third party liability, presents a solid verifying argument. Thus, on the ground of analytical logic continuation, it may be ascertained that a cartel deal, being deemed as illegal in almost every modern – day country, is a competition undermining practice precisely due to the excessive concentration of individual monopoly power in a mutually – bidden group of enterprises. In the same manner, a conglomerate would present a situation of individual power delegation to a common overviewing body that, in line with the theory of neo – institutionalism (Rutherford, 2001, 1985-190), for even the non – written contract of the "shadow economy" are the founding ground for business relation institutionalising via interaction formalisation, however illegal in this particular case, will seek to establish a continuation of the authority delegation by merging the individual competency into a common and unified mechanism of power, which only it may and effectively can wield.

In other words, all of the analysed schools of economic thought indirectly, taking a "read – between – the – lines" approach (the condulted experts in the relevant field share a consensus that there is no direct correlation between the stances, taken by the analysed schools of economic thought, however found that finding a "common methodological ground" fould greatly benefit both the existing theoretical framework and their respective practical work, for details see Annexes 57-59), emphasize the role of individual equity influence in the formation of a competitive market environment, based on the principles of free – willed interactions between the involved parties.

Thus, if individual market power is the fundamental cause of monopolisation process development and the phenomenon of full monopoly is an extreme case of imperfect, arguably, non – existent alternative choice scenario, the direct opposite of such order of conduct would be a high level of competition. Therefore, individual monopoly power and free competition are the "Yin" and "Yang" of economic theory's realm – direct opposites in terms of proceeding and caused effects, while being fundamentally and irreversibly interconnected justified market functioning – composing phenomena.

Consequentially, the Author of the current research proposes the following unified definition of monopoly power, the process of monopolisation, full monopoly and the general level of market current monopolisation:

Monopoly power – the ability to influence the composition of market conjuncture and conduct of the competition – related processes with the goal of achieving certain individually

required outputs and, if the above-mentioned degree of influence is sufficient, desired outcomes, rooting from the exercised supplier long – term control over income flows, deriving from a cluster of solvent demand amount, commonly referred to as the enterprise's individual market share.

The process of monopolisation – an industry – wide or sectorial economic process of supplier individual market share consolidation, caused by either internal (conjecture) or external (trend) influence factors, followed by directly – proportionate growth in monopoly power of the process – involved individual suppliers.

Full monopoly – an extreme case of monopoly power concentration, achieved via fully – conducted and effectively concluded process of monopolisation, enabling a certain enterprise to eliminate all efficient competition and deprive new potentially successful competitors from engagement in economic interaction within a certain industry or market, leading to a de facto rise in the level of prices through customer alternative consumption opportunity deprivation.

Total current (general) level of market monopolisation – the resulting (total) sum of individual monopoly power, measured as relative deviation from the state of its absolutely equal distribution between an industry/market supply amount forming equities within the framework of a certain reference time period in the broader context of a positive or negative industry/market consolidation trend.

The definition, provided above, shall be further used in the conduction of the current research both as unified economic process, factor and phenomenon describing terminology and the theoretical basis for the developed quantitative monopolisation level assessment model, while simultaneously being incorporated in the confound of the verifying experiment, aimed on confirming of refuting the main hypothesis of the current researches, while directly addressing the fundamental aspects of the systematically analysed economic problem spectrum.

1.3. The proposed alternative stratification system of monopoly types as modern market phenomena

The functional composition of typologically clustered individual monopolistic equities, wider known as the forms or types of monopoly, depends on the structure of the market, the original competition type and the operational scope of each individual enterprise. However, after a series of studies and analysis by various scientific contributors and scholars (Arrow, 1994, 3–7) (Chamberlin, 1947, 30-70) (Coase, 1937, 386–405) (Motta, M. 2004, 1-123) (Stucke, 2013, 162–197) (White, 2012) (White, Selgin, 1994, 1718–1749) as well as several legal text (EU, 2013a, 8-257) (EU, 2013b, 6-155) (Council of the European Union, 2002, 1-25) (Council of the European Union, 2003, 3-23) (Council of the European Union, 2004a, 1-22) (Council of the European

Union, 2004b, 1-2) (Council of the European Union, 2006a, 1-3) (European Commission, 2004a, 18-24) (European Commission, 2012a, 4-14) (European Commission, 2012b, 3-10) (European Commission, 2012c, 15-22) (European Commission, 2012d, 8-13), a classification of full monopoly cases had been developed, defining the following common or classic types of monopoly: (1) Natural monopoly; (2) Public monopoly; (3) Legal monopoly; (4) Artificial monopoly.

Natural monopoly originates from private business and other organizations, engaging in economic activities economic, which have acquired unique, almost irreplaceable resources or critical technologies, information if know – how, regarding crucial stages of the production cycle, for example, rare metals, processing and transportation equipment. This kind of competitive superiority enables a given company to acquire a dominant position in the market is widely referred to as the critical advantage, therefore, a natural monopoly is an economizing equity, which acquired an absolutely dominant market position, using certain critical advantages at its disposal.

A public monopoly implies by its very definition a state – owned entity or a direct governance body that had been intrusted the conduction of certain activities economic in their nature, but non-attractive as an investment object for private actors due to a subjective lack of interest or an objective market failure, which has a critical, indispensable role in insuring the functioning and stability of a certain national economy and social order system. As a specific case, the European Union generally recognized public monopolies as providers of services of general economic interest, which are either public governance bodies or state – own enterprises. In other regions, a public monopoly may take the forms of strategic infrastructure industries and the related businesses or the so – called primary commodity suppliers of energy resources, such as natural gas, energy and water supplying companies. Generally, the existence of a public monopoly is directly linked to the economic benefits of mass production – the so – called scale effect. Goods and services are consistently produced in one "centre of mass" at a lower cost than in would had been in case of multi – player competitive environment, thus, rationalizing the use of technology, based on the size of the sole manufacturer, which enables limited resource preservation and efficient utilization. Additionally, a number of enterprises producing similar products inevitably get involved in a state of "price war" that would impede the supply of essential goods, and, respectively, society's economic stability and general prosperity.

A legal monopoly (from the Latin *Legalis* - legal) is formed on the basis of specific national legislation or international conventions and agreements, granting an exclusive right to gain benefits from certain activities and/or use of information, the latter mostly regarding intellectual property rights. In order to fully understand the difference between a public and a

legal monopoly, a closer examination of the main forms of imposed monopolistic structures, which are based on the legislation in force, is required. Currently, most common forms of legal monopoly are: (1) Patent systems; (2) Copyrights; and (3) Brands.

Patents are testimonial statements, establishing exclusive rights of a natural person or a legal equity to use an invention, its conduct and generated benefits and to profit from its operation, as well as to deal with the specific tax on the relevant business activities.

Copyright is a legal right created by the law of a country that grants the creator of an original work exclusive right to its use and distribution, usually for a limited time, with the intention of enabling the creator to receive compensation for their intellectual effort. Simultaneously, copyright is a form of intellectual property, applicable to any expressed representation of a creative work. It is often shared among multiple authors, each of whom holds a set of rights to use or license the work, and who are commonly referred to as rights-holders. These rights frequently include reproduction, control over derivative works, distribution, public performance, and moral rights such as attribution". (United States Copyright Office, 1947) (European Commission, 2016) (Copyright Law, 2003)

Brands are legally registered and, therefore, protected symbols that are used to promote the commercial use or rise the degree of recognition in the market of a certain product, while prohibiting any competitors the legal use of the already officially registered brands.

Artificial monopolies significantly differ from their natural co8nterparts, due to its very nature, being a combination of interrelated businesses, focused on direct acquisition of excessive or monopolistic profits. The ways and general manner of the current type of the empirical phenomenon of monopoly in achieving set goals can consciously change the structure of the market, which led to the overall negative perception of the wholesome definition monopoly, based on prejudice toward its single most devastating form, using capital resource superiority techniques, which usually consists of contributions from a few enterprises. The previously mentioned methods include: (1) Denying access to distribution chains and corporate price discrimination; (2) Technology and know – how sub – market price exchange strictly among the members/segments of artificial monopolies; (3) Sub – market priced loan or grant finance provision made available only to the members/segments of the artificial monopoly; (4) Use of political lobbying techniques in order to impose greater costs and administrative restrictions on the current or potential competitors.

Despite the large number of monopolistic formations sub – forms all types of monopoly have five main functional principles or, to put it another way, existential characteristic, which enable the emergence, development and effective dominance of the mentioned market entities: (1) Cost reduction achieved with the increase in production volumes (the scale effect); (2) Means of

production consolidation practices, enhanced with process innovation during the establishing phase; (3) Control over certain unique, irreplaceable resources or market access rights; (4) Sophisticated internal organisational structure; (5) Market position entrenchment through either economic or legal tools.

While empirical conditions for full monopoly formation and development are universal in any type of truly market economy, the advent of ICT, online commercial tools and further increase of information flow speed may lead to new, currently not encountered forms of monopolistic structures to emerge in the foreseeable future, being closely related to web – activities and data transfer, using online analytical tools and commercial platforms, related to social media and potential customer individual profiling via the Internet. With both the civil society and individual actors had become more involved in both market, political and legal processes, both consumer and intellectual property rights became a common issue in developed countries, especially in the context of Internet commerce, online shopping and direct information exchange between digitally connected part of the globe. The advent of ICT had brought up the issue of information safety and fair cost coverage of the benefits and goods, available online, such as music exchange, research result applicable implementation and the correspondence of the declared quality of physical products, purchased online, to those actually (physically) delivered. The mentioned issues, combined with new legislative practice adaptation by of supranational organizations had forced the phenomenon of monopoly to reinvent itself as a flexible, yet unavoidable development, which modern day society has to deal with. In order to understand main changes in the typological forms of modern monopoly, it would be most beneficial to analyse the areas that had been influenced by the above described processes.

The first economic field that had been dramatically influenced by the ICT – enabled process of globalization in quite a Websterian manner of "the new global village" formation, was the liberalisation of trade, which consequentially lead to increase in competition, while consequentially triggering the crisis – based monopolisation process to become more rapid and less localized due to extensive global trading ties. Thus, monopolistic structures were being perceived as an alternative, a sort of protectionist barrier that would enable to secure those socially vital yet woundable, due to their low level of profitability, areas, widely known in EU law as services of general economic interest. Therefore, modern monopolistic structure may emerge and begin the process of internal structuring in to types of actor involvement – open (free for all) participation or restricted (limited) participation.

The second general influence factor, directly rooting from the data transportation possibilities of ICT age, may be defined as the fundamental goal of taking certain action or engaging in various operations. As an example, if an audio file had been downloaded from a

perfectly legal web – site, did it constitute a purchase, a charity event, an exchange of personal information or open violation of intellectual and property rights?

To answer the relevant question, one must firs determine the type of operation and the purpose of taking such action. Thus, if the file had been set up for sale, the situation greatly differs from the case when it had already been purchased and uploaded in order to fulfil a certain obligation or be made of non – exclusive commercial use. Therefore, while analysing the types of possible actions, the relevant forms of general goals lead to the emergence of three corresponding types of operations: (1) Economic activities – in the case of for – profit operations; (2) Non – profit activities – in the case of social service provisions or non – commercial (fundamental) research, which may occasionally generate modest profits with the maintenance or solidarity revenues unexpectedly exceeding total operational costs; (3) Non – economic activities – in case of strictly not – for – profit actions that have a profound indirect market effect such as legislative initiatives or international treaties. Both the forms of actor involvement and the conjuncture of the actions taken have a direct correlation to the corresponding types of modern monopoly, which emerge and develop in line with the empirical conditions of social – economic operation that shape the internal functioning conjuncture of certain civil domains. In order to create a transparent and unbiased overview of the possible author – proposed definitions, reflecting the fundamental characteristics of each modern type of monopoly, while reflecting the wider context of the mentioned features, the below available Table 1.7. had been composed:

Table 1.7.

The proposed alternative stratification system of modern monopoly types

		Type of actor engagement	
		Open participation	**Restricted participation**
Type of operations	**Economic activities**	Market monopoly	Legal monopoly
	Non - profit activities	Intellectual monopoly	Public monopoly
	Non - economic activities	Institutional monopoly	Monopoly of state (as a constituency)

As it clearly my bee seen from the information, made available in the Table 1.7., a combination of actors' engagement forms and the purpose of the conducted operations have an undoubtedly direct effect on the internal functional conjuncture of the monopolistic structure. While acknowledging the profound nature of the above discussed correlation, an elaboration on distinguishing characteristic of each declared modern monopoly types is due in order to provide a clearer perspective on the main functional differences that not only uphold the uniqueness of each of the mentioned types, buy simultaneously provides insight on the relevant influence factors, having a fundamental effect on the corresponding developments.

A market monopoly emerges in a strictly natural way, following fundamental economic logic and bases its existence on a combination of unique competitive advantages, illegal or semi –

legal non – official market agreements and the volatility of the business cycle, taking its most aggressive, fair competition undermining actions in times of local or global economic crisis. A typical example of a market monopoly in the modern economic environment would be a horizontal market cartel agreement between several suppliers or an enterprise, excessively explaining in dominant market position, acquired in time of an industry – wide bankruptcy surge.

A legal monopoly remains largely unaffected by the changes in the global economy, caused by the advent of ICT, thus its core characteristic, defined as legislative provisions, granting exclusive right to gain benefits from certain activities and/or use of information, the latter mostly regarding intellectual property rights, established by specific national legislation or international agreements. Typical examples of a legal monopoly would be clearly defined and objectively intelligible property rights, taking the form of trademark or brand protection or established patent systems.

On the contrary, an intellectual monopoly is a direct concomitant of the rapid technological development and, while arguably being a derivative form of a legal monopoly, possesses several unique characteristics. First of all, an intellectual monopoly implies conceptual or, at very least, process innovation that emerges as the consequence of successful commercialization of inventions. Therefore, the rights to the invention may and rightfully should be protected by copyright or registration of a patent, however, due to the possibilities of rapid, almost zero – time and no cost transfer of information, the results of scientific studies and know – how may be exchange between various actors, not contributing to its development, testing and introduction to the market, within practically indifferent periods of time, thus making the mentioned innovation a free, sometimes even a public good. Second, the protection of intellectual property rights in the online environment created a new branch of business, which is aimed on protection of electronic data. Thus, the providers of the mentioned services become effective regional monopolies as Internet servers and high – speed connections are usually attributes of just a few high – tech companies. Therefore, while ICT services in the modern world are effective economic monopolies, as in the case of Google or Microsoft Corporation in several niches, innovative research and scientific studies, aimed on the preservation of the dominant status of those monopolistic structures or making use of their services, enhancing them and implementing, for example, authentically developed MS excel spreadsheet – based tool for their own operational purposes, become intellectual monopolies, not enjoying the full protective provision of legal monopolies, while being dependant on the ICT services, made widely available, in order to protect their know – how and authentic fundamental research results.

The public monopoly concept had not changed in terms of its fundamental goal of either providing social services to the portion of the populace that may not afford to pay the market price

for vital need satisfaction, or making use of public fund in order to compensate for the low or negative profit rates of certain social service niches, thus rising their level of attractiveness for private actors to engage in the respective economic activities. However, a significant addendum had appeared in terms of globalised markets being cohesively interconnected through liberal trade. In order to not undermine the principle of fair competition of an international scale, individual governments are economically forced to and, as in the case of European Common Market, legally obliged to evaluate the real necessity of providing a certain social service in the context of the very definition of certain provisions of being vital and indispensable for a certain social cluster.

Thus, public monopolies, engaged in economic activities, in the XXI century had made a step away from being owned by the state or established as bodies of direct governmental management to private undertaking, providing services at a price, lower than objective economic costs and relying of steady governmental subsidizing in order to compensate for the loses and retain a below related industry average, though consistent and guaranteed level of profit. Bearing in mind, however, that the mentioned step towards a higher rate of private involvement is not universal and yet to come in certain regions, urban public transportation services and utility provisions such as water, heating or waste management may be defined as classic examples of modern public monopolies.

State monopoly in the modern sense had differentiated itself from the case of public monopoly, its core essence transforming into indirect influencing of strictly market processes by completely non – economic activities. "The state holds the monopoly on violence" (Weber, 2004, 33) would be a classic example of the above-mentioned developments, with governmental decisions greatly affecting of aspects of modern economic environment. Since the indispensable and most vital aspect of a democratic society, which forms the basis for modern day models of economic development, is the rule of law, the legislative and judicial dimensions of the separated power dominion become crucial in maintaining the stability of long term economic development. A transparent, just and well – structured legal system has become the cornerstone of business environment stability, with private actors greatly valuing minimal judicial risks and legislative system stability. Thus, as the sole law maker, the state has an effective monopoly on defining "the rules of the game" for private businesses and economically active population. While tax collection may sometimes be attributed to semi – economic operations, legislation, issued in order to ensure a defined level of corporate and workforce taxation, rules for new business establishing, judicial procedures and job creation have a profound if not fundamental effect on a given country's' of regions' level of macroeconomic stability and standard of living.

Similarly to the state monopoly, institutional monopoly is a direct consequence of the international component of the globalization process due to the emerged need for cross – border governmental cooperation, especially regarding the exchange of information between public supervisory and regulatory bodies in such fields as double taxation and tax evasion, resource and workforce mobility, business entity registration, ownership and general property rights as well as addressing the issue of global economic convergence in the wider context of regional market interconnections. In other words, economic integration requires regulatory cooperation in order to achieve a unified approach to dealing with various issues of both market process and administrative monitoring origins. If a single state has the monopoly of national legislative action, supranational cooperative governance bodies hold the undisputed monopoly on international law adoption and treaty drafting, while remaining respective to national ratification processes. International organization set rules for trading agreements, settle disputes between involved signatories and amend the above mentioned legislative regulation system in order to set compliance with newly arising challenges. A fine example of such international superstructures, adopting signatory – biding regulation with severe economic consequences would be the European Commission (TFEU, 1957, 88-89) as well as World Trade Organization (WTO, 1994) and similar organisations.

However, it would be logical to assume that the majority of scholars in the realm of economic theory adhere to the standard classification of the types of the phenomenon of monopoly, fore even as the market conjuncture undergoes changes, the essence of relationships between economic actors remains unaltered. While the fundamental goals of both the suppliers and the consumers remain unchanged, the applicable principles competition, pricing and other influence factors, justifying the greater need for novel research and constant deepening of contemporary understanding of each market process, especially such controversial developments as the process of monopolisation in the wider context of the currently dominating economic evolution trends.

Therefore, while taking into account the collected, analysed and consistently evaluated information as well as the acquired expert opinions (see Annexes 57-59), provided in the Chapter 1 of the current Doctoral Thesis, it would be most beneficial to implement the established theoretical framework for further applicable research conduction, regarding monopolisation process conduction, output and outcome analysis with the empirical goal of developing and scientifically testing a quantitative model of market level of monopolisation evaluation. The relevant actions shall be comprehensively described in the Chapter 2 of the current Doctoral Thesis.

2. ANALYSIS OF THE METHODS, COMMONLY USED TO ADDRESS THE RELEVANT ISSUE

2.1. Critical assessment of the most commonly used methods of market monopolisation degree assessment

Herfindahl - Hirschman index: analytical essence and functional structure

As the conducted analysis, described in Chapter 1 of the current Doctoral Thesis, had verified, the process of monopolisation may be quite variable and of dualistic nature, with the constant tendency to immediately react to the slightest changes in both regional and industry enticement, using every occurring opportunity to increase the concentration of financial capital, revenue flows and resource allocation within a single clustered economic unit. As E. Chamberlain indirectly point out in his research, inefficient management practices, engagement in irrational business activity and the "process of natural economic selection", visible in completely liberalized markets with virtually none public sector participation, contribute to the existence of the production environment that stimulates businesses to evolve and adapt to a free, exposed to both crisis and change, market sentiment, which simultaneously emphasises the need to differentiate available product portfolios in order to obtain a successful competitive position and to put that position as well as other means of market engagement to effective use with the goal of overtaking the market shares of, depending on the implemented strategy, the potentially weakest or strongest competitors. (Chamberline, 1947, 71-116) Thus, it may be argued that the dynamics of individual market shares not only reflect the on-going market conjuncture changes, but provide a clear insight of the nature and intensity of competition in a particular industry.

The intensity of competition and the degree of market monopolisation on an industry level may be measured using several indicators, however, due to its widely-acknowledged efficiency, transparency and universal applicability, based on individual enterprise market share dynamics analysis, the method, known as the Herfindahl – Hirschman Index, had gain academic recognition among scholars and popularity with regulatory public bodies. (U.S. Department of Justice and the Federal Trade Commission, 2010)

The Herfindahl – Hirschman Index (official abbreviation HHI) is an indicator, titled in honour of American researchers O. Hirschman and A. Herfindahl, that may be implemented

in order to determine the size of the company in relation to the scope of the total market capacity and the demand amount of the respective industry, while taking into account the competition intensity in the context of the market level of monopolisation within a given timeframe, based on the total number of companies involved in competition and, therefore, market share re – distribution.

Since 1982 the Herfindahl – Hirschman Index was incorporated into the US federal antitrust legislation and anti – trust supervision and competition authorities and consistently used for fair and equal – opportunity business environment preservation and pre-emptive market position abuse prevention purposes. (U.S. Department of Justice and The Federal Trade Commission, 2010)

In quantitative terms, the Herfindahl – Hirschman index is equal to the sum of the top fifty companies' squared individual market shares, adjusted by the weighted average of the respective individual market shares in the previous period. Such conduct enables the assessment of the monopolisation process development in a given industry within the prescribed time period, judging by a percentage of the average market total volume, expressed as proportionate portions of the total sales amount in the relevant market. The value range is determined as a percentage on a scalar scale from one to a hundred, but for analytical purposes of higher degree of acquired result further, the standardized values range from one to ten thousand scalar measure units. The empirical form of the Herfindahl - Hirschman index is provided below in Formula (2.1) (U.S. Department of Justice and The Federal Trade Commission, 2010, 16-19):

$$HHI = S_1^2 + S_2^2 + S_3^2 + ... + S_n^2 = \sum_{i=1}^{n} S_i^2 \qquad (2.1)$$

where:

HHI – Herfindahl – Hirschman Index, scalar units;

S_i – i-company's individual market share, percentage – derived scalar units.

There is also a simplifies derivative form of the Herfindahl - Hirschman index calculation formula that relates the development of the process of monopolisation to the deviation from the situation of a relatively even individual market share distribution between the involved suppliers, which is taken as the benchmark situation, directly correlated with the de facto state of imperfect competition conjuncture within a certain market. In other words, the empirical the Herfindahl - Hirschman index formula calculation results are compared with their potential values in the case of nearly full competition situation, consequentially

transforming the original quantitative design of the mentioned index into the state, described below in Formula (2.2):

$$HHI = 1/N \quad (2.2)$$

where:

HHI – Herfindela - Hirschman Index in a perfect competition market, scalar units;

N – the total number of companies, composing a certain industry, scalar units.

While analysing of the above given formulas (2.1) and (2.2), it is possible to determine the analytical functionality of the described universal market level of monopolisation assessment instrument, its advantages and drawbacks on the basis of the economic theory and qualitative evaluation techniques.

The undoubted benefit of Herfindahl - Hirschman index may be determined as the use of percentage correlation between the analysed industry's supplier's individual market share mutual comparison and their deviation from the situation of perfectly even deviation of satisfied solvent demand, while taking into account the potential of new market actor involvement, thus ensuring the existence of a general overview of market internal conjuncture reformatting trends.

However, this indicator has momentous disadvantages, which take the form of indicator data set subjectivity by not taking into account the significant factor of market total capacity volatility. If a market shows growth or decline in total consumption amount over a given time period, the changes in both the individual supplier performance and the Herfindahl - Hirschman index general value trend may result in a sharp increase or decrease in the resulting analytical outputs, which consequentially will undermine the objectiveness of the conducted evaluation. For example, if a certain company overtakes the individual market shares of several components and an equal number of newcomers enter the market, while simultaneously gaining a relatively identical market shares, regarding the former participants, the Herfindahl - Hirschman index will not reflects the significant changes in individual market power of the company that had overtaken the eliminated competitors market shares, as the value of the indicator will respond with little to no reaction to the described changes due to the nominally – equal inputs in the calculus of the relevant methodology. Nevertheless, while being subject to significant controversies regarding its analytical depth, the Herfindahl - Hirschman index remains a very efficient screening tool, which is being extensively used for a wide variety of economic developments surveillance purposes, ranging from research in market conjuncture trend to governmental policy planning in the field of regulating company mergers and equity takeovers.

Various public bodies, such as, for example, The US Department of Justice had made extensive use of the Herfindahl – Hirschman (U.S. Department of Justice and The Federal Trade Commission, 2010, 16-19) and the European Commission (European Commission, 2004b, 7) index as easily applicable and highly transparent market conditions monitoring too, while implying the concept of market (power) concentration. Market concentration is often a useful indicator of likely competitive effects of a merger. In evaluating market concentration, the authorities consider both the post-merger level of market concentration and the change in concentration resulting from a merger. Market shares may not fully reflect the competitive significance of an enterprise in the market or the impact of a merger, therefore they best be used in conjunction with other evidence of competitive effects. In analysing mergers between an incumbent and a recent or potential entrant, to the extent the Agencies use the change in concentration to evaluate competitive effects, they will do so using projected market shares. A merger between an incumbent and a potential entrant can raise significant competitive concerns. The lessening of competition resulting from such a merger is more likely to be substantial, the larger is the market share of the incumbent, the greater is the competitive significance of the potential entrant, and the greater is the competitive threat posed by this potential entrant relative to others. The US Department of Justice antitrust monitoring decision sets the following Herfindahl - Hirschman index value ranges for determining the degree of market power concentration: (1) HHI below 1500 – unconcentrated markets; (2) HHI between 1500 and 2500 – moderately concentrated markets; (3) HHI above 2500 – highly concentrated markets. (U.S. Department of Justice and The Federal Trade Commission, 2010, 16-19)

As it may be seen from the information, made available above, the current interpretation of the Herfindahl - Hirschman index value ranges tend to be quite broad with market concentration level measurement benchmarks being stretched out and subject to misconceptions, regarding objective categorizing of the evaluated market activity. It is worth mentioning that the Herfindahl - Hirschman index is a highly flexible tool of individual monopoly power concentration measurement and therefore play a substantial role in the further development of monopolisation process and the phenomenon of monopoly studies as a subject of economic research. While acknowledging the complexity of the relevant problem and fully respecting the authority of recognizes and undoubtedly efficiently functioning regulatory public bodies, the author of the current Doctoral Thesis would consider it possible to propose an elaborated Herfindahl - Hirschman index value range grading system, adjusted for the economic realities of modern day small open economies.

Taking into account the post – crisis sectorial realities of entrepreneurial conduct within small open economies, the author of the current Doctoral Thesis proposes the following Herfindahl - Hirschman index value range interpretation with the general goal of objectively evaluating the monopolistic tendencies, occurring in recovering and recently recovered sectors of the mentioned economies: (1) HHI < 100 – highly competitive market; (2) 100 ≤ HHI < 1000 – uncertain competition market; (3) 1000 ≤ HHI < 2500 – sufficient competition market; (4) 2500 ≤ HHI < 5000 – low competition market; (5) HHI > 5000 – monopolised market.

The proposed scalar value range stratification switches from the detailed evaluation of merger effect on market concentration to a screening analysis of the intensity of market competition and elaborated review of the functional market type in relation to the mentioned level of competition intensity. It would be rational to give a closer perspective of the proposed changes to the original methodology.

Highly competitive market – is defined as an emerging or rapidly growing market with near perfect competition business conduction conditions with an emphasis on acquiring customer recognition and securing a potentially high – income sales niche.

Uncertain competition market – is a classic monopolistic competition market type with extensive involvement opportunities and a consistent increase of potential revenues with notably frequent changes in the total number of suppliers.

Sufficient competition market – is a monopolistic competition market with stable internal conjuncture and few additional supplier involvement opportunities with relatively small although constant changes in individual market shares.

Low competition market – is an oligopolistic market that can both grow or stagnate, but the individual market share distribution is not observed and their values are constant.

Monopolised market – is a visible full monopoly or a classic oligopoly or monopolistic market with a sole flagship company that generates greater product commercialization portion than the rest of the competitors' sales volume combined that effectively enhances the dominant enterprises’ market influence to the level of an undisputed trendsetter, thus labelling it as a hidden monopoly. It is advised that in such cases administrative measures are taken and judicial rulings are implemented in order to ensure a higher level of competition is achieved in the relevant industry.

The proposed modification of the standard the Herfindahl - Hirschman index shall be incorporated into the developed methodology of market monopolisation level evaluation, described in Chapter 3 of the current Doctoral Thesis.

Lerner index: analytical essence and functional structure

An enterprise's individual monopoly power in a given market has a mathematical value and, therefore, may be a subject to in-depth quantitative analysis. The mentioned scalar value must be related to the objective economic characterising features of the market and its business environment realities, consistently leading to the possibility of conducting an objectified quantitative research. Monopoly power, in essence, is a profit-dependent fluctuation in the volume of production changes, so that its scale can serve as the value below which the profit maximizing price increases the optimal marginal cost of production.

In 1934 Abba Lerner, an American economist introduced a coefficient which reflects the value of market price exceeding marginal cost and therefore accountable as excessive, directly corresponding with the concept of monopolies "setting economically unjustified prices" above rational market level. The mentioned indicator was later titled the Lerner index of monopoly power and to this day is marked by the symbol L. Its value range varies between zero and infinity, and if L = 0, then the company does not have absolutely any power over market prices and therefore cannot affect them in any way, as in the case of perfect competition, while if L = 1, the company is considered to be "the price – dictating rule setter", it has absolute power over market conjuncture composition, controls every market process, while having its power based on the volume of goods produced (the scale effect) and artificial changes in the industry price level, regardless of the level of production costs, which are still rising proportionately to the production volume increase. A. Lerner himself considered the two aforementioned cases to be both extreme and virtually impossible under real market conditions due to the fact that if a market is defined as being is a state of full competition, differentiation does not exist, which is the case of undeveloped society and primitive barter exchange – a situation that modern economies had evolved far beyond, while each economic full monopolist, sooner or later, finds himself in a position where the demand for monopolistic goods becomes inelastic, so consumers response to changes in the volume of goods will be of a much lesser scale, making it impossible to raise prices above the reached benchmark as it indicated the lack of consumer solvency, thus undermining the very definition of demand as an economic phenomenon.

The functional essence of the Lerner index reflects an inversely – direct correlation between price elasticity and the actual potential of market monopolisation possibility, which is visible in the relevant indicator's empirical quantitative form, made available in the below given Formula (2.3) (Lerner, 1934, 157-175):

$$L = \frac{Pm - MC}{P_m} = -\frac{1}{Ed} \quad (2.3)$$

where:

L – Lerner Index, scalar units;

P_m – monopoly price, currency units;

MC – marginal costs, currency units;

E_d – price elasticity of demand coefficient, scalar units.

As it may be seen from the Formula (2.3), the extent to which an enterprise may take advantage of its monopolistic position is highly depend on the price – related effective flexibility of demand. In cases of lower demand flexibility, a reduction of supply amount will cause a deficit effect, rationalizing the rise in prices, while in markets with a more flexible demand structure, the increase of prices will cause a proportionate loss of market share. Naturally, if a company is in a position of full economic monopoly, its market power is relatively absolute and an increase in prices with no consumer shifting possibilities will either result in higher profits or exclude a portion of the demand – forming clients from being able to afford the monopolized goods with both cases constituting a classic case of price discrimination.

It must be pointed out that the monopoly price, mentioned in the Formula (2.3) reflects the maximum economically rational price of a monopolised good that enables the monopolist to acquire a near – optimal level of profit that, while still undermining the level of consumers solvency and being defined as price discrimination, does not exceed the benchmark of demand amount collapse, in other words, monopoly price is higher than the optimal equilibrium price in a competitive market, but does not constitute social deprivation by making certain goods financially unaffordable for the major consumer clusters.

The Lerner index of monopoly power not only allows determining the impact a leading enterprise has on the relevant market, but also enables the calculation of the optimal equilibrium market price for any given volume of goods produced, depending on the increase in the marginal cost. Purely mathematically, monopoly price of good or service may be calculated, using the equation, reflected in Formula (2.4), which is analytically deriving from the empirical form of the Lerner index:

$$L = \frac{Pm - MC}{Pm} => MC = Pm(1 - L) => Pm = \frac{MC}{1 - L} \quad (2.4)$$

where:

L – Lerner Index, scalar units;

P_m – monopoly price, currency units;

MC – marginal costs, currency units.

The above given Formula 2.4 shows the quantitative correlations between the price, the marginal cost and the degree of market monopolisation binding regularities, which not only demonstrate the in-depth logic behind a number of pricing mechanism, but also enables a new approach to analysing some of the most fundamental characteristics market types, namely, objective price level determination, market equilibrium forming principles and the potential of market monopolisation.

In order to demonstrate the validity of the former proclamations, a set of theoretical acknowledgment justifications has to be integrated into a general system of rules, applied in cases of monopolisation process analysis, while preserving the empirical consensus of the classic monopolistic competition market type being considered the most output – beneficial and cost – efficient development under modern competitive market conditions.

For the sake of a theoretical experiment in the traditions of the Austrian school of economic thoughts, let it be assumed that the Lerner index of monopoly power converts to the minimum possible value, i.e. it is equal to zero. In this case, as it may be seen form the below given calculation, conducted according to the logic of the aforementioned Formula (2.4), that the monopoly price is equal to the marginal cost:

$$P_m = \frac{MC}{1-L}; L = 0 => P_m = \frac{MC}{1-0} = \frac{MC}{1} = MC \qquad (2.5)$$

where:

L – Lerner Index, scalar units;

P_m – monopoly price, currency units;

MC – marginal costs, currency units.

As in may be deduced from the calculation, made available in Formula (2.5), if the Lerner index equals zero, there is absolutely no opportunity for businesses to influence commodity prices, which directly corresponds to the characteristics of the full competition market type. In this particular case, the price is equal to marginal cost, therefore, a major feature of a full competition market may be seen as being true and fulfilled, consequentially conforming both the accuracy of the Lerner index as an analytical tool and the theorem of market equilibrium due to price volatility being outweigh by marginal cost tendency stability as a universal occurrence in all market types, defined by the modern economic theory. It may be concluded that the previously defined condition directly demonstrates the theoretically general applicability of Lerner index, while justifying the coherence of its quantitative

structure. Therefore, a consequential conclusion, stating that in a competitive market profit maximizing price changes accordingly to value of each production volume's marginal cost, may be made. Thus, the above made conclusion confirms the theoretical impossibility of setting the prices of goods and services with no maximum limits by manipulating the amount of sales. Therefore, the general economic justification of equilibrium price always being equal to marginal production and sale costs had been confirmed and acknowledged to be accurate even for fully monopolized markets, consequentially disbanding the popular idea of monopolies being "unchallenged price setters" as economically unjustified and irrational from the profit maximizing perspective as the "abuse" of monopoly's beneficial market position is limited by empirical economic logic.

Let us consider the opposite case and assume that the Lerner index adopt the highest possible value, i.e. L is equal to one. The mentioned situation is a rather interesting development, because with the Lerner index being equal to one, the monopoly price is equal to infinity. Mathematical reasoning for the relevant statement is provided in the below given Formula (2.6):

$$\mathrm{Pm} = \frac{\mathrm{MC}}{1-\mathrm{L}}; \mathrm{L} = 1 => \mathrm{Pm} = \frac{\mathrm{MC}}{1-1} = \frac{\mathrm{MC}}{0} = \infty \qquad (2.6)$$

where:

L – Lerner Index, scalar units;

P_m – monopoly price, currency units;

MC – marginal costs, currency units.

Therefore, in theory, a company, having secured a monopoly position, can set any price for their products, due to the lack of alternative entities, challenging the monopolist on the market. This could serve as an explanation of why the phenomenon of full monopoly is always viewed in a negative perspective – several market liberalisation proponents had argued that unlimited influencing power over the prices creates a potentially dangerous, in social terms, situation, that is "bound" to setting excessive prices. (Motta, 2004, 42) (OECD, 1996)

However, it must be pointed out that the highest possible price does not mean the highest level of profit even for a monopolized good. Each company conducts business operations and engages in economic activity with the goal of ensuring long – term financial stability and, at least in theory, analyses the consequences of takes actions in their relation with its plans for at least mid – term revenue growth, thus, an increase in sales prices even in the case of a full monopoly, does not necessarily correspond to the goal of achieving and preserving optimal rates of sustainable development, furthermore, short – term profit

maximization may lead to decreasing consumer solvency and, consequentially, both to vast drop in potential client numbers and legislative action of governmental authorities, increasing operational and legal risk for the mentioned enterprise. With increases in monopoly prices, revenues will with no doubt proportionately overcome the level of total cost, only reach a certain threshold, crossing which will lead to decrease in demand that is significantly higher than the additional profits, gained from the implementation of price discrimination techniques, which marks the decline in monopoly power, possible to a level of leaving such large consumer numbers denied access to the monopolized goods in terms of feasibility that a separate market niche may occur, becoming potentially profitable and therefore attractive for external suppliers to invest in its development that the former monopolist will find himself in a newly opened market with highly negative reputation, making it an easy subject for aggressive market share takeovers from emerged competitors, who will make considerable effort to eliminate the currently dominant market power thus effectively ending the monopoly state of the industry.

The previously mentioned scenario's probability is affected by several factors, the most important of which is a goods elasticity of demand, a phenomenon that greatly influences not the potential opportunity of monopolizing a given industry, but also structure of profits and consumer preferences within a certain market niche. Simultaneously, marginal costs are equal to marginal revenues only the flexible segment of the demand curve, respectively, the maximization of profit will only be available under the condition that the changes in price level are corresponding to proportionate increase or decrease in the supply amount over a certain time period.

Taking into account the high importance of elasticity of demand and its significant role in both general market monopolisation potential, conditions and strategy choice as well as essential links to the Lerner index as a quantitative individual monopoly power evaluating tool, it would be most beneficial to include the above-mentioned phenomenon into the analytical research spoke of the current Doctoral Thesis.

Elasticity of demand coefficient: analytical essence and functional structure

It is widely acknowledged that demand elasticity changes, depending on the current level of sales prices for each separate set of goods or individual products, with the case of full monopoly representing the least rapid, yet constantly present case of the mentioned process development. Demand elasticity quickly shifts to its non – elastic phase where the marginal

changes remain at a fairly high level, regarding production and sales costs, while the opposite is present in the field of operational revenues. On the contrary, the lower the elasticity, the greater the level of individual monopoly power may be achieved (Sloman, 2006, 47-50). The only case of the Lerner index being equal to one is observed if the demand for a certain product is absolutely inelastic, thus making the margins of consumer tolerated price increase considerably wider.

As it had been previously confirmed in the Section 2.1. of the current Doctoral Thesis, the monopoly price does not depend, as is commonly perceived, only on the monopolist's wishes to gain more income. As any economic indicator, the price is quantitatively calculated t, based on numerical interpretation of the market factors, influencing the relevant phenomenon. Therefore, the fundamental influencing factors that determine the monopoly price are universal regardless of the type of market conjuncture, which enabled the creation of an empirical monopoly price calculating tool, suitable for every type of market and applicable in every modern-day industry:

$$L = \frac{Pm - MC}{Pm} => MC = Pm(1 + \frac{1}{Ed}) => Pm = \frac{MC}{1 + \frac{1}{Ed}} \quad (2.7)$$

where:

L – Lerner Index, scalar units;

P_m – monopoly price, currency units;

MC – marginal costs, currency units;

E_d – price elasticity of demand coefficient, scalar units.

The given Formula (2.7) not only reflects the pricing principles of a monopolist entity, but also explains the dependence of monopoly price on the elasticity of demand and the structure of cost. Considering the dependence of price levels on the given good's elasticity of demand, a given company's monopoly power may be determined as influence volatility, corresponding to the scale of the relevant product's market price fluctuations. Notably, the same formula applies with changes to other market types, ranging from full competition to duopoly, with no quantitative changes as each enterprise has some degree of individual monopoly power. For the sake of experimentation, let it be assumed that the demand for a certain product is absolutely elastic, therefore, the corresponding coefficient of elasticity equals infinity. Consequentially, the economically justified price in this case may be calculated as follow in Formula (2.8):

$$P = \frac{MC}{1 + \frac{1}{Ed}}; Ed = \infty => P = \frac{MC}{1 + \frac{1}{\infty}} = \frac{MC}{1 + 0} = MC \quad (2.8)$$

where:

P – sales price, currency units;

MC – marginal costs, currency units;

Ed – price elasticity of demand coefficient, scalar units.

It can be concluded from the Formula 2.8 that the consistent sales price in the analysed situation depends only on the marginal costs, thus the company can affect its profit margins only by changing the sales amount fluctuations, while the profit level is equal to that of marginal cost.

Therefore, with the main condition of perfect competition market emergence is fulfilled, it may be deducted that markets with absolute elasticity of demand are virtually impossible to monopolize, as changes in prices at the initial stage of competition lead to a sharp and negative consumer reaction, which, in the context of identical goods with a large – scale variety of substitutes and considerable number of competitors, inevitably leads to loss of the individual market share and, consequentially, to liquidity crisis, resulting in bankruptcy.

Therefore, the market prices in the case of perfect competition are naturally fixed at an industry – average level, independent from each individual company's preferred level of income and liability coverage needs, while being directly correlated to technological solutions common in the industry in terms of determining production costs and their marginal values regarding potential production output amounts, suggesting that perfect competition is the only if theoretical case of non – existent monopoly power both on individual enterprise and the entire industry level.

Elaborating on the case of experimentation, let it be assumed that a given products' elasticity of demand is equally flexible, so the elasticity coefficient equals one. As indicated by calculations, if the coefficient of demand elasticity reflects an even deviation trend, the market price is equal to one – half of the marginal costs. Mathematical justification for the statement made is provided in Formula (2.9), available below:

$$P = \frac{MC}{1 + \frac{1}{Ed}}; Ed = 1 => P = \frac{MC}{1 + \frac{1}{1}} = \frac{MC}{2} = 0.5MC \quad (2.9)$$

where:

P – sales price, currency units;

MC – marginal costs, currency units;

Ed – price elasticity of demand coefficient, scalar units.

As it may be seen from the Formula (2.9), the equilibrium market price of equally elastic goods is approximately twice lower than the corresponding operational marginal cost, as demand amount's response measure is equal to the percentage change in price, with the marginal cost being compensated and a steady level of operational compensation being ensured in the wider context of general market development trend consistency. Therefore, it may be concluded that the company's monopoly power in case of equally elastic demand depends only on the marginal cost at a given production output and generally tends to be lower than the average demand curve's tangent propensity. Thus, it would be rational for the monopolist to optimize the production process, as it will not only enable the reduction in average and marginal costs, but also allow obtaining a higher level of profits without significant increase in prices.

Continuing the experimental situation modelling, let it be assumed that that a given products' elasticity of demand is absolutely inelastic, so the elasticity coefficient equals zero. The calculation, conducted in accordance to the Formula (2.10), available below, have shown, the absolute inelasticity in the case of monopoly price equals infinity, meaning that the reaction to even significant changes in price levels, reflected as fluctuation in sales amounts, is either non – existent or infinitely insignificant.

$$P = \frac{MC}{1 + \frac{1}{Ed}}; Ed = 0 => P = \frac{MC}{1 + \frac{1}{0}} = \frac{MC}{\infty} = 0 \qquad (2.10)$$

where:

P – sales price, currency units;

MC – marginal costs, currency units;

Ed – price elasticity of demand coefficient, scalar units.

As it may be seen from the Formula (2.10), the monopoly price for absolutely inelastic goods can steadily grow, taking into account only the directly correlated microeconomic factors, such as production costs and demand elasticity. However, contextual economic limitation such as consumer level of income and momentous purchasing power will set a level of rational price discrimination, exceeding which leads to lesser incomes for the monopolist. The equation, reflected in the form of the Formula (2.10), shows that the establishment of monopoly prices is closely related to the classification of goods in terms of demand elasticity. The mentioned acknowledgement consequentially confirms the argument, stating that the

process of monopolisation undergoes more rapid progress in industries with low demand elasticity. Such development enable the possibility to achieve a higher level of profits and entrench the stability of monopolisation process development in several constituent conduction stages, using fewer resources to ensure for the mentioned purpose at the expense of relative social efficiency.

Therefore, in may be concluded that a full economic monopoly may become a relative price setter only in cases of abnormal market conditions as in the case of absolute inelasticity of demand, which is a rigid and real occurrence in the modern interrelated globalized economy with various substitute products available from unrelated suppliers in most geographical parts of the developed world.

There is little counter evidence to the general fact of monopoly pricing techniques seeking to ensure a maximum premium for each market segment with the economically fully rational purpose of enhancing potential profit, but the calculations performed above significantly yet scientifically undermine the general notion of full monopolies having "unlimited price setting abilities" as a trend of modern time "conventional wisdom".

2.2. The conduct and effects of the contemporary monopolisation process

Quantitative consistency patterns of monopoly price formation

The information, made available in the Section 2.1. of the current Doctoral Thesis, enables the following conclusion: the monopoly price shall convert to higher values when a given products' the elasticity of demand is proportionately lower that scale of consumer reaction to price changes, in other word the lower the elasticity of demand, the higher monopoly price may be imposed, thus confirming the direct correlation between individual monopoly power and general demand reaction flexibility. Simultaneously, the mentioned interrelationship may be quantitatively expressed and mathematically confirmed via the incorporation of the incorporation of the Lerner index into the general monopoly price formation describing Formula (2.11):

$$\mathrm{Pm} = \frac{\mathrm{MC}}{1+\frac{1}{\mathrm{Ed}}} = \frac{MC}{1-L} => 1+\frac{1}{\mathrm{Ed}} = 1-L => Ed = -L^{-1}; L = -E^{-1} \quad (2.11)$$

where:

L – Lerner Index, scalar units;

P_m – monopoly price, currency units;

MC – marginal costs, currency units;

E_d – price elasticity of demand coefficient, scalar units.

It is evident from the Formula (2.11) that the elasticity of demand and the Lerner index of monopoly power are inversely proportional to each other, furthermore, the evident negativity signs indicate that each of these indicators shows a mutually opposing trend in terms of their value increase and decrease. Therefore, a company's monopoly power proportionately increases as the elasticity of demand for its products decreases and vice versa. Consequentially, it may be concluded that it is in direct and foremost interest of any full monopoly, as well as any enterprise in even the most competitive environment for that matter, to reduce the elasticity of demand in order to enable a rise in prices, saving the cost of production volume increase, as in such cases additional revenues are generated solely by price level enhancement rather that positive or negative changes in the supply amount, the mentioned development being without prejudice to general economic logic and business conduction rationalism in particularly rare exceptional cases of Veblen (Leibenstein, 1950, 183–207) and Giffen (Jensen, Miller, 2008, 1553-1577) goods.

As is had been mentioned previously, a company's individual monopoly power serves as an indicator of its ability to influence the equilibrium market price. Full economic monopolies may raise the price of a product only to the extent of either financial unaffordability, regarding consumer solvency limits, or to the point of monopolistic price equilibrium, dictated, as in any actual market, by the correlation between the sales amount and the corresponding price in terms of rational economic behaviour, aimed on profit maximization.

Consequentially, it may be argued that an absolute monopoly has a higher development probability in markets with a lower elasticity of demand, meaning that goods, irreplaceable in terms of physical accessibility, supply amount and vitality, have a natural, economically justified level of demand elasticity, defined as non – elastic. For instance, if a certain product is imported in a certain geographical reason by a sole supplier due to political, technological or cost – related factors, the case of physical uniqueness is present, even if another, more feasible region is experiencing an inflow of the same product, originating from several suppliers. Or, in another case, if the costs of transportation are excessive and no substitute goods are available, such physical uniqueness is rooting from economic return rationality, thus may be labelled as feasibility issue related. Therefore, it may be concluded that low elasticity of demand may have its justification in various field of economic

reasoning, ranging from output amount shortage (the case of supply deficit) to business conduction low profitability based unattractiveness (feasibility deficit).

Therefore, every business entity occupying a position of full monopoly nevertheless has to take into account the potential response and reactions of the consumers', while the related changes in elasticity of demand is dependent on price fluctuations to the same extent as the latter are dependent on commodity's amount of sales. In order to justify the previously stated acknowledgement, one must first consider the quantitative essence of the elasticity of demand as a quantitative indicator (Sloman, 2006, 47-50):

$$Ed = \frac{\Delta Q}{\Delta P} \cdot \frac{P_0}{Q_0} \tag{2.12}$$

where:

E_d– elasticity of demand, scalar units;

ΔQ – changes in the amount of sales, scalar units;

ΔP – changes in price, currency units;

Q_0 – amount of sales in the base reference period, scalar units;

P_0 – price in the base reference period, currency units.

For experimentation purposes, let it be assumed that the price at a given amount of sales, consists of two production volumes, Q_0 and Q_1, with Q_0 being the primary output and Q_1- the output of the following analytical period, adopted after the change in price from the base of P_0 to the new level of P_2. Therefore, the above – provided Formula (2.12), transforms in the manner, described in the Formula (2.13), available below:

$$Ed = \frac{Q_1 - Q_0}{\Delta P} \cdot \frac{P_0}{Q_0} \tag{2.13}$$

where:

E_d– elasticity of demand, scalar units;

Q_0 – amount of sales in the base reference period, scalar units;

Q_1 – amount of sales in $t+1$ period, scalar units;

P_0 – price in the base reference period, currency units.

ΔP – changes in price, currency units;

As it may be seen from the Formulas (2.13), if Q_1 acquires a higher value than Q_0, the elasticity of demand will be higher, meaning that the reaction to the changes in the level of prices will be have a higher ratio, meaning that the individual monopoly power of the supplier shall decrease. On the contrary, if Q_1 acquires a lower value that Q_0, the elasticity of demand

will decrease, thus, while taking into account the result of the analysis conducted in the Section 2.1. and Section 2.2. of the corresponding scalar value of the Lerner index will be higher in the latter case, reflecting increase in individual monopoly power.

Consequentially, an important illation may be made – if the increase in prices is a constant development, by the reduction in the production and corresponding sales volumes, the monopolist may change the level of demand elasticity. While usually meaning a rise in demand elasticity due to the gradual exclusion of less – feasible consumers, the mentioned leverage may also be implied with the goal of supply amount reduction and additional monopolistic profit gaining. In order to fully understand the implementing specifics of the mentioned price determination instrument set and monopoly profit accumulation principles, it would be most beneficial to conduct an analytical study on monopoly price formation mechanisms, their functional causality and application strategies.

The negative socially – economic consequences of full monopoly as a market type

The phenomenon of full monopoly is commonly perceived as a negative, socially noxious state of affairs, consequentially being addressed, to a certain extent, with a notable degree of analytical prejudice, painting the scene in a grim stance, defining the addressed complex issue in a highly non – economic and subjective manner, sometimes referring to the mentioned market type as "evil". While the obviously flawed wording of the mentioned expression, it does, in essence, reflect the, from economic efficiency's point of view, negative effect, caused by the fully rational and, in an entrepreneurial sense, undoubtedly justified tendency of monopolistic structures to maximize their profits, which, due to the causality specifics of full economic monopoly, is achieved at the expense of distorting competitive market equilibrium and imposing additional costs on the final consumer.

With the introduction of R. Coase's social cost concept (Coase, 1960, 1-44), followed by an elaboration on the issue of externalities (Buchanan, Stubblebine, 1962, 371-384) the phenomenon of full monopoly had been redefined as a market failure, having objective emergence causes and development reasons, rather than subjective "unethical" course of actions. (Coase, 1972, 143-149) Thus, an opportunity of objectified and scientifically neutral analysis of the negative effects of full economic monopoly had occurred.

As it had been previously argued, a full monopoly has the opportunity of making additional profit by reducing the production – supply volumes (cost cutting) and simultaneously increasing sales prices. Therefore, there is no economic reason form a

monopolistic structure to fully meet the market demand and supply an equilibrium amount of monopolized goods. Consequentially, higher prices may a commonly do lead to the exclusion of a number of insolvent consumers from the satisfied demand – formatting cluster, leading to both the distortion of a resource – efficient market equilibrium and the creation of a new, monopolistic equilibrium, which implies discriminatory pricing policies, hence, leading to the general notion of full monopolies being "antisocial".

It must be noted that the former statement, while not reflecting the economic rationality of monopoly business management practices, is not far from the actual state of affairs as the monopolistic equilibrium not only undermines relatively efficient need satisfaction – it intentionally implements artificial deficit creation methods in order to trigger a decrease in price elasticity in order to enable additional profit generation, while lessening the risk of uncontrolled and unexpected drop in demand. In other word, a full monopoly aims to control artificial deficit, while reducing the possibility of spontaneous rise in elasticity of demand. The previously mentioned monopolistic ability to produce less, while achieving higher levels of profit is determined, firstly, by the excessive unilateral concentration of market power within the impact field of a sole supplier, secondly, by the specific condition in which a certain product has no available, in financial and/or physical terms, substitutes, and thirdly, a reduction in the elasticity of demand, rising prices and a decrease in the general number of buyers, while the share of above – average solvent consumers in constantly growing. The above mentioned, from the public point of view, market failure may be graphically interpreted and visualised in the manner, reflected in the Figure 2.1:

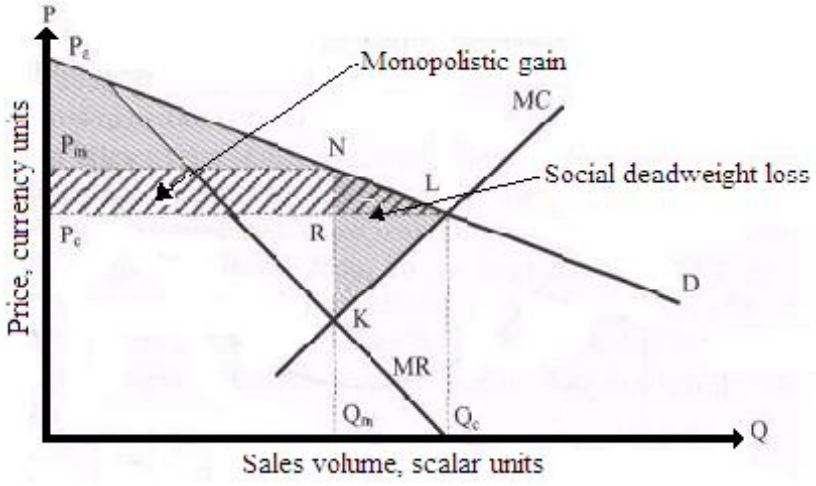


Figure 2.1. Social deadweight loss under the condition of full economic monopoly

(Source: Created by the Author; based on Motta, 2004, 42)

As it may be seen from the Figure 2.1., the monopoly profit level tends to increase if the production volume decreases, while price retain consistent growth. Production has decreased from Q_c to Q_m in terms of quantitative output, while the price has risen from Pc to Pm level, which consequentially leads to a reduction in consumer surplus from P_aLP_c triangular area to the P_aNP_c sector, contributing to a decline in consumption in absolute units and price increase in financial terms, leading to proportionate expansion of the monopolistic gain, as reflected by the P_mNLP_c area. Simultaneously, a decline in supply amount from Q_c to Q_m amount stimulates a decrease in the producer surplus together with the above described consumer drop, leading to a cumulative absolute social loss, graphically interpreted as the NLK area.

Therefore, it may be concluded that the level of demand satisfaction decreases reversely proportionately to the extent of monopolistic gain expansion, due to the falling consumer solvency in the context of rising prices, consequentially depriving a certain portion of the population from purchasing certain goods via non – competitive price discrimination, thus constituting social deadweight loss of unutilized resources and unsatisfied need through the tactic of creating an artificial deficit in a monopolised market. However, the respective decision may lead to an opposite effect. If the increase in price is excessively high and the proportionate sales volumes will decrease disproportionality, the monopolistic equilibrium will be disturbed and notwithstanding the optimal output shall consequently lead to lower levels of profit.

A monopoly gains less profit if it chooses to fully satisfy the current demand by supplying the amount of goods, corresponding to the case of competitive market sustainable equilibrium, due to a higher level of input utilization, processing and transactional costs, therefore, the economically most rational option is the undersupplying of the market. Furthermore, if a monopolistic entity does not function efficiently in terms of available resource internal distribution within its organisational structure, the only available option of compensating for the mentioned flaws is the shifting the burden of inefficiency to the final consumer, whereas a strategy of sales amount maximisation is completely inapplicable to the situation of full monopoly as the marginal costs of a sole supplier have little to no chance to be fully covered by a relevant increase in revenues, while the imposture of an artificial deficit is a much less riskier and a far more profitable business solution. A notable exception would be a public monopoly, providing services of general economic interest, deliberately keeping prices at the lowest possible level in order to cover the minimum expenses required to support the consistent maintenance of operations and enable the maximum number of eligible target

groups to obtain the socially sensitive and critically needed benefits. However, even in the case of monopolist having extensive governmental support procurement capabilities through political leverage, certain supplemental usage charges will still apply in order to cover at least part of costs of the social services provided. It is important to differentiate between grant and subsidy support schemes, implemented by public bodies with the goal of achieving certain level of economic stimulus or acquiring political benefits and public monopolies, which, while providing social services, still rely heavily of their internal capacities to optimize costs and acquire additional revenues – a service, regardless of its social or purely for – profit nature, remains a service in economic interpretation of the relevant definition, and still required direct user co – financing, while a governmental provision, on the other hand, may be implemented completely free of charge.

The above given reasoning provided arguments for a different perspective of the researched phenomenon as economic justification of monopolistic structure "anti – social" behaviour becomes evident. It would make absolutely no economic sense for a full economic monopoly to not take advantage of its market position as the very reason for every commercial operation is revenue generation and profit extraction. Furthermore, by choosing to ignore the economic rationale behind the fundamental principles of fully monopolistic market functioning, an enterprise will not only lose its lucrative position, but undoubtedly undergo critical operational failures and, most likely, shall encounter solvency problems, originating from management inefficiency's stimulated liquidity crisis. Therefore, it may be argued that a full economic monopoly is, in a way, forced to cause social discontent as it is bound by strict economic logic and business conduction rationalism to engage in artificial deficit creation and rising of prices unless a public monopoly is used as a public provision distribution tool, which implies the sacrifice economic interests for the benefit of a wider social cluster.

The conditions of monopoly profit maximization will always be opposing the full satisfaction of demand due, in part, to the rather cognitive nature of solvent demand's elasticity. By deducing the supply amount, the monopolist intentionally excludes a certain consumer clusters form the physical possibility of consumption, as even a perfectly solvent buyer may not gain access to those goods that are simply not being traded. Such artificial supply shortage psychologically prepares the mentioned solvent buyer to pay more for the desired product in the future, precisely because of its current absence, thus effectively reducing the elasticity of demand in what may be named as the apex display of individual monopoly power.

It should be remembered that breaking the laws of the market is not possible because without revere sequences as in a stable economic system any quantitative variable factor affects and is affected by other factors to a certain quantitatively measurable extent, hence the concept of "social entrepreneurship" (European Commission, 2011) is not applicable to the case of full economic monopoly for it undermines the fundamental functioning principles of such if relatively incipient market type. Furthermore, appealing to the "corporate conscience" is childish at least and, what is more important, mathematically unfounded.

The phenomenon of full monopoly as a type of market functional conjuncture structuring is quite practical and rationally justified form a purely economic perspective, while simultaneously it has always been and most likely will remain contradictory to the welfare interests of modern societies, consequentially being seen as an unfavourable state of affairs from the political point of view in terms of ensuing sustainable development, maintenance of equal competition opportunities and prosperity preservation goals.

In other words, at the microeconomic level, a full monopoly is nothing more than recurring, albeit peculiar, state of market process conditions, being individually desirable for any economising entity. On the other hand, on the macroeconomic level, it may serve public provision distribution tool or a dirigisme mechanism of growth stimulation it times of structural economic crisis, as well as develop into a socially harmful, destabilizing and destructive phenomena, which, by contrast to the previous statement, hampers economic efficiency, simultaneously creating additional social and political, if left unaddressed by public regulatory bodies.

While keeping in mind all of the negative effects a monopolistic market brings to bare, it would be most beneficial to analyse the economic justification of monopolisation process' conduction in order to evaluate the objective rational for its sources of emergence, internal structuring and common scenarios of development with the goal of detecting possible positive effects and their applicable utilization in the context of stimulating sustainable economic growth.

The order of conduct and ad hoc positive economic effects of monopolisation as a market process

While analysing the ground-breaking significance of fundamental works by highly esteemed scholars such as Joan Robinson (Robinson, 1978, 3-271) and Edward Chamberlin (Chamberlin 1947, 11-115), a certain understanding of markets of imperfect competition

emerges. It may be expressed in a following statement: each economic process is driven by more of less the hidden logic even in those cases, when the market reactions seem full of irrationalism and contradiction. Therefore, each truly market process is bound by influence factor interactional interrelation, which are subject to certain patterns, shaped by both internal and external causality within a multilevel functional framework. In the case of monopolisation, two basic full economic monopoly establishing scenarios may be observed – positive and negative. As an important side note, it must be mentioned that public monopolies, integrated into a certain welfare system and monopolies, aimed at "national strategic interest" securing are administratively installed and therefore may have various degree of self – reliance and functional efficiency. Thus, the Subsection 2.2. of the current Doctoral Thesis focuses of purely market reality – driven process of monopolisation and its economic order of conduct.

In the former case, a certain type of goods or services is deemed obsolete, its representation in the market begins to weaken and the amount of sales steadily decline. Regardless of subjective (preferential) or objective (functional obsolescence) reasons, stimulating the mentioned decline in demand amount, the only potent way of resolving such crisis with differentiation tactics failing is the introduction of a derivative product, significantly improving its additional functionality while essentially preserving the relevant core value or presenting a conceptually new way of the original need satisfaction, possible only through research and innovation. Thus, the first supplier to meet the transformed demand, effectively creates a new market or niche and becomes a de facto monopolist, regarding its innovative product.

In the latter case, the market is subjected to negative macroeconomic influences, it is unable to meet the needs of consumers, leading to supplier withdrawal from the market due to sharp reduction or absence of profit. Consequentially, a gap emerges, which may only be fills by those companies that managed to remain in the market implementing cost – saving and productivity – rising preserving a relatively pre – crisis position. As the crisis passes and the drastic effect of the recession begins to vanish, the remaining suppliers, who had survived the shock, either consolidate their efforts to lock the market from new entrants and potential outside competition, or one of the still functional enterprises acquire or merge with its remaining competitions, in both cases creating a full economic monopoly, intended to compensate the previously sustained loses by exploiting its newly occupant dominant market position.

Therefore, in the case when at least one company with sufficient financial resources available for its further development had been able to remain in the market, it has a possibility to resume production or services provision, ensured by either taking over both the material and the financial resources of its weaker competitors or simply expand its operations over the unsatisfied portion of the growth – restoring demand, which in both of the former cases leads to a rapid growth in individual monopoly power and, consequentially, to monopolizing of the market, using mass production and extensive distribution techniques.

In the period of post – crisis expansion into the void of recovering unsatisfied demand, an excessively high premium on goods is rarely imposed as the risks of action in the context of triggering a competition revival are not met by a correspondingly adequate potential level of profit. The company may generate revenues from the rapid increase sales as it expands into the hollowness of the recovering market, consistently concentrating on establishing a dominant position and closing the market from external infiltration, followed by reinventing itself as a full economic monopoly and beginning the exploitation of such lucrative position only after sustainable stability had been achieved.

Following the empirical economic logic of the period, when a potential monopolist is trying to take over a possibly largest market share, while simultaneously establishing a system of product distribution, which exclude external competitors from entering the market, the public interest is being used for the purpose of strengthening the mentioned emerging system, namely production quantities are being sold at "friendly prices" or supplying products that formerly could have been less available, thus satisfying consumer needs at higher-than-pre-crisis level. Therefore, the "middle" stage of the process of monopolisation, which is notably characterised by sharp and extensive competition, may be described as more favourable to the consumers as their needs are, paradoxically due to the strength of the commencing monopolisation process, satisfy at a lower cost, which, form the political and public point of view, may be defined as undoubtedly being socially beneficial. Thus, the negative scenario of the monopolisation process conduction implies a significant economic shock as the cause and the starting point, followed by deep recession and individual enterprise wide – scale market expansion on behalf of the recovering demand, which starts with low, sometimes dumping pricing policies and ends with establishing of a full economic monopoly with general economic justification for such state of affairs embedded in favourable short – term prices as part of a deliberant monopolisation strategy.

On the contrary, in the case of positive scenario of monopolisation process conduction, it times of consistent and more of less rapid growth, large companies that are efficiently

managed, allocates part of the profits to research and innovation activities, creating attractive conditions for the development of new technological and operational solutions. Such actions are dictated by the need to prepare the economising entity for the inevitable decline phase of the market development cycle, ensuring that alternative products are available at affordable prices in times of solvency crisis.

Product differentiation, according to by J. Robinson, is one of the most efficient and, from business conduction poi tov view, low – risk ways attract additional clientele in markets of monopolistic competition and to avoid the so-called price war in an oligopoly market. (Robinson, 1934, 671-674) However, the market commercialization of a fundamentally new product for which no complementary replacements are available, takes the relevant supplier to a higher-level activity in competitive security until the other supply-side market participants will be able to offer a similar product, that is, to reach the same level or, to be more precise, enter the same niche, thus eliminating its effective monopoly, backed by the outcomes scientific research investments. In order to maintain its leading position and uphold the state of "unchallenged monopoly" position, profits are directed to the improvement of the innovations created, thus enhancing the conditions for further applicable research conduction and successful development of more efficient need satisfaction techniques.

Thus, it can be seen that the process of monopolisation may stimulate the creation of fundamentally new products by creating new types of businesses, innovation – related services and the implementation of reality, as well as to create the innovations that will guide the consumer satisfaction to new, higher level. Whether this option will be executed or the company will resolve to standard price – based competition practices depends solely on a given enterprises corporate policies, budget limitations and strategic vision of operational functioning. The author argues that the modern process of monopolisation is subjected to a certain dualism, due to the complex economic nature of the studied market phenomenon. Each type of economic activities has a distinguishing specificity that, while creating a unique competitive environment, is closely related to the general macroeconomic background, which shapes the context of business conduction trends. Competitive microeconomic environment requires each individual company to implement management styles, operation planning schemes, a settlement remuneration of inventory and development are coherently integrated into a unified framework of an efficient organization structure that sooner or later creates a fundamentally variation pattern of economic dynamics. Simultaneously, the impact of the constantly changing external business environment is forcing companies to prepare for the inevitable advent of the crisis stage of the macroeconomic cycle, which has a tremendous

significance in terms of competition strategy choice. With the goal of a fully scientifically and analytically transparent reflection of the monopolisation process' conduction, stages, positive and negative scenario progression causes and the relevant influence factors significance, a causal algorithm, introduced in the Figure 2.2., was developed by the author of the current Doctoral Thesis.

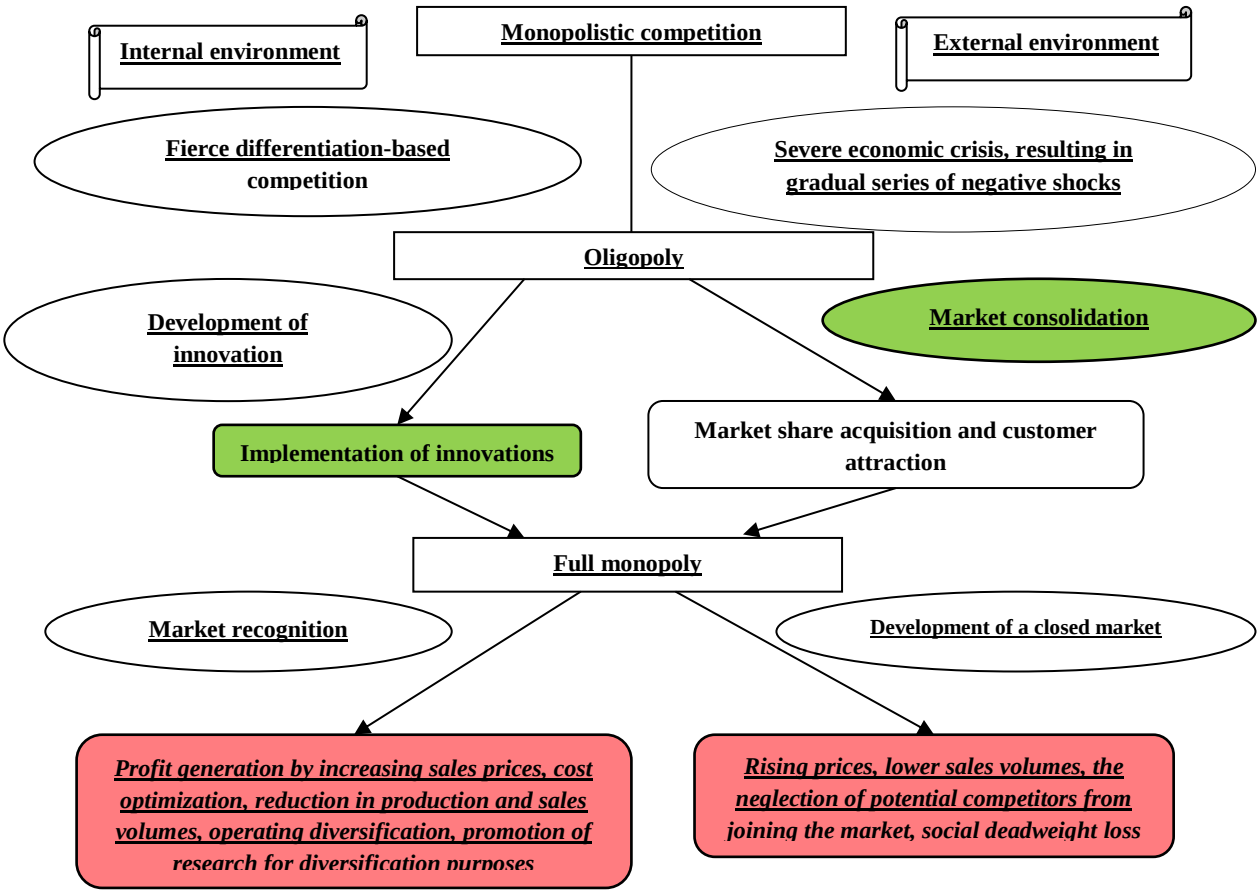


Figure 2.2. Order of conduct and effects of the process of monopolisation

(Source: developed by the author)

The stages of the processes of monopolisation, reflected in the analytical algorithm, available in Figure 2.2., that deliver positive socially – economic effects are coloured green, while the respective negative effects such as social deadweight loss, rising prices and artificially created deficits, are coloured red.

The algorithm may serve as a generalized model, reflecting the consequentially stages of the monopolisation process conduction, while emphasising not only the gradual nature of the studied phenomenon, but highlighting monopolisation as changes in a company's market position in direct correlation with its individual market share and an incremental increase in the corresponding concentration of individual monopoly power until the critical level,

required to alter the structure of the industry in order to fundamentally reformat the conjuncture of the business environment to an extent of creating a functionally new type of market with a lower level of internal competition.

In order to fully understand and critically evaluate the scientifically applicability of the developed algorithm, it would be beneficial to examine the individual specifics of both internal and external factor driven development of the monopolisation process together with the correspondingly occurring common social loses and individual economic benefits.

From the perspective of internal market environment, the process of monopolisation of modern under modern economic conditions includes the following stages:

1) Competition policies and management strategies of the a given company;
2) Innovative research and design testing as part of the business development concept;
3) New product development and introduction into the market;
4) Market acceptance of the introduced innovations;
5) Acquisition of a fully monopolistic positions and exploitation of the related benefits.

An elaboration on the above stated composing elements of the process of monopolisation is in order with the goal of achieving a full analytical scope of the studies problematic.

Competition policies and management strategies of the a given company – includes the production of goods and/or service positioning in the market in order to attract additional customers and increase revenues on behalf of the growth of sales. Provides justification for choosing and establishing of pricing policies, discount systems, promotion plan and advertising technique as well as stimulated strategic business planning or, in exceptional cases, the lack of a long – term vision of the future development of the respective company.

Innovative research and design testing as part of the business development concept – scientific research and acquired result applicable testing system, established as the internal platform for development of innovations by providing practical improvements in design, production composition or organizational structuring, while simultaneously increasing operational productivity of an economizing market entity with the general goal of obtaining a technological competitive advantage, regarding direct and potential.

New product development and introduction into the market – a fundamentally new product or service preparation for consumption and its offering to the public through the distribution channels available to the innovator. This step not only stimulates the forming of a new conceptual level of consumption, but also provides an opportunity to enhance the efficiency of meet both the individual and public needs, while using available resources and creating new markets for innovative products that allows community members to re –

evaluate their specific demands, simultaneously enabling the innovative supplier to generate additional, higher incomes and establish itself as the monopolist of the newly created niche.

Market acceptance of the introduced innovations – the introduced innovations gain widespread market recognition and are available solely in the newly emerged market/niche, bringing a previously unavailable benefit to society in terms of need satisfaction and demand – driven economic growth as well as increased profits for the innovative supplier.

Acquisition of a fully monopolistic positions and exploitation of the related benefits – the company with the largest market share establishes economic and administrative obstacles to the accession of new competitors into the industry, increasing its individual monopoly and continuing to compete internally until a full monopoly position is effectively achieved, hence the exploitation of the established opportunities commences.

The algorithm, reflected in Figure 2.2., provides the necessary scientifically – empirical justification to perceive the process of monopolisation as economically rational, natural market process which, in several phases of its development brings certain social benefits, based on the proceeding of the addressed phenomena, while simultaneously, under specific external and/or internal market conditions, may become the only sustainable option of crisis overcoming, providing no administrative, thus artificial in its essence, public intervention into the natural conduct of liberal market processes is favourable, affordable and available. In other words, if a market, being a truly free trade and liberal economic interaction system, becomes monopolized, the process of monopolisation may not be scientifically defined as "illogical" or "irrational" as objective economic reasons had driven the development of the relevant process, despite it being socially unfavourable and required non – economic administrative intervention in order to change the undesirable natural outcomes to predictable welcomed outputs, for, as stated by P. Samuleson: "Every good cause is worth some inefficiency". (The Independent, 2009)

It would be analytically beneficial to examine the inverse process of de – monopolisation, namely the loss of the monopolistic position in the context of the developed algorithm, reflected by Figure 2.2. and the respectively stated hypothesis validation. The author proposes that the process of regressive monopolisation may be described as undergoing the below listed stages:

1) Stagnation of monopolist's internal functional structures and management systems;
2) External infiltration barriers attenuation due to technological obsolescence of monopolistic structures or major changes in the macroeconomic environment;
3) First newly established competitors attempt to enter the market;

4) The former monopolist fails to adequately respond to the occurring challenges;
5) Newly established competitors enter the market, breaching monopolistic stalemate and begin to acquire market recognition;
6) Newly established competitors' gradual acquisition of customer loyalty;
7) The creation of an oligopolistic market type;
8) Increase in competition, followed by further market share redistribution;
9) Market infiltration barriers completely collapse and subsequent new entrants join the industry;
10) The final redistribution of individual monopoly power between new entrants and formation of a monopolistic competition market.

As it may be concluded from the above-mentioned list of regressive monopolisation stages, all of the latter an inversely corresponding to the relevant developments, which occur during the conduction of a direct process of monopolisation. It terms of graphical interpretation, the previously described stages of regressive monopolisation process may be reflected in a manner similar to the author's developed below provided Figure 2.3.:

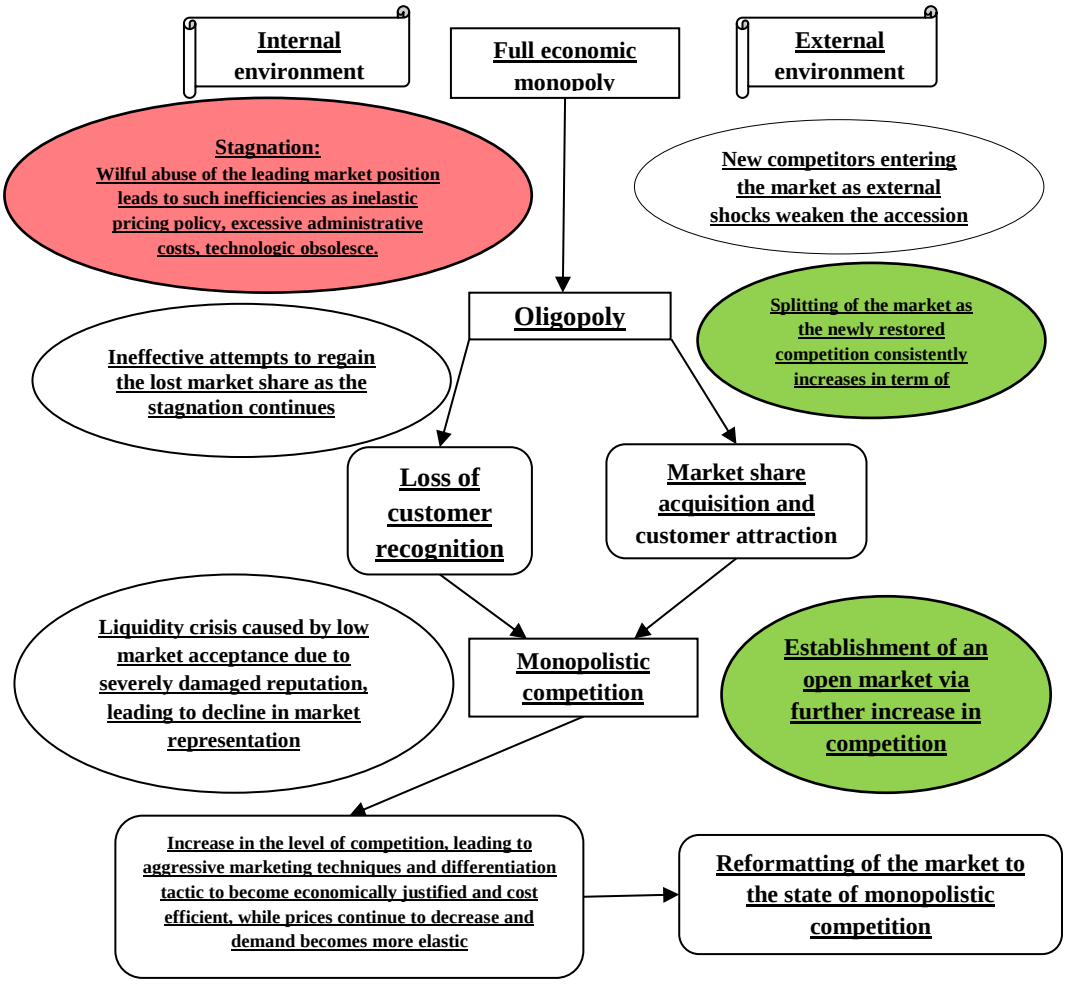


Figure 2.3. Order of conduct and effects of the process of regressive monopolisation

(Source: developed by the author)

As seen from the Figure 2.3., the internal environment of "Stagnation" stage is reversibly proportional to the "Closed market development" stage of figure 2.2., representing of the final resultant phases the process of monopolisation and justifying current events caused by social negations, while the "Splitting of the market" and "Establishing of an open market" phases reflect the loss of the individual monopoly power, consequentially proving that even a full economic monopoly is subject to managerial flaws and does not poses an immunity from objective market environment changes as well as repercussions for its actions.

Considering the analysis, conducted in the Subsection 2.2. of the current Doctoral Thesis, the following notion had been proven as valid and economically justified:

The process of monopolisation under modern market conditions may be defined as an economic phenomenon that can be triggered both by innovations via the creation of a fundamentally new market or the turmoil of a corporate governance crisis era, based on a specific market events, justified by delivering notable benefits to the society at certain stages of its development, while, regardless of the causes and development scenarios, inflicting severe social loses and costs at the final stage of its conduct, a full economic monopoly, due to entrepreneurial profit seeking logic with full correspondence to the rational market actor principle.

2.3. Evaluation of mutual compatibility and performance efficiency assessment of the commonly used methods of monopolisation level determination

Research rationale for selection of the industry, used for analytical purposes

The Latvian mobile telecommunication market had undergone substantial changes in the period from 2003 to 2010, regarding supply and demand structure as well as the entire market endogen conjuncture, leading to reconfiguration of both pricing and competition strategies. One of the most significant recompositions, affecting the entire industry, was incensement in number of involved companies, while the preservation of market typological individualities lead to a situation of normalized and objective monopolisation process analysis possibility without the need for applying research leveraging simplifications due to the specified markets natural seclusion from import flows and other external infraction, based on the current commercial service spheres functioning specifics. The clarity of the market system, its secured oligopoly status and, most importantly, naturally developed situation of

additional supplier successful infiltration into a duopoly industry allows relevant and precise conduction of experimental modelling, which is the main statement of reason for the current industry choice as the quantified analytical basis for development of the current researches goal model.

After the accession to the European Union on first of May 2004, two completely new competitors, LMT and Tele2, emerged and swiftly infiltrated the market, pushing Lattelecom out of the rapidly developing industry, forcing it to regain its former position as the monopoly, providing stationary phone services, meaning, that the mentioned company was entitled to a 100% market share of a shrinking industry, thus preventing Lattelecom from further development due to critical shortage of operational financial resources. Having eliminated the former market giant's compatibility, LMT and Tele2 had engaged in mutual competition without, however, the use of price influencing tool involvement in order to avoid the so called "price war", understanding that the consequences of such action could lead to the same result as it had been reached in the case of Lattelecom. The two suppliers had soon formed a duopoly and simultaneously conducted a 7% price incensement, however the national competition authority had not found evidence, suggesting an existence of a cartel – type horizontal agreement. (Competition Council of the Republic of Latvia, 2015a)

From 2008, the Latvian mobile telecommunication industry can be seen as a classic oligopoly with three suppliers, two of which were going toe – to – toe in the scene of market shares and profit level, while the third one, the newly arrived Bite, had a small market share, but it's cost cutting strategy a suitable rate of investment profitability.

The concept of economic cycling indicates two possible situation development scenarios: (1) The newly infiltrated equity, due to the lack of individualized monopoly market power, will try to use non - pricing costumer attraction strategies, such as differentiation and added service campaigns, but, due to market support shortage, will prevail in its current position with a reasonable possibility of being overbought by one of the market leading companies. (2) The newly infiltrated equity implements a highly profitable cost – cutting development strategy in order to accumulate financial capital, then, after had secured its financial position and having developed an internal financial security fund, starts an aggressive damping campaign, leading to the aforementioned "price war" with the goal to significantly and swiftly increase its market share and, in the further perspective, eliminate at least one of the two remaining competitors. The changes in conjuncture of the market, triggered by the aforementioned business strategy, affected the dynamics of certain operational business indicators, hence may be seen as an interesting case of "two-sided

business models" (Peitz, Valletti, 2015). Therefore, it may be concluded that the Latvian mobile telecommunication market correspondingly fulfils the logical criteria, which may be set in order to choose the analytically most suitable industry for the purpose of conducting experimental implementation of the commonly used methods of market monopolisation level assessment with the main empirical goal of evaluating the general efficiency, mutual compatibility and quantitative sufficiency of the mentioned methodologies.

Due to the volume limitation of publishable space, the elaboration on the defined analytical framework as well as its conduct had been made available in Anexes 54 – 56, while the current Section provides the findings and results of the corresponding assessment.

Compilation and analysis of the most commonly used method of market monopolisation degree assessment experimental implementation results

From the previously conducted analysis of the commonly use methods of market monopolisation level assessment, the following conclusions may be made. Both elasticity of demand concept and the Lerner index are not suited for an industry – level evaluation of the current monopolisation process development magnitude as the mentioned methods are rooted on difficultly acquired input data due to its confidentiality and lack of objective historical retrospective, while providing biased and fragmented outcomes, which may simultaneously fall out of the analytical scope of the expected outputs. The mentioned methods, however, have a reasonably high potential of desecrate application for individual enterprise needs, most efficiently – in the fields of strategic planning and current market strength determination. It may be argued that due to the mentioned method's concentration mainly of a microeconomic level of analysis, their performance of the macroeconomic level is insufficient at best.

On the other hand, the Herfindahl – Hirschman Index was designed specifically for a more general evaluation, making it more than suitable for industry – level monopolisation process development analysis, however, it has proven to be an *ex post* analysis tool that reflect the current or past situation without future insight or any sort of prognosis made available, while addressing the issue of possible hidden monopolisation trends. The mentioned indicator had provided quantitative evaluation of the Latvian mobile telecommunication industry with a corresponding qualitative interpretation of a „high concentration" market, which is the obvious case for an oligopoly situation, yet it failed to deliver a more conclusive result on whether there might be a trend of further oligopoly structure strengthening with possible duopoly formation or weakening and potential opening of the market. Simultaneously, the

Herfindahl – Hirschman Index does not enable the assessment of possible cartel agreement of hidden monopoly, not elaborating on the possible effects of one of the oligopoly conjunctures' participants is in fact being an undisputed leader with a dominant market share. While such data may partly, though no fully, be acquired otherwise, the Herfindahl – Hirschman Index itself reflects the general state of competition within a certain period in the context of nominal monopoly power concentration and nothing more.

All of the three previously analysed methods have a low level of complementarity and mutual integrity potential, while their implementation is time consuming and the delivered result are incoherent and inconclusive with no prognosis capabilities with exceptionally low combination possibilities in context of multi – factor modelling and quantitatively – analytical tool application, therefore, it may be consequentially concluded that a modern theoretical literature and common market monitoring practices lack both quantitative cohesion and a unified quantitative approach, thus creating a need for an easy – to – use yet sophisticated in its internal structure assessment tool that delivers transparent, unbiased and quantifiable results, while providing the opportunity to be used for the need of both *ex post* and *ex ante* market monopolisation level analysis.

In must be noted that the consulted experts in the relevant field had unanimously agreed that unilateral application of the previously analysed indices brings no added values in analysis monopolistic trend, while more than seventy percent (72.73%) of the mentioned specialist had stated that the assessed indices have a low level of mutual compatibility, while 9.09% had referred to their synergetic capacities as very low, which in the context of the discovered consensus in the expert community, regarding the benefits of developing a unified methodological approach of monopolisation process evaluation (all of the consulted experts had expressed positive opinion about such research conduction) enables an understanding that the existing methods, while being individually robust and trustworthy, lack the necessary level of mutual compatibility, required by the need to address the existing modern analytical challenges (for details, see Annexes 57-59).

The development, layout, quantitative composition, quantitative functioning principles and experimental implementations' results of the developed methodology, shall be described within Chapter 3 of the current Doctoral Thesis.

3. THE PROPOSED METHODOLOGICAL SOLUTIONS AND THEIR EXPERIMENTAL JUSTIFICATION

3.1. The concept and functioning principles of the developed methodology

The empirical concept of the developed methodology

The singularised methods of monopolisation level assessment, described in the previous section of the current Doctoral Thesis, are arguably mutually incoherent and, therefore, do not enable a prevalence of fully consistent combination of simultaneously applicable evaluation tools. Therefore, it would be rational and most beneficial for both private market actors and public supervisory bodies to have access to a quickly disposable, scientifically justified and easily applicable quantitative model, allowing the conduction of an industry or market level analysis of monopolisation tendencies, providing both numerical benchmarks and their qualitative interpretations within a defined annual framework.

The developed methodology will combine existing methods of both specialized monopoly and empirically quantitative data assessment with author proposed innovation, consequentially designing a combined quantitatively – qualitative tool with cheap installation, easy implementation and demonstrative result outputs, suitable for use in both state sector for regulatory reasons and private equities with the goal of business planning or managerial tasks performance improvement. The use of already existing methods will allow to benefit from previously gained international experience, while implementation of newly developed correlations and additional influence factors shall provide a topical transformation of the necessary nature, inflicted by globalized merging market clustered composition units, thus, creating a synergetic effect, consequentially improving the existing approaches while preventing innovative tool of assessment from untested and questionable fluctuation, reasoning scientific heritage with rational updates on a scalar scale, reaching far more flexible, transparent and coherent methodological composition.

The main foundation of the developed complex model of monopolisation process evaluation is the step-by-step assessment of available data with the perspective acquired scalar result qualitative evaluation, allowing the conduction of a complex, multi-scale analysis, suitable for all economic field of activity, meaning that the current model shall be suitable for evaluations of any national economy industry.

The composition of the developed model shall be further described in the following sections in order to provide a complete insight and sufficient understanding of the internal quantitative correlations between the model's composing structural elements, as well as working out a steady implementation algorithm, while creating a qualitative interpretation methodology for assessing the quantitative scalar outputs of the conducted multi-factor analysis. In order to verify the research hypothesis of the current Doctoral Thesis, consequentially approving or declining its conceptual formulation, the developed model shall be implemented, tested and statistically leveraged in order to prevent any minor calculation imprecision on the bases of market data, reflecting the economic situation in the five following industries of the Latvian national economy: (I) Industries unaffected by import flows: (1) Mobile telecommunication market; (2) Banking sector; (3) Multi-purpose retail trade market; and (II) Industries affected by import flows: (4) Brewing industry (excluding microbreweries); (5) Pharmaceuticals production market.

The reason for selecting the above-mentioned industries is the need for situational environment testing of the developed model, which can be reached only by implementation testing within the framework of different and partially unrelated sectors of the economy, while defining the effect of import on market consolidation processes and, consequentially, more rapid monopolisation trend strengthening.

Additionally, in order to objectively verify the universality of the developed model, while conducting a test of its international and anti – situational applicability, the banking sectors of Estonia and Lithuania shall be used in a supplementing quantitative experiment that shall either confirm or denounce the versatility of the mentioned quantitative monopolisation process evaluation tool. The reason for the previously stated industry choice as the market data source is based on close convergence of the mentioned counties' national economies, which share a common political past and are closely interconnected in the context of regional historic retrospective, while simultaneously taking a quite different approach to ensuring consistent economic development and placing emphasis of severely distinct branches of their national economies. The three banking sectors of the mentioned Baltic states have a crucial role in ensuring business stimulus and economic growth as the accumulators and providers of the necessary financial flows, thus serving as the most transparent indicators of monopolisation tendencies, (possibly) present in the chosen economic systems, while proving to be a reliable source of objective information in terms of accessible due to strict auditing regulations regarding the financial statements of commercial banks, operating within the currently analysed European region.

Quantitative functioning principles of the developed methodology

Using the information, described in the previous Section of the current Doctoral Thesis, it may be stated that the modern data assessment methods and the existing monopolisation evaluation approaches share the tendency of employ the following quantitative market data clusters: individual market share dynamics, demand fluctuation trends, number of competing suppliers in the entire industry. These elements undergo an individualized analytical evaluation, corresponding to the chosen methodology and the results of the conducted analysis are re – interpreted separately, while composing two pillars or scales of decision making – a quantitative value range, based on the mentioned analysis' scalar outcomes and a related quantitative system of the acquired quantitative data interpretation and evaluation.

Taking into account the multi – scale research, conducted within the framework of the analytical methodology assessment section of the current Doctoral Thesis, it would be scientifically beneficial to update each of the studied methodologies by creating a more transparent quantitative basis for the relevant influence factor groups and integrating them into a single confound of a unified multi – functional analytical model.

The above-mentioned phenomenon can be defined as follows – regressive competition. Regressive competition is a market situation, achieved by strong internal competition pushing suppliers out from the market, while new competitors are unable to infiltrate the current market due to the lack of resources and high industry, based on constant fluctuation of the market conjuncture, exclaimed by the level of internal competition. Consequentially, the market becomes a closed system with no entrance possibilities, but the existing suppliers are continued to be pushed out by their more efficient rivals, thus, leading to natural market consolidation until the state of oligopoly and enabling the process of monopolisation to begin its conduction and development along with the evolution of the market.

Another way of regressive competition to come into place is a wide – scale economic crisis that in a natural way forces part of the suppliers to leave the market, while the remaining competitors engage each other in drastic measures of market share redistribution. Due to the crisis, there is no rational reason for new player to infiltrate an industry, suffering from a full – time recession, again leading to market consolidation and boosting the monopolisation trend to strengthen and evolve.

Assuming the above proved existence of regressive competition as a rational, fully economical phenomenon, stimulated by internal market processes and external negative effects of crisis times, it can be logically defines that any company's individual monopoly power is directly proportional to its sale amount gained market share. If the amount of sales grows, regardless of the consumers purchase motivation, the individual monopoly power of any legal equity increases, *et vice versa*. Therefore, the unified model of monopolisation process evaluation must include all factors that influence market share dynamics, individual company monopoly power fluctuation evaluation, competition and its effects analysis, current gross position of all suppliers of the industry in terms of sale amounts, internal and external possibilities for market conjuncture changes and, last but by no means least, the attractiveness of the specified market for external infiltration, while assessing the rational want and practical possibility of new supplier involvement into the market in terms of monopolisation process future development prognosis.

However, the determination of the level of market monopolisation may not be fully and undoubtedly correctly assessed by taking a strictly static approach that assesses only the current situation in a given industry, neglecting the existing possibilities for a wider scope of the empirical tendency analysis, which is an essential element of any high – quality academic research, aimed on delivering efficient applicable solutions for the addresses problematic.

Competition requires that each company, acquainted with the principles of long – term strategic management, to permanently adapt to the constantly evolving market environment in order to conduct its business operations efficiently, consequentially increasing the reaction time required to response to the competitors' actions. For several objective economic reasons, the evaluation of each of the existing segments of a national economy needs to be carried out, while viewing the mentioned market structures as changing environments with a high degree of conjuncture volatility, focusing not only on the current situation of relative stability, but addressing the environmental dynamics through the prism of tendency assessing quantitative analysis.

The above-mentioned dynamism enables a forecasting approach to the evaluation of market situations, based on comprehensive analysis of historical data. The developed unified model of monopolisation process evaluation must include the relevant quantitative information, expressed in scalar values, which reflects the further progression perspectives of monopolisation process in the studied economic sector, industry or niche.

The next element that cannot be branded as irrelevant within the empirical context of competitive environment studies may be defined as the individual operation and business

efficiency of supplier, actively involved in market transactions. The mentioned element may conceptually be described as interaction between both companies and consumers, commencing at all level of economic activities and effectively formatting the main progressive or regressive trend of market competition and business environment development.

The data, reflecting the relevant state of affairs shall be incorporated into the quantitative framework of developed model, thus including the necessary component of on – going convergence into the scope of the conducted evaluation, while simultaneously establishing a common reference mechanism into the developed system, enabling the model to include an indicator that reflects the state of market competition in the form of a dynamic process, which is subject to retrospective cycle occurrence and, therefore, may be quantitatively predicted, based of historic data analysis and consistent methods of analytical forecasting.

Objective evaluation of the dominant market forces and relevant affecting developments is impossible without an objective definition of the current stage or period of any market process in the wider context of the obtained result projection from an external perspective onto the macroeconomic influencing factors, affecting microeconomic environment. Thus, a strong need to include the mentioned patterns into the indicator system of the developed methodology arises. Elaboration on the rationale behind each of the employed indicators' composition and corresponding weight had been provided in the next Section of the current thesis.

Indicators that reflect each industry's natural economic trend of ultimate consumption increase or decrease shall be incorporated into the quantitative system of the developed model in order to enable an analytical approach that does not immediately dismiss any strengthening of monopolistic tendencies as a market conspiracy or an illegal cartel deal, rather, acknowledging the limited market capacities due to restrictions in consumer solvency, their number and volatile preferences, consequentially leading to an understanding of the monopolisation process on a conceptually new level – consideration of the mentioned development as an objective economic pattern that does not necessarily lead to a situation of an uncontrolled full monopoly establishing.

For the purpose of enhancing academic precision of the currently conducted research as well as achieving a higher degree of the developed unified monopolisation process evaluation model's efficiency in terms of its practical applicability, it would be beneficial to determine the level of competition efficiency between individual suppliers, distinguishing between defining changes in each market participant's sales volume, induced by the an

increase or decrease of clientele, rooting from a redistribution of affiliated consumers, based of internal factors such as competition promotion tool, and external, which may be defined as macroeconomic solvency crises or a conceptual change in consumer preference, caused be innovative improvement to the functional core of the offered goods and services.

In order to achieve a high level of scientific transparency and precision of the current research, the Author proposes to implement and commit wide use of the following definition, used in the developed model:

- ✓ Gross competition effect (GCE) – any specified analysed industry's total change of individual market shares with a positive or a negative dynamic scope;
- ✓ Net competition effect (NCE) – any specified analysed industry's total change of individual market shares, excluding the natural market capacity fluctuation, with a positive or a negative dynamic scope;
- ✓ Absolute gross competition effect (AGCE) – any specified analysed industry's supplier's individual market share dynamics, caused by internal competition, in a quantitatively – modular interpretation;
- ✓ Absolute net competition effect (ANCE) – any specified analysed industry's supplier's individual market share dynamics, excluding the natural market capacity fluctuation, caused by internal competition, in a quantitatively – modular interpretation;
- ✓ Natural market shrinking (NMS) – total market capacity negative dynamics, causes by demand amount's drop due to objective or individualizes influence factors;
- ✓ Natural market growth (NMG) – total market capacity positive dynamics, causes by demand amount's drop due to objective or individualizes influence factors;
- ✓ Company's individual monopoly power (CIMP) – the ability to influence prices in the market with no drop of sale amount, bases on any subjective or objective economic reality.
- ✓ Internal competition (IC) – supplier strategic market influence tool complex, used for implementing company individual monopoly power with the goal to increase own market share and decrease market share of the opponents within a single industry with no tendencies to conduct activity diversification to other, related or otherwise, markets;
- ✓ External competition (EC) – supplier strategic market influence tool complex, used for implementing company individual monopoly power with the goal to increase own market share and decrease market share of the opponents within multiple industries with strong tendencies to conduct activity diversification to other, related or otherwise, markets;

- ✓ Market data absolute interpretation (MDAI) – a non – dynamic way of assessing statistical data that provides an analytical over view of market conjuncture changes in a gross perspective with no trend to individualizing separate specified company's market share loses or sale increase.

The above described concepts shall be incorporated within a single framework of eight indicators, divided into two groups – current monopolisation status assessment index cluster and future monopolisation process development potential assessment index cluster. All eight indicators are causaly linked together by equation – bases electronic form that allows the research to be conducted swiftly and conveniently in terms of calculation.

The purpose of improving the accuracy of the conducted calculations and in order to avoid the typical methodological errors, commonly present while employing the statistical weighted average method, the companies who's individual market shares do not exceed 5% of the total industry consumption capacity over a certain period, shall be merged into one cluster group with a summary market share equal to or greater than 5% , further consistently used in the planned experemental modelling as a single analytical unit.

The mentioned approach to analytical system creation and development has a number of advantages, most important of which is the singularised operation required to obtain the results, provided by the unified monopolisation process evaluation model, in other words, the input data cluster is the only information, necessary for entering into the previously described quantitative calculation structure, harmonised within a single electronic file, which automatically and instantly delivers the acquired outputs, thus reflecting the both the quantitative calculation results and their corresponding qualitative interpretation in the form of textual description of the analysed situation, previously encrypted in numerical values.

The cumulative outcomes, obtained from the qualitative interpretation of the automatically conducted quantitative analysis is done by using correlatively - weighted data evaluation scale that enables to determination of both the current degree of market monopolisation the most possible further development of the discovered situation, based on objective consolidation potential of a given market, consequentially resulting in a multi – scale summary of the analysed sectors' general degree of monopolisation, viewed as a constantly developing trend, which may be progressive, regressive of inconsistent.

The indexes are additionally integrated into the structure of the current model with the use of statistical weights system, discussed with and approved by the consulted experts, which adheres to the current practice, employed by the European Commission (European Commission, 2004a, 2004b), when addressing the issue of effective and potential competitive

pressure consideration in handled cases and conducted market inquiries as well as taking into account the opinion of the consulted experts regarding the significance of each monopolisation process comprising and facilitating influence factor, consequentially enabling the synergetic effect of indices' coherence to take place. The conceptual structure of the current model can be seen in the Table 3.1.:

Table 3.1.

The integrated quantitative indicator system of the developed model

Nr.	Title of the indicator	Indicator functional group	Weight of the indicator functional group	Weight of individual indicators within a single functional group
1	Gross current monopolisation level index	Evaluation of the current level of market monopolisation	65%	25%
2	Gross current monopolisation level consistency index			15%
3	Net internal monopolisation stimulus index			15%
4	Net external monopolisation stimulus index			15%
5	Individual monopoly power concentration index			30%
6	Current monopolisation level net volatility index	Evaluation of the market monopolisation potential and further development possibilities	35%	25%
7	Net competition effect index			40%
8	Gross monopolisation potential index			35%

As it may be seen from the information, provided in Table 3.1., that the currently developed model inflicts a dually – complex method of data analysis, quantitatively assessing both current monopolisation status and future monopolisation process development potential in a coherent way within the framework of integrated index system. As an elaboration on the provided description of the currently developed model, aimed on further reflection of the employed quantitative logic behind the involved components and their mutual functional complementarity, it would be useful to create a single implementation algorithm, which would serve as methodological guidelines for practical utilization of the developed methodological tool application. The mentioned methodological scheme is provided in the Figure 3.1., which may be found below:

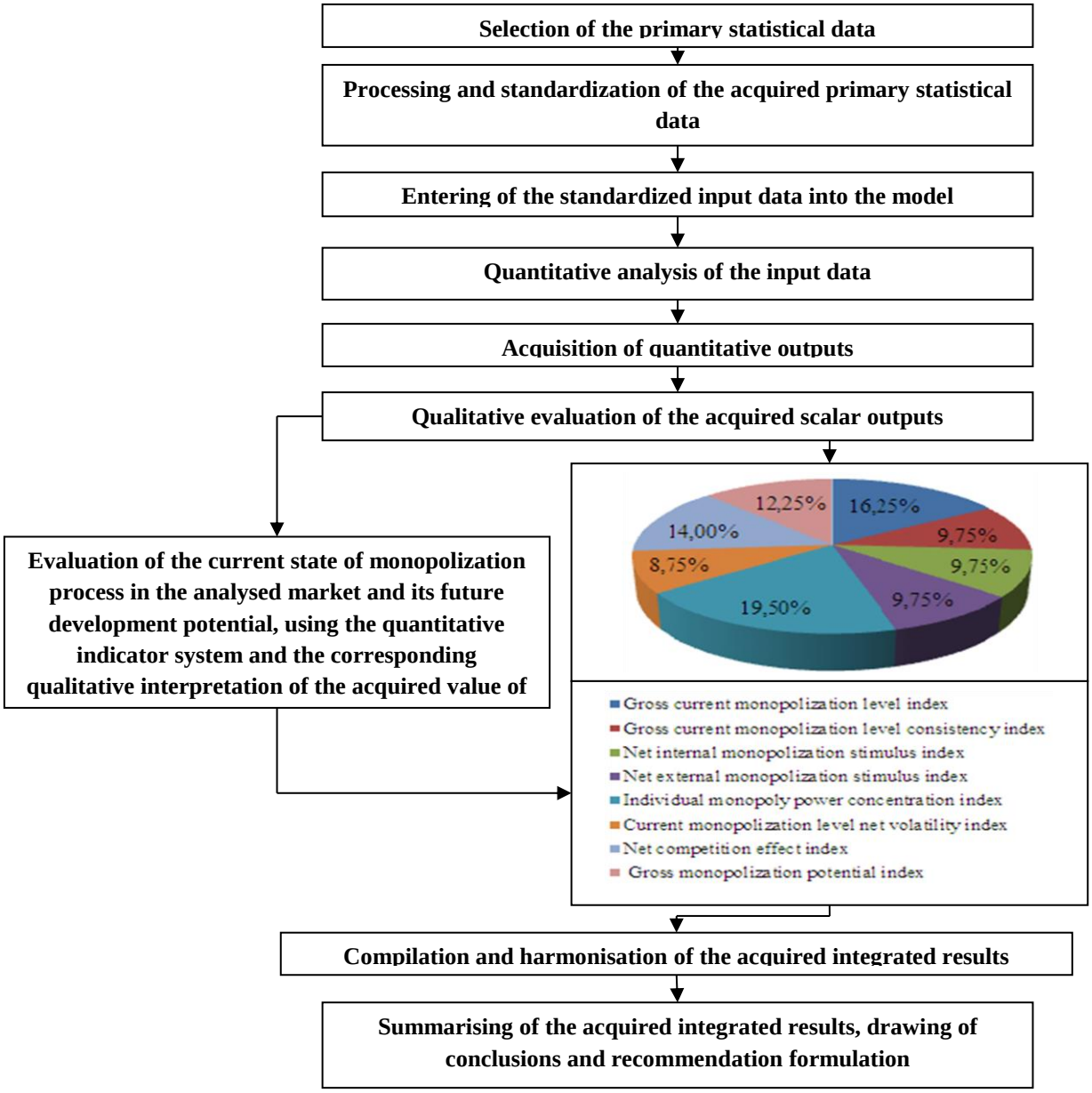


Figure 3.1. Implementation algorithm of the unified methodology of monopolisation process evaluation
(Source: developed by the author)

As it may be seen from the Figure 3.1., the relevant analysis is being carried out in the consequence of several methodological stages, while the entered input data is being consistently processed, reformatted, harmonised, evaluated and reissued in the form of cumulative (quantitative and qualitative) results, thus ensuring a rapid and objective interpretation of the acquired outputs.

The developed model enables a two – dimensional analysis of the monopolisation progress, conducted in the form of quantitative data processing qualitative interpretation of the obtained results, followed by a singularised evaluation of the analysed development,

consequentially providing scientifically objective perspective of a given market's degree of monopolisation, rooting from an interaction between internal and external influence factors.

The developed model foresees an additional option of defining indicator individual value range separate analysis and determines the development of the process of monopolisation on a maturity phase level through the direct interpretation of the input data without the use of result stratification of weighted qualitative analysis, thus providing the opportunity to address district areas of interest within or outside the general context of dominant market tendencies.

The above-described algorithm provides a detailed description of the empirical idea the developed model, its endogenous composition, functioning principles and sequential of operations, enabling a complex approach to the conduction of quantitative analysis of various sectors of modern day economic systems. Therefore, it would be beneficial to describe each of the used indicators and the quantitative principles of their synergetic harmonization in order to fully describe the structure of the unified monopolisation process evaluation model. The mentioned elaboration shall be conducted in Section 3.2. of the current Doctoral Thesis.

3.2. Structural composition of the developed methodology

While addressing the issue of monopolisation process evaluation, especially of the level of markets or industries, a certain dominant pattern becomes visible: a trend of considering multiple influence factors, adhering to a single cluster of involved economic elements that exclude alternative analytical approaches due to either substantially low mutual complementarity, or objective and trustworthy data unavailability, consequentially limiting the research perspective to a one – dimensional perspective in each of the mentioned cases.

However, for an objective and scientifically verified analysis of monopolisation process development, at least two main influence factors clusters need to be taken into account: the current stage of monopolisation process maturity and its future development prospects. The mentioned approach enables a multi – pillar analytical perspective on the addressed complex problematic, thus greatly contributing to the improvement of the entire evaluation process and the relevant topical issue management, consequentially creating fertile ground for quantitative tool implementation. It would be discreetly beneficial for the further conduction of the current research to provide a more detailed overview of the previously mentioned influence factor clusters.

The current stage monopolisation process maturity is most adequately and fully described by the following characteristics:

- ✓ The distribution of market share between the suppliers, involved in the relevant industry, regardless of competition strategy individual choice and origins;
- ✓ The prevailing differences between the current distribution of individual market shares and the situation of absolutely even dispensation of monopoly power among the suppliers;
- ✓ The level of market maturity and demand sophistication in the context of industry's total consumption capacity;
- ✓ Market share redistribution opportunities, based on individual competition strategies, most suitable for the current situation in the industry;
- ✓ Natural changes of individual market shares, directly proportionate to dynamics of the market total consumption capacity.

The future prospects and development potential of monopolisation process is most accurately described by the following characteristics:

- ✓ Dynamics of individual market shares in the context of competition intensity;
- ✓ Dynamics of individual sale amounts, caused by predictable and actual changes in the total market consumption capacity;
- ✓ Frequency of changes in the number of suppliers, involved in the market;
- ✓ Prospective changes in the level of economic freedom, regarding entry of exit from the market.

The mentioned market characteristics are common to all segments of any modern industry, regardless of the relevant analysed object's operational or regional specificities. The current state of affairs ensures the objectivity of the conducted analysis, consistently reflecting the current distribution of monopoly power within a market and the potential for change of the situation in the near future.

Given the need to include both the current market situation and the corresponding potential for future change into the structure of an objectively conducted research, interdisciplinary combined data performance groups were incorporated into composition of the developed unified monopolisation process evaluation model, reflecting the concentration of monopoly power in all of its dialectical essence within the wider context of economic environmental dynamism.

The system of indicators, used in the developed unified monopolisation process evaluation model as well as their functional stratification is described below in Table 3.2.:

Table 3.2.

Stratification of the indicators, used in the developed model, among functional cluster groups

Indicators, evaluating the current stage of monopolisation process development	**Indicators, evaluating the prospects and potential of monopolisation process further development**
Gross current monopolisation level index	Current monopolisation level net volatility index
Gross current monopolisation level consistency index	
Net internal monopolisation stimulus index	Net competition effect index
Net external monopolisation stimulus index	Gross monopolisation potential index
Individual monopoly power concentration index	

As it may be seen from the information, provided in Table 3.2., the developed indicator functional grouping enables a greater level of attentiveness to the of assessment monopolisation process cumulative development, which is based on the need to establish a quantifiable framework of monopoly power distribution between economic structures within a market and rationally justify its actual concentration in certain market niches. The assigned statistical weight represent a greater analytical focus on the current state of monopolisation process de facto progression, while the nominal potential of further monopolistic trend progression as well as the possibility of its transformation into actual future effects are also considered and given significant attention.

In order to transparently clarify the individual functionality of the indicators, coherently integrated wit in the framework of the developed methodology, while simultaneously elaborating on their mutual complementarity enabled analytical opportunities, it would be beneficial to focus on each of the mentioned indexes and provide in – depth description of their quantitative structure, functioning principles and affiliation in order to clearly define the quantitative methodological basis, the output scalar value range and the qualitative evaluation of the obtained results that form the empirical operational basis and the data processing possibilities of the developed quantitative model.

Gross current monopolisation level index – the current indicator reflects the nominal degree of market monopolisation, based on *de facto* dispensation of individual monopoly power between the involved suppliers, deriving from of heterogeneous distribution of market shares.

The current indicator is expressed in percentage values, ranging from 1 to 100%; its use is justified by the need to determine the current state of market level of monopolisation, compared to the situation of theoretically optimal distribution of individual monopoly power, directly referring to a market of perfect competition, in which case the monopoly power is evenly divided between all market participants.

The gross current monopolisation level index is calculated, using the Formula (3.1), available below:

$$GCMI = \sqrt{\sum_{i=1}^{n}(MSH_{ri} - MSH_{ei})^2} \quad (3.1)$$

where:

GCMI – the gross current monopolisation level index, %;

MSH_{ri} – *de facto* individual market share of a competing enterprise, %;

MSH_{ei} – individual market share of a competing enterprise in case of absolutely even monopoly power distribution, %.

A case of even dispersion of individual monopoly in the theoretical case of perfect competition, which indicates a zero-development level of market monopolisation process, implies that market shares are constant and even for each supplier, involved in the industry, while simultaneously representing the minimum market influence power possible, thus serving as an indicator for each occurring deviation from the state of absolute competitive parity.

Company actual market share are calculated as operation return of successfully commercialized sales volume, corresponding to acquired net turnover from a financial statements' perspective, which requires the alignment of each individual company's performance with their functional efficiency, as individual earning rates are not considered the primary factor of importance within the framework of current research, which focuses on the development of an industry – level monopolisation process assessment tool, not individual enterprise financial sustainability analysis.

Gross current monopolisation level consistency index – focuses on change possibility assessment in the context of individual monopoly power concentration volatility in the specified segment, based on the present impact, rotting on positive or negative dynamics in the individual market share distribution among the involved suppliers.

The current indicator is particularly efficient as a quantitative tendency evaluation tool, when used in collaboration with the gross current monopolisation level index, due to their high mutual complementarity exceptionally visible in cases where the gross current level of market monopolisation is defined as moderate, as the Gross current monopolisation level consistency index reflects the historically – retrospective development of the process of monopolisation in the analysed industry, consequentially enabling a scalar interpretation of monopoly power distribution tendencies within the analysed industry, market of niche.

The current indicator is expressed in percentage value, ranging from zero to infinity; its use is justified by the need to define the typological affiliation of the analysed market as well as the necessity to determine the maturity state of the on – going monopolisation process in the wider context of the relevant development's consistency.

The gross current monopolisation level consistency index is calculated, using the Formula (3.2), available below:

$$GCMCI=\sum_{i=1}^{n}\left(\frac{MSH_{ri}-MSH_{ei}}{MSH_{ei}}\right)^2/n \qquad (3.2)$$

where:

GCMCI – gross current monopolisation level consistency index, %;

MSH_{ri} – *de facto* individual market share of a competing enterprise, %;

MSH_{ei} – individual market share of a competing enterprise in case of absolutely even monopoly power distribution, %;

n – the number of mutually non-affiliated enterprises, operating in the analysed market over the course of *t* period, scalar values.

The methodology of calculating the *de facto* and optimal individual market shares remains unchanged and bares fundamental functional similarities with the previously mentioned relevant situation, described while addressing the quantitative design of the gross current monopolisation level index.

Net internal monopolisation stimulus index – is an indicator, reflecting the internal market consolidation tendency, caused by both increasing competition among the suppliers and a drop or insufficient growth of total consumption capacity of the relevant industry in a wider context of market share redistribution as a consequence of internal conjuncture pressure.

The current indicator is profoundly accurate at reviling the indirect and mediated effects, stimulated by excessively intense competition, which result in simultaneous reduction of active suppliers in the market and an effective closure of the latter to external infiltration due to the high newcomer failure risk, caused by the fierce competition, consequentially enabling the process of monopolisation to begin its development under the mentioned favourable conditions.

The current indicator is expressed in percentage value, ranging from zero to a hundred; its use is justified by the need to determine whether an internal market consolidation trend exists, while acknowledging its origins in ether excessive competition or a cartel agreement,

aimed on deliberate third party expulsion from the market with the goal of establishing an artificial oligopoly with possible further plans of creating a full hidden monopoly.

The net internal monopolisation stimulus index is calculated, using the Formula (3.3), available below:

$$NIMSI = \sqrt{\sum_{i=1}^{n}\left(MSH_{t_{ri}} - MSH_{(t-1)_{ei}}\right)^2} \quad (3.3)$$

NIMSI – the net internal monopolisation stimulus index, %;

$MSHt_{ri}$ – *de facto* individual market share of a competing enterprise in the *t* analytical period, %;

$MSH(t\text{-}1)_{ei}$ – individual market share of a competing enterprise in case of absolutely even monopoly power distribution in the *t-1* analytical period, %.

The methodology of calculating the *de facto* and optimal individual market shares, regardless of their time period and other affiliations, remains similar to the analytical approach, taken in previously described Formulas (3.1) and (3.2), due to its analytically proven efficiency and relative ease of applicability.

Net external monopolisation stimulus index – is an indicator, reflecting the strength, prevalence and consistency of externally originating market consolidation tendencies, caused by increasing volatile macroeconomic environment and/or a structural crisis within a given national economy, in particularly affecting the related industries of the general purchasing power of the relevant consumer clusters, their spending patterns and economic preferences.

The current indicator, with its values ranging from zero to a hundred per cent, is suitable for reviling both the direct and the indirect monopolisation effects, stimulated by volatility and, in some cases, turmoil of macroeconomic environment, while reflecting, on one hand, the general financial attractiveness of the analysed market for additional supplier involvement, and, on the other hand, the consequences of external economic shocks that more than often stimulate market consolidation tendency's rapid development.

The net external monopolisation stimulus index is calculated, using the Formula (3.4), available below:

$$NEMSI = \sqrt{\sum_{i=1}^{n}\left(MSH_{(t-1)_{ri}} - MSH_{t_{ei}}\right)^2} \quad (3.4)$$

NEMSI – net external monopolisation stimulus index, %;

$MSH(t\text{-}1)_{ri}$ – *de facto* individual market share of a competing enterprise in the *t-1* analytical period, %;

$MSHt_{ei}$ – individual market share of a competing enterprise in case of absolutely even monopoly power distribution in the *t* analytical period, %.

The methodology of calculating the *de facto* and optimal individual market shares, regardless of their time period and other affiliations, remains similar to the analytical approach, taken in previously described Formula (3.3), due to its analytically proven efficiency and relative ease of applicability.

Individual monopoly power concentration index – is a quantitatively modified further development of the classical Herfindahl – Hirschman Index, described in analytical detail within the Section 2.1. of the current Doctoral Thesis, enhanced in terms of a significantly specified qualitative scale, applied for scalar result conceptual interpretation, as well as upgraded by the implementation of a more transparent calculation algorithm and delivered result reflection in per cent values.

Upholding the methodological paradigm of its predecessor, the current indicator is highly suited for an in – depth industry – level evaluation of the dominant monopolisation trends and enables the assessment of the monopolisation process development in a given industry within the prescribed time period, judging by a percentage of the average market total volume, expressed as proportionate portions of the total sales amount in the relevant market. The current indicator's value range lies within the limits from zero to a hundred per cent.

The individual monopoly power concentration index is calculated, using the Formula (3.5), available below:

$$IMPCI = \sqrt{\sum_{i=1}^{n} \left(MSH_{t_{ri}}\right)^2} \qquad (3.5)$$

IMPCI – individual monopoly power concentration index, %;

$MSH(t)_{ri}$ – *de facto* individual market share of a competing enterprise in the *t* analytical period, %.

The methodology of calculating the *de facto* individual market shares, regardless of their time period and other affiliations, remains similar to the analytical approach, taken in previously described Formulas (3.1), (3.2), (3.3), and (3.4) due to its analytically proven efficiency and relative ease of applicability.

Current monopolisation level net volatility index – is an indicator, focusing on the assessment of individual monopoly power distribution between individual suppliers and the relevant occurring changes over a chosen timeframe, consequentially reflecting the level of

volatility, regarding the reconfiguration of market influence capabilities among the defined critical consumption concentration points, present in the analysed industry.

The main application of the current indicator lies within the field of detecting potential pattern changes in the prevailing paradigm of existing monopolisation process development, while simultaneously enabling a quantitative assessment of both the possibility of general trend alternative development and the existing potential for such situation development in the short – and medium – term. The values range of the current indicator lies between minus infinity and infinity per cent.

The current monopolisation level net volatility index is calculated, using the Formula (3.6), available below:

$$CMLNVI = \frac{\sum_{i=1}^{n}(1-(1+\Delta MSH_{ri_{(t;t-1)}})^{-\theta}}{n} \quad (3.6)$$

CMLNVI – the current monopolisation level net volatility index, %;

$\Delta MSHri_{(t;t-1)}$ – the difference between *de facto* individual market shares of a competing enterprise in the *t* and *t-1* analytical period, %;

n – the number of mutually non-affiliated enterprises, operating in the analysed market over the course of *t* period, scalar values.

θ – the time gap between the consequential analytical periods, used for $\Delta MSHri_{(t;t-1)}$ calculation, scalar values.

The calculation methodology, regarding individual market share quantification, remains analogical to the paradigm, established in Formulas (3.1) – (3.5) of the current Doctoral Thesis.

Net competition effect index – is calculated on the basis of individual market share changes in the wider context of positive of negative market development tendencies, while emphasizing the role of total market capacity's growth or decline in the field internal competition stimulation and the profound effect that general macroeconomic trends have of structural configuration of the related sectors of a national economy.

The main area of the current indicator application lies within the framework of potential monopolisation trend strengthening or weakening, based on and directly correlated to the external challenges, arising from the empirical stage of the relevant market development, its maturity and the exogenous influence factors, which limit or expand the limits of total market consumption capacity, forcing the involved suppliers to adapt to the volatile and constantly risky environment.

The net competition effect index is calculated, using the Formula (3.7), available below:

$$NCEI=\sqrt{\sum_{i=1}^{n}\left(\Delta MSH_{r_{i(t;t-1)}}-\Delta TMC_{(t;t-1)}\right)^{2\theta}} \quad (3.7)$$

NCEI – the net competition effect index, %;

$\Delta MSHri_{(t;t-1)}$ – the difference between *de facto* individual market shares of a competing enterprise in the *t* and *t-1* analytical period, %;

$\Delta TMC_{(t;t-1)}$ – the changes in total market consumption capacity over the chosen consequential analytical periods, currency units;

θ – the time gap between the consequential analytical periods, used for $\Delta MSHr_{(t;t-1)}$ calculation, scalar values.

The calculation methodology, regarding individual market share quantification, remains analogical to the paradigm, established in Formulas (3.1) – (3.7) of the current Doctoral Thesis, while the total market consumption capacity had been calculated as a sum of currency units, spent on goods and services, supplied by the relevant analysed industry over a chosen time period, being equal to summary of net turnover of all of the enterprises, conduction business operation in the mentioned industry. The values range of the current indicator lies between zero and infinity.

Gross monopolisation potential index – reflects the operational and the consequent financial attractiveness of an industry from the perspective of a potential outside investor, looking for new areas of diversified business expansion, based on market conjuncture flexibility, solvent demand growth consistency and the number of suppliers, already involved in the market.

The current indicator enables the calculation of monopolisation process conduction potential in correlation to the freedom of entering or exiting the market, while putting additional emphasis on entry barrier existence and the possibilities of their entrenchment, simultaneously acknowledging that liberalized not stagnating market are generally more attractive to new business entrants, therefore, such cases pose a lesser risk of internal competition depreciation and effective closure of the market due to its operational unattractiveness.

The gross monopolisation potential index is calculated, using the Formula (3.8), available below:

$$GMPI=\left(\frac{\left(\sum_{i=1}^{n} MSH_{ri_t}\right)(n+1)}{MSH_{e_{ti}} * n^2}\right) - 1 \quad (3.8)$$

GMPI – the gross monopolisation potential index, %;

$MSHri_t$ – *de facto* individual market share of a competing enterprise in the *t* analytical period, %;

$MSHei_t$ – individual market share of a competing enterprise in case of absolutely even monopoly power distribution in the *t* analytical period, %;

n – the number of mutually non-affiliated enterprises, operating in the analysed market over the course of *t* period, scalar values.

The calculation methodology, regarding individual market share quantification, remains analogical to the paradigm, established in Formulas (3.1) – (3.8) of the current Doctoral Thesis, while the total number of enterprises, involved in the analysed market is taken at the numerical face value, based on the official statistics, available for the relevant industry and only includes the legitimately operating and legally registered companies. The values range of the current indicator lies between zero and infinity per cent. An analytical summary of the above provided information is available in Table 3.3.:

Table 3.3.

The harmonized indicator system, used in the developed unified monopolisation process evaluation model

Indicator title	***Calculation methodology of the indicator***	***Indicator value range, %***
Gross current monopolisation level index	$GCMI = \sqrt{\sum_{i=1}^{n}(MSH_{ri} - MSH_{ei})^2}$	[0;100]
Gross current monopolisation level consistency index	$GCMCI=\sum_{i=1}^{n}\left(\frac{MSH_{ri}-MSH_{ei}}{MSH_{ei}}\right)^2 / n$	[0; ∞)
Net internal monopolisation stimulus index	$NIMSI = \sqrt{\sum_{i=1}^{n}\left(MSH_{t_{ri}} - MSH_{(t-1)_{ei}}\right)^2}$	[0; 100]
Net external monopolisation stimulus index	$NEMSI = \sqrt{\sum_{i=1}^{n}\left(MSH_{(t-1)_{ri}} - MSH_{t_{ei}}\right)^2}$	[0; 100]
Individual monopoly power concentration index	$IMPCI = \sqrt{\sum_{i=1}^{n}\left(MSH_{t_{ri}}\right)^2}$	[0; 100]
Current monopolisation level net volatility index	$CMLNVI = \frac{\sum_{i=1}^{n}(1-(1+\Delta MSH_{ri_{(t;t-1)}})^{-\theta}}{n}$	(-∞; ∞)
Net competition effect index	$NCEI=\sqrt{\sum_{i=1}^{n}\left(\Delta MSH_{r_{i(t;t-1)}} - \Delta TMC_{(t;t-1)}\right)^{2\theta}}$	[0; ∞)
Gross monopolisation potential index	$GMPI=\left(\frac{\left(\sum_{i=1}^{n} MSH_{ri_t}\right)(n+1)}{MSH_{e_{ti}} * n^2}\right) - 1$	[0; 100]

Those incidies, which maximum value ranges do not exceed 100% are aimed on monopolisation level reflection as compared to the most favuarable situation of (closely

correspondent to) full competition, hence the aforementioned maximum value emerges (as an indiidvual enterprises market share in any scenario may not exceed that of full market consumption capacity). Simultaneosly, those indicies, which quantify the dynamic changes of puntative static indicator may theoretically obtain a maximum value of infinity due to the limitless potential for changes in individual supply-side market actor operational performance.

As it may be concluded from the information, available in Table 3.3., the system of quantitative indicators, used in the unified monopolisation process evaluation model, is strongly linked to monopoly power concentration point detection as well as the the internal structure of the industry, while the total impact of the relevant influence factors is being measured in the context of defining the prevailing competition conduction specifics and dominant market influence utilization trends. The eight quantitative indicators address the issue of monopolisation development stage stratification, their potential and *de facto* characterizing, thus coherently supporting the numerical calculations with empirical qualitative acknowledgements, which are strictly individual for each indicator even within a single functional cluster group, successively creating an integrated multi – dimensional quantitative output and qualitative result displaying operationally autonomous input data processing system.

The main goal of the developed unified model of monopolisation process evaluation was achieving coherent analytical functionality, which had been consistently incorporated into the structure of the created automatized calculation system, consequentially leading to embedment of the following features into the composition of the employed electronic tool: (1) Cost – efficiency; (2) Functional reliability; (3) Operational universality; (4) Quantitative autonomy; (5) Qualitative interpretation of the acquired results; (6) Mutual complementarity of all structural elements; (7) High level of flexibility; (8) High level of reparability; (9) Delivered result transparency; (10) User – friendly interface.

The previously mentioned system has been incorporated into an electronic file, thus enabling the used statistically - technical base autonomous implementation and analytical operation facilitation, while the obtained resulting data is being displayed transparently and unbiased, leading to the development of a cost – efficient and fully functional quantitative model on the basis of MS Excel software (for examples, see Annexes 3-53).

The developed methodology is conceptually designed to analyse one market situation at a time, not to find correlation between monopoly power of firms, operating in different or various industries. It has a strong affiliation with a heterogeneous yet originatedly – singularized input data approach and had not been calibrated to assess the individual

monopoly power of various enterprises, operating in completely unrelated fields of economic interest. It is a cost – efficient and convenient analytical tool, fully suited for mutually – complementary quantitative and qualitative evaluation of the current stage of market monopolisation and the potential of the relevant process further development, however, the interpretation of the acquired results is not possible without a structured system of indicators composition, enabling the establishment of a transparent conclusion making framework with a standardized and non – prejudiced set of references. The mentioned analytical framework had been developed over the course of experimentation with the set of quantitative indicators and real (simultaneously, sensitive) market data, used in the relevant model, thus ensuring that the executed calculations are rational and quantitatively accurate, while the corresponding qualitative scales enable an objective interpretation of the obtained scalar outputs.

The quantitative value ranges of the indicators, used to determine both the current level of market monopolisation and the potential for future positive of negative development of the relevant process as well as the qualitative interpretational scales for each of the scalar intervals, established and verified through theoretical reasoning and practical experimental modelling, are reflected in the Table 3.4.:

Table 3.4.

Quantitative value ranges and the corresponding qualitative interpretational scales of the indicator set, used in the developed unified model of monopolisation process evaluation

Indicator	**Quantitative value range, %**	**Qualitative interpretation (level of monopolisation)**
Gross current monopolisation level index	(73;100]	High
	[50;73]	Medium
	[0;50)	Low
Gross current monopolisation level consistency index	(69;∞]	High
	[39;69]	Medium
	[0;39)	Low
Net internal monopolisation stimulus index	[73;100]	High
	[31;73)	Medium
	[0;31)	Low
Net external monopolisation stimulus index	[71;100]	High
	[23;71)	Medium
	[0;23)	Low
Individual monopoly power concentration index	[61;100]	High
	[37;61)	Medium
	[0;37)	Low
Current monopolisation level net volatility index	(-∞;-33.33)U(20;∞)	High
	[-33.33;20]	Low
Net competition effect index	(47;∞)	High
	[0;47]	Low
Gross monopolisation potential index	[61;100]	High
	[23;61)	Medium
	[0;23)	Low

As it may be acknowledged, while assessing the information, available in the Table 3.4., most of the indicators, used in the unified monopolisation process evaluation model,

have a quantitative value range from zero to a hundred per cent, however, three of then take a high value limit of infinity, while one of the indexes simultaneously has a low limit of negative infinity. The current situation is based on the mentioned indicator's reflection of either a static parameter of maximum individual monopoly power concentration, which, logically, may not exceed a hundred per cent, while a certain set of indicators is devoted to calculating the volatility, stability and/or consistency of the former mentioned indexes, thus being able to obtain high or low oscillation frequency, measured as a percentage of the corresponding dominant tendency, simultaneously reflecting on the positive of negative scalar dynamics of the relevant trend.

In order to fully systematize the information, provided in the Table 3.4., while putting it in the context of stratifying the mentioned indicators into functional groups with the goal of achieving a greater level of analytical transparency, the relevant information had been additionally summarized in the Table 3.5., available below:

Table 3.5.

Quantitative value ranges and the corresponding qualitative interpretational scales of the indicators, employed in the developed methodology of monopolisation process evaluation

Indicator	**Functional group**	**Weight, %**	**Value range, %**	**Level of monopolisation**
Gross current monopolisation level index	Evaluation of the current stage of monopolisation process development	*16,25%*	(73;100]	High
			[50;73]	Medium
			[0;50)	Low
Gross current monopolisation level consistency index		*9,75%*	(69;∞]	High
			[39;69]	Medium
			[0;39)	Low
Net internal monopolisation stimulus index		*9,75%*	[73;100]	High
			[31;73)	Medium
			[0;31)	Low
Net external monopolisation stimulus index		*9,75%*	[71;100]	High
			[23;71)	Medium
			[0;23)	Low
Individual monopoly power concentration index		*19,50%*	[61;100]	High
			[37;61)	Medium
			[0;37)	Low
Current monopolisation level net volatility index	Evaluation of the prospects and potential of monopolisation process further development	*8,75%*	(-∞;-33.33)U(20;∞)	High
			[-33.33;20]	Low
Net competition effect index		*12,25%*	(47;∞)	High
			[0;47]	Low
Gross monopolisation potential index		*14,00%*	[61;100]	High
			[23;61)	Medium
			[0;23)	Low

As it may be concluded from the information, available in the Table 3.5., all of the market current level of monopolisation determining indicators are assigned three possible qualitative interpretation scenarios, directly correlated to their quantitative values: low, medium or high, thus reflecting on the present state of affairs in the analysed industry in the

context of monopolisation process development assessment. Two out of three indicators, defining the future potential of the relevant situation escalation, are qualitatively interpreted as either low of high, consequentially acknowledging the possibility of further market monopolisation level to grow, viewing the mentioned development as an increasing or declining opportunity curve. The mentioned occurrence is directly correlated with the operational goals of each indicator set's functional group, enabling a higher data processing efficiency level and excluding the potential irregularities, which, unless the currently described system in implemented, may lead to operation overlap and the consequential risks of functional calculation gaps and time lags, when processing a particularly large set of input data.

In order to clearly outline the implemented solution to possible indicator functional overlap, made possible by employing the functional group stratification approach, the relevant concept is fully described in the Figure 3.2.:

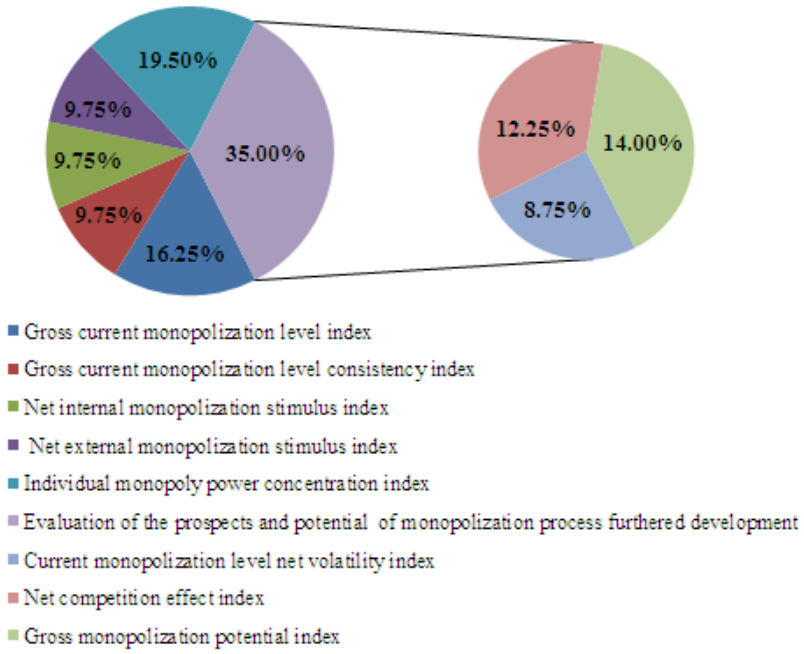


Figure 3.2. Indicator functional groups and operational affiliation of individual indexes (Source: developed by the author)

As it may be seen from the information, reflected in the Figure 3.2., each indicator functional group is aimed at a specific strategic goal achievement, while the individual indicators perform singular tasks within their respective operational cluster, thus contributing to the general goal achievement to an extent, defined by the statistical weights, assigned to each index in order to leverage their performance and harmonize their cooperation with separate functional groups, which, at their own level, are integrated into a single analytical

framework, thus enabling collaboration between various influence factors assessment tools on strategic, tactical and operational level, creating highly favourable condition for multi – scale monopolisation process development assessment, conducted from the perspective of both quantitative and qualitative economic evaluation paradigm.

The deep causal connection between the quantitative and qualitative sides of the developed methodology enables a positive synergetic effect, consequentially creating fertile ground for multi – purpose research conduction in both a business – orientated and academically – centred directions, as well as being of positive use it terms of governmental monitoring of economic environment in various industries, aimed on healthy competition level preservation and possible cartel deal detection. Acknowledging the need to further enhance the possibilities, already provided by the developed model, the author proposes a new market typological classification to be introduced and coherently incorporated into the structure of the created monopolisation process assessment tool, enabling the automated determination of the relevant market type according to the level of individual monopoly power concentration among individual economic actors or actor groups.

The proposed market typology shall be founded on direct correlation between economic process individual influencing possibilities by the current market actors and the existing market structural conjuncture. In order to enhance the transparency of the empirical concept, which the proposed typological market stratification is rooting from, Figure 3.3. had been composed:

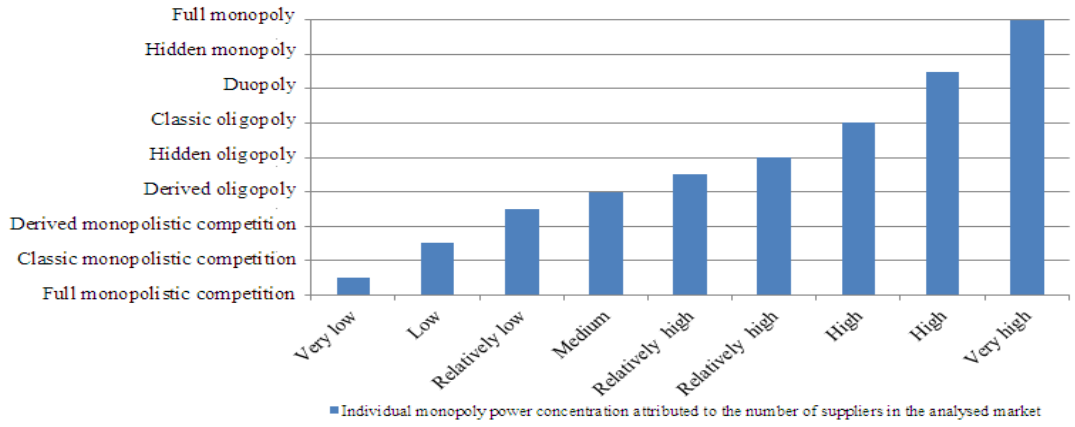


Figure 3.3. Market typological stratification by individual monopoly power concentration (Source: developed by the author)

As it may be seen from the Figure 3.3., the proposed typological market form stratification is based on the singularised concentration of monopoly power within a certain supplier group or its disproportional distribution between a low number of non – affiliated

private enterprises, which leads to competition undermining business conduction practices, based on the objective economic reality of excessive market influence capability clustering. It may be stated that the proposed typology, to a certain extent, reflects both the state of competition in each market and the relevant monopolisation process acceleration tendencies or, if viewed from an empirically – theoretical perspective, reflects the main characteristics of a certain market conjuncture structuring features through the prism of competition environment health in the wider context of general state of market development and its overall maturity.

The proposed typological stratification assumes that a newly created market in a liberal economic environment and a low level of governmental interference as well as a reasonable degree of business registration administrative procedures, hereafter referred to as the "normal economic condition", has a general tendency of being highly competitive due to a great potential for future growth and excellent profit extraction possibilities. While maturing, the booming industry becomes less competitive due to the loss of investor interest as the natural growth rates decrease and the industry reaches its peak of development. Under modern economic conditions, the process of monopolisation is then triggered by either internal competition or external shocks (see Figure 2.2.) and the concentration of individual monopoly power inevitably grows as the market goes through constituent maturity stages.

The mentioned development does not, however, necessarily lead to a formation of full economic monopoly, as a healthy degree of internal competition, while not exceeding the level at which potential new actors entry risks overweight possible profits, thus effectively locking the market for new entrants in a purely economic and fully justified manner, stimulates the stabilization of internal market conjuncture reformatting at a level of individual monopoly power concentration, which is far from perfect competition conditions, while simultaneously enabling the emergence of classic monopolistic competition market. Of course, it certain situation, then market failures and regional irregularities such as lack of the necessary resources, skills of know – how, combined with lengthy bureaucratic procedures, undermine the mentioned stabilization of the market at a favourable level of competition and leads to the emergence of an cartel agreement – based oligopoly or even a full economic monopoly with all the ensuing negative consequences.

Whatever the actual case, the proposed market typological classification system is able to objectively and without prejudice reflect the on – going developments and is capable of monitoring the prevailing state of affairs, being of high use for theoretical research, regulatory supervision and business conduction application. The relevant typology had been coherently

incorporated into the electronic template of the developed unified monopolisation process evolution model and is used for defining the current analysed market type, describe its main economic characteristics and issue general prognosis of the future situation development likely trends. The general typological forms and their corresponding empirical characteristics, used in the developed typology, are reflected in the Annex 2 of the current Doctoral Thesis, while its consolidated version is available Table 3.6.:

Table 3.6.

The proposed market stratification typology, based on competition environment maturity

Nr.	**Defined market type**	**Level of individual monopoly power concentration**	**Risk of cartel agreement brokerage**
1	*Full monopolistic competition*	Very low	Non – existent
2	*Classic monopolistic competition*	Low	Very low
3	*Derived monopolistic competition*	Relatively low	Low
4	*Derived oligopoly*	Medium	Medium
5	*Hidden oligopoly*	Relatively high	High
6	*Classic oligopoly*	Relatively high	Very high
7	*Duopoly*	High	Extremely high
8	*Hidden monopoly*	High	Almost certain
9	*Full monopoly*	Very high	Non – existent

As it may be seen from the Table 3.6. and the Annex 2, the proposed typology employs a main influence factor direct correlation approach and defines the relevant market type, based on the level of individual monopoly power concentration in full correspondence with the empirical approach or excessive economic process concentration paradigm of the currently conducted research. It must be mentioned that the risk of cartel agreement emergence is directly related with both market maturity and the possible benefits of exploiting the merged individual enterprise monopoly power to influence economic conduct development in a manner, favourable to the participants of the cartel. While derivatives of oligopoly market type generally have a higher risk of illegal competition undermining practice implementation, the full monopoly has a precisely zero possibility of cartel deal brokerage due to the lack of potential partners as the monopolist is the sole supplier of the market, which does not lead to a flawed conclusion that a full economic monopoly creates less social costs that cartel agreement, which, if fact, are an attempt to monopolize the industry and, as such, the phenomenon of full economic, uncontrolled and "untouchable" monopoly had inspired cartel agreements to be invented in the first place.

The proposed methodological solution, essentially and as reflected in Figure 3.1., comes down to the following algorithm: the gathered data on individual market shares, after quantitative harmonization and clearing of the ever present "noise", is used as input to calculate the scalar values of the employed indicators (see Table 3.1 and Table 3.2), the

calculations being adherent to the principles, summarised in Table 3.3. The acquired scalar values are consequentially interpreted via their projection on the qualitative values scales, disclosed in Table 3.4. The obtained qualitative outputs are analysed in terms of their significance by employing the grading system, reflected in Table 3.5, thus generating a cumulative qualitative result, comprising of a current level of monopolisation ascertaining verdict and a measurement of the potential for further monopolistic trend escalation. The two cumulative qualitative results are mutually valued with a significance proportion of approximately 1.857 (65% and 35% correspondingly, for details, see Table 3.1, Table 3.2 and Table 3.5), which enables the generation of the final result: the determination of the total level of monopolization in the analysed relevant market. The next step, being the most important of the proposed methodological solutions and the most significant achievement of the conducted research, in the projection of the obtained final result (the mentioned total level of monopolization) on the matrix, available in the Annex 1 of the current Doctoral Thesis, which enables a holistic determination of the existing market type, depending on the total level of monopolization and the total number of supply-side market actors, active within the analysed relevant market over the defined analytical period, the relevant determination being available in a dynamic retrospective. The defined market type holds a certain number of imbedded structural specifics and economic properties, which had been summarized in a standartised manner and made available in Annex 2 of the current Doctoral Thesis. Hence, the main practical significance of the developed methodology is the creation of a contemporary market type stratification system, which is based on the innovative approach of defining the relevant market types and their corresponding economic properties and business environment specifics through the prism of monopolization process assessment, rather than competition analysis, the latter being an inversely-complimentary counterpart of the former, thus enabling a analytically robust and scientifically verified approach to modern market structure assessment. It must be noted that the empirical concept, analytical layout, structural integrity, configuration and functionality as well as the practical applicability and significance of the developed methodology had been positively verified, confirmed and deemed sufficiently robust by both the consulted experts-practitioners (see Annex 57-59) as well as the focus group, consisting of business, industries', academic and public sector representatives (see Annex 60). Therefore, considering the relevant information, provided in Section 3.1. and Section 3.2. of the current Doctoral Thesis, it would be scientifically beneficial and academically to conduct an implementation experiment and execute a practical approbation of the developed model.

3.3. Verification of the research hypothesis by experimental implementation of the developed methodology

3.3.1. Determination of the level of monopolisation in the Latvian pharmaceuticals production market

The preliminary analysed relevant market may be defined as production and distribution of pharmaceuticals within the state borders of the Republic of Latvia, hence the competitive structure and the economic conjuncture of the assessed industry seemed to be appropriately addressed from a holistic basis perspective, however, according to the Official Registry of Medicines of the Republic of Latvia (SAM, 2015a), annual reports (SAM, 2015b) and statistics (SAM, 2015c, 2015d), published by the Latvian State Agency of Medicines (SAM, 2015e), during a period of six constituent years (2009-2014) over fifty producers of certified pharmaceuticals had been actively involved in competition within the geographical scope of analysed market, while in average only seven of the actual competitors had internally based means of production. Therefore, as import flow clearly have a great effect on the configuration of consumer choice possibilities, it may be concluded that the defined relevant market is much broader than initially expected.

Furthermore, it must be noted that that small (in terms of financial turnover volumes) importers, while cumulatively constituting the overwhelming majority of the total pharmaceutical product suppliers in Latvia over the entire analytical period, individually have quite limited general market situation affecting capacities, therefore, such supply-side conjuncture constituting quantitative units mutually replaceable, while the same notion is simultaneously applicable in each situation of individual small importer being replaced another relatively equal market agent: e.g. if any type of supplying market actors has a market share below a low numerical threshold, for instance 1.5%, and is replaced by a competing new entrant, who's corresponding market share equals 1.65% of the total consumption capacity, the general equilibrium and competitive environment (on a macroeconomics level) remains almost completely unaltered. Therefore, those importers with individual market shares below a defined threshold of five percent shall be grouped into quantitative clusters with cumulative market share values being equal to the mentioned benchmark by means of a statistical variation test, employed in order to suggest the relevant importer cluster group average net financial turnover, while assuming that the perceived corresponding market share is ~5%.

From the Author's conducted calculations, based on the data, made publicly available by the Latvian State Agency of Medicines (SAM, 2015b, 2015c), it may be concluded that the top-25 producers steadily had occupied an average of 67.23% of the total market capacity over the course of six continues years, while the domestic Latvian producers' average market shaver over the mentioned period equals 4.40% (SAM, 2015b, 2015c), while in the extended analysis the relevant indicators take up the value of 4.65% (SAM, 2015b, 2015c), reflecting a stable trend of export orientation prevailing over pharmaceuticals producers' interest in the Latvian domestic market. The top-25 producers are constantly changing their positions within the relevant group and, more importantly, disclose a strong and constituent trend of exogenous rotation, meaning that the composition of the group is highly volatile and subject to statistical divergence.

Only seven enterprises have constantly stayed within the top-25 producer group (SAM, 2015b, 2015c), while five of them a minor, in terms of turnover based market power, enterprises with cumulative market share revolving around 4% (SAM, 2015b, 2015c) in every period of the conducted analysis, while the two remaining market actor cluster unit consists of the major Latvian domestic producers, "Grindex" and "Olainfarm", who in average composed ~4.1.%,[(SAM, 2015b, 2015c) while other five Latvia based producer contribution is limited to roughly 0.4-0.65% (SAM, 2015b, 2015c) of the total market capacity over the timeframe of the conducted screening exercise. Therefore, it may be argued that the situation in the Latvian pharmaceuticals market is highly volatile and, judging from the frequent supplier rotation in the context of distinctively small market shares and an absence of a clearly defined market leader, may be deemed as highly competitive.

Nevertheless, the available data shall undergo a quantitative analysis within the context of the developed model's experimental implementation in order to assess the conducted research hypothesis verification in an heavily import-dominated, if not solely composed industry, thus enabling the comparison of the above described situation with the results, yet to be acquired via implementation of the developed methodology within in fully "internalised", import-lacking markets, consequentially leading to an objective comparison of the developed market conjuncture evaluation tool under various condition, which, to a certain extent, may be viewed as versatility and robustness testing of the developed methodology.

As no constituent data, necessary for primary processing and input generation, is available do to the volatile nature of the currently analysed industry, which is effectively structurally composed rather that influenced by import flows, the presumption of minimal

market power parity, described in the Section 3.1. and Section 3.2. of the current Doctoral Thesis, shall prevail as the main benchmark of analytical information transposition.

The following initially acquired data harmonisation steps shall be implemented in order to reach the required level of input coherence, which enable the facilitation of necessary quantitative analysis conduction conditions: (1) Latvian domestic pharmaceuticals producers are a grouped into a separate data cluster unit do to the homogeneous nature of their production means origins, the common technological basis and managerial practices and the relative compliance no the 5% benchmark (average five-year individual market share sum equals 4.65%); (2) Pharmaceutical product importers shall be grouped into a number of cluster units with relatively even and retrospectively constant market shares due to the fact that their presence in the market is significantly limited and subject to constant volatility, furthermore none distinct competitive advantage seem to be present since market entries and exits are evenly frequent, non-restricted and common quite freely, making the situation a constant object of competition induced internal shocks. Simultaneously, it must be noted that the market had been experiencing stable growth with no entry or exit barriers to be detected, therefore its conjuncture volatility reveals a state of aggressive competition that is most likely to be upheld in at least the near future, making the experimental modelling generated outputs analytically relevant and practically applicable for at least the next short-term period; (3) The mentioned clusters shall enable the conduction of s a highly volatile market structure analysis, adhering to its specifics and acknowledging its incoherent nature, while allowing the mentioned quantitative evaluation to take place within a quantitative framework that recognizes the existing peculiarities without the risk of Type I and Type II statistical error occurrence as the frequently changing conjecture of the analysed industry is evaluated as a holistic if inconsistent macroeconomic structure rather that a borderless enigma of quasi-random economic interaction.

Having described the context of the further conducted analysis, it seems appropriate to commence with the actual modelling, aimed at testing the developed model's robustness, structural integrity and functional rationality through the prism of factual monopolisation process progression level evaluation within the defined relevant market.

The harmonised input data, used for sequential calculations, are available in the Annex 3. Input data processing steps, structural links between constituent information analysis quantitative units and their comprising elements as well as the generated intermediate results are available in the Annexes 3 – 8, while the final quantitative outputs are disclosed in Table 3.7.:

Table 3.7.

Analysis of monopolisation process progression in Latvian pharmaceuticals market: quantitative outputs

Analytical timeframe		***Current state of monopolisation reflecting indexes***					***Future monopolisation progression potential analysis indexes***		
Year	**Period**	**GCMI**	**GCMCI**	**NIMSI**	**NEMSI**	**IMPCI**	**CMLNVI**	**NCEI**	**GMPI**
2010	t_1	*0.19%*	*0.01%*	*0.18%*	*1.09%*	*22.36%*	*0.00%*	*15.29%*	*5.26%*
2011	t_2	*0.75%*	*0.09%*	*0.69%*	*0.60%*	*22.37%*	*0.00%*	*22.46%*	*12.50%*
2012	t_3	*0.26%*	*0.01%*	*0.26%*	*0.53%*	*22.36%*	*0.00%*	*9.51%*	*5.26%*
2013	t_4	*0.52%*	*0.05%*	*0.52%*	*0.26%*	*22.37%*	*0.00%*	*23.81%*	*5.26%*
2014	t_5	*0.41%*	*0.03%*	*0.41%*	*0.51%*	*22.36%*	*0.00%*	*11.16%*	*5.26%*
Average value		***0.43%***	***0.04%***	***0.41%***	***0.60%***	***22.37%***	***0.00%***	***16.45%***	***6.74%***

As it may be seen from Table 3.7., none of the current state of monopolisation reflecting indexes, except for individual monopoly power concentration index (IMPCI) take a value higher than 1.09%, such state of affairs being expected and intuitively comprehensible due to an exceptionally high level of supply-side actors with notably small individual market shares involved in economic activity within the analysed industry. IMPCI average value of 22.37% reflects the more favourable engagement position of the seven constantly present producers, which were able to remain present in the Latvian domestic market despite the severe competitive pressure, thus establishing at least a medium-term economic basis for further local operations. It must be noted that the present market conjuncture by its very composition uphold a certain level of artificiality in terms of detected signals – as the competing producer individual market shares are visibly small yet comparable in terms of their relative size, the supply-side component of the general market equilibrium seems to be highly fragmented, while its structural elements are quasi-homogeneously distributed, hence their mutual influence is notable and largely capable of mitigating individual supplier relative competitive advantages. Therefore, any kind of established market position in purely quantitative value may stand out and nominally seem as the "odd man out", while in fact it is the highly volatile market environment that by the sheer magnitude of its fragmentation alone makes any notion of a remote position stabilising draw attention by pushing the average indicator value upward. As a side note, it may be confirmed that the developed model, while objectively taking the mentioned trend into consideration, unbiasedly reflects on their nature and occurrence sources, thus mitigating the risk of Type I error emergence, hence being verified as suitable for highly volatile market structure analysis.

Future monopolisation progression potential reflecting indexes retain low values as the current market structure seems stable and near the point of sustainable long-term equilibrium, thus the volatility of the business environment and the constant rotation of external

international suppliers' leads to a stability of the *status quo* (the CMLNVI being equal to zero within the entire analytical timeframe) as any changes in the type of competition is highly unlikely. While the notable fragmentation of the supply-side certainly leaves enough space for macro level consolidation (reflected by the NCEI and GMPI), the number of involved producers alone poses a significant obstacle to monopolisation trend strengthening, the individual market power mutual compensation effect (Skoruks, Nazarova, Šenfelde, 2015, 43-49) substantially contributing to further mitigation of monopolisation process progression potential conversion into actual market effects. Having conducted a quantitative analysis of the defined market, the Author suggests a qualitative interpretation of the acquired numerical result to be introduced in order to enhance the level of scientific transparency of the current research, while simultaneously converting the quantitative outputs of the experimental modelling into comprehensible and unambiguous outcomes (see Table 3.8.).

Table 3.8.

Analysis of monopolisation process progression in Latvian pharmaceuticals market: qualitative outcomes

Analytical timeframe		***Current state of monopolisation reflecting indexes***					***Future monopolisation progression potential analysis indexes***		
Year	**Period**	**GCMI**	**GCMCI**	**NIMSI**	**NEMSI**	**IMPCI**	**CMLNVI**	**NCEI**	**GMPI**
2010	t_1	*Low*	*Low*	*Low*	*Low*	*Low*	*Low*	*Low*	*Low*
2011	t_2	*Low*	*Low*	*Low*	*Low*	*Low*	*Low*	*Low*	*Low*
2012	t_3	*Low*	*Low*	*Low*	*Low*	*Low*	*Low*	*Low*	*Low*
2013	t_4	*Low*	*Low*	*Low*	*Low*	*Low*	*Low*	*Low*	*Low*
2014	t_5	*Low*	*Low*	*Low*	*Low*	*Low*	*Low*	*Low*	*Low*
Average value		***Low***	***Low***	***Low***	***Low***	***Low***	***Low***	***Low***	***Low***

As it may be seen from Table 3.8., both current state of monopolisation and its progression potential reflecting group-composing indexes' actual values fall within the ranges, which had been identified to have a qualitative interpretation of low monopolisation trend presence and/or future emergence possibility (see. Section 3.2., Table 3.4. and Table 3.5.).

The conducted modelling generated sufficient results to determine the total level of monopolisation of the analysed market in a dynamic retrospective and in full compliance with the principles laid out in Section 3.1. and Section 3.2. of the current Doctoral Thesis (see Table 3.1., figure (3.1) and figure (3.3). The summary of the mentioned monopolisation process progression dynamics and its detected yearly levels over the defined analytical timeframe as well as cumulative results of the conducted multifactorial assessment had been made available in Table 3.9.:

Table 3.9.

Analysis of monopolisation process progression in Latvian pharmaceuticals market: cumulative results

Year	Cumulative current monopolisation process progression state	Cumulative future monopolisation process progression possibility	Total level of monopolisation	Defined market type
2010	Low	Low	Very low	Full monopolistic competition
2011	Low	Low	Very low	Full monopolistic competition
2012	Low	Low	Very low	Full monopolistic competition
2013	Low	Low	Very low	Full monopolistic competition
2014	Low	Low	Very low	Full monopolistic competition

As it may be seen from Table 3.9., during the entire defined analytical period of five constituent year, both the cumulative monopolisation process progression current state and its future enhancement possibility within the assessed market had been found low, therefore the total level of monopolisation in the corresponding industry, while taking into account the implemented statistical weight, attributed to each of the used individual indexes as well as their wider typological cluster groups, may be deemed very low. Such validation, while being consistent with other relevant independently conducted research (SAM, 2015c) (CERTUS, 2016) (CERTUS, 2017), if combined with the previously disclosed high number of supply-side market participants, enable the definition of the market type in accordance with the proposed innovative stratification system, elaborately described in Section 3.2. of the current Doctoral Thesis (see Figure 3.3). Therefore, the type of the analysed market may be defined as full monopolistic competition, which leads to the conclusion that over the course of the conducted research the Latvian pharmaceuticals market had been proven as consistently adherent to the following characteristics: (1) Suppliers are price takers in terms of collaboration with domestically operating distribution chains; (2) Individual profit maximisation is based on changes in supply amount and the subsequent bargaining with distributors, regarding profit margin allocation; (3) Minimal price-based competition in marginal consumer target groups; (4) Modest differentiation between products of similar functionality; (5) The market is fully open for new competitor entry or existing producer exiting. Therefore, it may be stated that the Latvian pharmaceuticals production market constitutes a highly competitive business environment, which not only has a crucial international trade component, but is in fact composed of import flows by at least 95%. The cumulative level of monopolisation within the mentioned market had been distinguishably low, to a certain extent virtually non-existent, over the entire analytical period of constituent five years, the latter statement being upheld by the results of the conducted multifactorial modelling, which had proven the monopolisation process progression current levels and

foreseeable future trends to be verifiably low by both quantitative and qualitative evaluation objectivity standards. Thus, it may be stated that in the case of Latvian pharmaceuticals production market, the level of involvement in international trade and the share of imports in the structure of domestic consumption is exceptionally high and the detected monopolisation level is continuously very low.

3.3.2. Determination of the level of monopolisation in the Latvian brewing industry

The preliminary analysed relevant market may be defined as production and distribution of beer in beverage form within the state borders of the Republic of Latvia, however, after careful examination of the available official statistical data (see Annex 9 for detailed information and references) (CSB, 2015), professional association disclosed information (Union of Latvian Brewers, 2015) as well as the binding legal texts (Cabinet Regulation Nr.956, 2005, Article 1; Article 18) (*On Excise Duties, 2003, Article 12, section 2*), it had been concluded that numerous so called "microbreweries" are active in the domestic market. Upon closer evaluation that the mentioned "microbreweries" are legally limited in their production capacities, storage facility configuration and the scope of franchise contract liabilities, which greatly affects the number of economically justified employees, pricing policies and consumer target group choice. (Cabinet Regulation Nr.956, 2005) A screening test, conducted by means of quantitative textual analysis, evaluating the provisions of 13.12.2005. Cabinet Regulation Nr. 956 (Cabinet Regulation Nr.956, 2005) indicated than "microbreweries" are legally motivated to take a strong regional stance and directly supply the local customers without engaging the available distributors, hence being underrepresented in domestic retail chains. The mentioned limitations induce a *de facto* minor increase in highly localised geographic markets and have minor, if any long-term implications on the development of the wider national market or the prevailing macroeconomic trends, which actually shape the relevant industry changing scenarios, while simultaneously having severely limited capabilities of affecting the general market equilibrium. Considering the previously stated information, the scope of further conducted analysis shall be limited to those Latvian domestic and international producers, who do not meet the necessary conditions to legally obtain the "microbrewery" status and are engaged in economic activity within the Latvian state border.

The acquired primary statistical data had been deemed heterogeneous and had undergone a quantitative harmonisation process in a similar manner and by the same means as

previously described in Section 3.2. of the current Doctoral Thesis. The unified cluster group scalar values had been mutually leveraged in order to achieve the defined five percent threshold or generate a value as close to the mentioned benchmark as possible without prejudice to the functioning principles, outlined in Section 3.2 of the current Doctoral Thesis. As a side note, is must be stated that the yearly total import amounts are viewed as a distinct data cluster unit as no information on individual and/or non-affiliated beer brand import flows is available. (CSB, 2015) The primary statistical data in its initial form and units as well as the generated harmonised inputs had been made available for comparison and scientific transparency reasons (see Annexes 9 – 10). Input data processing steps, structural links between constituent information analysis quantitative units and their comprising elements as well as the generated intermediate results are available in the Annexes 11-16., while the final quantitative outputs had been summarised in Table 3.10.:

Table 3.10.

Analysis of monopolisation process progression in Latvian brewing industry: quantitative outputs

Analytical timeframe		***Current state of monopolisation reflecting indexes***					***Future monopolisation progression potential analysis indexes***		
Year	**Period**	**GCMI**	**GCMCI**	**NIMSI**	**NEMSI**	**IMPCI**	**CMLNVI**	**NCEI**	**GMPI**
2010	t_1	*31.96%*	*61.28%*	*30.96%*	*11.32%*	*51.85%*	*-0.05%*	*17.13%*	*20.00%*
2011	t_2	*31.59%*	*59.86%*	*30.59%*	*10.21%*	*51.62%*	*0.00%*	*26.66%*	*20.00%*
2012	t_3	*29.70%*	*52.92%*	*29.70%*	*9.98%*	*50.48%*	*-0.02%*	*3.16%*	*16.67%*
2013	t_4	*27.89%*	*46.66%*	*27.89%*	*8.82%*	*49.44%*	*-0.01%*	*15.14%*	*16.67%*
2014	t_5	*24.87%*	*37.11%*	*24.87%*	*7.78%*	*47.80%*	*-0.09%*	*8.55%*	*16.67%*
Average value		***29.20%***	***51.57%***	***28.80%***	***9.62%***	***50.24%***	***-0.03%***	***14.13%***	***18.00%***

As it may be seen from Table 3.10., the current state of monopolisation reflecting indexes' values are dispersed in terms of the generated scalar ranges, however it may be seen that all of them reflect a paradigm of diminishment. The detected trend of simultaneous index value decline, while being heterogeneous in terms of individual volumes, share a common justification of the revealed pattern emergence. As it had been previously indicated in Fig. 3.6., the total amount of imported beer, when viewed from a financial turnover perspective, had been continuously growing over the six-constituent year period, defined as the relevant analytical framework. A conducted case study, employing statistical and graphical analysis techniques (the acquired result are available in Annex 17), revealed than there is a clear quantitative interrelation between the steady increase in imports and a proportionate decline of the current monopolisation level in the Latvian brewing industry. Furthermore, the positive effect of international trade of the competitive environment is additionally confirmed by the fact that when the beer consumption market suffered a mild decline in 2014 after an extensive

period of growth in 2009-2013, the total import amount achieved the most rapid increase (in percentage evaluation) over the entire analytical timeframe, upholding the notion that cross-border economic activity under modern economic conditions is likely to mitigate some of the internal sustainable development hampering factor induced negative effects. The increase in import amounts by 111.39% in the context of cumulative market consumption capacity growth of 23.62% and the increase of import aggregated market share by 6.80% over the period of 2009 – 2014 contributed to relative (non-linear) decrees in current monopolisation state reflecting indexes' values, ranging from 7.81% to 39.44% (see Table 3.10., Annex 17) depending on each individual indicator addressed aspect of the monopolisation process comprising economic elements (see Section 3.2.).

Thus, it may be stated that the decline in current level of monopolisation in the Latvian brewing industry was relatively proportionate to the continues increase in beer import amounts, which consequentially leads to the logical conclusion that sufficient engagement in the established system of international trade and the openness of the national economies of EU an EEA Member States stimulates healthy competition environment development and significantly contributes to lowering of the existing and potential monopolistic and/or quasi-monopolistic position in domestic as well as local markets.

Future monopolisation progression potential reflecting indexes retain low values as the current market seems stable on competitor cluster unit level, while retaining a sufficient amount of sub-cluster (niche) competition. Producer individual market power remaining stable, while reflecting an emerging pattern of sales leader consumption influencing ability decline, as indicated by the negative values of the CMLNVI. NCEI reflects a competition struggle induced volatility of individual market power reconfiguration, aimed at reaching a new market equilibrium point as the previous configuration of market structure came under pressure from mildly negative growth and potential competitor conversion into real rivals by exploiting the possibilities of relatively easy market entry. The latter serves as the rational being GMPI value drop as the gross monopolisation potential is further diminished by new, particularly international competitor engagement in economic activities within the analysed market. As the cumulative market share of total import had surpassed the 20% threshold only in 2014, the detected signal seems to reveal a positive trend of monopolisation process progression potential elimination by the sufficient amount of external competitive pressure, inflicted by those non-domestic producers, who are engaged in international trade delivered possibilities for operation in the Latvian internal brewing market.

Having conducted a quantitative analysis of the defined market, the Author suggests a qualitative interpretation of the acquired numerical result to be introduced in order to enhance the level of scientific transparency of the current research, while simultaneously converting the quantitative outputs of the experimental modelling into comprehensible and unambiguous outcomes (see Table 3.11.).

Table 3.11.

Analysis of monopolisation process progression in Latvian brewing industry: qualitative outcomes

Analytical timeframe		***Current state of monopolisation reflecting indexes***					***Future monopolisation progression potential analysis indexes***		
Year	**Period**	**GCMI**	**GCMCI**	**NIMSI**	**NEMSI**	**IMPCI**	**CMLNVI**	**NCEI**	**GMPI**
2010	t_1	*Low*	*Medium*	*Low*	*Medium*	*Low*	*Low*	*Low*	*Low*
2011	t_2	*Low*	*Medium*	*Low*	*Medium*	*Low*	*Low*	*Low*	*Low*
2012	t_3	*Low*	*Medium*	*Low*	*Medium*	*Low*	*Low*	*Low*	*Low*
2013	t_4	*Low*	*Medium*	*Low*	*Medium*	*Low*	*Low*	*Low*	*Low*
2014	t_5	*Low*	*Low*	*Low*	*Medium*	*Low*	*Low*	*Low*	*Low*
Average value		*Low*	*Medium*	*Low*	*Medium*	*Low*	*Low*	*Low*	*Low*

As it may be seen from Table 3.11., all of the future monopolisation progression potential analysis indexes' quantitative values fall within the ranges, which had been identified to have a qualitative interpretation of low sequential monopolistic process stage escalation possibility. (see Section 3.2., Table 3.4. and Table 3.5.).

The same notion applies to GCMI, NIMSI and IMPCI, while NEMSI had been defines as reflecting a medium current external monopolisation stimulus effect, which may be explained by an acquisition, conducted by non-domestic competitors of the market shares, previously occupied by smaller local producers (collectively represented as Cluster1 and Cluster2 quantitative input units).

The revealed tendency is, in a sense, temporary as the importing producers are simultaneously subjected to both internal and external pressure of behalf of both their home market an Latvian domestic breweries respectively, thus their individual market power is already utilised as a deterrent to the mentioned double-edged competition, however, since total import's market share in the domestic Latvian market had been growing more rapidly than Cluster1 and Cluster2 comprising enterprise cumulative representation in the market, it may be stated that the internationally represented companies have a higher level of market process and business environment influencing capabilities. As a side note, it must be mentioned that competition strengthening and the process of monopolisation are the "Yin and Yang" of modern globalised economic structures, hence one may not exist without the other and it is their mutual compensation effect's proximity the optimal position, which determines

the market equilibrium point sustainability and efficiency in terms of the relevant position comprising supply and demand amount simultaneous leveraging by the corresponding sale price level.

GCMCI as a quantitatively validated indicator, reflecting on the current level of achieved monopolisation level sustainability, delivers intriguing results. Until the year 2014, its values, while steadily decreasing, nevertheless remained in the value range, which according to the developed methodology had been assigned a qualitative interpretation of a "medium level". However, in 2014, when the total amount of import exceeded the 20% value threshold, obtaining a cumulative growth of 6.80% over the course of the defined analytical period of six constituent years, the relevant indicator in quantitative terms fell by 24.17%, thus for the first time changing its qualitative definition of the currently present monopolisation level from "medium" to "low".

Hence, it may now be clearly seen and soundly stated that an increase of import, therefore the level of engagement in international trade, not only diminishes the potential for monopolisation trend future escalation, present in the analysed relevant market, but, more importantly, had been proven to inflicts a degree of competitive pressure on internally established monopolistic tendencies as well as quasi-monopolistic economic structure, directly (and with a variating multiplier effect) proportionate to the extent of market openness to and involvement in international trade in the context of cross—border business environment liberalisation via lifting entry barriers for external potential competitors.

The conducted experimental modelling generates sufficient results to determine the total level of monopolisation of the analysed industry in a dynamic retrospective and in full compliance with the principles laid out in Section 3.1. and Section 3.2. of the current Doctoral Thesis (see Table 3.1., Figure 3.1. and Figure 3.2.). The summary of the mentioned monopolisation process progression dynamics and its detected yearly levels over the defined analytical timeframe as well as the cumulative results of the conducted multifactorial assessment had been made available it Table 3.12.

Table 3.12.

Analysis of monopolisation process progression in Latvian brewing industry: cumulative results

Year	Cumulative current monopolisation process progression state	Cumulative future monopolisation process progression possibility	Total level of monopolisation	Defined market type
2010	Low	Low	Very low	Classic monopolistic competition
2011	Low	Low	Very low	Full monopolistic competition
2012	Low	Low	Very low	Full monopolistic competition
2013	Low	Low	Very low	Full monopolistic competition
2014	Low	Low	Very low	Full monopolistic competition

As it may be seen from Table 3.12., during the entire defined analytical period, both the cumulative monopolisation process progression current state and its future enhancement possibility within the assessed market had been found low, therefore the total level of monopolisation in the corresponding industry, while taking into account the implemented statistical weight, attributed to each of the used individual indexes as well as their wider typological cluster groups, may be deemed very low. Such validation, if combined with the previously disclosed high number of supply-side market participants, comprising the six-employed analytical harmonised data cluster units, enable the definition of the market type in accordance with the proposed innovative stratification system, elaborately described in Section 3.2. of the current Doctoral Thesis (for more details, see Figure 3.3, Annex 1 and Annex 2). Consequentially, the type of the analysed market may be defined as classic monopolistic competition, which leads to the conclusion that over the course of the conducted research the Latvian brewing industry had been proven to be characterised by the following patterns: (1) Suppliers tend to be price takers; (2) Individual profit maximisation is based on simultaneous price, supply amount and differentiation competition tools; (3) Imperfect information has an effect of consumption and business decision making; (4) Homogeneous in their nature and functionality product undergo full-scale differentiation; (5) The market is fully open for new competitor entry or existing enterprise exiting.

Therefore, it may be stated that Latvian brewing industry constitutes a competitive and previously growing (except for in 2014) business environment, which has a crucial international trade component, the relevant import flows comprising at least a 20% share of the total market consumption capacity. The cumulative level of monopolisation within the mentioned market had been low over the entire analytical period of constituent five years, the latter statement being upheld by the results of the conducted multifactorial modelling, which had proven the monopolisation process current progression levels and foreseeable future trends as unlikely to be subject to rapid escalation. Thus, it may be stated that in the case of Latvian brewing industry, the level of involvement in international trade and the share of imports (~20% of the total market consumption capacity as of 2014) in the structure of domestic consumption is moderate and the detected monopolisation level is continuously low and further declining proportionally to the extent of cross-border economic activity intensification in the context continuously retaining and incrementally increasing level of international outlook within the analysed market.

3.3.3. Determination of the level of monopolisation in the Latvian non-specialised retail trade market

The economics conjuncture of the assessed business environment, included in the scope of the further conducted analysis may be broadly defined as the Latvian non-specialised retail trade market, however, there are certain distinctive feature, which narrow the actual analytical framework to a more comprehensible and objectively quantitatively measurable filed than implied by an intuitive interpretation of the defined research field. The mentioned eligibility criteria that are to be met in order for a certain data unit to be included in the scope of the conducted analysis may be defined as follows: (1) The non-specialised retail activity is conducted in within a retail chain (not individual and non-affiliated shops), operating under a single trade mark/brand/title; (2) The non-specialised retail activity is multi-purpose in its essence, meaning that a single type of goods may not dominate and/or generate a commercially crucial share of the acquired yearly turnover; (3) The non-specialised retail activity is not conducted as a franchise contract.

Simultaneously, the defined relevant market is essentially closed to import flows as it consists of service providing rather than good selling activities and their very economic nature: a retail chain, registered in a EU member State and/or a third county cannot legally conduct operation in the Republic of Latvia without registering a local subsidiarity or entering into a franchise contract with a Latvian domestic enterprise, the latter option being ruled out in terms of the conducted analysis as the necessary trustworthy statistical data in such cases is all but impossible to acquire.

Finally, it must be noted that, while considering the existing costs transfer practices, existing in modern retail trade, various trade mark/brand/chain title economic activity reflecting data had been cumulatively aggregated and considered a single quantitative data unit in cases of the mentioned retail trade marks/brands/chain titles constituting (being subjected to) a single individual or collective ownership. It other words, if two retail chains, operating under different titles are in any legally permitted way owned by a single legal entity and/or individual, their turnover had been summed and merged into a single data unit for the purpose of conducting the currently described research.

Therefore, for the purpose of the currently conducted research the definition of "Latvian non-specialised retail trade market" hereafter shall imply a relevant market within the Latvian state borders, consisting of non-specialised (multi-purpose) retail chains (not individually owned and single location operating shops), comprising of sales facilities (store) than are engaged in economic activity, defined in the NACE 2. Classification system as code

47.11 “Retail sale in non-specialised stores with food, beverages or tobacco predominating” in Annex I of the Regulation (EC) No 1893/2006 of the European Parliament and of the Council of December 2006 stablishing the statistical classification of economic activities NACE Revision 2 and amending Council Regulation (EEC) No 3037/90 as well as certain EC Regulations on specific statistical domains. (Council of the European Union, 2006b).

No primary data harmonisation had been required as it had been found suitable for conduction of full scale modelling due to the limited number of involved chain retailers and the transparency of the initial information sources. The input data (Lursoft data base, 2010h) (Lursoft data base, 2011h) (Lursoft data base, 2012h) (Lursoft data base, 2013h) (Lursoft data base, 2014h) (Lursoft data base, 2015h) (Competition Council of the Republic of Latvia, 2015b, 10-11), used for conduction of the actual experimental modelling, had been made available in Annex 18.

The actual input data processing steps, the employed structural links between constituent information analysis quantitative units and their comprising elements as well as the generated intermediate results are available in the Annexes 18 – 24, while the final quantitative outputs had been summarised in Table 3.13.:

Table 3.13.

Analysis of monopolisation process progression in Latvian non-specialised retail trade market: quantitative outputs

Analytical timeframe		***Current state of monopolisation reflecting indexes***					***Future monopolisation progression potential analysis indexes***		
Year	**Period**	**GCMI**	**GCMCI**	**NIMSI**	**NEMSI**	**IMPCI**	**CMLNVI**	**NCEI**	**GMPI**
2010	t_1	*48.81%*	*285.88%*	*48.05%*	*50.89%*	*56.71%*	*-0.01%*	*7.87%*	*33.33%*
2011	t_2	*48.94%*	*287.37%*	*48.94%*	*48.98%*	*56.82%*	*0.00%*	*21.35%*	*33.33%*
2012	t_3	*50.70%*	*290.56%*	*49.21%*	*50.28%*	*57.05%*	*0.00%*	*23.08%*	*33.33%*
2013	t_4	*54.12%*	*302.67%*	*53.88%*	*53.96%*	*60.50%*	*0.00%*	*3.33%*	*50.00%*
2014	t_5	*53.55%*	*295.66%*	*53.55%*	*52.45%*	*59.97%*	*-0.01%*	*21.03%*	*50.00%*
Average value		***51.22%***	***292.43%***	***50.72%***	***51.31%***	***58.21%***	***0.00%***	***15.33%***	***40.00%***

As it may be seen from Table 3.13., all of the current state of monopolisation reflecting indexes’ values had been moderately increasing over the entire analytical period with the exception of GCMCI, which had reflected a minor level of volatility, nevertheless retaining visibly high levels not falling below 285%. The former may be explained by a rather static competition conjuncture over the timeframe of 2009-2014 and an existence of two undisputed leaders, operating under retail chain title “Maxima” and “Rimi”, the latter including “Supernetto”, which remains under the same ownership. The high values of GCMCI, which reflects the consistency of the current monopolisation level and the likelihood of *status quo* maintenance, may be explained by a “two level” market conjuncture: the two

leaders, cumulatively comprising on average a ~80.00% share of the total market supply amounts and have the largest number of consumer engagement facilities (shops), are unlikely to be challenged by the smaller retailers, who are either regionally (e.g. “Elvi, “Aibe”) or certain income level consumer orientated(e.g. “Sky”, “Stockmann”), thus Level1 retailers faces little actual competitive pressure from their Level2 counter parts, hence the level of the current market structure consistency and long-term sustainability is severely high. It must be noted that the Level1 retailers are constantly facing severe mutual competitive pressure, which results in a permanent price war between them (as a visual expression of such state of affairs one my mention the constant outlets, discounted sales and aggressive promotion campaigns between “Maxima” and “RIMI)”, while simultaneously acknowledging that all of the Level2 retailers are potential competitors, active in a different niche, who will most certainly seas every opportunity to expand into the Level1 retailing domain. Simultaneously, since retail trade is essentially a distribution service, the amount of vertical pressure from the vended good suppliers (including wholesales channel operators) and/or producers seems to be quite severe as the reasonably wide retailer choice options significantly contributes to the bargaining leverage reduction of the latter, thus keeping the retail profit margins in a state of constant volatility. Additionally, new legislation, entering into force on 01.01.2016., shall inflict additional administrative pressure on the Level1 retailers and further strengthened the bargaining position of the vertically involved market agents in the near future. (Unfair Retail Trade Practices Prohibition Law, 2015)

Therefore, while the current potential competition level is sufficient to keep the market from further oligopolisation and/or escalation of the monopolisation process, the *de facto* competitive environment is fragmented and niche orientated, hence enabling the actual level of monopolisation to remain notably above the level, seen in cases homogeneous

Future monopolisation progression potential reflecting indexes delivered a multi-perspective vision on the analysed situation, CMLNVI suggesting s quite stable and non-volatile future development scenario, essentially reflecting a heavily founded status quo maintenance paradigm, while NCEI and GMPI responded to the consequences of a same occurrence by different means, namely NCEI dropping by 17.70% and GMPI growing by 16.67% in 2013. The mentioned trend have a simple yet symptomatic explanation: an acquisition of “IKI” retail chain by its competitors from “Mego” by means of a 100% share purchase took place at the end of 2013, thus giving a rise to both concentration in the market (although a non-crucial scale) and the opportunities for further Level2 niche internal consolidation, which however never took place due to the attractiveness of the non-specialised

retail trade market, which had shown a consistent growth of 21.96% over the course of six constituent years (20019-2014 period). Nevertheless, the mentioned acquisition had enabled a rise in gross monopolisation potential via possible consolidation between the smaller retailers (reflected by GMPI) and short-term drop in net competition effect (detected as a decline in individual market power mutual compensation (Skoruks, Nazarova, Šenfelde, 2015, 43-58), reflected by NCEI), which lasted for roughly a year after the actual occurrence.

Having conducted a quantitative analysis of the defined market, the Author suggests a qualitative interpretation of the acquired numerical result to be introduced in order to enhance the level of scientific transparency of the current research, while simultaneously converting the quantitative outputs of the experimental modelling into comprehensible and unambiguous outcomes (see Table 3.14.).

Table 3.14.

Analysis of monopolisation process progression in Latvian non-specialised retail trade market: qualitative outcomes

Analytical timeframe		***Current state of monopolisation reflecting indexes***					***Future monopolisation progression potential analysis indexes***		
Year	**Period**	**GCMI**	**GCMCI**	**NIMSI**	**NEMSI**	**IMPCI**	**CMLNVI**	**NCEI**	**GMPI**
2010	t_1	*Low*	*High*	*Medium*	*Medium*	*Medium*	*Low*	*Low*	*Medium*
2011	t_2	*Low*	*High*	*Medium*	*Medium*	*Medium*	*Low*	*Low*	*Medium*
2012	t_3	*Medium*	*High*	*Medium*	*Medium*	*Medium*	*Low*	*Low*	*Medium*
2013	t_4	*Medium*	*High*	*Medium*	*Medium*	*Medium*	*Low*	*Low*	*Medium*
2014	t_5	*Medium*	*High*	*Medium*	*Medium*	*Medium*	*Low*	*Low*	*Medium*
Average value		*Medium*	*High*	*Medium*	*Medium*	*Medium*	*Low*	*Low*	*Medium*

As it may be seen from Table 3.14., the future monopolisation progression potential analysis indexes' quantitative values fall within the ranges, which had been identified to have a qualitative interpretation of medium, except for GCMCI, which had reflected a high level of monopolisation process current progression. (see Section 3.2., Table 3.4. and Table 3.5.). The rationale behind the detected pattern are the same as described following Table 3.1., while it may be scientifically beneficial to elaborate on the fact that the fragmented market structure of the analysed economic conjuncture, combined with the high importance of promotion techniques and strategic marketing activity planning in accordance with a given retailer's defined preferential consumer group, had been detected by the indicators, incorporated into the confound of the developed methodology, hence the notion than the created methodology is suitable for service-providing industry analysis may be held true and dubbed as objectively confirmed.

Two of the future monopolisation progression potential analysis indexes reflect values, which indicate a low prospect of medium-term monopolistic trend escalation due to the fact that the current fragmented competition environment had in essence been a consequence rather than cause of prevailing two level retailer interaction, while GMPI discloses the potential of monopolisation stimulating pattern further strengthening as potential competition, if progresses rapidly, may eliminate few of the smaller retailers, thus triggering a niche-level consolidation. It must be noted that, given the expected supplier-induced vertical pressure strengthening under new legislation, entering into force in 2016, that retailer devotes a large portion of their individual market power to enhance the bargaining leverage vis-s-vis producers and wholesalers, prompting them from engaging into predatory pricing and mutual elimination strategies.

The summary of the mentioned monopolisation process progression dynamics and its detected yearly levels over the defined analytical timeframe as well as the cumulative results of the conducted multifactorial assessment had been made available in Table 3.15.

Table 3.15.

Analysis of monopolisation process progression in Latvian non-specialised retail trade market: cumulative results

Year	Cumulative current monopolisation process progression state	Cumulative future monopolisation process progression possibility	Total level of monopolisation	Defined market type
2010	*Medium*	*Low*	Relatively low	Classic monopolistic competition
2011	*Medium*	*Low*	Relatively low	Classic monopolistic competition
2012	*Medium*	*Low*	Relatively low	Classic monopolistic competition
2013	*Medium*	*Low*	Relatively low	Classic monopolistic competition
2014	*Medium*	*Low*	Relatively low	Classic monopolistic competition

As it may be seen from Table 3.15., the current state of monopolisation process progression had been defined as medium over the entire analytical period, while its future escalation potential in 2009-2014 had been described as low, leading to the acknowledgement that the total level of monopolisation in the Latvian non-specialised retail trade market had been relatively low, the disclosed trend being continuous, stable and likely to remain unaltered in at least medium-term perspective. Such validation, while being consistent with other relevant independently conducted research (Competition Council of the Republic of Latvia, 2015b), if combined with the previously disclosed two-digit number of supply-side market participants, comprising the employed analytical data cluster units, enable the definition of the market type in accordance with the proposed novel stratification system, elaborately described in Section 3.2. of the current Doctoral Thesis (for more details, see Figure 3.3., Annex 1 and Annex 2). Consequentially, the type of the analysed market may be

defined as classic monopolistic competition, although retaining several important distinctive features regarding the current state of monopolisation process progression, which leads to the conclusion that over the course of the conducted research the Latvian non-specialised chain retail trade market had been proven to retain the following characteristics: (1) The market in fragmented based on geographical placement and client target group determination individual strategies; (2) The market structure consists of two distinct leaders (in terms of market shares and volumes of financial turnover) and ten-turned-nine smaller retailer with relatively equal individual market power; (3) High importance of addressing strategically defined as preferential geographic and client target group stimulates niche-level competition between the smaller retailers, while creating potential competitor action risks for the two market leaders, who tend to mutually compensate each other's individual market power; (4) Vertically involved market actors inflict severe pressure on the horizontal competitors, thus stimulating a stable, yet closed internal environment, consequentially enabling a higher level of horizontal monopolisation level current progression; (5) Individual profit maximisation is based on simultaneous price, supply amount and differentiation competition tools; (6) Imperfect information has an effect of consumption and business decision making; (7) Aggressive marketing and price-based promotion strategies are widely employed in order to obtain both a higher financial turnover and a clearer market representation; (8) The market is in fact a service providing industry, which leads to a higher subjectivity of client/consumer preference definition and retailer trademark/brand perception; (9) The market is fully open for new competitor entry or existing enterprise exiting, although its consumption capacities do not pose an economic environment, sustainable for new significant domestic chain retailer emergence or external potential competitors conversion into actual market participants.

Therefore, it may be stated that Latvian non-specialised chain retail trade market is in fact a service industry, insulated from positive effects of involvement in international trade in terms of direct competitors and their subsidiary residency and direct cross-border client providing of the relevant services. The cumulative level of monopolisation within the mentioned market had been relatively low over the entire analytical period, while the current state monopolisation process progression is visibly higher and reaches medium levels if viewed distinctly from the wider, future orientated macroeconomic context, the latter statement being upheld by the results of the conducted multifactorial modelling, which had proven the monopolisation process current progression levels and foreseeable future trends as unlikely to be subject to rapid and unilaterally induced escalation.

Thus, it may be stated that in the case of Latvian non-specialised chain retail trade market, the cumulative level of monopolisation in an industry, which lacks direct involvement in international trade in terms of active competitor geographic outlook (retail enterprise and their subsidiary residency) and is therefore excluded from direct horizontal by nature and external by origin pressure from the mentioned non-domestically located competitors, the cumulative level of monopolisation had proven to be higher than in the previously analysed "open" industries.

3.3.4. Determination of the level of monopolisation in the Latvian mobile telecommunication market

The definition of the relevant market may be formulated as mobile telecommunication service provision within the state boarder of the Republic of Latvia. In order to obtain trustworthy and transparent primary statistical data, which would be consistent, while factually reflecting the *de facto* state of economic processes in the chosen market, "mobile telecommunication" services are viewed as wireless data transition, both unilaterally as voice telephony and/or in complementary data processing packages (SMS, MMS, internet access, etc.), hence excluding fixed line connection as well as network access, if the latter constitutes the core functionality unit of the offered service package. Therefore, for the purpose of the current research the definition of "mobile telecommunication services" shall further constitute an economic activity, compliant with NACE2. Classification system code 61.20 "Wireless telecommunications activities" as defined in Annex I of the Regulation (EC) No 1893/2006 of the European Parliament and of the Council of December 2006 stablishing the statistical classification of economic activities NACE Revision 2 and amending Council Regulation (EEC) No 3037/90 as well as certain EC Regulations on specific statistical domains. (Council of the European Union, 2006b). Furthermore, only service providers (operators), who have legal ownership of the local (domestic) wireless signal/data/information transmitting networks shall be included in the scope of the conducted analysis as enterprises, renting unaffiliated company infrastructure are seen as intermediaries between the owner of the service provision-ensuring technological means and the final consumer, while the renting fees and other royalties, paid to the mentioned infrastructure owners constitute a share of the latter's income and therefore are included in the corresponding net turnover.

It must be noted that at the time of the relevant part of the current research conduction, the Regulation (EU) 2015/2120 (Council of the European Union, 2015) had not yet been fully

drafted and adopted, thus roaming services were still during the entire defined analytical period of 2009-2014. Therefore, it may be concluded that the Latvian domestic telecommunication market was essentially as closed entrepreneurial environment due to the fact that to external providers could reach out directly to the local clientele, while non-resident consumers (including tourists and travellers) were "renting" the access to the local wireless data transition network with their residential (home country) providers acting as for-profit intermediaries on the basis of bilateral business agreements. Hence, the Latvian domestic telecommunication market in 2009-2014 may had been labelled as "import free" or "fully closed domestic" service providing industry, thus being subject to classical consumer subjective interpretation and evaluation of the services received and possibly high information asymmetries. The input data (Lursoft data base, 2010h) (Lursoft data base, 2011h) (Lursoft data base, 2012h) (Lursoft data base, 2013h) (Lursoft data base, 2014h) (Lursoft data base, 2015h), used for conduction of the actual experimental modelling as wellas the relevant data processing steps along with the employed structural links between analytical information units and their comprising elements as well as the generated intermediate results are available in the Annexes 25 – 29, while the final quantitative outputs had been summarised in Table 3.16.:

Table 3.16.

Analysis of monopolisation process progression in Latvian mobile telecommunication market: quantitative outputs

Analytical timeframe		***Current state of monopolisation reflecting indexes***					***Future monopolisation progression potential analysis indexes***		
Year	**Period**	**GCMI**	**GCMCI**	**NIMSI**	**NEMSI**	**IMPCI**	**CMLNVI**	**NCEI**	**GMPI**
2010	t_1	*28,76%*	*24,81%*	*28,76%*	*32,39%*	*64,50%*	*-0,04%*	*19,41%*	*33,33%*
2011	t_2	*26,81%*	*21,56%*	*26,81%*	*28,76%*	*63,66%*	*-0,04%*	*3,92%*	*33,33%*
2012	t_3	*23,34%*	*16,34%*	*23,34%*	*26,81%*	*62,27%*	*-0,05%*	*4,02%*	*33,33%*
2013	t_4	*21,75%*	*14,19%*	*21,75%*	*23,34%*	*61,70%*	*-0,01%*	*9,91%*	*33,33%*
2014	t_5	*19,52%*	*11,43%*	*19,52%*	*23,03%*	*61,01%*	*-0,02%*	*12,21%*	*33,33%*
Average value		***24,04%***	***17,67%***	***24,04%***	***26,87%***	***62,63%***	***-0,03%***	***9,89%***	***33,33%***

As it may be seen from Table 3.16., all of the current state of monopolisation reflecting indexes' had undergone a decline in individual values, ranging from in the case of IMPCI –3.49% to –13.38% in GCMCI, the overall average decline being –8.94%. While considering that the relevant market continuously remained in the state of a tree operator oligopoly throughout the analytical period of 2009-2014, the rational explanation for the current state of monopolisation reflecting a notable trend of declining is a lengthy price war between the involved supply-side market actors. The entry of "Bite Latvia" into an already duopolised market, in full accordance with modern oligopoly pricing theory (Bass, Haruvy, Prasad, 2006) (OECD, 1999), had been achieved by means of heavily lowered prices, forcing

"Tele2" and "LMT" to follow suite, thus triggering the escalation of the unavoidable "domino effect", which consequentially lead to a situation of a the tree-tier oligopoly being a "price war-ridden zone". Additionally, the distribution of mobile telecommunication operator individual market shares is quite yet not completely even in certain periods, hence the decline in several indexes' values is an objective projection of ongoing and economically comprehensible market processes. GCMI, GCMCI and NIMSI, being mutual market interaction reflecting indicators, had unbiasedly shown a trend of growing internal competition pressure as the result of the aforementioned price war, while NEMSI had indicated a growing interest in external acquisition of the Latvian domestic telecommunication service providers, resulting in inversely-proportionate decline of external monopolisation stimulus as a new international owner of an acquired local operator might had been able to execute a higher level of competitive pressure if a specialised enterprise brought its resources to bare in the ongoing six year oligopolistic struggle. IMPCI remains visible high in terms of actual quantitative values and the dynamics of their mild decline of just under three and a half percent due to an obvious fact that in a three supplier oligopoly situation individual market power concentration remains above average levels even in an event of a lengthy price war due the severely limited consumer choice alternatives, the relevant effect being mitigated quite limitedly by the relatively high price volatility and supplier mutual adaptation to competitor aggressive promotion strategies. Future monopolisation progression potential reflecting indexes delivered a multi-perspective vision on the analysed situation, CMLNVI suggesting a quite stable and non-volatile future development scenario, essentially reflecting an established and sustainable oligopolistic *status quo* with moderate trends towards price war-based derive for mild short-term fluctuation, while NCEI reflected a wide 15.49% volatility range due to the relevant indicator being aimed at disclosing internal competitive action cumulative effects, which, in a state of an ongoing price war within an obviously oligopolistic market structure, leads to suppliers pricing strategy mirror game (continuous mutual price adaptation and equalisation), soundly captured by the scope of the indicator, developed for this very purpose. GMPI remains stable as the relative levelling of the individual market shares of the involved domestic operator in the context of external international trade-induced competitive pressure absence leads to a highly stable and sustainable market structure, hence the static position of monopolisation potential reflecting quantitative values. Having conducted a quantitative analysis of the defined market, the Author suggests a qualitative interpretation of the acquired numerical result to be introduced in order to enhance the level of scientific transparency of the current research, while

simultaneously converting the quantitative outputs of the experimental modelling into comprehensible and unambiguous outcomes (see Table 3.17).

Table 3.17.

Analysis of monopolisation process progression in Latvian mobile telecommunication market: qualitative outcomes

Analytical timeframe		***Current state of monopolisation reflecting indexes***					***Future monopolisation progression potential analysis indexes***		
Year	**Period**	**GCMI**	**GCMCI**	**NIMSI**	**NEMSI**	**IMPCI**	**CMLNVI**	**NCEI**	**GMPI**
2010	t_1	*Low*	*Low*	*Low*	*Medium*	*High*	*Low*	*Low*	*Medium*
2011	t_2	*Low*	*Low*	*Low*	*Medium*	*High*	*Low*	*Low*	*Medium*
2012	t_3	*Low*	*Low*	*Low*	*Medium*	*High*	*Low*	*Low*	*Medium*
2013	t_4	*Low*	*Low*	*Low*	*Medium*	*High*	*Low*	*Low*	*Medium*
2014	t_5	*Low*	*Low*	*Low*	*Medium*	*High*	*Low*	*Low*	*Medium*
Average value		*Low*	*Low*	*Low*	*Medium*	*High*	*Low*	*Low*	*Medium*

As it may be seen from Table 3.17., the future monopolisation progression potential analysis indexes' quantitative values fall within the ranges, which had been identified to have a qualitative interpretation of medium, except for GCMCI, which had reflected a high level of monopolisation process current progression. (see Section 3.2., Table 3.4. and Table 3.5.).

All of the mobile telecommunication operator mutual interaction reflecting indicators had retained quantitative values in ranges, which may be qualitatively interpreted as reflecting a low level of monopolisation, while market conjuncture effects disclosing indicator had obtained values, enabling the labelling of the cumulative monopolisation potential and especially the concentration of individual monopoly power as above competitive environment generated levels. The conducted modelling generates sufficient results to determine the total level of monopolisation of the analysed industry in a dynamic retrospective and in full compliance with the principles laid out in Section 3.1. and Section 3.2. of the current Doctoral Thesis (see Table 3.1., Figure 3.1. and Figure 3.2.). The summary of the mentioned monopolisation process progression dynamics and its detected yearly levels over the defined analytical timeframe as well as the cumulative results of the conducted multifactorial assessment had been made available it Table 3.18.

Table 3.18.

Analysis of monopolisation process progression in Latvian mobile telecommunication market: cumulative results

Year	**Cumulative current monopolisation process progression state**	**Cumulative future monopolisation process progression possibility**	**Total level of monopolisation**	**Defined market type**
2010	*Medium*	*Low*	Relatively low	Oligopoly in a state of price war
2011	*Medium*	*Low*	Relatively low	Oligopoly in a state of price war
2012	*Medium*	*Low*	Relatively low	Oligopoly in a state of price war
2013	*Medium*	*Low*	Relatively low	Oligopoly in a state of price war
2014	*Medium*	*Low*	Relatively low	Oligopoly in a state of price war

As it may be seen from Table 3.18., the current state of monopolisation process progression had been defined as medium over the entire analytical period, while its future escalation potential in 2009-2014 had been described as low, leading to the acknowledgement that the total level of monopolisation in the Latvian mobile telecommunication market had been relatively low, the disclosed trend being continuous, stable and likely to remain unaltered in the long-term perspective, provided the ongoing price war does not lose momentum or cause a three-to-two merger (although an administrative permission of such actions is highly unlikely), in which case the current level of monopolisation shall rapidly advance to much higher levels. Such validation, while being consistent with other relevant independently conducted research (Competition Council of the Republic of Latvia, 2015a), enable the definition of the market type in accordance with the proposed innovative stratification system, elaborately described in Section 3.2. of the current Doctoral Thesis (for more details, see Figure 3.3., Annex 1 and Annex 2). Consequentially, the type of the analysed market may be defined as an oligopoly in a continuous state of a price war, which leads to the conclusion that over the course of the conducted research the Latvian telecommunication market had been found to be characterised by the following generic and distinguished features: (1) The suppliers (operators) tend to become cumulative price setters, while simultaneously pursuing an aggressive competitive strategy in order to acquire a leading market position; (2) The suppliers (operators) are mutual action-dependant as both the price and non-price competition tool implementation is highly transparent and the causality of economic process conductions influencing attempts in universally affecting each of the involved market actor on a holistic and indiscrete level; (3) Individual profit maximisation is based on simultaneous price, supply amount and differentiation competition tools; (4) Imperfect information has an effect of consumption and business decision making; (5) Aggressive marketing and price-based promotion strategies are widely employed in order to obtain both a higher financial turnover and a clearer market representation; (6) The market is in fact a service providing industry, which leads to a higher subjectivity of client/consumer preference definition and provided service package quality perception; (7) The market is closed for new competitor entry or existing enterprise exiting, due to the continuously high level of demand saturation: the current consumption capacities and their dynamics do not suggest that the prevailing economic environments is sustainable for new domestic or external potential competitor conversion into actual market participants. Therefore, it may be stated that the Latvian telecommunication market is in fact a service providing industry, closed to import flows and direct external influence until the roaming phasing Regulation (EU)

2015/2120 (Council of the European Union, 2015) is fully adopted and its provisions have an actual economic effect on the employed business models.

The cumulative level of monopolisation within the mentioned market had been relatively low over the entire analytical period, while the current state monopolisation process progression is visibly higher and reaches medium levels if viewed distinctly from the wider, future orientated macroeconomic context, the latter statement being upheld by the results of the conducted multifactorial modelling, which had proven the monopolisation process current progression levels and foreseeable future trends as unlikely to be subject to rapid and unilaterally induced escalation.

Thus, it may be stated that in the case of Latvian mobile telecommunication market, which remains in a state of a price war ridden three-tier oligopoly, the cumulative level of monopolisation in an industry, which lacks direct involvement in international trade in terms of non-domestic service provider unilateral, client reach orientated economic activity and is continuously excluded from direct external pressure from the mentioned non-domestically located, necessary technologic infrastructure owning competitors, the cumulative level of monopolisation had proven to be considerably higher than in the previously analysed "open" industries, the latter pattern being simultaneously provoked and enhanced by the economic nature of business conduct in the relevant market that had proven to be limited in terms of consumption capacities, which are insufficient to uphold more than the current number of active operators, resulting in notably high economic entry barrier emergence that effectively locks the market in a state of permanent three-tier oligopoly.

3.3.5. Determination of the level of monopolisation in the Latvian banking sector

The intuitive definition of the relevant market may be formulated as the wide variety of complementary and interconnected financial services, provided by the domestic and foreign commercial banks as well as their subsidiaries within the national border of the Republic of Latvia. An element of hidden complexity, however, exists in the context of the mentioned provided banking service allocation, which becomes a distinguishing functional element of analysed market. A clear majority of those commercial bank, whose market shares are relatively small, but not limited to the aforementioned supply-side market actor cluster, are conducting the lion's share of their financial operations in a manner that accommodates the needs of the non-resident demand segment, to be more precise, their target and core clientele is comprised by EU non-nationals (third country citizens), mostly originating from

the CIS countries. By contrast, for-profit financial institutions, servicing the above-mentioned clientele, are virtually non-present in the scope of the Latvian domestic banking service market and, since their non-residential clients value the possibility to legally gain legitimate access to the EU high standard savings and operation accounts, are concentrating their efforts abroad, rather than in their "home" market. Therefore, it may be argued that certain commercial banks, while legally residing in Latvia, have very little if any domestic market engagement and therefore generate a level competitive pressure and a thrive for better position in the local market close to and revolving around zero. The described situation leads to a logical conclusion that certain banks may be excluded from the scope of the conducted analysis, however, for reason of scientific rigour and academic objectivity, further evaluation shall be sequentially carried out for both possible data samples, namely, representative for all of the commercial banks, operating in Latvia and for those, considered to have an overwhelming domestic (internal) market orientation.

The acquired primary statistical data had been addressed as heterogeneous and had undergone a quantitative harmonisation process in a manner directly corresponding to the empirical principles, laid down in Section 3.2. of the current Doctoral Thesis. The unified cluster group scalar values had been mutually leveraged in order to at least partially reach the defined five percent threshold without prejudice to the functioning principles, defined in Section 3.2 of the current Doctoral Thesis.

The primary statistical data in its initial form and units as well as the generated harmonised inputs had been made available for comparison and scientific transparency reasons (see Annex 30 and Annex 31). The used input data processing steps along with the employed structural links between the used analytical information units and the corresponding data cluster quantitative behaviour as well as the acquired interim results are available in the Annexes 32 – 37, while the final quantitative outputs had been summarised in Table 3.19.

Table 3.19.

Analysis of monopolisation process progression in the Latvian banking sector: quantitative outputs

Analytical timeframe		***Current state of monopolisation reflecting indexes***					***Future monopolisation progression potential analysis indexes***		
Year	**Period**	**GCMI**	**GCMCI**	**NIMSI**	**NEMSI**	**IMPCI**	**CMLNVI**	**NCEI**	**GMPI**
2010	t_1	*19.39%*	*42.90%*	*19.68%*	*25.07%*	*33.15%*	*-0.06%*	*37.67%*	*11.11%*
2011	t_2	*16.79%*	*31.18%*	*15.49%*	*20.90%*	*31.77%*	*-0.02%*	*15.43%*	*11.11%*
2012	t_3	*16.01%*	*27.88%*	*15.40%*	*16.58%*	*32.64%*	*-0.01%*	*4.29%*	*10.00%*
2013	t_4	*20.43%*	*43.22%*	*20.43%*	*16.01%*	*34.55%*	*-0.02%*	*122.67%*	*14.29%*
2014	t_5	*10.73%*	*9.33%*	*11.16%*	*15.60%*	*33.06%*	*-0.06%*	*62.18%*	*10.00%*
Average value		***16.67%***	***30.90%***	***16.43%***	***18.83%***	***33.04%***	***-0.04%***	***48.45%***	***11.30%***

As it may be seen from Table 3.19., all of the current state of monopolisation reflecting indexes had been subjected to visible volatility and constant change, except the NEMSI, reflecting a steady decline in numerical value.

Taking into account the numerous market entrances by new external competitors as well as the exiting and the restructurings of several already established commercial banks, such trend does not come at a surprise and may be justified by a reasonable niche-based competition and overall turbulence in the total market capacity and the highly unstable growth rates, which were observed in the relevant industry over the entire course of the conducted analysis, conducted within the framework of a fixed time period.

The future monopolisation progression potential analysis indexes reflect of the same volatility, although, perhaps of lesser magnitude, while certain indicated values, namely those of the NCEI, suggest a severe competition struggle had been taking place until 2012, which, combined with the unfavourable macroeconomic conditions and the general volatility, plaguing the industry, may had contributed to or stimulated the reconfiguration of supply-side market structure, only to intensify again in the period of 2013-2014, leading to an expulsion of two relatively notable market actors from the relevant banking sector.

Having conducted a quantitative analysis of the defined market, the Author suggests a qualitative interpretation of the acquired numerical result to be made available with the goal of enhancing the level of scientific transparency of the conducted analysis, while simultaneously converting the quantitative outputs of the carried out experimental modelling into comprehensible and visibly clear outcomes (see Table 3.20.).

Table 3.20.

Analysis of monopolisation process progression in Latvian banking sector: qualitative outcomes

Analytical timeframe		***Current state of monopolisation reflecting indexes***					***Future monopolisation progression potential analysis indexes***		
Year	**Period**	**GCMI**	**GCMCI**	**NIMSI**	**NEMSI**	**IMPCI**	**CMLNVI**	**NCEI**	**GMPI**
2010	t_1	*Low*	*Medium*	*Low*	*Medium*	*Low*	*Low*	*Low*	*Low*
2011	t_2	*Low*	*Low*	*Low*	*Low*	*Low*	*Low*	*Low*	*Low*
2012	t_3	*Low*	*Low*	*Low*	*Low*	*Low*	*Low*	*Low*	*Low*
2013	t_4	*Low*	*Medium*	*Low*	*Low*	*Low*	*Low*	*High*	*Low*
2014	t_5	*Low*	*Low*	*Low*	*Low*	*Low*	*Low*	*High*	*Low*
Average value		**Low**	**Medium**	**Low**	**Low**	**Low**	**Low**	**Medium**	**Low**

As it may be seen from Table 3.20., the current monopolisation progression potential analysis indexes' quantitative values fall within the ranges, which had been identified to have a qualitative interpretation of low, except for GCMCI in 2010 and 2013 as well as NEMSI is 2010 only, which had reflected a generally low level of monopolisation process current

progression. (see Section 3.2., Table 3.4. and Table 3.5.). All of the commercial bank mutual engagement reflecting indexes had retained quantitative values in ranges, which may be qualitatively interpreted as disclosing a low level of further monopolisation escalation potential until the NCEI dramatic change in scalar values had pointed out a high competition effect, which may lead to further market consolidation due to excessive competitive pressure, imposed by the larger banks of their relatively smaller (in terms of available assets and turnover), driving the situation towards highly possible non-resident servicing-orientated bank(below-average in terms of client number and managed asset amounts) exiting from the market in the near future (possible, 2015 and/or2016).

The summary of the mentioned monopolisation process progression dynamics and its detected yearly levels over the defined analytical timeframe as well as the cumulative results of the conducted multifactorial assessment had been made available in Table 3.21.

Table 3.21.

Analysis of monopolisation process progression in Latvian banking sector: cumulative results

Year	**Cumulative current monopolisation process progression state**	**Cumulative future monopolisation process progression possibility**	**Total level of monopolisation**	**Defined market type**
2010	*Low*	*Low*	Very low	Full monopolistic competition
2011	*Low*	*Low*	Very low	Full monopolistic competition
2012	*Low*	*Low*	Very low	Full monopolistic competition
2013	*Low*	*Medium*	Low	Classic monopolistic competition
2014	*Low*	*Medium*	Low	Classic monopolistic competition

As it may be seen from Table 3.21., the current state of monopolisation process progression had been defined as “low” during the entire analytical period, while the cumulative future monopolisation process progression possibility had changed and further retained the qualitative description of the assessed situation from “low” to “medium”, thus triggering the change re-evaluation of the total monopolisation level from “very low” to “low” in 2013 as well as the corresponding definition of the market type as “Classic monopolistic competition”, thus constituting a change in the previous acknowledgement of the Latvian banking sector as a “full monopolistic competition”, constituent with the innovative developed market typology, available in the Annex 1 and Annex 2 of the current Doctoral Thesis.

The generated results seem biased as in an industry, which may be labelled as a two-tier market (domestic vs foreign clientele orientated) as proven by previous independent research (Jakobsons, Schaub, 2014, 3-21) (ECFIN, 2015), while simultaneously proven to retain a niche-based competition structure in terms of both the types of the provided services and the amount competitive pressure, mutually imposed by the supply-side market actors to

an intensity extent, originating from their individual market shares, the level of monopolisation is bound to be above both "full" and "classic" monopolistic competition level due to the very nature of the above described economic peculiarities. The most obvious explanation to the disclosed situation could be found in the definition of the analysed relevant market. If the previously mentioned reservations about the external and non-EU orientation of a large banking service provider cluster are indeed true, the boarders of the relevant market had been, in a sense, "overstretched", if such a use of words is possible, thus artificially widening the scope of monopolistic tendency drive and the limits of its limits, not to mention the level individual market power concentration. Hence, it seems that sufficient possibilities of the generated analytical result improvement do exist, therefore the issue of their scientifically justified and academically rigours enhancement shall be addressed by narrowing the definition of the analysed relevant market to those commercial banks, whose operational interest undoubtedly lie within the borders of the Latvian domestic market, defined from the position of financial service availability to legal residents of the corresponding geographic area.

The summary of quantitative outputs, generated by the repeatedly conducted analysis had been made available in Table 3.22.:

Table 3.22.

Analysis of monopolisation process progression in the Latvian domestic orientated banking sector: quantitative outputs

Analytical timeframe		***Current state of monopolisation reflecting indexes***					***Future monopolisation progression potential analysis indexes***		
Year	**Period**	**GCMI**	**GCMCI**	**NIMSI**	**NEMSI**	**IMPCI**	**CMLNVI**	**NCEI**	**GMPI**
2010	t_1	*22,98%*	*42,25%*	*25,18%*	*29,43%*	*42,17%*	*-0,15%*	*20,68%*	*16,67%*
2011	t_2	*21,08%*	*35,56%*	*21,08%*	*22,98%*	*41,16%*	*-0,02%*	*26,60%*	*16,67%*
2012	t_3	*21,91%*	*33,60%*	*22,41%*	*20,28%*	*43,69%*	*-0,02%*	*17,29%*	*20,00%*
2013	t_4	*25,56%*	*45,73%*	*25,56%*	*23,91%*	*45,63%*	*-0,04%*	*97,05%*	*20,00%*
2014	t_5	*14,03%*	*39,84%*	*18,98%*	*23,81%*	*46,87%*	*-0,02%*	*75,96%*	*20,00%*
Average value		***21,11%***	***39,40%***	***22,64%***	***24,08%***	***43,90%***	***-0,05%***	***47,52%***	***18,67%***

As it may be seen from Table 3.22., all of the current state of monopolisation reflecting indexes retain visible value volatility, including the NEMSI, hence a difference from the results of the case of wider relevant market definition may be confirmed.

The future monopolisation progression potential analysis indexes had been found to reflect a lower level of volatility, while simultaneously the NCEI values had notably dropped and the GMPI values had incrementally increased, enabling a suggestion that the extent of excessive competition had been lower in the domestic market, which is consistent with a

marginally higher potential of future monopolisation possibilities without a clear indication of the mentioned tendencies rapid escalation in the nearest future.

The qualitative outcomes of the quantitative outputs, generated by the repeatedly conducted analysis had been made available in Table 3.22.:

Table 3.23.

Analysis of monopolisation process progression in Latvian domestically orientated banking sector: qualitative outcomes

Analytical timeframe		***Current state of monopolisation reflecting indexes***					***Future monopolisation progression potential analysis indexes***		
Year	**Period**	**GCMI**	**GCMCI**	**NIMSI**	**NEMSI**	**IMPCI**	**CMLNVI**	**NCEI**	**GMPI**
2010	t_1	*Low*	*Medium*	*Low*	*Medium*	*Medium*	*Low*	*Low*	*Low*
2011	t_2	*Low*	*Low*	*Low*	*Low*	*Medium*	*Low*	*Low*	*Low*
2012	t_3	*Low*	*Low*	*Low*	*Low*	*Medium*	*Low*	*Low*	*Low*
2013	t_4	*Low*	*Medium*	*Low*	*Medium*	*Medium*	*Low*	*High*	*Low*
2014	t_5	*Low*	*Medium*	*Low*	*Medium*	*Medium*	*Low*	*High*	*Low*
Average value		**Low**	**Medium**	**Low**	**Medium**	**Medium**	**Low**	**Medium**	*Low*

As it may be seen from Table 3.23., the most notable changes in the current monopolisation progression potential analysis indexes' values (both from a dynamic annual retrospective and the corresponding data range average measurement point of view) had been disclosed in the NEMSI and IMPCI indicator generated outcomes, which had risen from "low" to "medium" levels, hence a higher market power current concentration may be defined as observed and its existence objectively verified.

On the other hand, all of the future monopolisation progression potential analysis indexes retained the same qualitative interpretation of the generated quantitative values, suggesting that the detected changes (see. Table 3.19. and Table 3.22.) had indeed been marginal and not significant enough to affect the fundamental evaluation of the analysed monopolisation potential fluctuations. The cumulative results of the repeatedly conducted multifactorial assessment are available in Table 3.24.

Table 3.24.

Analysis of monopolisation process progression in Latvian domestically orientated banking sector: cumulative results

Year	**Cumulative current monopolisation process progression state**	**Cumulative future monopolisation process progression possibility**	**Total level of monopolisation**	**Defined market type**
2010	*Medium*	*Low*	Relatively low	Classic monopolistic competition
2011	*Low*	*Low*	Very low	Full monopolistic competition
2012	*Low*	*Low*	Very low	Full monopolistic competition
2013	*Medium*	*Medium*	Medium	Derived monopolistic competition
2014	*Medium*	*Medium*	Medium	Derived monopolistic competition

As it may be seen from Table 3.21., the Latvian domestically orientated banking service sector had reflected a temporary decrease in monopolisation process progression in the period of 2011 – 2012, however, the objective economic reality, namely, the high market volatility, the dropping demand for the relevant services and an incremental rise in market concentration as well as a lack of imports due to the very nature of the analysed type of business operations, soon forced the market conjuncture to reconfigure its structural elements in order to flexibly adapt to the changing situation and reach a new level of relative stability, which reflects a medium monopolistic escalation trend, offset only by the number of supply-side market actors involved and their strategic affiliation, the leading banking service providers, operating solely or mostly in the domestic segment of the Latvian general demand for the relevant services, being subsidiaries of large Scandinavia region-based international banking groups with a strong and lasting representation in the global financial and banking service markets. It must be noted that the final findings of the curret subsection are inline and generally correspond to the conclusions, generated by other independently conducted research (Jakobsons, Schaub, 2014) (Competition Council of the Republic of Latvia, 2013, 2015c).

3.3.6. Determination of the level of monopolisation in the Lithuanian banking sector

The definition of the relevant market seems reasonably clear from a strictly economic point of view and may be formulated as the wide variety of complementary and interconnected financial services, provided by the domestic and foreign commercial banks as well as their subsidiaries within the national border of the Republic of Lithuania.

The acquired primary statistical data had been characterised by a moderate level of quantitative heterogeneity and had undergone a standard harmonisation process in a manner directly corresponding to the empirical principles, laid down in Section 3.2. of the current Doctoral Thesis. The unified cluster group scalar values had been mutually leveraged in order to at least partially accommodate the defined five percent threshold without prejudice to the functioning principles, defined in Section 3.2 of the current Doctoral Thesis. The primary statistical data (Association of Lithuanian Banks, 2015) in its initial form and the generated harmonised inputs had been made available in Annex 38 and Annex 39.

The used input data processing steps along with the employed structural interconnection between the used information units and the corresponding data cluster quantitative behaviour as well as the generated interim results are available in the Annexes 40 – 45, while the final quantitative outputs had been summarised in Table 3.25.

Table 3.25.

Analysis of monopolisation process progression in the Lithuanian banking sector: quantitative outputs

Analytical timeframe		***Current state of monopolisation reflecting indexes***					***Future monopolisation progression potential analysis indexes***		
Year	**Period**	**GCMI**	**GCMCI**	**NIMSI**	**NEMSI**	**IMPCI**	**CMLNVI**	**NCEI**	**GMPI**
2010	t_1	*22.34%*	*44.92%*	*22.34%*	*24.89%*	*40.13%*	*-0.01%*	*10.27%*	*14.29%*
2011	t_2	*27.57%*	*60.82%*	*27.85%*	*24.58%*	*44.84%*	*-0.03%*	*11.44%*	*16.67%*
2012	t_3	*25.74%*	*46.37%*	*26.17%*	*28.01%*	*45.73%*	*-0.03%*	*16.37%*	*20.00%*
2013	t_4	*25.88%*	*46.89%*	*25.88%*	*25.74%*	*45.81%*	*-0.02%*	*9.13%*	*16.67%*
2014	t_5	*24.83%*	*43.17%*	*24.83%*	*25.88%*	*45.23%*	*-0.03%*	*70.14%*	*20.00%*
Average value		***25.27%***	***48.43%***	***25.41%***	***25.82%***	***44.34%***	***-0.02%***	***23.47%***	***17.52%***

As it may be seen from Table 3.25., all of the current state of monopolisation reflecting indexes had been subjected to minor volatility and quite little change in values, the latter holding truth for all of the future monopolisation progression potential analysis indexes with the standing out exception of the NCEI in 2014, which had reflected a dramatic increase, possibly due to the near constant prevalence of Scandinavia-based international banking groups subsidiaries in the Lithuanian banking service market and the lagging effects of the finished exiting of two notable (in terms of their market shares) domestic supply-side market actors.

Having conducted a quantitative analysis of the defined market, the Author suggests an elaboration on the matter in the form of a qualitative interpretation of the acquired numerical result, aimed at enhancing the level of scientific transparency of the conducted analysis, while simultaneously converting the quantitative outputs of the carried out experimental modelling into a comprehensible manner of information disclosure (see Table 3.26.).

Table 3.26.

Analysis of monopolisation process progression in Lithuanian banking sector: qualitative outcomes

Analytical timeframe		***Current state of monopolisation reflecting indexes***					***Future monopolisation progression potential analysis indexes***		
Year	**Period**	**GCMI**	**GCMCI**	**NIMSI**	**NEMSI**	**IMPCI**	**CMLNVI**	**NCEI**	**GMPI**
2010	t_1	*Low*	*Medium*	*Low*	*Medium*	*Medium*	*Low*	*Low*	*Low*
2011	t_2	*Low*	*Medium*	*Low*	*Medium*	*Medium*	*Low*	*Low*	*Low*
2012	t_3	*Low*	*Medium*	*Low*	*Medium*	*Medium*	*Low*	*Low*	*Low*
2013	t_4	*Low*	*Medium*	*Low*	*Medium*	*Medium*	*Low*	*Low*	*Low*
2014	t_5	*Low*	*Medium*	*Low*	*Medium*	*Medium*	*Low*	*High*	*Low*
Average value		**Low**	**Medium**	**Low**	**Low**	**Medium**	**Low**	**Medium**	**Low**

As it may be seen from Table 3.26., the current monopolisation progression potential analysis indexes' values had fall under numeric threshold, which had been identified to have a qualitative interpretation of either "low" (GCMI and NIMSI) or "medium" (GCMCI, NEMSI

and IMPCI), reflecting a situation, in which a stable consistency of mutually compensating individual market power is being incrementally affected by the external monopolisation trends and has an imbedded internal basis of relatively low number of active and financially sufficient (in terms of competitive pressure maintenance) banking service provider in a much wider context of a low current monopolisation process development stage due to high levels of the mentioned mutual competitive pressure between the Scandinavian subsidiaries.

Simultaneously, all of the future monopolisation progression potential analysis indexes had "low" values during the defined analytical period with the notable exception of the NCEI in 2014, which increased by 61.01%, possibly due to a stagnation of the competition environment and sufficient mutual pressure of the relevant kind, leading to a joint quasi-dominant position creation in the market as the four major banks, while sufficiently competitively constraining each other, are in a position of uncontested leadership and are in no way threatened by their smaller (in terms of market shares) counterparts. Thus, it may be argued that the Lithuanian banking sector may possibly be on the wedge of entering an incremental individual market power concentration, which may be expected to take place at a rather slow paste with a rapid escalation virtually impossible due to the sheer magnitude of the four major supply-side market actor mutual competitive engagement possibilities. New entrants, however, a likely to offset the mentioned influence factors and are expected to further contribute to upholding the market conjuncture in a state, corresponding to a derived monopolistic competition definition.

The summary of the mentioned monopolisation process progression dynamics and the detected annually-sequential levels of the relevant process escalation magnitude within the defined analytical timeframe had been presented in Table 3.27.

Table 3.27.

Analysis of monopolisation process progression in Lithuanian banking sector: cumulative results

Year	Cumulative current monopolisation process progression state	Cumulative future monopolisation process progression possibility	Total level of monopolisation	Defined market type
2010	*Medium*	*Low*	Relatively low	Classic monopolistic competition
2011	*Medium*	*Low*	Relatively low	Classic monopolistic competition
2012	*Medium*	*Low*	Relatively low	Classic monopolistic competition
2013	*Medium*	*Low*	Relatively low	Classic monopolistic competition
2014	*Medium*	*Medium*	*Medium*	Derived monopolistic competition

As it may be seen from Table 3.27., the current state of monopolisation process progression had been defined as "medium" during the entire analytical period, while the cumulative future monopolisation process progression possibility had been incrementally

fluctuating in those qualitative value ranges, which enable a definition of "low" monopolisation potential until the situation changes in 2014 and the qualitative interpretation in-question reached a "medium" level. It must be noted that mentioned findings of the current subsection are inline and generally correspond to the conclusions and the disclosed general long-term trend, acknowledged by other independently conducted research. (Deltuvaite, V., Vaškelaitis, V., Pranckevičiūt, A., 2007) (Stanikūnas, 2015) Hence, the analysed market type, retaining the definition of classic monopolistic competition in 2009 – 2013, changed in 2014 to derived monopolistic competition due to a dramatic decrease of competitive pressure distribution between the niches of market leaders and other, less represented, particularly domestic supply-side market actors. Simultaneously, it may be noted that the decrease in number of banks, engaged in active financial operation within the state boarders of the Republic of Lithuania had declined (see Annex 38) over the course of 2009-2014, hence the concentration of individual market power had seen a reconfiguration on a scale, sufficient enough to trigger a steady yet incremental increase in the aggregated monopolisation process escalation potential in the industry, taking place in the context of the total market capacity decrease 24.46% by in the same (2014) year.

3.3.7. Determination of the level of monopolisation in the Estonian banking sector

The definition of the relevant market from an economic perspective seems fairly clear and may be formulated as the wide variety of complementary and interconnected financial services, provided by the commercial banks or their international subsidiaries within the national border of the Republic of Estonia.

The acquired primary statistical data had been characterised by a moderate level of quantitative inconsistency and had undergone a numerical harmonisation process in a manner adhering to the empirical principles, laid down in Section 3.2. of the current Doctoral Thesis. The scalar values of the obtained standardised cluster groups had been unified within a single dynamic quantitative system in order to at least accommodate the defined five percent threshold without prejudice to the functioning principles, defined in Section 3.2 of the current Doctoral Thesis. The primary statistical data (Estonian Financial Supervision Authority, 2015) in its initial form and the generated harmonised inputs had been made available in Annex 46 and Annex 47.

The acquired data processing steps of the used input information as well as the employed structural interconnection between the used data ranges and the corresponding

acquired final result quantitative behaviour as well as their interim values are available in the Annexes 48 – 53, while the aggregate quantitative outputs had been summarised in Table 3.28.:

Table 3.28.

Analysis of monopolisation process progression in the Estonian banking sector: quantitative outputs

Analytical timeframe		***Current state of monopolisation reflecting indexes***					***Future monopolisation progression potential analysis indexes***		
Year	**Period**	**GCMI**	**GCMCI**	**NIMSI**	**NEMSI**	**IMPCI**	**CMLNVI**	**NCEI**	**GMPI**
2010	t_1	*36,97%*	*82,00%*	*36,97%*	*37,96%*	*55,08%*	*0,00%*	*4,35%*	*20,00%*
2011	t_2	*31,30%*	*58,78%*	*31,30%*	*36,97%*	*51,44%*	*-0,06%*	*22,45%*	*16,67%*
2012	t_3	*29,56%*	*52,44%*	*29,56%*	*31,30%*	*50,41%*	*-0,01%*	*12,05%*	*16,67%*
2013	t_4	*29,92%*	*53,71%*	*29,92%*	*29,56%*	*50,61%*	*-0,07%*	*43,49%*	*16,67%*
2014	t_5	*28,60%*	*49,08%*	*28,60%*	*29,92%*	*49,85%*	*-0,05%*	*82,64%*	*16,67%*
Average value		***31,27%***	***59,20%***	***31,27%***	***33,14%***	***51,48%***	***-0,04%***	***33,00%***	***17,33%***

As it may be seen from Table 3.28., all of the current state of monopolisation reflecting indexes had been subjected to minor volatility, except GCMCI and NIMSI, the former of the two seeing a significant decline in value, while the volatility of the latter had been higher if compared to other rather stable indicators.

The reviled trend discloses a lowering level of the existing market structure long term stability, while simultaneously suggesting a possible and quite rapidly escalating fragmentation (if viewed from a market power concentration position) of the supply into small domestic market actors and much larger foreign-owned subsidiaries of mostly Scandinavian international banking groups, operating on a different scale of both asset management, risk tolerance and profit margins and therefore effectively forming a mainly two-niche economic conjuncture. Simultnaeosuly, the future monopolisation progression potential analysis indexes had retained visibly stable value ranges, except for NCEI, which rose dramatically in 2013 and even more in 2014, reflecting a diminishing positive competition effect, rooting from a minor consolidation that had been present in the below five percent market share threshold supply-side market actor segment, hence further upholding the previously mentioned escalating possibility of market fragmentation into medium-concentrated niches, stratified by the magnitude of individual market power the banks operating in specific niches.

Having conducted a quantitative analysis of the defined market, the Author suggests an elaboration on the matter in the form of a qualitative interpretation of the acquired result with the goal of enhancing the level of scientific transparency of the conducted experimental modelling, while simultaneously converting the developed quantitative model-generated

outputs into comprehensibly displayed outcomes, suitable for further qualitative evaluation (see Table 3.29.).

Table 3.29.

Analysis of monopolisation process progression in Estonian banking sector: qualitative outcomes

Analytical timeframe		***Current state of monopolisation reflecting indexes***					***Future monopolisation progression potential analysis indexes***		
Year	**Period**	**GCMI**	**GCMCI**	**NIMSI**	**NEMSI**	**IMPCI**	**CMLNVI**	**NCEI**	**GMPI**
2010	t_1	*Low*	*High*	*Medium*	*Medium*	*Medium*	*Low*	*Low*	*Low*
2011	t_2	*Low*	*Medium*	*Medium*	*Medium*	*Medium*	*Low*	*Low*	*Low*
2012	t_3	*Low*	*Medium*	*Low*	*Medium*	*Medium*	*Low*	*Low*	*Low*
2013	t_4	*Low*	*Medium*	*Low*	*Medium*	*Medium*	*Low*	*Low*	*Low*
2014	t_5	*Low*	*Medium*	*Low*	*Medium*	*Medium*	*Low*	*High*	*Low*
Average value		**Low**	**Low**	**Medium**	**Medium**	**Medium**	**Medium**	**Low**	**Medium**

As it may be seen from Table 3.29., some of the current monopolisation progression potential analysis indexes (GCMI, NEMSI and IMPCI) had obtained quantitative values, which enable a qualitative interpretation of either "low" of "medium" during the entire analytical period, while the GCMCI had fallen from "high" to "medium" values in 2010, having maintained such position until 2014, and the NIMSI had made a decline from "medium" to "low" in 2012, enabling the definition of the current monopolisation level in the relevant market as consistently noteworthy and lastingly stable. All of the future monopolisation progression potential analysis indexes had "low" values during the defined analytical period with the notable exception of the NCEI in 2014, which dramatically increased form "low" to "high" in 2014, following the consolidation in the relatively small (in terms of individual market shares and the corresponding levels of market power) domestic bank niche and further strengthening of the operation scale-based market fragmentation.

The summary of the mentioned monopolisation process progression dynamics and the detected annually-sequential levels of the relevant process escalation magnitude within the defined analytical timeframe had been presented in Table 3.30.

Table 3.30.

Analysis of monopolisation process progression in Estonian banking sector: cumulative results

Year	**Cumulative current monopolisation process progression state**	**Cumulative future monopolisation process progression possibility**	**Total level of monopolisation**	**Defined market type**
2010	*Medium*	*Low*	Relatively low	Derived monopolistic competition
2011	*Medium*	*Low*	Relatively low	Derived monopolistic competition
2012	*Medium*	*Low*	Relatively low	Derived monopolistic competition
2013	*Medium*	*Low*	Relatively low	Derived monopolistic competition
2014	*Medium*	*Medium*	*Medium*	Derived oligopoly

As it may be seen from Table 3.30., the current state of monopolisation process progression, while incrementally fluctuating in terms of quantitative outputs, had been defined as “medium” during the entire analytical period, while the cumulative future monopolisation process progression possibility had been in those qualitative value ranges, which enable a definition of “low” monopolisation potential until the situation changes in 2014 and the qualitative interpretation in-question reached a “medium” level. It must be noted that mentioned findings of the current subsection are inline and generally correspond to the conclusions and the disclosed general long-term trend, acknowledged by other independently conducted research. (Ahi, Uiboupin, 2002) (Cuestas, Lucotte, Reigl, 2017) (Markiewicz, 2012) Hence, the competitive type of the analysed relevant market retained the definition of derived monopolistic competition in 2010 – 2013 and changed in 2014 to derived oligopoly due to a notable increase in individual market power concentration stimulus, rooting from a closed niche-type market structure, which may be dubbed as regressive fragmentation. As a side note, it must be mentioned that the conducted analysis had reviled a trend of seemingly stagnant monopolisation escalation possibilities until a rapid increase in monopolisation potential had taken place in 2014, thus enabling an understanding of the stunning pace at which a change in monopolistic tendency development may switch between seemingly distant levels of economic process influence magnitude.

3.4. Analytical summary of the conducted verification of the research hypothesis

In order to compose a comprehensive, transparent and scientifically objective analytical summary of the results, acquired during the course of the conducted research, an approach of informative incremental visualisation had been taken by the Author, enabling a sequential display of both the quantitative data and its corresponding interpretation, generated by the experimental modelling, described it Section 3.3. of the current Doctoral Thesis, simultaneously employing several mutually complementary graphical tools, which sufficiently reflect on the scale and magnitude of the detected trends, discovered consistency patterns and disclosed causalities, existing in the analysed markets, while seeking a sufficient factually - scientific basis for confirmation or rejection of the defined research hypothesis in the wider context of monopolisation process empirical studying. While assessing the aggregated quantitative outputs, generated by the aforementioned experimental modelling, it would be beneficial in terms of visual comprehensibility to display cumulative values, taken

by the system of employed indicators in all of the analysed industry. Furthermore, an elaboration on the differences between the current monopolisation process progression state and the future monopolisation process progression possibility indexes should be made before constructing a final summary of the quantitative value fluctuation ranges and the numerical thresholds, reached by the mentioned structural elements of the developed monopolisation process evaluation system. Hence, the relevant information shall be graphically displayed in full accordance with the declared principle of incremental visualisation, implying a sequential disclosure of the undertaken analysis.

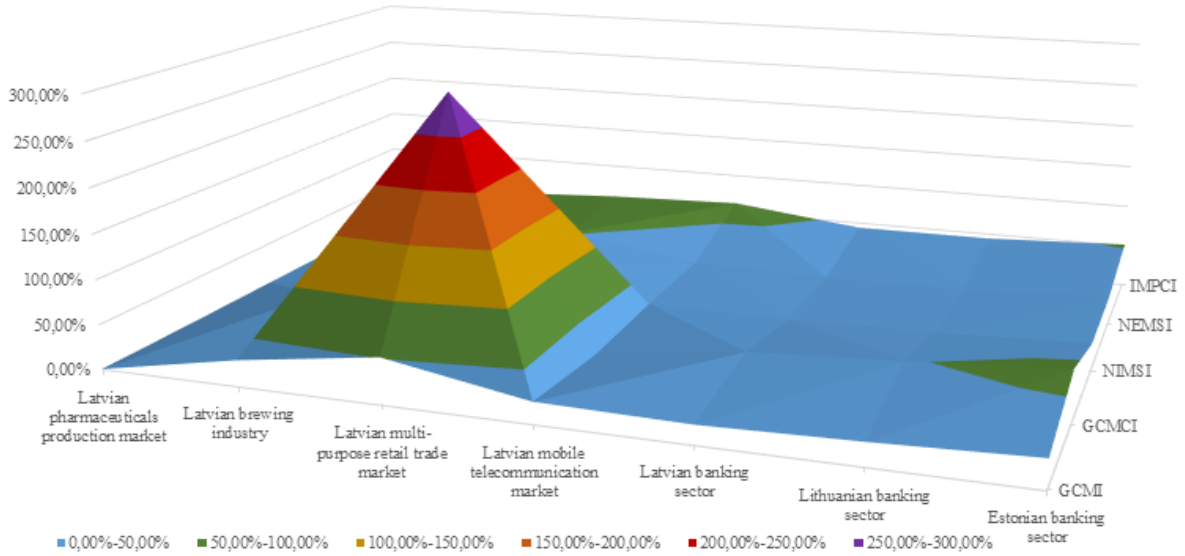


Figure 3.4. Inter-market average value ranges of the current monopolisation process progression state indexes
(Source: developed by the author)

As it may be seen from Figure 3.4., the average cumulative values current monopolisation process progression state indexes had been limited to a cross-market fluctuation ranges of zero to sixty percent during the entire analytical period, such statement holding true for all of the analysed markets and industries with the notable exception of the GMCI in the Latvian multipurpose retail trade market, which remained in the volatility range of 250.00-300.00% percent with an average value of 292.43%, disclosing a visibly divergent trend of exceptionally high consistency of the current state of quasi-oligopolistic market structure.

Thus the following conclusion mat drawn: an intermediary link in a supply chain, established in a small open economy, providing distribution services and upholding an accessibility convenience channel, consisting of vertical flows of diversified product assortments, have a tendency to interlock the established level of monopolisation and the static nature of an external pressure-exempt market, essentially locking the market from

potential competition conversion into actual entry, which consequentially leads to a niche-based clientele segregation and, eventually, to a higher cumulative level of monopolisation process progression.

In other words, retailers benefit from an absence of classic external pressure as they operate in a domestic market, to be more precise in a certain geographic area, which, combined with a lack of external competitor challenges may lead to a higher level of individual market power concentration, thus consequentially creating solid ground for monopolistic tendency incremental escalation.

Hence, it may be stated that monopolisation process progression in the mentioned types of markets are likely to have a higher consistency levels and their further development is highly reliant of the overall potential of future consolidation prospects, which are in direct relation with the individual profitability and growth opportunities in a given market. Therefore, in order to elaborate on the mentioned issue, it would be rational to summarize the data on monopolisation process future progression possibility.

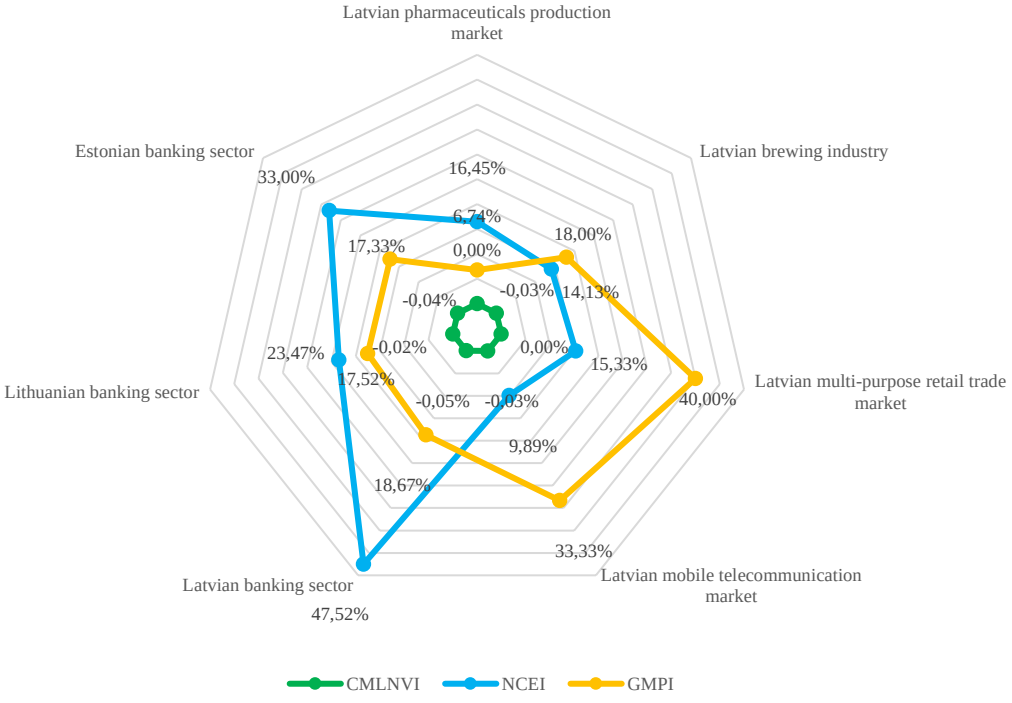


Figure 3.5. Inter-market average value ranges of the future monopolisation process progression possibility indexes

(Source: developed by the author)

As it may be seen from Figure 3.5., the quantitative fluctuation value ranges of the future monopolisation process progression possibility indexes vary considerably, depending

on the type of the analysed market, however three notable consistency patterns may be detected.

Firstly, the cross-market CMLNVI value range had been severely close to a neutral (zero) value in all industries during the entire analytical period, disclosing a trend of minimal rapid changes in the current market structure in terms of individual market power volatility escalation, thus enabling a suggestion of small open economies operating on a scale level, which does not uphold an exceptionally high number of domestic supply-side participants due to higher limitations in both the total market consumption capacities and their speed of expansion, if compared to their larger counterparts, consequentially leading to import amounts and involvement in international trade being crucial to ensuring the existence of sustainable competitive environment in the long run.

Secondly, both NCEI and GMPI reflected a visible if indirect mutual correlation, thus upholding the assumption of competition effects being inversely-proportional to the potential of future monopolisation process escalation possibility, hence it may be held confirmed that the efficiency of a given competitive environment is leveraged by the fragmentation of the corresponding market structure (as an industry, consisting entirely of small business is more vulnerable to macroeconomic shocks that its counterpart, comprised of a reasonable if marginally fewer medium enterprises), thus allowing to consider the phenomenon of excessive competition a possibly damaging one in the long-terms, if the market is sealed-off from new competitor entry and/or import flow establishing as the most economically sensible ways of increasing the extent of consumer choice possibilities by purely market levers. Therefore, involvement in international trade and the existence of sufficient and consistent import flow once again may be found crucial for mitigate the potentially negative market consolidation possibilities in its domestic supply-side actor segment.

Thirdly, the value ranges of both NCEI and GMPI had been substantially wider and the upper thresholds higher in cases of those markets and industries, which had limited if any import amounts, thus repeatedly confirming the positive effects of cross-border trade in terms of monopolisation process escalation prevention.

Having analysed the inter-market quantitative value range configuration of the indicator system, employed in the developed monopolisation process progression assessment methodology, it would be rational and scientifically justified to turn to their actual aggregated values, obtained during the conducted experimental modelling and reflect on the discovered peculiarities of the structure and substance of economic processes behind the obtained numbers.

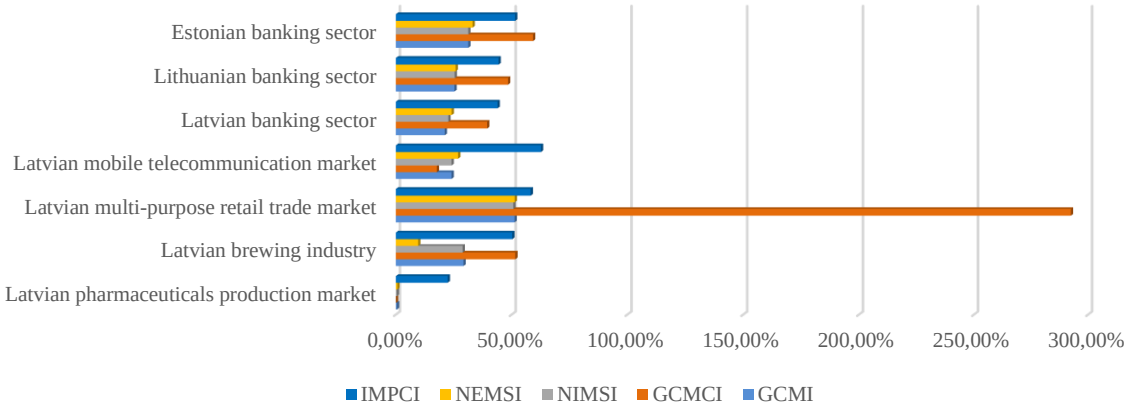


Figure 3.6. Current monopolisation process progression state indexes' cumulative average values
(Source: developed by the author)

As it may be seen from Figure 3.6., the cumulatively – average values of the current monopolisation process progression state indicator group-comprising indexes had shown a notable level of variance across the analysed market, which may be dubbed as exceptionally visible in the case of the GCMCI, which ranges from zero in the Latvian pharmaceuticals production market to over 290% in the case of the multi-purpose retail trade market of the same country.

The explanation of the reviled trend is rather obvious: different markets are characterised by varying levels of competition, conjuncture structuring paradigms, stages of development and other structural specifics, although the banking sectors of all three Baltic States seem to share many similarities, especially in the case of bilaterally – mutual comparison between situations in Estonia and Lithuania if assessed through the prism of volatility levels among the five relevant indexes in general, while magnitude trend seem to be overall consistent, thus reflecting a notable degree of convergence between the analysed banking sectors of the relevant region (as a side note, it may be pointed out that the Estonian banking sector had a higher cumulative average current level of monopolisation, when defined as a relevant market, compliant with the methodology, employed by the current research). The more important conclusion, highly relevant for the purpose and reasoning of the conducted research, may be formulated as follows: the Latvian brewing industry and the Latvian pharmaceuticals production market had reflected a significantly lower level of both individual and aggregated indicator values, focused on identifying and quantifying the current state of monopolisation process progression, which is especially visible in the latter case. If the Latvian brewing industry reflected an existing if comparatively mildly established current

level of monopolisation process continues development, the Latvian pharmaceuticals production market had been visibly less prone to uphold a level of monopolistic tendency persistence, sufficient to form a sustainable basis for the analysed process further escalation.

This becomes especially clearly visible if the situation is compared to that of the Latvian multi – purpose retail trade market and all three of the analysed banking sector, all of which the conducted analysis had disclosed to retain a stable and, to a certain extent, notable levels of current monopolisation process maturity and development.

Given that the two of the analysed markets, which had been the only ones observing a stable, sustainable and lasting flow of imports, had been found to reflect a clearly lower level of monopolisation process development than their counterpart not engaged (for conjuncture, macroeconomic, physical, infrastructural or other reasons) in international trade on a non-negligible scale, it may be stated that the current level of monopolisation progression in modern small open economies is directly interconnected with their sufficient involvement in cross –border economic activity and trade processes, hence a conclusion of the currently conducted assessment results confirming the research hypothesis may be made.

Having confirmed the research hypothesis at the level of current monopolistic trend progression index group, it would suit the scientific logic of the conducted assessment to now turn to the future monopolisation process progression possibility evaluating indicator group, while retaining the general context of the incremental analytical process, employed in the conduction of the current research as well as in its results reflection manner.

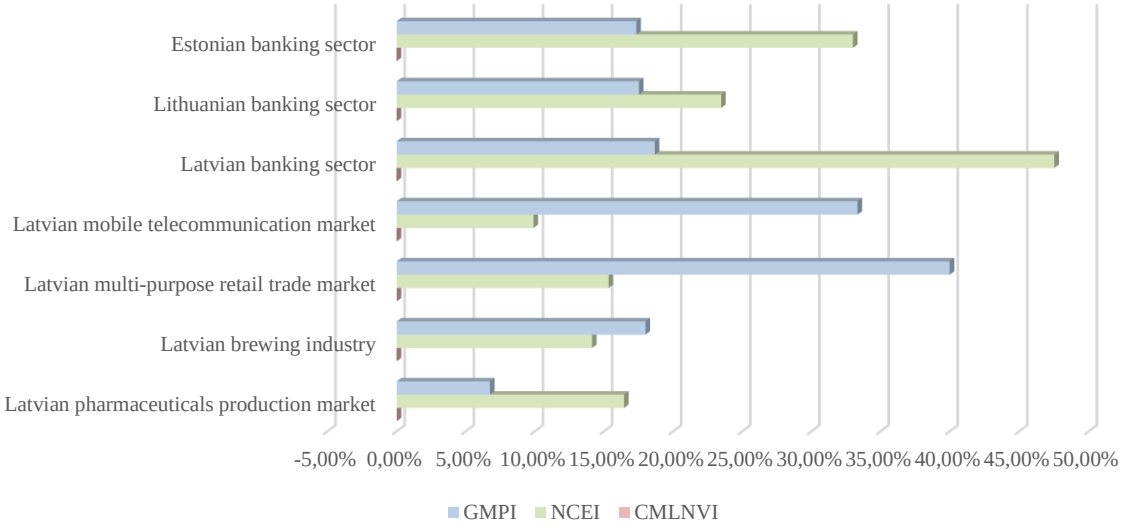


Figure 3.7. Monopolisation process future progression possibility indexes' cumulatively – average values

(Source: developed by the author)

As it may be seen from Figure 3.7., the cumulatively – average values of the monopolisation process future progression state indicator group-comprising indexes had shown a notable degree of disproportionality and numeric value heterogeneity if comparing the GMPI and the NCEI, while the CMLNVI retained values of dramatic mutual similarity, which does not come as a surprise when compared to the rather high values of the GCMCI and the inverse relations of the two indexes (see Section 3.1. for details). In all of the analysed banking sectors the NCEI surpassed the GMPI, while the situation in non-financial markets had been the opposite, with the exception of the Latvian pharmaceutical market.

The disclosed trend has at least two reasonable explanations: first, the sully side in the relevant markets with higher NCEI values by a large portion is comprised of internationally-orientated yet foreign-based companies, which operate a domestic subsidiary or import into the domestic markets, this being the case in all of the analysed banking sectors (subsidiary scenario) and the Latvian pharmaceutical market (the high-volume import scenario).

The mentioned situation consequentially provokes a higher level of competition as the defined relevant markets in a geographic sense are yet another area of business interest overlap zone, hence the competition of the parent enterprises is being projected on local economic environments. Secondly, a higher level of international representation in a given market indicates than there are no significant entry barriers and that the entrepreneurial system is indeed open for competition, new entrants and has a reasonable level of profitability expectations. Thus, it may be seen concluded that involvement in international trade and cross-border economic activity, both directly (imports) and indirectly ("foreign" representation in "domestic" markets) constitutes a higher level of competition effects. However, the magnitude of the mentioned competition may be such that the positive effects turn negative and the competitive environment becomes regressive: the level of competition generated a sufficient level of pressure than eliminated certain enterprises from engaging in operation within the market (see Section 3.1.).

None of the analysed markets represents a case of regressive competition, although it may be stated that the level of competitive pressure in the Latvian Banking pressure may be growing if addressed as a quantitative average value dynamic phenomenon. Consequentially, it may argued that the mentioned pressure may result in consolidation, possible an acquisition by a larger bank one/several of its smaller counterparts, however, given the peculiarities of the regulation of the mentioned sector and the need for "pressure release" on a considerable level, a merger of two "middleweight" competitors seem more likely.

Given that Figure 3.8. reflects a segment of the Latvian Banking sector, which is comprised of domestically orientated financial organisations (see Subsection 3.3.5.), it would be rational to conclude that the possible merger, *ceteris paribus*, shall take place between two sufficiently yet not overwhelmingly greatly represented Scandinavian subsidiaries in the period of 2017-2018. Regarding the general assessment of the disclosed data, it may be stated that two of the three indexes, reflecting monopolisation process future progression possibility, in most cases had been subject to reflecting a higher monopolistic tendency escalation in those markets, which had not sufficiently involved in international trade, while the third revolved around zero values in all cases, indicating a continuation of the previously uncovered paradigm: a higher level of international representation in the market as well as a significant amount of import indicates a lower level of current monopolisation process development and a generally lower level of monopolistic tendency future escalation possibility, the latter being subject to a minor level of provisional deviation due to the unavoidable component of uncertainty and unforeseen changes, including shock risks and paradigm reshaping probability, that is ever present in all models, attempting to deliver any type of prognosis, while being based of retrospective data.

In order to enable an unbiased understanding of the quantitative result, obtained during the conducted experimental modelling and ensure a coherent interpretation of the numerical values, taken by the employed indicators, comprising both of the monopolisation process evaluating analytical index groups, a summary of the previously delivered incremental analysis shall be made available in Figure 3.8.

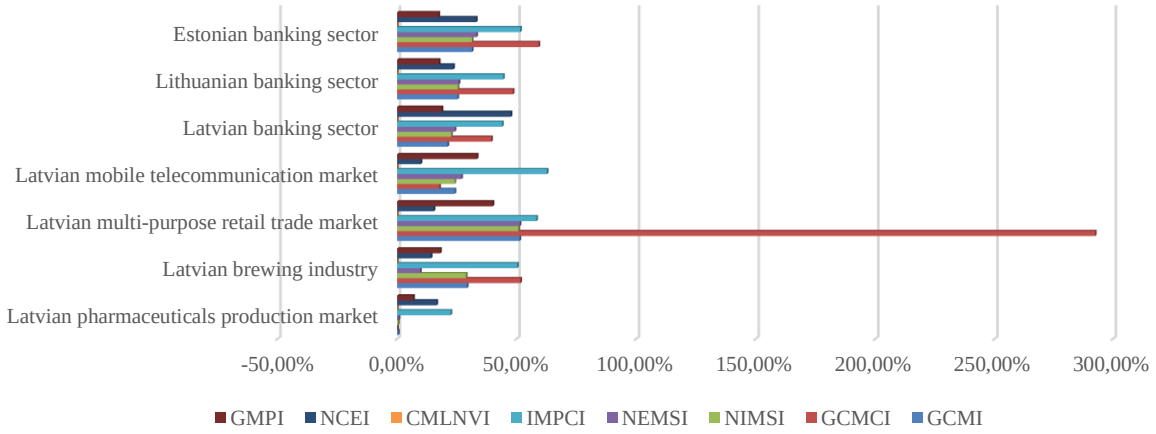


Figure 3.8. Compilation of cumulatively – average values of the employed monopolisation process assessment indicator system

(Source: developed by the author)

As it may be seen from Figure 3.9., the empirical conclusions, relevantly displayed in previously disclosed Figure 3.7. and Figure 3.8., are to be hold true in the wider context of the conducted analysis as indeed those industries, which had a higher degree on involvement in international trade and regional cross-border economic activities, had shown a visibly and, to an extent, severely lover levels of both current and potential level of monopolisation process progression, enabling the research hypothesis to be held true and positively verified in term of its numerical dimension.

In order to fully uphold the research hypothesis, a consideration of the qualitative (in term of the acquired numerical results interpretation) aspects of the conducted quantitative modelling would be beneficial in terms of ensuring a sufficient level of scientific transparency and analytical coherence.

An illustrative reflection of the qualitative evaluation of the current monopolisation process progression level in the analysed relevant markets (as determined by the employed indicator system) is available in Figure 3.9.:

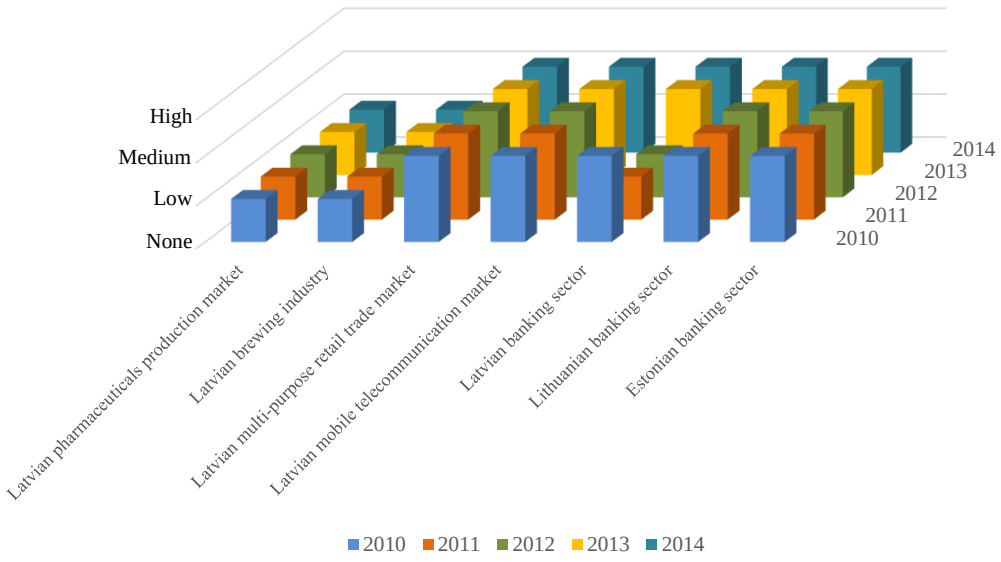


Figure 3.9. Monopolisation process in the analysed market: cumulative current progression (Source: developed by the author)

As it may be seen from Figure 3.9., the cumulative level of monopolisation process current progression level had been qualitatively defines as “medium” in all of the analysed markets, except for the Latvian pharmaceuticals production and Latvian brewing industries, while from the dynamic retrospective point of view, the situation remained largely unchanged and unchallenged by the internal development processes, taking place in the relevant economic environments, with a mild exception of the Latvian banking sector, which had seen

a two year decline to “low” levels, although made a fast and stable return to the “medium” level in 2013. In terms of verification of the research hypothesis, it may be clearly seen that those analysed markets, which had a notable share of imports and had been extensively involved into both regional and international trade, had been deemed of having a consistently “low” level of current monopolisation process progression, while their more isolated and strictly domestic consumption- orientated counterparts had a cooperative “medium” level of the same quantitative indicator, hence it may be stated that the defined research hypothesis had been upheld and verified as remaining true in both quantitative and qualitative terms, while addressed through the prism of monopolisation process multifactorial analysis.

Complementary, a reflection of the qualitative evaluation of the future monopolisation process further progression potential and possibility, combined with the previously conducted evaluation of its current development and procedural maturity levels, enables a coherent dynamic retrospective of the total level of monopolisation in the analysed relevant markets, which had been made available in Figure 3.10.:

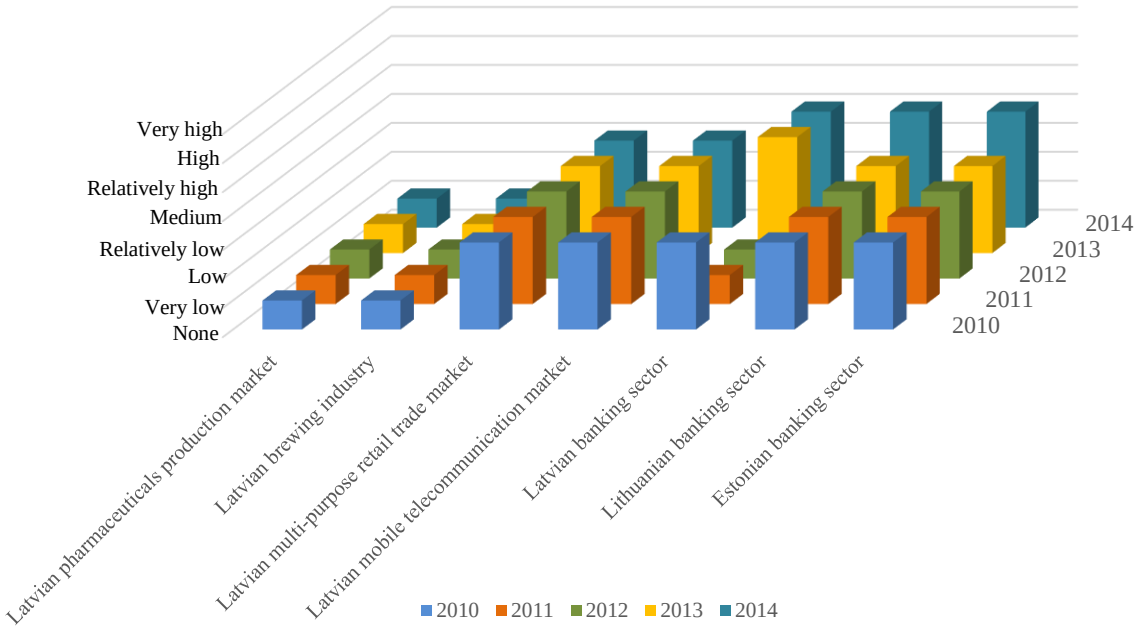


Figure 3.10. Total level of monopolisation in the analysed market: the qualitative dimension (Source: developed by the author)

As it may be seen from Figure 3.10., according to the methodological approach, developed, proposed and taken by the current research (see Section 3.1. and Section 3.2. as well as Annex 1 and Annex 2), the Latvian pharmaceuticals production market and Latvian brewing industry had retained a “very low” cumulative total level of monopolisation in terms of both the relevant economic processes’ current progression scale and it future further

escalation potential, while the Latvian multi-purpose retail trade and mobile telecommunication markets had a consistently "relatively low" total level of monopolisation. A more dynamic situation had been observed in the Latvian banking sector, which had seen a drop in total level of monopolisation from "relatively low" to "low", followed by an increase to "medium" level, while the banking sectors of Estonia and Lithuania had retained a "relatively low" level of monopolisation, which increased to "medium" in 2014. As a side note, it may be noted that such regional convergence of economic processes reflects a case of regressive competition in Latvia and a general correction pressure in the wider, cross-border financial sector, which, while remaining distinct in terms of clientele orientation, is implicationally connected in terms of subsidiary and branch office ownership, hence a conclusion of a looming consolidation in the Scandinavia-affiliated banking sector businesses in the nearest future (2016-2017) may be made. In terms verification of the defined research hypothesis, it may be stated that those of the analysed markets, which had a considerably higher level of involvement in international trade and regional economics processes, including occasional cross-border spill-overs in entrepreneurial activity, had indeed reflected a quite notably lower level of total monopolisation process progression and development in both quantitative and qualitative terms. Thus, it may be stated that the research hypothesis had been upheld and is in fact positively verified.

However, in order to fully comprehend the dynamics of incremental and/or shock-based (as in case of the Latvian banking sector) monopolistic trend strengthening and escalation, a summary, reflecting the cumulative change in monopolisation levels in the analysed markets would be scientifically beneficial and academically supplemental. The relevant goal was met by introducing Figure 3.11., which is available below:

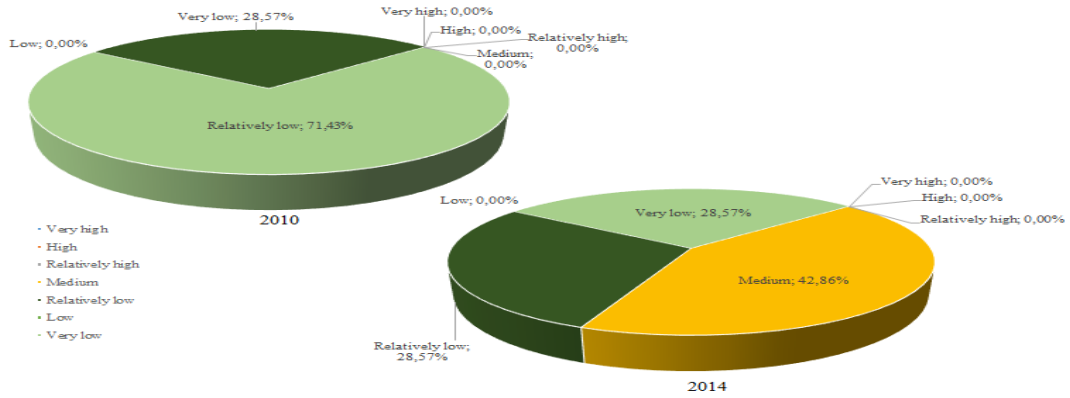


Figure 3.11. Dynamic progression of the total level of monopolisation over the defined analytical timeframe within the assessed industries

(Source: developed by the author)

As it may be seen from Figure 3.11., the share of markets with total level of monopolisation (TLoM) of "Relatively low" had dropped from 71.43% to 28.57% (a decrease of 42.86%), while those industries with a "medium" TLoM had risen by those very 42.86%, both processes taking place simultaneously and in the context of TLoM "very low" markets remaining the same. Therefore, it may be concluded that those of the analysed industries, which had and retained a high level of international orientation and a considerable share of imports, retained their "very low" level of monopolistic tendency escalation and monopolisation process development, while their import-deprived and strictly domestically orientated counterparts had undergone a notable increase in monopolisation trend maturity, which additionally confirm the research hypothesis as true, thus enabling it to be upheld and defined as positively verified.

Additionally, to clarify and objectively assess the impact on imports on the total level of monopolisation in the analysed markets as well the importance of the relevant factor as an indicator of sufficiency for the existing level of involvement in international trade in terms of such economic process generated positive competitive effects, which constraining the even present monopolistic trends, a relation between imports shares into and the total level of monopolisation (defined in qualitative terms) within the analysed markets had been reflected in Figure 3.12:

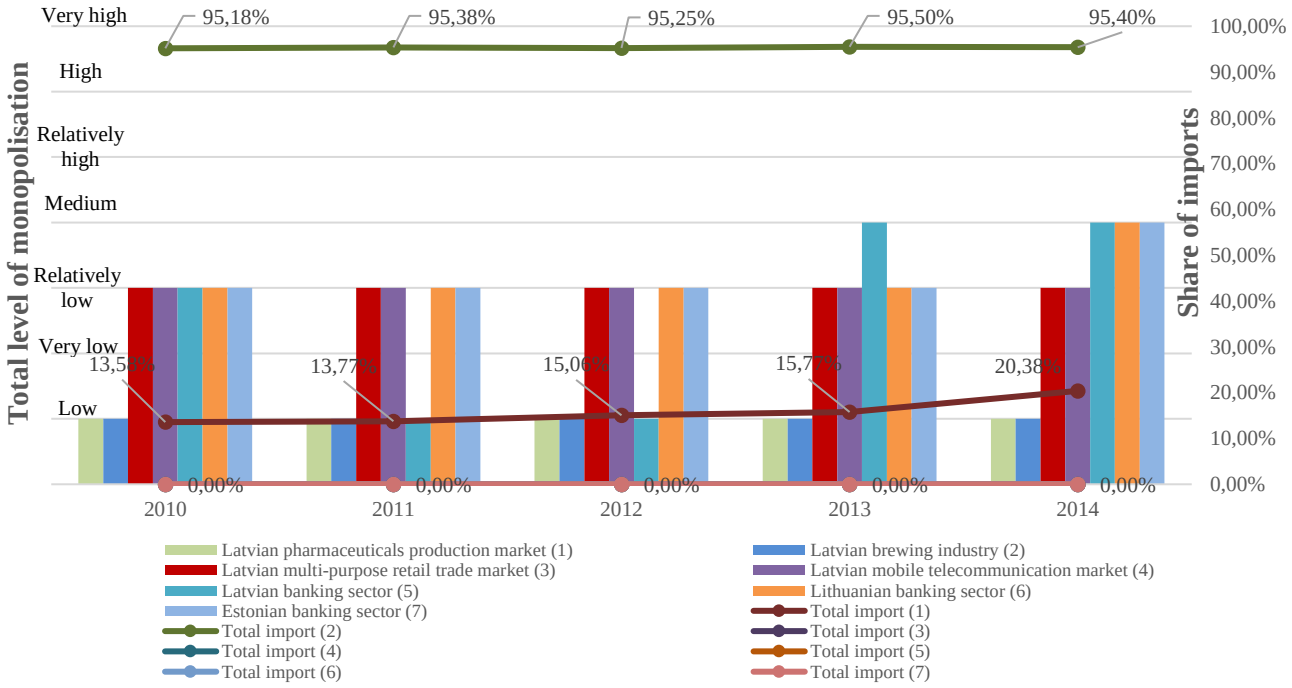


Figure 3.12. Causal consistency pattern between the level of imports and the total cumulative level of monopolisation within the analysed markets

(Source: developed by the author)

As it clearly may be seen in Figure 3.12., those of the analysed industries, which had a significant amount of imports, tended to have a visibly lower total level of monopolisation, thus upholding the theory of international trade playing a positive role in development of competition environments, hence the process of monopolisation if addressed through the prism of quantitative analysis as an economically natural, ever present phenomenon, may be considered as the regressive counterpart or "the flip side" of competition, meaning that both monopolistic trend escalation and competitive strive strengthening are simultaneously present in every truly market economy and its industries (except for the public monopoly cases), while being directly-proportionately reversely orientated in terms of their maturity and conduct. The fact that had proven to be even more intriguing is the acknowledgement that even mild presence of imports (as in the case of the Latvian brewing industry) seems to stimulate a higher level of competition and a significantly diminished strive for monopolistic tendency progression, which may be explained by the fact that the presence of imports not only indicates a sufficient degree of market openness to new entry, but, more importantly, delivers a clear message of actual involvement into cross-border economic activity and at least regional trade, thus making the relevant market a more attractive option for international investment and further non-domestic market actor involvement, resulting in emergence, rational functioning and constituent development of modern, converging and financially attracting industries, which are simultaneously competitive, diverse and adaptive in terms of their macroeconomic conjuncture structuring.

Therefore, while taking into account the reasoning, analysis and outline of the research, conducted and described in detain within Chapters 1, 2 and 3 of the current Doctoral Thesis as well as the national and international expert opinion on the relevant issue (see Annexes 57-59), the following may be concluded:

1. All five of the analysed esteemed historical and contemporary schools of economic thought acknowledge that monopolisation process emerges, matures and progresses more swiftly in cases of excessive market power concentration within certain economic clusters, which is a trait, commonly found in markets with limited internal resources and consumption capacities, especially in situation of significant barrier (to external supply-side market actor entrance) existence;
2. All the renowned national and international experts in the relevant fields had acknowledged that monopolisation trends in contemporary small open economies are more likely to emerge in those relevant markets, which have higher entry barriers and are

generally less engaged in international and/or regional trade and cross-border economic cooperation (for details, see Annex 59);

3. The analysis, conducted in Chapter 3 and the corresponding generated results summarised in Subsection 3.7, had verified that current level of monopolisation in those industries, which are for objective or subjective reasons excluded from international trade representation and cross-border competitive pressure had been significantly higher than in the case of those counterfactual counterpart with a significant level of inclusion into economic activity at least on a regional level;
4. The analysis, conducted in Chapter 3 and the corresponding generated results summarised in Subsection 3.7, had verified that potential of monopolisation process further progression in those industries, which are for objective or subjective reasons excluded from international trade representation and cross-border competitive pressure had been significantly higher than in the case of those counterfactual counterpart with a significant level of inclusion into economic activity at least on a regional level.
5. The analysis, conducted in Chapter 3 and the corresponding generated results summarised in Subsection 3.7, had verified and proven via implementation of the developed market typological stratification system that the cumulative level of monopolisation in those industries, which are for objective or subjective reasons excluded from international trade representation and cross-border competitive pressure had been significantly higher than in the case of those counterfactual counterpart with a significant level of inclusion into economic activity at least on a regional level.

Hence, it may be stated that the defined research hypothesis had been positively verified and confirmed: contemporary small open economies indeed undergo a natural, economic reality-shaping factor-based and internal competition supported market consolidation process, which leads to the acceleration of individual monopoly power concentration in specified niches, particularly in those industries and relevant markets, which are excluded from participation in international trade and are therefore constrained in the scale of positive regional convergence and cross-border entrepreneurial cooperation effects, delivered by the interconnectedness of the modern global economy.

CONCLUSIONS AND RECOMMENDATIONS

Considering the analytical results and empirical findings of the conducted research, the following may be concluded:

1. Though showing a visible level of individual interpretation, the prominent economic schools of economic thought share a certain degree of conceptual consensus on the research objects of the current Doctoral Thesis, thus enabling the developments of a unified definition of monopolisation process, empirically suitable for adherents of any of the mentioned paradigm of economic research.
2. The unified definition of monopolisation process may be formulated as follows: a sufficiently wide or sectorial economic process of supplier individual market share consolidation, caused by either internal (conjecture) or external (trend) influence factors, followed by directly proportionate growth in monopoly power of the process-involved individual suppliers.
3. If fair and equal opportunity competition is defined as the "Yin" of globalised open economies, the process of monopolisation is its corresponding "Yang" – an undesirable yet inseparable comprising element of a holistic and fundamental economic process.
4. The research hypothesis had been confirmed: contemporary small open economies indeed undergo a natural, economic reality-shaping factor-based and internal competition supported market consolidation process, which leads to the acceleration of individual monopoly power concentration in specified niches, particularly in those industries and relevant markets, which are excluded from participation in international trade and are therefore constrained in the scale of positive regional convergence and cross-border entrepreneurial cooperation effects, delivered by the interconnectedness of the modern global economy.
5. Origins of monopolisation process may be traced to the disproportionate distribution of individual market power within a defined relevant market, while being closely related to the overall interaction intensity between specific clientele group-targeting suppliers.
6. Monopolisation process is most likely to develop in situations of disproportionate individual market power distribution between suppliers conducting business operations and involved in economic activities within a defined relevant market.
7. Monopolisation tendencies may be altered by both external economic pressure and macroeconomic development trends of certain national or regional economy with a higher level of involvement in international trade, and/or regional cross-border business activities

tend to undermine the factors, causing monopolistic tendency escalation and mitigate the possibly negative effects of potentially excessive individual market power concentration.

8. The empirical relationship between an industry's (or an economy's, regional or national, if the relevant perspective is extrapolated to a macro-level perspective) monopolisation potential and its actual escalation possibilities *vis-à-vis* the corresponding engagement into international/cross-border economic activities and the cumulative openness of the business environment had been found to generally be inversely proportionate in terms of their mutual empirical causality.
9. Economic environments present in contemporary small open economies had been found to generally behave in the following fashion: the more (in a purely economic sense) internationally engaged and regionally integrated an industry or an economy is, the less "monopolisable" and monopolisation risk-exposed it seems to be.
10. Monopolisation trends may be empirically detected by multi-factorial evaluation of individual market power distribution conjuncture through the prism of comparative analysis of independent and mutually unaffiliated supplier market share dynamics.
11. Applying harmonized quantitative analytical methods and their qualitative interpretation algorithms in the context of synergetic modelling proved an efficient methodological approach to detecting monopolisation tendencies via screening test implementation, while simultaneously enabling the development of an evaluation approach, which enhances the understanding of internal dynamics as well as the main influencing factors of the relevant economic phenomenon.

While considering the methodological basis, the analytical framework, the experimental conduct and the acquired results of the conducted research as well as their interpretation, the following may be recommended:

1. Governmental institutions and public agencies, especially those entrusted with regulatory and competition protection functions, may make extensive use of the developed methodology for policy planning, implementation and assessment as well as other general analytical functions.
2. Private for-profit organisations and enterprises as well as entrepreneurial associations may make extensive use of the developed methodology for business strategy, market screening and competition environment analytical purposes, particularly while making decision on current operation expansion possibility, rationality of entering new markets and conducting

a general assessment of operational activity challenges, including that of a regional/local branch level.

3. Non-for-profit organisations and think-tanks may make extensive use of the developed methodology for business environment, competition intensity and industry/market studies in order to enhance the available analytical and methodological capacities, providing an opportunity to utilize a low-cost, robust assessment method, while enabling the use of the obtained results in consultation with governmental representatives, public officials and/or for lobbying activities and making a case for further progression of the defined organisational agenda.
4. It would be scientifically rational to further enhance the developed analytical framework by creating derivative versions of the empirical model, specifically calibrated and particularly suitable for unilateral analysis of designated segregated industry, thus achieving a greater focus and a detailed scope on peculiarities of predefined relevant markets of scientific interest.
5. It would be scientifically beneficial to further enhance the developed methodology by incorporating external macroeconomic factor influence into its quantitative structure, while concentrating on the effects of business cycle volatility and process of consequent maturing in order to objectively define the possible effects that globalized economic activity may have on regional competition development.

BIBLIOGRAPHY

1. Ahi, K., Uiboupin, J. (2002). Mattimar OÜ [online]. A Test of Competition in the Estonian Banking Sector. [accessed 21 July 2016]. Available at: http://www.mattimar.ee/publikatsioonid/majanduspoliitika/2002/2002/2_Struktuurpoliitika/25_Ahi_Uiboupin.pdf.
2. Arrow, K. J. (1994). Methodological Individualism and Social Knowledge. *The American Economic Review*, Vol. 84(2), pp. 1–9.
3. Association of Latvian Commercial Banks (ALCB) (2010) [online]. Assets of commercial banks as of 2009.12.31. [accessed 27 April 2015]. Available at: http://www.lka.org.lv/en/statistics/banks/2009_4.html.
4. Association of Latvian Commercial Banks (ALCB) (2011) [online]. Assets of commercial banks as of 2010.12.31. [accessed 27 April 2015]. Available at: http://www.lka.org.lv/en/statistics/banks/2010_4.html.
5. Association of Latvian Commercial Banks (ALCB) (2012) [online]. Assets of commercial banks as of 2011.12.31. [accessed 27 April 2015]. Available at: http://www.lka.org.lv/en/statistics/banks/2011_4.html.
6. Association of Latvian Commercial Banks (ALCB) (2013) [online]. Assets of commercial banks as of 2012.12.31. [accessed 27 April 2015]. Available at: http://www.lka.org.lv/en/statistics/banku_statistika_www_12_2012_ENG.pdf.
7. Association of Latvian Commercial Banks (ALCB) (2014) [online]. Assets of commercial banks as of 2013.12.31. [accessed 27 April 2015]. Available at: http://www.lka.org.lv/en/statistics/banks/banku_darbibas_kopejie_raditaji_12_2013_ENG_eiro.pdf.
8. Association of Latvian Commercial Banks (ALCB) (2015) [online]. Assets of commercial banks as of 2014.12.31. [accessed 27 April 2015]. Available at: http://www.lka.org.lv/en/statistics/Banku_darbibas_kopejie_raditaji_12_2014_ENG.pdf.
9. Association of Lithuanian Banks (2015) [online]. Main Indicators of Banks 2009-2014 [accessed 29 March 2015]. Available at: http://www.lba.lt/en/main-indicators-of-banks.
10. Bass, F., Haruvy, E., Prasad, A. (2006). Variable pricing in oligopoly markets. *Journal of Business*, Vol. 79(6), pp. 2789–2809.
11. Bastiat, F. (2007). *The Bastiat Collection. Harmonies of Political Economy. Two Volumes*. Auburn: Ludwig von Mises Institute. pp. 604.
12. Bellante, D. (2004). Edward Chamberlin: Monopolistic Competition and Pareto Optimality. *Journal of Business & Economics Research*, Vol. 2(4), pp.17–26.
13. Bibliothèque Nationale de France [online]. Michel Chevalier [accessed 27 December 2015]. Available at: http://www.mshparisnord.fr/controverses-PI-XIX/bios/bio_chevalier.html.
14. Boehm – Bawerk, E.v. (1890). *Capital and Interest: a Critical History of Economical Theory. trans. William A. Smart*. London: Macmillan. pp. 431.
15. Boettke, P. J. (2010). *Handbook on Contemporary Austrian Economics*. Northampton, MA: Edward Elgar Publishing, Inc. pp. 174.
16. Buchanan, J., Stubblebine, Wm. C. (1962). Externality. *Economica*, Vol. 29(116), pp. 371–384.
17. Center for Global Trade Analysis, Purdue University [online]. *Scale Economies and Imperfect Competition in the GTAP Model* [accessed 9 March 2016]. Available at: https://www.gtap.agecon.purdue.edu/resources/download/31.pdf.

18. CERTUS think tank (2016) [online]. *Latvian Competitiveness Report 2015. pharmaceutical industry*. [accessed 19 December 2016]. Available at: http://certusdomnica.lv/wp-content/uploads/2015/07/CertusZinojums_2015_WEB.pdf
19. CERTUS think tank (2017) [online]. *Latvian Competitiveness Report 2016. pharmaceutical industry*. [accessed 9 March 2017]. Available at: http://certusdomnica.lv/wp-content/uploads/2017/04/Certus_Farmacija_2016.pdf
20. Chamberlin, E. H. (1947). *The Theory of Monopolistic Competition. Fifth Edition*. Cambridge: Harvard University Press. pp. 282.
21. Coase, R. H. (1937). The Nature of the Firm. *Economica*, New Series, Vol. 4(16), pp. 386–405.
22. Coase, R. H. (1960). The Problem of Social Cost. *Journal of Law and Economics*, Vol. 3(1), pp. 1–44.
23. Coase, R. H. (1972). Durability and Monopoly. *Journal of Law and Economics*, Vol. 15(1), pp. 143–149.
24. Competition Council of the Republic of Latvia (2013) [online]. 22.08.2013 Decision Nr.41//Case Nr. 1531/13/03.02./11. [accessed 17 April 2016]. Available at: http://kp.gov.lv/files/pdf/D6zApiNi0C.pdf.
25. Competition Council of the Republic of Latvia (2015a) [online]. Market inquiry into the mobile telecommunication retail tariffs. [accessed 5 March 2015]. Available at: http://kp.gov.lv/documents/ce6dff5eda1e0e7895117b10842562a26f045429.
26. Competition Council of the Republic of Latvia (2015b) [online]. Market inquiry into the environment of grocery and commodity good retail chains. [accessed 29 April 2015]. Available at: http://www.kp.gov.lv/documents/19e30be791306928549b7da80af4e678f97aa942.
27. Competition Council of the Republic of Latvia (2015c) [online]. 12.11.2015 Decision Nr.51//Case Nr. 2302/15/7.3.2./12. [accessed 17 April 2016]. Available at: http://kp.gov.lv/documents/1f28ce3ec294f480e4b3592ea325078a69527149.
28. *Copyright Law* (2003) [online]. Law of the Republic of Latvia, adopted in Riga, 06 April 2000, Latvijas Vēstnesis, website Likumi.lv [accessed 15 March 2015]. Available at: http://likumi.lv/ta/id/81066-par-akcizes-nodokli. [
29. Council of the European Union (2002). Council Regulation (EC) No 1/2003 of 16 December 2002 on the Implementation of the Rules on Competition laid down in Articles 81 and 82 of the Treaty. *Official Journal of the European Union*, Vol. L1, pp.1–25.
30. Council of the European Union (2004). Council Regulation (EC) No 411/2004 of 26 February 2004 repealing Regulation (EEC) No 3975/87 and amending Regulations (EEC) No 3976/87 and (EC) No 1/2003, in connection with air transport between the Community and Third Countries. *Official Journal of the European Union*, Vol. L68, pp. 1–2.
31. Council of the European Union (2006a). Council Regulation (EC) No 1419/2006 of 25 September 2006 repealing Regulation (EEC) No 4056/86 laying down Detailed Rules for the Application of Articles 85 and 86 of the Treaty to Maritime Transport, and amending Regulation (EC) No 1/2003 as regards the Extension of its Scope to include Cabotage and International Tramp Services. *Official Journal of the European Union*, Vol. L269, pp. 1–3.
32. Council of the European Union (2006b). Regulation (EC) No 1893/2006 of the European Parliament and of the Council of December 2006 stablishing the statistical classification of economic activities NACE Revision 2 and amending Council Regulation (EEC) No 3037/90 as well as certain EC Regulations on specific statistical domains. Vol. L393, pp. 1–39.

33. Council of the European Union (2015). Regulation (EU) 2015/2120 of the European Parliament and of the Council of 25 November 2015 laying down measures concerning open internet access and amending Directive 2002/22/EC on universal service and users' rights relating to electronic communications networks and services and Regulation (EU) No 531/2012 on roaming on public mobile communications networks within the Union. *Official Journal of the European Union*, Vol. L310, pp. 1–18.
34. Crossley, C. (2014). *French Historians and Romanticism: Thierry, Guizot, the Saint-Simonians, Quinet, Michelet*. *Reprint edition*. Abingdon-on-Thames: Routledge, Taylor & Francis Group. pp. 296.
35. Cuestas, J. C., Lucotte, Y., Reigl, N. (2017) [online]. Banking Sector Concentration, Competition and Financial Stability: The case of Baltic countries. [accessed 15 March 2017]. Available at: https://sisu.ut.ee/sites/default/files/nem2017/files/lucotte_cuestas_reigl.pdf.
36. Database of the Central Statistical Bureau of the Republic of Latvia (CSB) (2015) [online]. Annual data on beer import and export flows [accessed 17 July 2015]. Available at: http://data.csb.gov.lv/pxweb/lv/atirdz/atirdz__detalizeta/?rxid=cdcb978c-22b0-416a-aacc-aa650d3e2ce0.
37. Deltuvaite, V., Vaškelaitis, V., Pranckevičiūt, A. (2007). The Impact of Concentration on Competition and Efficiency in the Lithuanian Banking Sector. Engineering Economics, Vol.4(54), pp. 7–19.
38. Dimand, R. W. (1955). Macroeconomics With and Without Keynes. *History of Economics Review*, Vol. 24(1), pp. 23–42.
39. Dunoyer, Ch. (1825). *L'Industrie et la morale considérées dans leurs rapports avec la liberté*. Paris: A. Sautelet. pp. 450.
40. Estonian Financial Supervision Authority (2015) [online]. Credit institution's balance sheet 2009-2014 [accessed 31 March 2015]. Available at: http://www.fi.ee/koond/eng/bilanss_kred.php.
41. European Central Bank (ECB) (2011) [online]. Exchanging Estonian kroon. [accessed 30 April 2015]. Available at: https://www.ecb.europa.eu/euro/changeover/estonia/html/index.en.html.
42. European Central Bank (ECB) (2014) [online]. Exchanging Latvian lats. [accessed 30 April 2015]. Available at: https://www.ecb.europa.eu/euro/changeover/latvia/html/index.en.html.
43. European Central Bank (ECB) (2015) [online]. Exchanging Lithuanian litas. [accessed 30 April 2015]. Available at: https://www.ecb.europa.eu/euro/changeover/lithuania/html/index.en.html.
44. European Commission (2004a). Commission Regulation (EC) No 773/2004 of 7 April 2004 relating to the Conduct of Proceedings by the Commission pursuant to Articles 81 and 82 of the EC Treaty. *Official Journal of the European Union*, Vol. L123, pp. 18–24.
45. European Commission (2004b). Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings. *Official Journal of the European Union*, Vol. C31, pp. 5–18.
46. European Commission (2011) [online]. Social Business Initiative [accessed 27 March 2015]. Available at: http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52011DC0682&from=EN.
47. European Commission (2012a). Communication from the Commission on the application of the European Union State Aid Rules to Compensation Granted for the Provision of Services of General Economic Interest. *Official Journal of the European Union*, Vol. C8, pp. 4–14.

48. European Commission (2012b) Commission Decision of 20 December on the application of Article 106(2) of the Treaty on the Functioning of the European Union to State aid in the form of public service compensation granted to certain undertakings entrusted with the operation of services of general economic interest. *Official Journal of the European Union*, Vol. L7, pp. 3–10.
49. European Commission (2012c). Communication from the Commission, European Union framework for State Aid in the Form of Public Service Compensation. *Official Journal of the European Union*, Vol. C8, pp. 15–22.
50. European Commission (2012d). Commission Regulation on the application of Articles 107 and 108 of the Treaty on the Functioning of the European Union to De Minimis Aid Granted to Undertakings Providing Services of General Economic Interest. *Official Journal of the European Union*, Vol. L114, pp. 8–13.
51. European Commission (2016) [online]. Comprehensive Economic and Trade Agreement (CETA): Memorandum. [accessed 9 November 2016]. Available at: http://trade.ec.europa.eu/doclib/press/index.cfm?id=1567.
52. European Commission (2016) [online]. The EU copyright legislation. [accessed 9 November 2016]. Available at: https://ec.europa.eu/digital-single-market/en/eu-copyright-legislation.
53. European Commission. (1997). Commission Notice on the definition of relevant market for the purposes of Community competition law. *Official Journal of the European Union*, Vol. C 372, pp. 5–13.
54. European Commission's Directorate-General for Economic and Financial Affairs (ECFIN) (2015) [online]. Assessing business practices in Latvia's financial sector [accessed 31 July 2016]. Available at: http://ec.europa.eu/economy_finance/publications/country_focus/2014/pdf/cf_vol11_issue6_en.pdf.
55. European Union (EU) (2013a). *EU Competition Law. Rules Applicable to Antitrust Enforcement Volume I: General Rules*. Luxembourg: Publications Office of the European Union. pp. 282.
56. European Union (EU) (2013b). *EU Competition Law. Rules Applicable to Antitrust Enforcement Volume II: General Block Exemption Regulations and Guidelines*. Luxembourg: Publications Office of the European Union. pp. 203.
57. Ferguson, B. S. (2013). *University of Guelph Department of Economics and Finance Discussion paper 2013-08: Lectures on John Maynard Keynes' General Theory of Employment, Interest and Money*. [online] University of Guelph College of Management and Economics [Accessed 12 October 2015]. Available at: http://www.uoguelph.ca/economics/repec/workingpapers/2013/2013-08.pdf
58. Firmas.lv (2015) [online]. Enterprises, active in the Latvian brewing industry. [accessed 21 February 2015]. Available at: https://www.firmas.lv/index.php?module=results&srch=nozare:Alus+ra%C5%BEo%C5%A1ana&srch_exact=1.
59. Fisher, I. (2005). *The Theory of Interest as Determined by Impatience to Spend Income and Opportunity to Invest it*. Indianapolis, IN: Liberty Fund, Inc. pp. 183.
60. Friedman, M. (1962). *Capitalism and Freedom*. Chicago: The University of Chicago Press. pp. 208.
61. Friedman, M. (1970). *Essays in Positive Economics. Reediting (1953-1970)* [online]. Chicago: University of Chicago Press, 3. - 43. pp. [accessed 11 October 2015]. Available at:

https://campus.fsu.edu/bbcswebdav/orgs/econ_office_org/PowerPoint_Files/2023-Joe_Calhoun/2023_Chapter_01/Friedman-Essays_in_Positive_Economics.pdf
62. Graduate School of Business University of Chicago [online]. Selected Papers No. 7: *A Dialogue on the Proper Economic Role of the State* [accessed 29 July 2015]. Available at: https://www.chicagobooth.edu/~/media/2165CBAB081C46D3BEEEC62E3FDE81CC.pdf.
63. Harcourt, G. C., Kerr, P. (2009). *Great Thinkers in Economics Series. Joan Robinson*. Houndmills: Palgrave Macmillan. pp. 270.
64. Hayek F. A. (1945). The Use of Knowledge in Society. *American Economic Review*, Vol. 35(4), pp. 519–530.
65. Hayek, F. A. (1948). *Individualism and Economic Order*. Chicago: The University of Chicago Press. pp. 271.
66. Jakobsons, A., Schaub, W. C. (2014). *Study on the Present Competitive Performance and Future Prospects of the Banking Industry in Latvia*. [online] Riga Business School Center for Competitiveness [Accessed 27 October 2016]. Available at: http://www.rbs.lv/files/rbs/Study%20on%20the%20Present%20Competitive%20Performance%20and%20Future%20Prospects%20of%20the%20Banking%20Industry%20in%20Latvia.pdf.
67. Jensen, R. T., Miller, N. H. (2008). Giffen Behavior and Subsistence Consumption. *American Economic Review*, Vol. 98(4), pp. 1553–1577.
68. Keynes, J. M. (1919). *The Economic Consequences of the Peace*. *2012 Reprinting*. London: Macmillan & Co., Limited. pp. 142.
69. Keynes, J. M. (1924). *A Tract on Monetary Reform*. London: Macmillan & Co., Limited. pp. 209.
70. Keynes, J. M. (1937). The General Theory of Employment. *The Quarterly Journal of Economics*, Vol. 51(2), pp. 209–223.
71. Keynes, J. M. (2011). *The General Theory of Money, Interest and Employment*. *Reediting*. London: Macmillan & Co., Limited. pp. 472.
72. Kotler, Ph. (2000). *Marketing Management. Millenium Edition.* Upper Saddle River: Prentice-Hall. pp. 718.
73. Krilovs, L. (2014). *Ekonomiskās domas retrospekcija*. *Zinātniskā monogrāfija*. Rīga: RTU izdevniecība. 221. lpp.
74. Leibenstein, H. (1950). Bandwagon, Snob, and Veblen Effects in the Theory of Consumers' Demand. *Quarterly Journal of Economics*, Vol. 64(2), pp. 183–207.
75. Lerner, A. P. (1934). The Concept of Monopoly and the Measurement of Monopoly Power. *The Review of Economic Studies*, Vol. 1(3), pp. 157–175.
76. Ludwig von Mises Institute [online]. The Economics of Destutt de Tracy [accessed 12 December 2015]. Available at: https://mises.org/library/economics-destutt-de-tracy.
77. Lursoft data base (2010a) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Cēsu novads 2009. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=LVL&novads=100015774&id=391&year=2009.
78. Lursoft data base (2010b) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Burtnieku novads 2009. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=LVL&novads=100015524&id=391&year=2009.

79. Lursoft data base (2010c) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Bauskas novads 2009. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100015758&id=391&year=2009.
80. Lursoft data base (2010d) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Jaunpiebalgas novads 2009. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100015612&id=391&year=2009.
81. Lursoft data base (2010e) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Ventspils novads 2009. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100016333&id=391&year=2009.
82. Lursoft data base (2010f) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Beverīnas novads 2009. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100015766&id=391&year=2009.
83. Lursoft data base (2010g) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Tērvetes novads 2009. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100015364&id=391&year=2009.
84. Lursoft data base (2010h) [online]. Uzņēmumi ar lielāko gada apgrozījumu 2009. gadā. [accessed 29 August 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&id=008&year=2009.
85. Lursoft data base (2011a) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Cēsu novads 2010. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=LVL&novads=100015774&id=391&year=2010.
86. Lursoft data base (2011b) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Burtnieku novads 2010. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=LVL&novads=100015524&id=391&year=2010.
87. Lursoft data base (2011c) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Bauskas novads 2010. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100015758&id=391&year=2010.
88. Lursoft data base (2011d) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Jaunpiebalgas novads 2010. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100015612&id=391&year=2010.
89. Lursoft data base (2011e) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Ventspils novads 2010. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100016333&id=391&year=2010.
90. Lursoft data base (2011f) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Beverīnas novads 2010. [accessed 23 July 2015]. Available at:

https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100015766&id=391&year=2010.
91. Lursoft data base (2011g) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Tērvetes novads 2010. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100015364&id=391&year=2010.
92. Lursoft data base (2011h) [online]. Uzņēmumi ar lielāko gada apgrozījumu 2010. gadā. [accessed 29 August 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&id=008&year=2010.
93. Lursoft data base (2012a) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Cēsu novads 2011. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=LVL&novads=100015774&id=391&year=2011.
94. Lursoft data base (2012b) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Burtnieku novads 2011. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=LVL&novads=100015524&id=391&year=2011.
95. Lursoft data base (2012c) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Bauskas novads 2011. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100015758&id=391&year=2011.
96. Lursoft data base (2012d) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Jaunpiebalgas novads 2011. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100015612&id=391&year=2011.
97. Lursoft data base (2012e) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Ventspils novads 2011. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100016333&id=391&year=2011.
98. Lursoft data base (2012f) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Beverīnas novads 2011. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100015766&id=391&year=2011.
99. Lursoft data base (2012g) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Tērvetes novads 2011. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100015364&id=391&year=2011.
100. Lursoft data base (2012g) [online]. Uzņēmumi ar lielāko gada apgrozījumu 2011. gadā. [accessed 29 August 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&id=008&year=2011.
101. Lursoft data base (2013a) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Cēsu novads 2012. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=LVL&novads=100015774&id=391&year=2012.
102. Lursoft data base (2013b) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Burtnieku novads 2012. [accessed 23 July 2015]. Available at:

https://www.lursoft.lv/lursoft_statistika/?&pcurr=LVL&novads=100015524&id=391&year=2012.
103. Lursoft data base (2013c) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Bauskas novads 2012. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100015758&id=391&year=2012.
104. Lursoft data base (2013d) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Jaunpiebalgas novads 2012. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100015612&id=391&year=2012.
105. Lursoft data base (2013e) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Ventspils novads 2012. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100016333&id=391&year=2012.
106. Lursoft data base (2013f) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Beverīnas novads 2012. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100015766&id=391&year=2012.
107. Lursoft data base (2013g) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Tērvetes novads 2012. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100015364&id=391&year=2012.
108. Lursoft data base (2013g) [online]. Uzņēmumi ar lielāko gada apgrozījumu 2012. Gadā. [accessed 29 August 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&id=008&year=2012.
109. Lursoft data base (2014a) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Cēsu novads 2013. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=LVL&novads=100015774&id=391&year=2013.
110. Lursoft data base (2014b) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Burtnieku novads 2013. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=LVL&novads=100015524&id=391&year=2013.
111. Lursoft data base (2014c) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Bauskas novads 2013. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100015758&id=391&year=2013.
112. Lursoft data base (2014d) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Jaunpiebalgas novads 2013. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100015612&id=391&year=2013.
113. Lursoft data base (2014e) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Ventspils novads 2013. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100016333&id=391&year=2013.

114. Lursoft data base (2014f) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Beverīnas novads 2013. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100015766&id=391&year=2013.
115. Lursoft data base (2014g) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Tērvetes novads 2013. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100015364&id=391&year=2013.
116. Lursoft data base (2014g) [online]. Uzņēmumi ar lielāko gada apgrozījumu 2013. gadā. [accessed 29 August 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&id=008&year=2013.
117. Lursoft data base (2015a) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Cēsu novads 2014. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=LVL&novads=100015774&id=391&year=2014.
118. Lursoft data base (2015b) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Burtnieku novads 2014. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=LVL&novads=100015524&id=391&year=2014.
119. Lursoft data base (2015c) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Bauskas novads 2014. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100015758&id=391&year=2014.
120. Lursoft data base (2015d) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Jaunpiebalgas novads 2014. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100015612&id=391&year=2014.
121. Lursoft data base (2015e) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Ventspils novads 2014. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100016333&id=391&year=2014.
122. Lursoft data base (2015f) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Beverīnas novads 2014. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100015766&id=391&year=2014.
123. Lursoft data base (2015g) [online]. Uzņēmumi ar lielāko apgrozījumu pa gadiem: Tērvetes novads 2014. [accessed 23 July 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&novads=100015364&id=391&year=2014.
124. Lursoft data base (2015g) [online]. Uzņēmumi ar lielāko gada apgrozījumu 2014. gadā. [accessed 29 August 2015]. Available at: https://www.lursoft.lv/lursoft_statistika/?&pcurr=EUR&id=008&year=2014.
125. Markiewicz, M. (2012). The Institute of International Business, Faculty of Economics, University of Gdansk [online]. The Concentration and Competition in the Banking Sectors of the Baltic States in the Context of a Crisis [accessed 29 August 2015]. Available at:

https://www.hs-bremen.de/internet/forschung/einrichtungen/itd/projekte/baltic/paper_-_markiewicz.pdf.
126. Marshall, A. (1888). Wages and Profits. *Quarterly Journal of Economics*, Vol. 2(2), pp. 218–223.
127. Max Weber (2004). *The Vocation Lectures: Science as a Vocation; Politics as a Vocation. Edited, with Introduction, by David Owen and Tracy B. Strong Translated by Rodney Livingstone*. Indianapolis, IN: Hackett Publishing Company, Inc. pp.176.
128. McKenzie, R. B., Lee, D. R. (2008). *In Defence of Monopoly. How Market Power Fosters Creative Production.* Detroit: University of Michigan Press. pp. 320.
129. Menger, C. (2007). *Principles of Economics*. Auburn: Ludwig von Mises Institute. pp. 328.
130. Mises, L. v. (1966). *Human Action: a Treatise on Economics. Third Revised Edition*. Chicago: Henry Regnery Company. pp. 906.
131. Motta, M. (2004). *Competition Policy. Theory and Practice.* Cambridge: Cambridge University Press. pp. 704.
132. Nothbard, M. N. (2009). *Man, Economy and State with Power and Market*. *Second Edition.* Auburn: Ludwig von Mises Institute. pp. 1438.
133. *On Excise Duties* (2003). [online]. Law of the Republic of Latvia, adopted in Riga, 30 October 2003, Latvijas Vēstnesis, website Likumi.lv [accessed 11 August 2016]. Available at: http://likumi.lv/ta/id/81066-par-akcizes-nodokli.
134. Organisation for Economic Co-operation and Development (OECD) (1996) [online]. OECD Policy Roundtables: Abuse of Dominance and Monopolisation. [accessed 19 October 2015]. Available at: http://www.oecd.org/daf/competition/abuse/49604207.pdf
135. Organisation for Economic Co-operation and Development (OECD) (1999) [online]. OECD Policy Roundtables: Oligopoly. [accessed 19 October 2015]. Available at: https://www.oecd.org/daf/competition/1920526.pdf.
136. Organisation for Economic Co-operation and Development (OECD) (2005) [online]. Recommendation on Merger Review. [accessed 19 October 2015]. Available at: https://www.oecd.org/daf/competition/mergers/40537528.pdf.
137. Organisation for Economic Cooperation and Development (OECD), Directorate for Financial, Fiscal and Enterprise Affairs (1993) [online]. Glossary of Industrial Organisation Economics and Competition Law. [accessed 13 August 2015]. Available at: http://www.oecd.org/regreform/sectors/2376087.pdf.
138. Peitz, M., Valletti, T. (2015) Reassessing competition concerns in electronic communications markets. *Telecommunications Policy*, Volume 39(10), pp. 896–912.
139. *Procedures by which the Status of an Independent Small Brewery is Granted and the Rate of Excise Duty is applied to Beer Produced by Independent Small Breweries* (2005) [online]. Cabinet Regulation Nr.956, adopted in Riga, 13 December 2005, Latvijas Vēstnesis, website Likumi.lv [accessed 11 August 2016]. Available at: http://likumi.lv/doc.php?id=124722.
140. Ricardo, D. (2001). *On the Principles of Political Economy and Taxation*. Kitchener: Batoche Books. pp. 333.
141. Robinson, J. (1932). Imperfect Competition and Falling Supply Price. *The Economic Journal*, Vol. 42(168), pp. 544–554.
142. Robinson, J. (1934). The Economics of Imperfect Competition. *Journal of the Royal Statistical Society*, Vol. 97(4), pp. 671– 674.
143. Robinson, J. (1978). *Contributions to Modern Economics*. Oxford: Blackwell Publishers. pp. 274.

144. Rutherford, M. (2001). Institutional Economics: Then and Now. *Journal of Economic Perspectives*, Vol. 15(3), pp. 185–190.
145. Salerno T. J. (2006). *A Conspiracy of Silence on The French Liberal School* [online]. Ludwig von Mises Institute Daily Articles [accessed 23 January 2014]. Available at: https://mises.org/library/conspiracy-silence-french-liberal-school.
146. Salerno, J. T. (1978). Comment on the French Liberal School. *Journal of Libertarian Studies*, Vol. 2(1), pp. 65–68.
147. Salerno, J. T. (1988). The Neglect of the French Liberal School in Anglo-American Economics: A Critique of Received Explanations. *The Review of Austrian Economics*, Vol. 2(1), pp. 113–156.
148. Salerno, J. T. (1989). Comment on the French Liberal School. *Journal of Libertarian Studies*, Vol. 2(1), pp. 65.–68.
149. Samuels, W. J., Biddle, J. E., Davis, J. B. (2003). *A Companion to the History of Economic Thought*. Malden: Blackwell Publishing Ltd. pp. 712.
150. Samuelson, P. A. (1939). Interactions between the Multiplier Analysis and the Principle of Acceleration. *Review of Economic Statistics*, Vol. 21(1), 75–78. pp.
151. Samuelson, P. A. (1948). International Trade and the Equalisation of Factor Prices. *The Economic Journal*, Vol. 58(230), pp. 163–184.
152. Say, J.-B. (1971). *A Treatise on Political Economy. Sixth American Edition*. New-York: Augustus M. Kelley Publishers. pp. 488.
153. Schumpeter, J. A. (2006). *History of Economic Analysis. Reprinting*. Abingdon-on-Thames: Taylor & Francis e-Library. pp. 1283.
154. Shionoya, Y. (2005). *The Soul of the German Historical School. Methodological Essays on Schmoller, Weber and Schumpeter*. *Volume 2*. Boston, MA: Springer Science + Business Media, Inc. pp. 206.
155. Skoruks, D., Nazarova, J., Šenfelde, M. (2015) Monopolistic Trend Analysis in the Context of Efficient Entrepreneurial Decision Making. *Journal of System and Management Sciences*, Vol.5(2), pp. 33 – 58
156. Sloman, J. (2006). *Economics*. Harlow: Pearson Education Limited. pp. 687.
157. Smith, A. (2007). *An Inquiry into the Nature and Causes of the Wealth of Nations. Books I, II, III, IV and V*. Lausanne: MetaLibri. pp. 743.
158. Sraffa, P., Dobb, M. H. (2004). *The works and Correspondence of David Ricardo, Volume I*. Indianapolis: Liberty fund. pp. 447.
159. Stanikūnas, R. (2015). Institutional repository of Vilnius University. [online] Assessment of the concentration and effectiveness of Lithuanian commercial banks. [accessed 20 July 2016]. Available at: https://epublications.vu.lt/object/elaba:8925159/.
160. State Agency of Medicines of the Republic of Latvia (SAM) (2015a) [online]. The Official Registry of Medicines of the Republic of Latvia [accessed 27 July 2015]. Available at: https://www.zva.gov.lv/?id=309&top=5&large=0.
161. State Agency of Medicines of the Republic of Latvia (SAM) (2015b) [online]. Official annual reports (2009-2014) [accessed 27 July 2015]. Available at: https://www.zva.gov.lv/?id=484&lang=&top=5&sa=98.
162. State Agency of Medicines of the Republic of Latvia (SAM) (2015c) [online]. Statistics of Medicines Consumption (2009-2014) [accessed 27 July 2015]. Available at: https://www.zva.gov.lv/?id=99&sa=99&top=5.

163. State Agency of Medicines of the Republic of Latvia (SAM) (2015d) [online]. Baltic Statistics on Medicines (2013-2015) [accessed 27 July 2015]. Available at: https://www.zva.gov.lv/doc_upl/Baltic%20Statistics%20on%20Medicines%202013%20-%202015.pdf.
164. State Agency of Medicines of the Republic of Latvia (SAM) (2015e) [online]. SAM Overview [accessed 27 July 2015]. Available at: https://www.zva.gov.lv/?id=212&top=202&large=&sa=16.
165. Stiglitz, J. E. (December 8, 2001). *Information and the Change in the Paradigm in Economics*. Prize lecture, Columbia Business School, Columbia University, pp. 472-540.
166. Stucke, M.E. (2013). Is Competition Always Good? *Oxford Journal of Antitrust Enforcement*, Vol. 1(1), 162–197. pp.
167. Sullivan, A., Sheffrin. S. M. (2007). *Economics: Principles in action*. Upper Saddle River: Pearson Prentice Hall. pp. 592.
168. The Council of the European Union (2003). Council Regulation (EC) No 1/2003 of 16 December 2002 on the Implementation of the Rules on Competition Laid Down in Articles 81 and 82 of the Treaty. Official Journal of the European Communities. *Official Journal of the European Union*, Vol. L1, pp. 1–25.
169. The Council of the European Union (2004a). Council Regulation (EC) No 139/2004 of 20 January 2004 on the Control of Concentrations between Undertakings. *Official Journal of the European Union*, Vol. L24, pp. 1–22.
170. The Council of the European Union (2004b). Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings. *Official Journal of the European Union*, Vol. C 31, pp. 5–18.
171. The Independent (2009). [online] *Paul Samuelson: Nobel Prize-winner widely regarded as the most important economist of the 20th century*. [accessed 30 June 2015]. Available at: http://www.independent.co.uk/news/obituaries/paul-samuelson-nobel-prize-winner-widely-regarded-as-the-most-important-economist-of-the-20th-1841902.html
172. Treaty on the Functioning of the European Union (TFEU) [Consolidated version] [online]. [accessed 15 January 2015]. Available at: http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:12012E/TXT&from=EN.
173. Treaty on the Functioning of the European Union (TFEU) [Consolidated version] (1958) [online]. [accessed 13 August 2015]. Available at: http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:12012E/TXT&from=EN.
174. Trout, J., Rivkin, S. (2008). *Differentiate or Die: Survival in Our Era of Killer Competition, 2nd Edition*. Hoboken: John Wiley & Sons, Inc. pp. 272.
175. U.S. Department of Justice and the Federal Trade Commission (2010) [online]. *Horizontal Merger Guidelines*. [accessed 17 February 2014]. Available at: http://www.justice.gov/atr/public/guidelines/hmg-2010.html#5b.
176. U.S. Department of Justice and the Federal Trade Commission (2010) [online]. Horizontal Merger Guidelines. [accessed 29 November 2014]. Available at: http://www.justice.gov/atr/public/guidelines/hmg-2010.html#5b.
177. *Unfair Retail Trade Practices Prohibition Law* (2015). [online]. Law of the Republic of Latvia, adopted in Riga, 21 May 2015, Latvijas Vēstnesis, website Likumi.lv [accessed 27 January 2016]. Available at: http://likumi.lv/ta/id/274415-negodigas-mazumtirdzniecibas-prakses-aizlieguma-likums.

178. Union of Latvian Brewers (2015) [online]. General information and members. [accessed 21 February 2015]. Available at: http://alussavieniba.blogspot.com/.
179. United States Copyright Office (1947) [online] Copyright Law of the United States of America and Related Laws Contained in Title 17 of the United States Code [accessed 14 October 2015]. Available at: http://www.copyright.gov/title17/92chap1.html#106.
180. University of Sussex [online]. From Classical to Global Political Economy [accessed 14 June 2015]. Available at: https://www.sussex.ac.uk/webteam/gateway/file.php?name=091theories&site=12.
181. University of Vermont Department of Economics [online]. *Joan Robinson's Economics* [accessed 17 August 2015]. Available at: http://www.uvm.edu/~wgibson/book.pdf.
182. West Virginia University Department of Economics (2013), CHOPE Working Paper No. 2013-14. [online] *From a Treatise on Money to the General Theory: John Maynard Keynes' Departure from the Doctrine of Forced Saving* [accessed 17 September 2015]. Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2321245.
183. White, L. (2012). Market Power: How Does It Arise? How Is It Measured? [online] New York: New York University, Leonard N. Stern School of Business, Department of Economics, Working papers, EC-12-06. [accessed 13 August 2015]. Available at: Retrieved: http://webdocs.stern.nyu.edu/old_web/economics/docs/workingpapers/2012/White_MarketPowerRiseandMeasure.pdf.
184. White, L., Selgin, G. (1994). How Would the Invisible Hand Handle Money? *Journal of Economic*, Vol. 32(4), pp.1718–1749.
185. World Trade Organization (WTO) (1994) [online]. General Agreement on Tariffs and Trade 1994. [accessed 27 October 2015]. Available at: https://www.wto.org/English/docs_e/legal_e/ursum_e.htm#General.

ANNEXES

Annex 1

Modern market type stratification system (developed and proposed by Author)

Defined market type			I	II	III	IV	V	VI	VII
			Total number of market suppliers (N)						
			N=1	N=2	N=3	N=[4;7]	N=[8;10]	N=[11;15]	N>15
I	Total level of monopolization (TLM)	*Very low*	-	-	-	Classic monopolistic competition	Full monopolistic competition	Full monopolistic competition	Full monopolistic competition
II		*Low*	-	-	-	Derived monopolistic competition	Classic monopolistic competition	Classic monopolistic competition	Full monopolistic competition
III		*Relatively low*	-	-	Oligopoly in a state of price war	Derived monopolistic competition	Classic monopolistic competition	Classic monopolistic competition	Classic monopolistic competition
IV		*Medium*	-	Duopoly in a state of price war	Oligopoly in a state of price war	Derived oligopoly	Derived monopolistic competition	Classic monopolistic competition	Classic monopolistic competition
V		*Relatively high*	-	Duopoly	Classic oligopoly	Hidden oligopoly	Derived oligopoly	Derived oligopoly	Derived monopolistic competition
VI		*High*	Full monopoly	Hidden monopoly	Classic oligopoly	Classic oligopoly	Hidden oligopoly	Hidden oligopoly	Hidden oligopoly
VII		*Very high*	Full monopoly	Hidden monopoly	Hidden monopoly	Hidden oligopoly	Hidden oligopoly	Hidden oligopoly	Hidden oligopoly

Annex 2

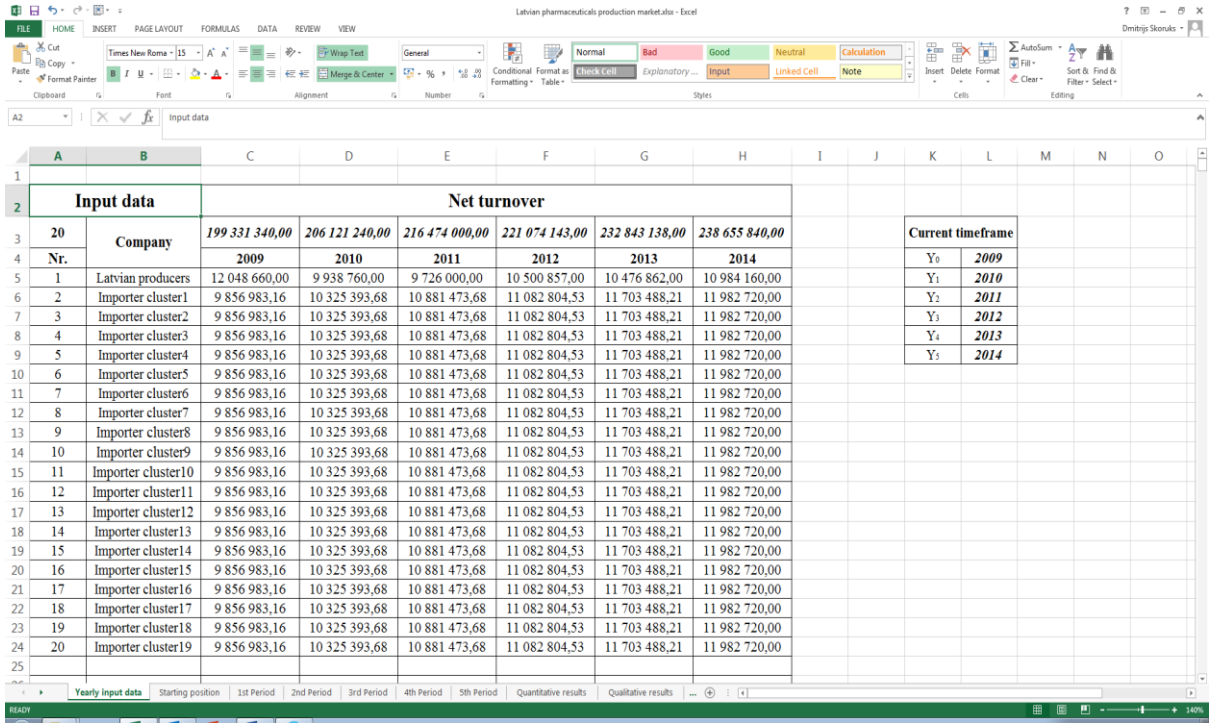
General characteristics of the market types, defined by the modern market type stratification system (developed and proposed by Author)

Nr.	Defined market type	General characteristics of the defined market type
1	**Full monopolistic competition**	1. Suppliers are price takers; 2. Individual profit maximization based on changes in supply amount; 3. Minimal price - based competition; 4. Modest differentiation; 5. The market is fully open for new competitor entry or existing enterprise exit.
2	**Classic monopolistic competition**	1. Suppliers tend to be price takers; 2. Individual profit maximization based on simultaneous price, supply amount and differentiation competition tools; 3. Imperfect information; 4. Product throughout differentiation; 5. The market is fully open for new competitor entry or existing enterprise exit.
3	**Derived monopolistic competition**	1. Suppliers are in a stage of shifting from being price takers to becoming price setters; 2. Individual profit maximization is based on simultaneous price, supply amount and differentiation competition tools; 3. Imperfect information is being used as an additional competition conduction tool; 4. Aggressive marketing with the use of full – scale differentiation; 5. The market is fully open for new competitor entry, however, the costs of entry are beginning to rise, comparing to those observed in the case of classic monopolistic competition.
4	**Derived oligopoly**	1. A portion of the suppliers tend to become price setters, while their counterparts pursue an aggressive strategy in order to acquire a similar position; 2. Individual profit maximization is based on simultaneously – aggressive price, supply amount and differentiation competition tools; 3. Imperfect information is transformed into a form of intended disinformation, which is being used as an additional competitive advantage establishing tool; 4. The use of aggressive marketing techniques is implemented simultaneously with full – scale differentiation, aimed at elimination of the closest competitors; 5. The entry to the market bares significant short – term costs, consequentially decreasing the ability of new, especially small and medium businesses, to survive the initial negative levels of gross revenues, thus limiting the nominal freed of market entry, while significantly increasing the possibility of niche supplier individual market share consolidation do excessive competition.
5	**Oligopoly in a state of price war**	1. The suppliers tend to become cumulative price setters, while simultaneously pursuing an aggressive competitive strategy in order to acquire a leading market position; 2. The suppliers are mutual action-dependant as both the price and non-price competition tool implementation is highly transparent and the causality of economic process conductions influencing attempts in universally affecting each of the involved market actor on a holistic and indiscrete level; 3. Individual profit maximisation is based on simultaneous price, supply amount and differentiation competition tools; 4. Imperfect information has an effect of consumption and business decision making; 5. Aggressive marketing and price-based promotion strategies are widely employed in order to obtain both a higher financial turnover and a clearer market representation; 6. Long-term consolidation by competitor elimination and/or dominant market position acquisition may exist, depending of numerous market conjuncture influence factor presence, scale of effect and volatility; 7. The market is essentially closed for new competitor entry or existing enterprise exiting, due to the high economic barriers (occasionally of possible technologic origins) and a continuously relatively high level of demand saturation.
6	**Classic oligopoly**	1. Suppliers are price setters; 2. Individual profit maximization is based on moderate differentiation practices combined with insignificant to none existing cyclical outlet policies; 3. Sophisticated differentiation practices; 4. The entry to the market bares high medium – term costs, leading to the effective closure of said market to new external potential entrants, while the probability of existing supplier exit significantly decreases and leans toward zero chance level due to limited external competition and consistently loyal client cluster, based on lack of consumption alternatives; 5. High cartel agreement (horizontal, vertical and matrix – type) formation risks.
7	**Hidden oligopoly**	1. A certain group of suppliers are price setters, which the rest of involved in enterprises are economically forced to follow; 2. Individual profit maximization is based on aggressive price competition, sometimes involving

		damping practices; 3. Sophisticated differentiation practices; 4. The entry to the market bares consistently increasing medium – term costs, leading to the beginning of market closure to new external potential entrants, while the probability of existing supplier exit significantly increases due to excessive internal competition; 5. Significant cartel agreement (horizontal, vertical and matrix – type) formation risks.
8	**Duopoly in a state of price war**	1. Both of the suppliers tend to become cumulative price setters, while simultaneously pursuing an aggressive competitive strategy in order to acquire a leading market position; 2. Both of the suppliers are mutual action-dependant as both the price and non-price competition tool implementation is highly transparent and the causality of economic process conductions influencing attempts in universally affecting each of the involved market actor on a holistic and indiscrete level; 3. Individual profit maximisation is based on simultaneous price, supply amount and differentiation competition tools; 4. Imperfect information has an effect of consumption and business decision making, disinformation practices and media campaign may be employed as effective consumer preference influencing non-price competition tools; 5. Aggressive marketing and price-based promotion strategies are widely employed in order to obtain both a higher financial turnover and a clearer market representation; 6. Long-term full *de facto* monopolisation by competitor elimination (or relegation to a status of a minor non-effective quasi-competitor) and subsequent dominant market position acquisition may exist, depending of numerous market conjuncture influence factor presence, scale of effect and volatility; 7. The market is essentially closed for new competitor entry or existing enterprise exiting, due to the high economic barriers (occasionally of possible technologic origins) and a continuously relatively high level of demand saturation.
9	**Duopoly**	1. Both suppliers are price setters; 2. Individual profit maximization is based on modest differentiation practices and conscious stimulation of consumer supplier surplus reduction; 3. Cautious, if any, competition practices due to the high "price war" and "mutual elimination" risks; 4. The market is effectively locked from both new participant entry and existing competitor exit; 5. Very high cartel agreement (horizontal, vertical and matrix – type) formation risks.
10	**Hidden monopoly**	1. One of the suppliers is the sole price setter; 2. Individual profit maximization is based on consistent and conscious stimulation of consumer supplier surplus reduction as well as increase in prices; 3. Effective lack of real competition – all suppliers, except for the leading enterprise, either have little to none individual market power (insignificant individual market shares) and thus compete exclusively among each other or are in fact being controlled by the hidden monopolist through a chain of subsidiaries and/or "single beneficiary" cartel agreements; 4. The market is effectively locked from both new participant entry and existing competitor exit, unless the hidden monopolist decides to increase or decrease the number of nominal competitors in the industry; 5. The development of the market as well as its internal conjuncture composition structuring is being majorly influenced by a single enterprise or a group of mutually – dependent (bound) cartel members.
11	**Full monopoly**	1. The single market supplier is the sole price setter; 2. Profits are being maximized exclusively by reduction of the amount supplied and increase in prices; 3. No differentiation of goods, created by employing mass production practices in order to fully enjoy the cost-reducing optimisation benefits of the scale effect; 4. Consistently (in the long – term) increasing society deadweight loss; 5. The market is fully locked from external potential competitor entries and there is no rational for the monopolist to quite the industry, which it effectively forms.

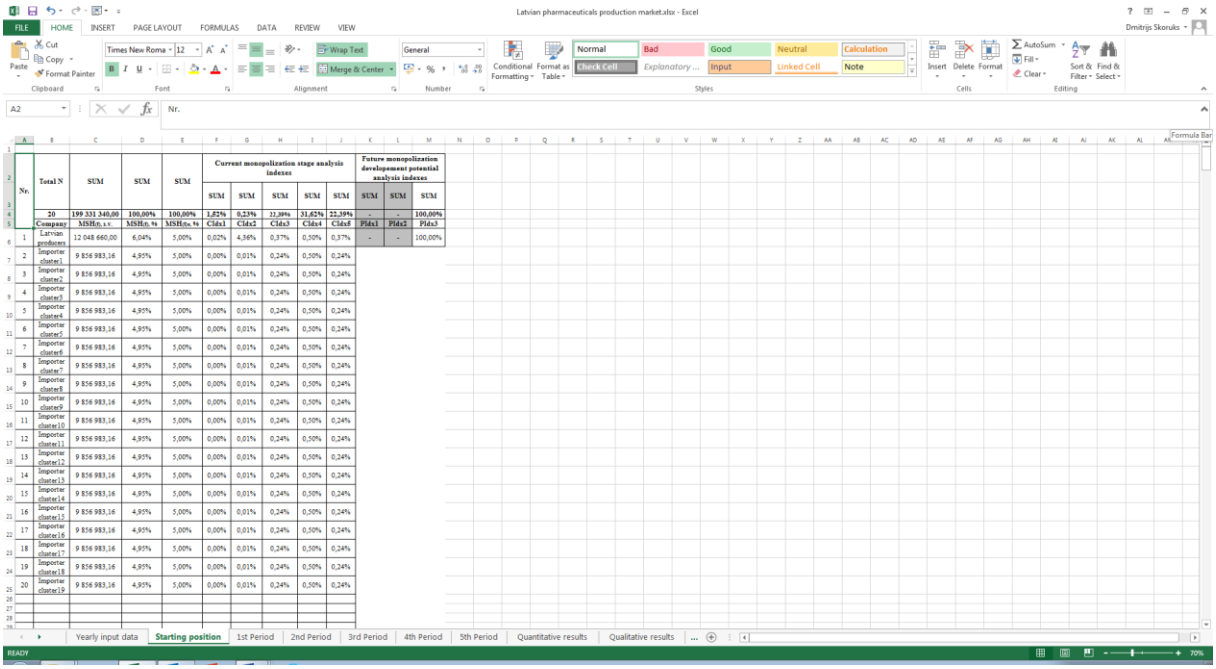
Annex 3

Analysis of monopolisation process progression in Latvian pharmaceuticals market: input data (SAM, 2015b, 2015c) and intermediate results (Base period)



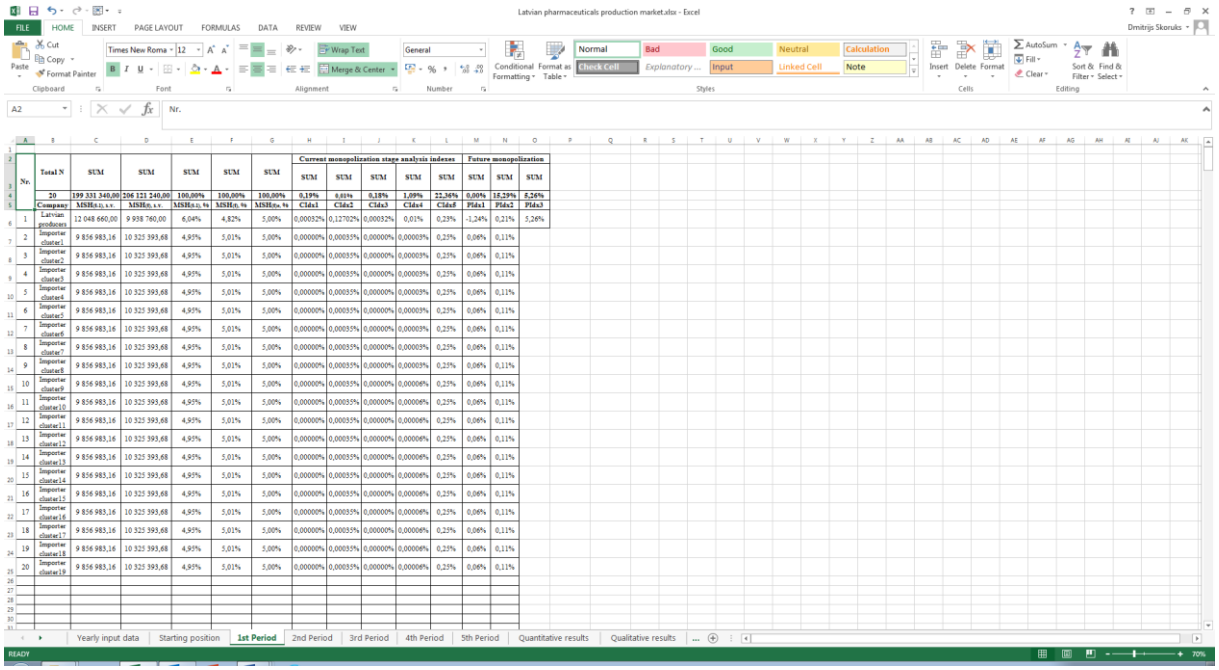
Input data		Net turnover					
20	Company	*199 331 340,00*	*206 121 240,00*	*216 474 000,00*	*221 074 143,00*	*232 843 138,00*	*238 655 840,00*
Nr.		2009	2010	2011	2012	2013	2014
1	Latvian producers	12 048 660,00	9 938 760,00	9 726 000,00	10 500 857,00	10 476 862,00	10 984 160,00
2	Importer cluster1	9 856 983,16	10 325 393,68	10 881 473,68	11 082 804,53	11 703 488,21	11 982 720,00
3	Importer cluster2	9 856 983,16	10 325 393,68	10 881 473,68	11 082 804,53	11 703 488,21	11 982 720,00
4	Importer cluster3	9 856 983,16	10 325 393,68	10 881 473,68	11 082 804,53	11 703 488,21	11 982 720,00
5	Importer cluster4	9 856 983,16	10 325 393,68	10 881 473,68	11 082 804,53	11 703 488,21	11 982 720,00
6	Importer cluster5	9 856 983,16	10 325 393,68	10 881 473,68	11 082 804,53	11 703 488,21	11 982 720,00
7	Importer cluster6	9 856 983,16	10 325 393,68	10 881 473,68	11 082 804,53	11 703 488,21	11 982 720,00
8	Importer cluster7	9 856 983,16	10 325 393,68	10 881 473,68	11 082 804,53	11 703 488,21	11 982 720,00
9	Importer cluster8	9 856 983,16	10 325 393,68	10 881 473,68	11 082 804,53	11 703 488,21	11 982 720,00
10	Importer cluster9	9 856 983,16	10 325 393,68	10 881 473,68	11 082 804,53	11 703 488,21	11 982 720,00
11	Importer cluster10	9 856 983,16	10 325 393,68	10 881 473,68	11 082 804,53	11 703 488,21	11 982 720,00
12	Importer cluster11	9 856 983,16	10 325 393,68	10 881 473,68	11 082 804,53	11 703 488,21	11 982 720,00
13	Importer cluster12	9 856 983,16	10 325 393,68	10 881 473,68	11 082 804,53	11 703 488,21	11 982 720,00
14	Importer cluster13	9 856 983,16	10 325 393,68	10 881 473,68	11 082 804,53	11 703 488,21	11 982 720,00
15	Importer cluster14	9 856 983,16	10 325 393,68	10 881 473,68	11 082 804,53	11 703 488,21	11 982 720,00
16	Importer cluster15	9 856 983,16	10 325 393,68	10 881 473,68	11 082 804,53	11 703 488,21	11 982 720,00
17	Importer cluster16	9 856 983,16	10 325 393,68	10 881 473,68	11 082 804,53	11 703 488,21	11 982 720,00
18	Importer cluster17	9 856 983,16	10 325 393,68	10 881 473,68	11 082 804,53	11 703 488,21	11 982 720,00
19	Importer cluster18	9 856 983,16	10 325 393,68	10 881 473,68	11 082 804,53	11 703 488,21	11 982 720,00
20	Importer cluster19	9 856 983,16	10 325 393,68	10 881 473,68	11 082 804,53	11 703 488,21	11 982 720,00

Current timeframe	
Y_0	*2009*
Y_1	*2010*
Y_2	*2011*
Y_3	*2012*
Y_4	*2013*
Y_5	*2014*



Annex 4

Analysis of monopolisation process progression in Latvian pharmaceuticals market: intermediate results (Period 1)



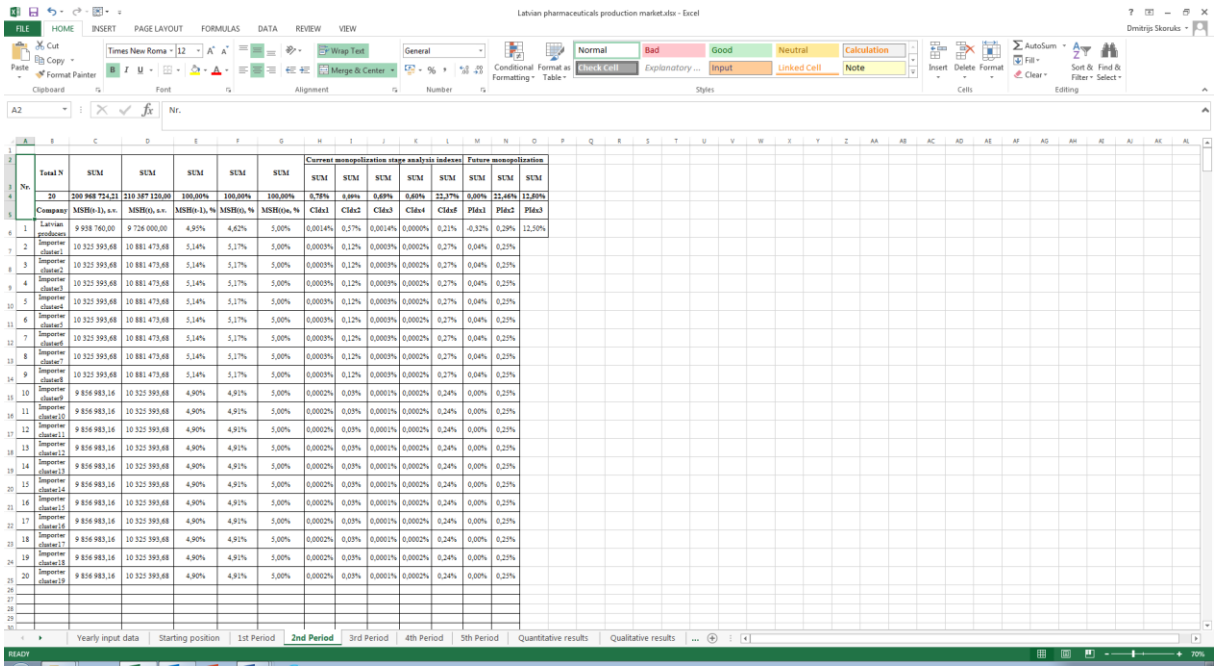
Latvian pharmaceuticals production market.xlsx - Excel

Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	20	199 331 340,00	206 121 240,00	100,00%	100,00%	100,00%	0,19%	0,01%	0,18%	1,09%	22,36%	0,00%	18,29%	5,26%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t+1), %	C1dx1	C1dx2	C1dx3	C1dx4	C1dx5	P1dx1	P1dx2	P1dx3
1	Latvian producers	12 048 660,00	9 938 760,00	6,04%	4,82%	5,00%	0,00032%	0,12702%	0,00032%	0,01%	0,25%	-1,24%	0,21%	5,26%
2	Importer cluster1	9 856 983,16	10 325 393,68	4,95%	5,01%	5,00%	0,00000%	0,00035%	0,00000%	0,00003%	0,25%	0,06%	0,11%	
3	Importer cluster2	9 856 983,16	10 325 393,68	4,95%	5,01%	5,00%	0,00000%	0,00035%	0,00000%	0,00003%	0,25%	0,06%	0,11%	
4	Importer cluster3	9 856 983,16	10 325 393,68	4,95%	5,01%	5,00%	0,00000%	0,00035%	0,00000%	0,00003%	0,25%	0,06%	0,11%	
5	Importer cluster4	9 856 983,16	10 325 393,68	4,95%	5,01%	5,00%	0,00000%	0,00035%	0,00000%	0,00003%	0,25%	0,06%	0,11%	
6	Importer cluster5	9 856 983,16	10 325 393,68	4,95%	5,01%	5,00%	0,00000%	0,00035%	0,00000%	0,00003%	0,25%	0,06%	0,11%	
7	Importer cluster6	9 856 983,16	10 325 393,68	4,95%	5,01%	5,00%	0,00000%	0,00035%	0,00000%	0,00003%	0,25%	0,06%	0,11%	
8	Importer cluster7	9 856 983,16	10 325 393,68	4,95%	5,01%	5,00%	0,00000%	0,00035%	0,00000%	0,00003%	0,25%	0,06%	0,11%	
9	Importer cluster8	9 856 983,16	10 325 393,68	4,95%	5,01%	5,00%	0,00000%	0,00035%	0,00000%	0,00003%	0,25%	0,06%	0,11%	
10	Importer cluster9	9 856 983,16	10 325 393,68	4,95%	5,01%	5,00%	0,00000%	0,00035%	0,00000%	0,00006%	0,25%	0,06%	0,11%	
11	Importer cluster10	9 856 983,16	10 325 393,68	4,95%	5,01%	5,00%	0,00000%	0,00035%	0,00000%	0,00006%	0,25%	0,06%	0,11%	
12	Importer cluster11	9 856 983,16	10 325 393,68	4,95%	5,01%	5,00%	0,00000%	0,00035%	0,00000%	0,00006%	0,25%	0,06%	0,11%	
13	Importer cluster12	9 856 983,16	10 325 393,68	4,95%	5,01%	5,00%	0,00000%	0,00035%	0,00000%	0,00006%	0,25%	0,06%	0,11%	
14	Importer cluster13	9 856 983,16	10 325 393,68	4,95%	5,01%	5,00%	0,00000%	0,00035%	0,00000%	0,00006%	0,25%	0,06%	0,11%	
15	Importer cluster14	9 856 983,16	10 325 393,68	4,95%	5,01%	5,00%	0,00000%	0,00035%	0,00000%	0,00006%	0,25%	0,06%	0,11%	
16	Importer cluster15	9 856 983,16	10 325 393,68	4,95%	5,01%	5,00%	0,00000%	0,00035%	0,00000%	0,00006%	0,25%	0,06%	0,11%	
17	Importer cluster16	9 856 983,16	10 325 393,68	4,95%	5,01%	5,00%	0,00000%	0,00035%	0,00000%	0,00006%	0,25%	0,06%	0,11%	
18	Importer cluster17	9 856 983,16	10 325 393,68	4,95%	5,01%	5,00%	0,00000%	0,00035%	0,00000%	0,00006%	0,25%	0,06%	0,11%	
19	Importer cluster18	9 856 983,16	10 325 393,68	4,95%	5,01%	5,00%	0,00000%	0,00035%	0,00000%	0,00006%	0,25%	0,06%	0,11%	
20	Importer cluster19	9 856 983,16	10 325 393,68	4,95%	5,01%	5,00%	0,00000%	0,00035%	0,00000%	0,00006%	0,25%	0,06%	0,11%	

Yearly input data | Starting position | 1st Period | 2nd Period | 3rd Period | 4th Period | 5th Period | Quantitative results | Qualitative results

Annex 5

Analysis of monopolisation process progression in Latvian pharmaceuticals market: intermediate results (Period 2)



Latvian pharmaceuticals production market.xlsx - Excel

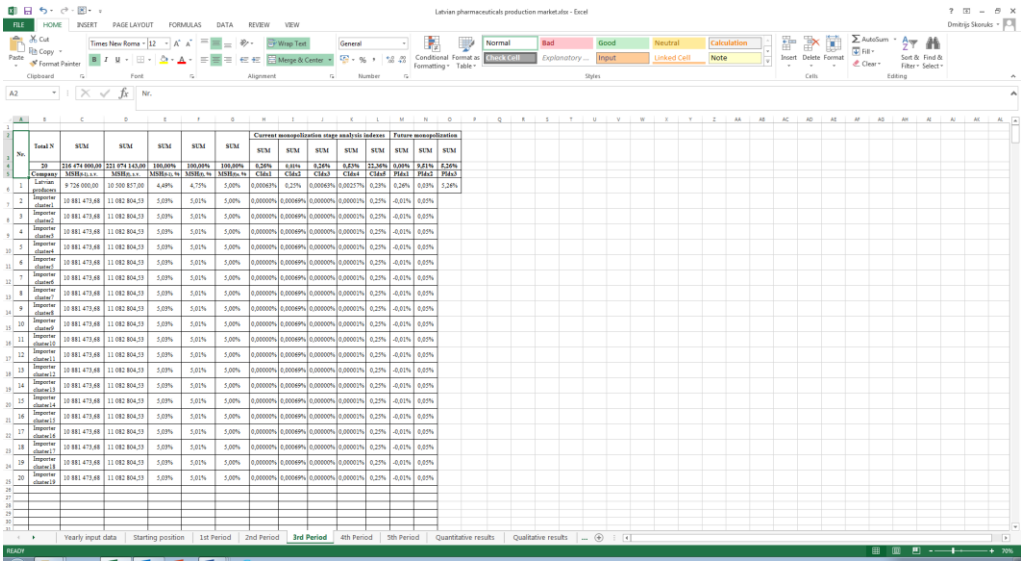
Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes: SUM	SUM	SUM	SUM	SUM	Future monopolization SUM	SUM	SUM
	20	200 968 724,21	210 307 120,00	100,00%	100,00%	100,00%	0,75%	0,09%	0,69%	0,60%	22,37%	0,00%	22,46%	12,50%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t)e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	Latvian producers	9 938 760,00	9 726 000,00	4,95%	4,62%	5,00%	0,0014%	0,57%	0,0014%	0,0000%	0,21%	-0,32%	0,29%	12,50%
2	Importer cluster1	10 325 393,68	10 881 473,68	5,14%	5,17%	5,00%	0,0003%	0,12%	0,0003%	0,0002%	0,27%	0,04%	0,25%	
3	Importer cluster2	10 325 393,68	10 881 473,68	5,14%	5,17%	5,00%	0,0003%	0,12%	0,0003%	0,0002%	0,27%	0,04%	0,25%	
4	Importer cluster3	10 325 393,68	10 881 473,68	5,14%	5,17%	5,00%	0,0003%	0,12%	0,0003%	0,0002%	0,27%	0,04%	0,25%	
5	Importer cluster4	10 325 393,68	10 881 473,68	5,14%	5,17%	5,00%	0,0003%	0,12%	0,0003%	0,0002%	0,27%	0,04%	0,25%	
6	Importer cluster5	10 325 393,68	10 881 473,68	5,14%	5,17%	5,00%	0,0003%	0,12%	0,0003%	0,0002%	0,27%	0,04%	0,25%	
7	Importer cluster6	10 325 393,68	10 881 473,68	5,14%	5,17%	5,00%	0,0003%	0,12%	0,0003%	0,0002%	0,27%	0,04%	0,25%	
8	Importer cluster7	10 325 393,68	10 881 473,68	5,14%	5,17%	5,00%	0,0003%	0,12%	0,0003%	0,0002%	0,27%	0,04%	0,25%	
9	Importer cluster8	10 325 393,68	10 881 473,68	5,14%	5,17%	5,00%	0,0003%	0,12%	0,0003%	0,0002%	0,27%	0,04%	0,25%	
10	Importer cluster9	9 856 983,16	10 325 393,68	4,90%	4,91%	5,00%	0,0002%	0,03%	0,0001%	0,0002%	0,24%	0,00%	0,25%	
11	Importer cluster10	9 856 983,16	10 325 393,68	4,90%	4,91%	5,00%	0,0002%	0,03%	0,0001%	0,0002%	0,24%	0,00%	0,25%	
12	Importer cluster11	9 856 983,16	10 325 393,68	4,90%	4,91%	5,00%	0,0002%	0,03%	0,0001%	0,0002%	0,24%	0,00%	0,25%	
13	Importer cluster12	9 856 983,16	10 325 393,68	4,90%	4,91%	5,00%	0,0002%	0,03%	0,0001%	0,0002%	0,24%	0,00%	0,25%	
14	Importer cluster13	9 856 983,16	10 325 393,68	4,90%	4,91%	5,00%	0,0002%	0,03%	0,0001%	0,0002%	0,24%	0,00%	0,25%	
15	Importer cluster14	9 856 983,16	10 325 393,68	4,90%	4,91%	5,00%	0,0002%	0,03%	0,0001%	0,0002%	0,24%	0,00%	0,25%	
16	Importer cluster15	9 856 983,16	10 325 393,68	4,90%	4,91%	5,00%	0,0002%	0,03%	0,0001%	0,0002%	0,24%	0,00%	0,25%	
17	Importer cluster16	9 856 983,16	10 325 393,68	4,90%	4,91%	5,00%	0,0002%	0,03%	0,0001%	0,0002%	0,24%	0,00%	0,25%	
18	Importer cluster17	9 856 983,16	10 325 393,68	4,90%	4,91%	5,00%	0,0002%	0,03%	0,0001%	0,0002%	0,24%	0,00%	0,25%	
19	Importer cluster18	9 856 983,16	10 325 393,68	4,90%	4,91%	5,00%	0,0002%	0,03%	0,0001%	0,0002%	0,24%	0,00%	0,25%	
20	Importer cluster19	9 856 983,16	10 325 393,68	4,90%	4,91%	5,00%	0,0002%	0,03%	0,0001%	0,0002%	0,24%	0,00%	0,25%	

Yearly input data | Starting position | 1st Period | 2nd Period | 3rd Period | 4th Period | 5th Period | Quantitative results | Qualitative results

READY

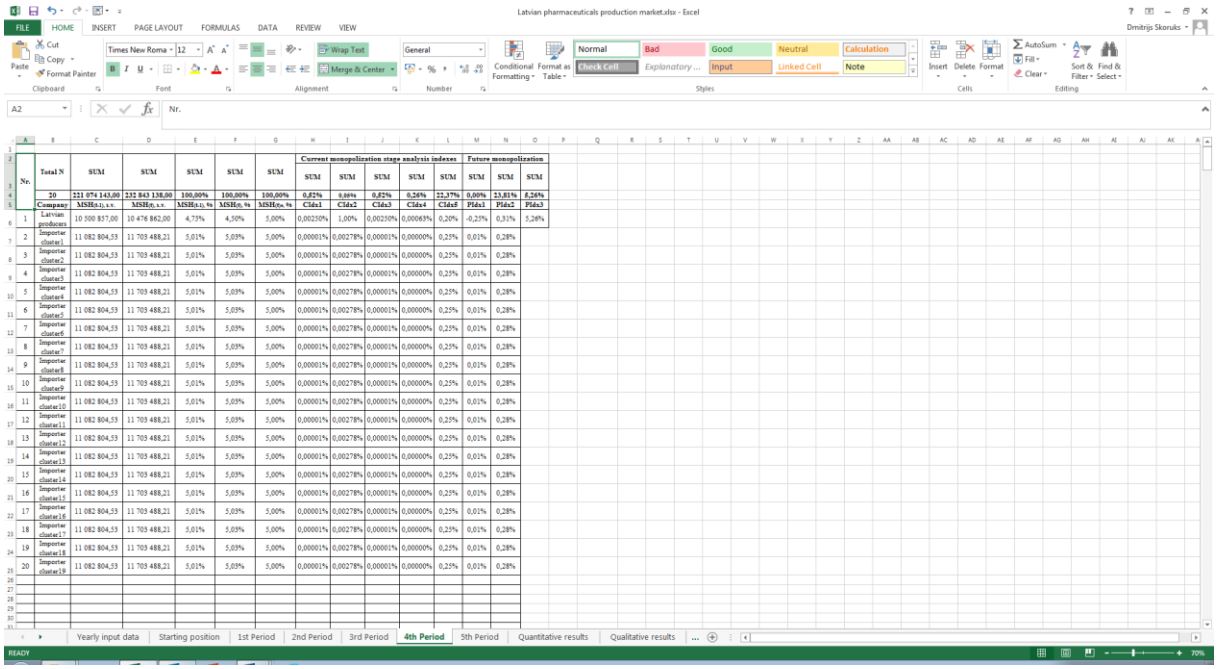
Annex 6

Analysis of monopolisation process progression in Latvian pharmaceuticals market: intermediate results (Period 3)



Annex 7

Analysis of monopolisation process progression in Latvian pharmaceuticals market: intermediate results (Period 4)



Latvian pharmaceuticals production market.xlsx - Excel

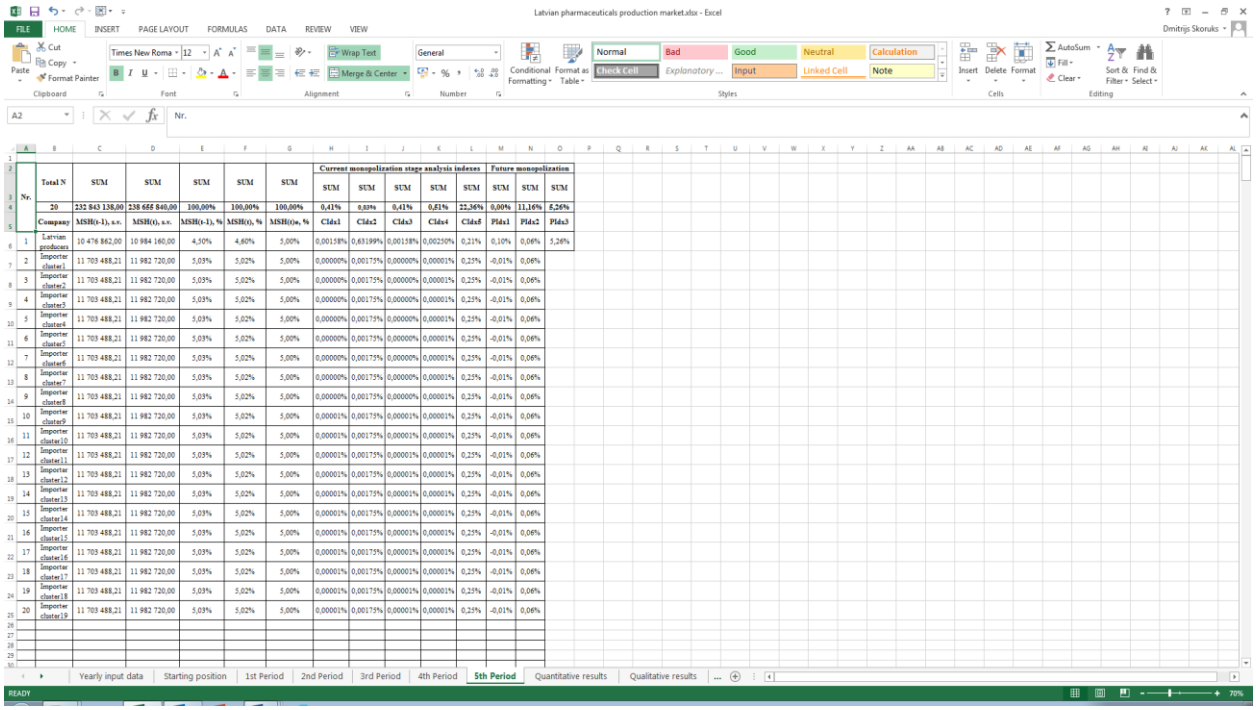
Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes SUM	SUM	SUM	SUM	SUM	Future monopolization SUM	SUM	SUM
	20	221 074 143,00	232 843 138,00	100,00%	100,00%	100,00%	0,82%	0,00%	0,82%	0,26%	22,37%	0,00%	23,81%	8,26%
	Company	$MSH_{(1)}$, s.v.	$MSH_{(2)}$, s.v.	$MSH_{(1)}$, %	$MSH_{(2)}$, %	$MSH_{(3)}$, %	Cid1	Cid2	Cid3	Cid4	Cid5	Pid1	Pid2	Pid3
1	Latvian producers	10 500 857,00	10 476 862,00	4,75%	4,50%	5,00%	0,00250%	1,00%	0,00250%	0,00063%	0,20%	-0,23%	0,31%	5,26%
2	Importer cluster1	11 082 804,53	11 703 488,21	5,01%	5,03%	5,00%	0,00001%	0,00278%	0,00001%	0,00000%	0,25%	0,01%	0,28%	
3	Importer cluster2	11 082 804,53	11 703 488,21	5,01%	5,03%	5,00%	0,00001%	0,00278%	0,00001%	0,00000%	0,25%	0,01%	0,28%	
4	Importer cluster3	11 082 804,53	11 703 488,21	5,01%	5,03%	5,00%	0,00001%	0,00278%	0,00001%	0,00000%	0,25%	0,01%	0,28%	
5	Importer cluster4	11 082 804,53	11 703 488,21	5,01%	5,03%	5,00%	0,00001%	0,00278%	0,00001%	0,00000%	0,25%	0,01%	0,28%	
6	Importer cluster5	11 082 804,53	11 703 488,21	5,01%	5,03%	5,00%	0,00001%	0,00278%	0,00001%	0,00000%	0,25%	0,01%	0,28%	
7	Importer cluster6	11 082 804,53	11 703 488,21	5,01%	5,03%	5,00%	0,00001%	0,00278%	0,00001%	0,00000%	0,25%	0,01%	0,28%	
8	Importer cluster7	11 082 804,53	11 703 488,21	5,01%	5,03%	5,00%	0,00001%	0,00278%	0,00001%	0,00000%	0,25%	0,01%	0,28%	
9	Importer cluster8	11 082 804,53	11 703 488,21	5,01%	5,03%	5,00%	0,00001%	0,00278%	0,00001%	0,00000%	0,25%	0,01%	0,28%	
10	Importer cluster9	11 082 804,53	11 703 488,21	5,01%	5,03%	5,00%	0,00001%	0,00278%	0,00001%	0,00000%	0,25%	0,01%	0,28%	
11	Importer cluster10	11 082 804,53	11 703 488,21	5,01%	5,03%	5,00%	0,00001%	0,00278%	0,00001%	0,00000%	0,25%	0,01%	0,28%	
12	Importer cluster11	11 082 804,53	11 703 488,21	5,01%	5,03%	5,00%	0,00001%	0,00278%	0,00001%	0,00000%	0,25%	0,01%	0,28%	
13	Importer cluster12	11 082 804,53	11 703 488,21	5,01%	5,03%	5,00%	0,00001%	0,00278%	0,00001%	0,00000%	0,25%	0,01%	0,28%	
14	Importer cluster13	11 082 804,53	11 703 488,21	5,01%	5,03%	5,00%	0,00001%	0,00278%	0,00001%	0,00000%	0,25%	0,01%	0,28%	
15	Importer cluster14	11 082 804,53	11 703 488,21	5,01%	5,03%	5,00%	0,00001%	0,00278%	0,00001%	0,00000%	0,25%	0,01%	0,28%	
16	Importer cluster15	11 082 804,53	11 703 488,21	5,01%	5,03%	5,00%	0,00001%	0,00278%	0,00001%	0,00000%	0,25%	0,01%	0,28%	
17	Importer cluster16	11 082 804,53	11 703 488,21	5,01%	5,03%	5,00%	0,00001%	0,00278%	0,00001%	0,00000%	0,25%	0,01%	0,28%	
18	Importer cluster17	11 082 804,53	11 703 488,21	5,01%	5,03%	5,00%	0,00001%	0,00278%	0,00001%	0,00000%	0,25%	0,01%	0,28%	
19	Importer cluster18	11 082 804,53	11 703 488,21	5,01%	5,03%	5,00%	0,00001%	0,00278%	0,00001%	0,00000%	0,25%	0,01%	0,28%	
20	Importer cluster19	11 082 804,53	11 703 488,21	5,01%	5,03%	5,00%	0,00001%	0,00278%	0,00001%	0,00000%	0,25%	0,01%	0,28%	

Yearly input data | Starting position | 1st Period | 2nd Period | 3rd Period | 4th Period | 5th Period | Quantitative results | Qualitative results

READY

Annex 8

Analysis of monopolisation process progression in Latvian pharmaceuticals market: intermediate results (Period 5)



Latvian pharmaceuticals production market.xlsx - Excel

Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	20	232 843 138,00	238 666 840,00	100,00%	100,00%	100,00%	0,41%	0,88%	0,41%	0,51%	22,36%	0,00%	11,16%	5,26%
	Company	MSH(t-1), u.v.	MSH(t), u.v.	MSH(t-1), %	MSH(t), %	MSH(t)u, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	Latvian producers	10 476 862,00	10 984 160,00	4,50%	4,60%	5,00%	0,00158%	0,63199%	0,00158%	0,00290%	0,21%	0,10%	0,06%	5,26%
2	Importer cluster1	11 703 488,21	11 982 720,00	5,03%	5,02%	5,00%	0,00000%	0,00175%	0,00000%	0,00001%	0,25%	-0,01%	0,06%	
3	Importer cluster2	11 703 488,21	11 982 720,00	5,03%	5,02%	5,00%	0,00000%	0,00175%	0,00000%	0,00001%	0,25%	-0,01%	0,06%	
4	Importer cluster3	11 703 488,21	11 982 720,00	5,03%	5,02%	5,00%	0,00000%	0,00175%	0,00000%	0,00001%	0,25%	-0,01%	0,06%	
5	Importer cluster4	11 703 488,21	11 982 720,00	5,03%	5,02%	5,00%	0,00000%	0,00175%	0,00000%	0,00001%	0,25%	-0,01%	0,06%	
6	Importer cluster5	11 703 488,21	11 982 720,00	5,03%	5,02%	5,00%	0,00000%	0,00175%	0,00000%	0,00001%	0,25%	-0,01%	0,06%	
7	Importer cluster6	11 703 488,21	11 982 720,00	5,03%	5,02%	5,00%	0,00000%	0,00175%	0,00000%	0,00001%	0,25%	-0,01%	0,06%	
8	Importer cluster7	11 703 488,21	11 982 720,00	5,03%	5,02%	5,00%	0,00000%	0,00175%	0,00000%	0,00001%	0,25%	-0,01%	0,06%	
9	Importer cluster8	11 703 488,21	11 982 720,00	5,03%	5,02%	5,00%	0,00000%	0,00175%	0,00000%	0,00001%	0,25%	-0,01%	0,06%	
10	Importer cluster9	11 703 488,21	11 982 720,00	5,03%	5,02%	5,00%	0,00001%	0,00175%	0,00001%	0,00001%	0,25%	-0,01%	0,06%	
11	Importer cluster10	11 703 488,21	11 982 720,00	5,03%	5,02%	5,00%	0,00001%	0,00175%	0,00001%	0,00001%	0,25%	-0,01%	0,06%	
12	Importer cluster11	11 703 488,21	11 982 720,00	5,03%	5,02%	5,00%	0,00001%	0,00175%	0,00001%	0,00001%	0,25%	-0,01%	0,06%	
13	Importer cluster12	11 703 488,21	11 982 720,00	5,03%	5,02%	5,00%	0,00001%	0,00175%	0,00001%	0,00001%	0,25%	-0,01%	0,06%	
14	Importer cluster13	11 703 488,21	11 982 720,00	5,03%	5,02%	5,00%	0,00001%	0,00175%	0,00001%	0,00001%	0,25%	-0,01%	0,06%	
15	Importer cluster14	11 703 488,21	11 982 720,00	5,03%	5,02%	5,00%	0,00001%	0,00175%	0,00001%	0,00001%	0,25%	-0,01%	0,06%	
16	Importer cluster15	11 703 488,21	11 982 720,00	5,03%	5,02%	5,00%	0,00001%	0,00175%	0,00001%	0,00001%	0,25%	-0,01%	0,06%	
17	Importer cluster16	11 703 488,21	11 982 720,00	5,03%	5,02%	5,00%	0,00001%	0,00175%	0,00001%	0,00001%	0,25%	-0,01%	0,06%	
18	Importer cluster17	11 703 488,21	11 982 720,00	5,03%	5,02%	5,00%	0,00001%	0,00175%	0,00001%	0,00001%	0,25%	-0,01%	0,06%	
19	Importer cluster18	11 703 488,21	11 982 720,00	5,03%	5,02%	5,00%	0,00001%	0,00175%	0,00001%	0,00001%	0,25%	-0,01%	0,06%	
20	Importer cluster19	11 703 488,21	11 982 720,00	5,03%	5,02%	5,00%	0,00001%	0,00175%	0,00001%	0,00001%	0,25%	-0,01%	0,06%	

Yearly input data | Starting position | 1st Period | 2nd Period | 3rd Period | 4th Period | 5th Period | Quantitative results | Qualitative results

READY

Annex 9

Latvian brewing industry: primary statistical data (Lursoft data base, 2010a) (Lursoft data base, 2010b) (Lursoft data base, 2010c) (Lursoft data base, 2010d) (Lursoft data base, 2010e) (Lursoft data base, 2010f) (Lursoft data base, 2010g) (Lursoft data base, 2010h) (Lursoft data base, 2011a) (Lursoft data base, 2011b) (Lursoft data base, 2011c) (Lursoft data base, 2011d) (Lursoft data base, 2011e) (Lursoft data base, 2011f) (Lursoft data base, 2011g) (Lursoft data base, 2011h) (Lursoft data base, 2012a) (Lursoft data base, 2012b) (Lursoft data base, 2012c) (Lursoft data base, 2012d) (Lursoft data base, 2012e) (Lursoft data base, 2012f) (Lursoft data base, 2012g) (Lursoft data base, 2012h) (Lursoft data base, 2013a) (Lursoft data base, 2013b) (Lursoft data base, 2013c) (Lursoft data base, 2013d) (Lursoft data base, 2013e) (Lursoft data base, 2013f) (Lursoft data base, 2013g) (Lursoft data base, 2013h) (Lursoft data base, 2014a) (Lursoft data base, 2014b) (Lursoft data base, 2014c) (Lursoft data base, 2014d) (Lursoft data base, 2014e) (Lursoft data base, 2014f) (Lursoft data base, 2014g) (Lursoft data base, 2014h) (Lursoft data base, 2015a) (Lursoft data base, 2015b) (Lursoft data base, 2015c) (Lursoft data base, 2015d) (Lursoft data base, 2015e) (Lursoft data base, 2015f) (Lursoft data base, 2015g) (Lursoft data base, 2015h)
(CSP, 2015) (Firmas.lv, 2015)

Nr.	Company	2009	2010	2011	2012	2013	2014
		Net turnover, EUR	Net turnover, EUR	Net turnover, EUR	Net turnover, EUR	Net turnover, EUR	Net turnover, EUR
1	Aldaris, AS	38 852 461.00	36 266 140.00	39 614 965.00	36 431 982.00	36 351 785.00	28 625 626.00
2	Cēsu alus, AS	38 472 321.00	43 260 747.00	47 954 004.00	47 823 419.00	49 609 356.00	46 852 309.00
3	Total import	12 899 921.00	15 666 313.00	17 623 081.00	19 334 014.00	21 482 941.00	27 268 500.00
4	TĒRVETES ALUS, AS	8 297 427.00	9 385 749.00	10 148 753.00	10 660 444.00	12 886 896.00	12 729 396.00
5	BAUSKAS ALUS, SIA	3 891 261.00	3 564 766.00	3 537 049.00	3 986 520.00	4 386 167.00	4 975 079.00
6	PIEBALGAS ALUS, SIA	2 549 782.00	2 424 290.00	2 868 649.00	2 987 594.00	3 121 002.00	3 260 906.00
7	UŽAVAS ALUS, SIA	1 900 739.00	1 983 766.00	2 205 012.00	2 339 662.00	2 556 388.00	3 104 346.00
8	Alus Nams, SIA	447 428.00	682 167.00	1 240 381.00	1 450 443.00	1 666 166.00	1 831 374.00
9	VALMIERMUIŽAS ALUS, SIA	420 827.00	840 359.00	1 302 434.00	1 696 719.00	2 492 435.00	3 387 547.00
10	ABULA, SIA	238 075.00	516 743.00	579 632.00	715 283.00	682 626.00	697 810.00
11	DFD, SIA	125 502.00	577 433.00	622 575.00	769 146.00	772 639.00	758 447.00
12	KRĀSLAVAS AVOTS, SIA	114 574.00	229 319.00	256 140.00	206 018.00	230 346.00	279 309.00
SUM		**108 210 318.00**	**115 397 792.00**	**127 952 675.00**	**128 401 244.00**	**136 238 747.00**	**133 770 649.00**

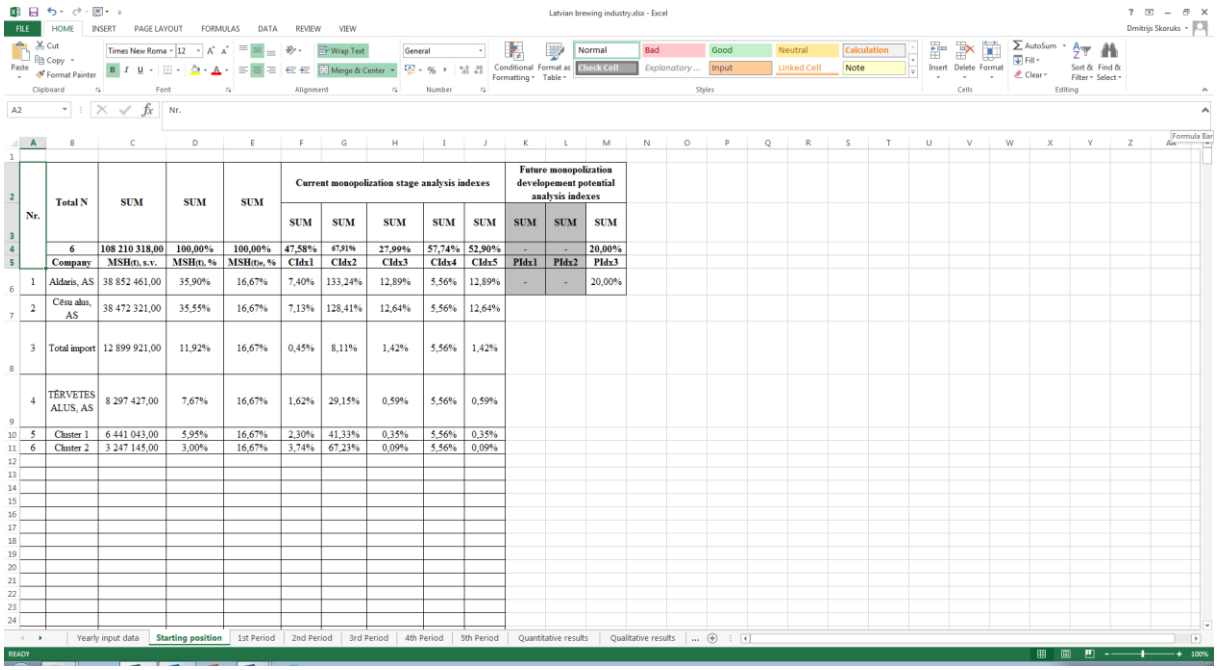
Annex 10

Latvian brewing industry: primary statistical data-based (see Annex 9) harmonised inputs

Nr.	Company	2009	2010	2011	2012	2013	2014
		Net turnover, EUR	Net turnover, EUR	Net turnover, EUR	Net turnover, EUR	Net turnover, EUR	Net turnover, EUR
1	Aldaris, AS	38 852 461.00	36 266 140.00	39 614 965.00	36 431 982.00	36 351 785.00	28 625 626.00
2	Cēsu alus, AS	38 472 321.00	43 260 747.00	47 954 004.00	47 823 419.00	49 609 356.00	46 852 309.00
3	Total import	12 899 921.00	15 666 313.00	17 623 081.00	19 334 014.00	21 482 941.00	27 268 500.00
4	TĒRVETES ALUS, AS	8 297 427.00	9 385 749.00	10 148 753.00	10 660 444.00	12 886 896.00	12 729 396.00
5	Cluster 1	6 441 043.00	5 989 056.00	6 405 698.00	6 974 114.00	7 507 169.00	8 235 985.00
6	Cluster 2	3 247 145.00	4 829 787.00	6 206 174.00	7 177 271.00	8 400 600.00	10 058 833.00
SUM		**108 210 318,00**	**115 397 792.00**	**127 952 675.00**	**128 401 244.00**	**136 238 747.00**	**133 770 649.00**

Annex 11

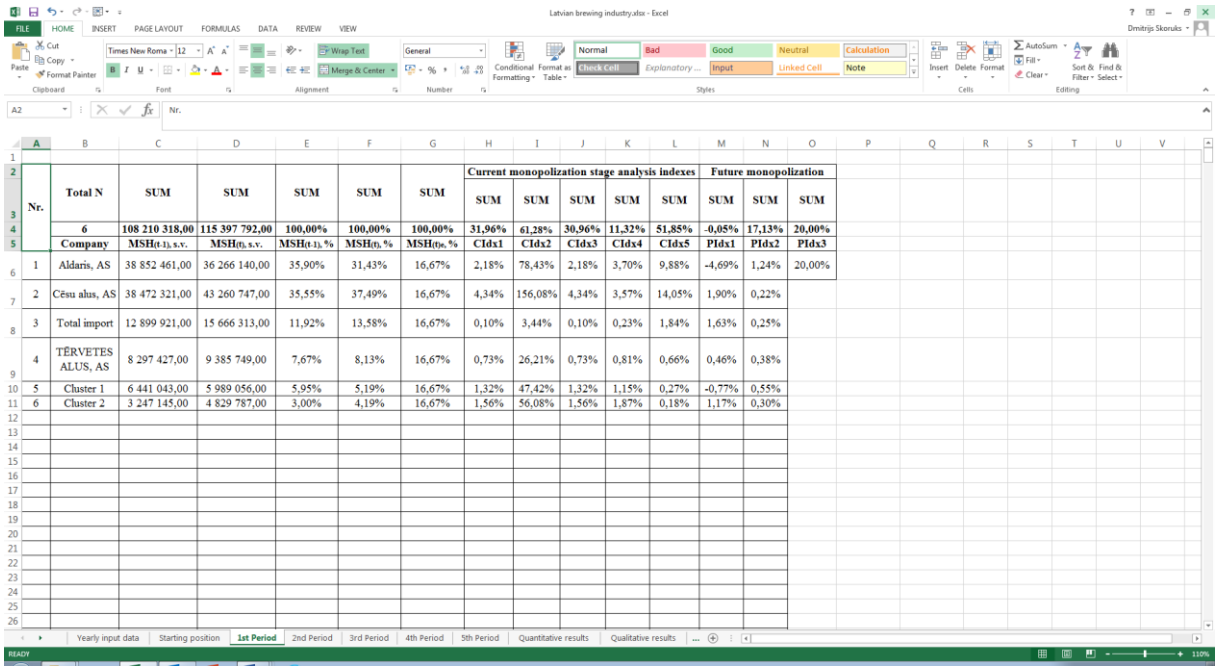
Analysis of monopolisation process progression in the Latvian brewing industry: intermediate results (Base period)



Nr.	Total N	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization developement potential analysis indexes		
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	6	108 210 318,00	100,00%	100,00%	47,58%	67,91%	27,99%	57,74%	52,90%	-	-	20,00%
	Company	MSH(t), s.v.	MSH(t), %	MSH(t)s, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	Aldaris, AS	38 852 461,00	35,90%	16,67%	7,40%	133,24%	12,89%	5,56%	12,89%	-	-	20,00%
2	Cēsu alus, AS	38 472 321,00	35,55%	16,67%	7,13%	128,41%	12,64%	5,56%	12,64%			
3	Total import	12 899 921,00	11,92%	16,67%	0,45%	8,11%	1,42%	5,56%	1,42%			
4	TĒRVETES ALUS, AS	8 297 427,00	7,67%	16,67%	1,62%	29,15%	0,59%	5,56%	0,59%			
5	Cluster 1	6 441 043,00	5,95%	16,67%	2,30%	41,33%	0,35%	5,56%	0,35%			
6	Cluster 2	3 247 145,00	3,00%	16,67%	3,74%	67,23%	0,09%	5,56%	0,09%			

Annex 12

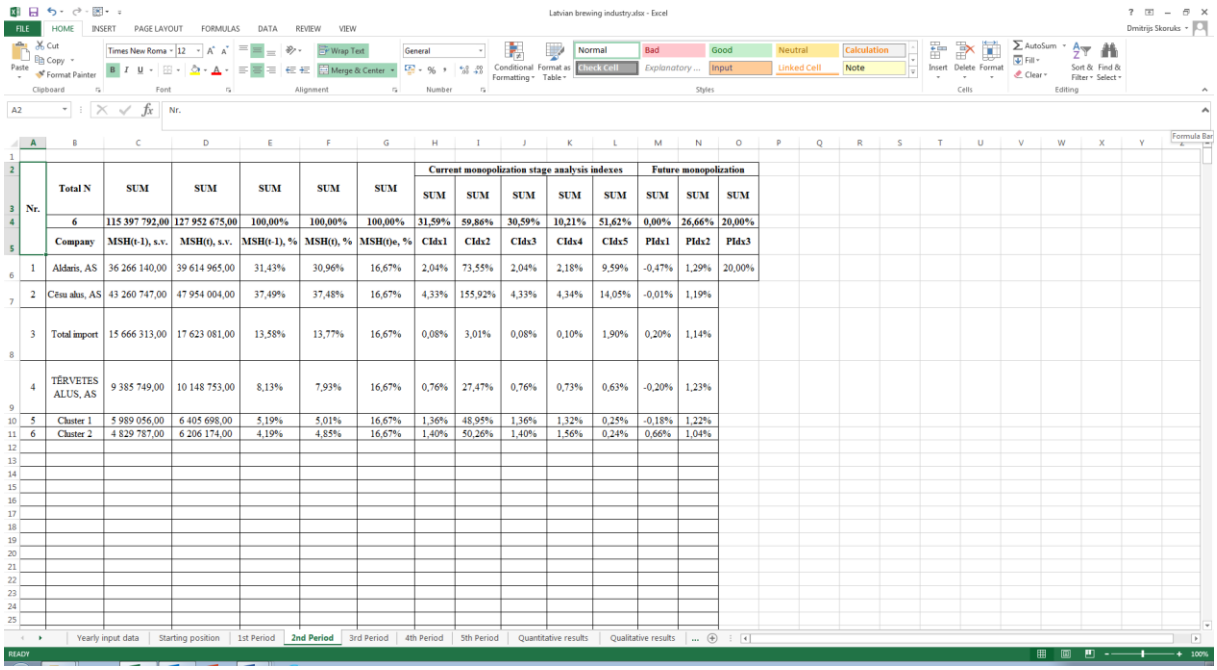
Analysis of monopolisation process progression in the Latvian brewing industry: intermediate results (Period 1)



Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	6	108 210 318,00	115 397 792,00	100,00%	100,00%	100,00%	31,96%	61,28%	30,96%	11,32%	51,85%	-0,05%	17,13%	20,00%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t)e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	Aldaris, AS	38 852 461,00	36 266 140,00	35,90%	31,43%	16,67%	2,18%	78,43%	2,18%	3,70%	9,88%	-4,69%	1,24%	20,00%
2	Cēsu alus, AS	38 472 321,00	43 260 747,00	35,55%	37,49%	16,67%	4,34%	156,08%	4,34%	3,57%	14,05%	1,90%	0,22%	
3	Total import	12 899 921,00	15 666 313,00	11,92%	13,58%	16,67%	0,10%	3,44%	0,10%	0,23%	1,84%	1,63%	0,25%	
4	TĒRVETES ALUS, AS	8 297 427,00	9 385 749,00	7,67%	8,13%	16,67%	0,73%	26,21%	0,73%	0,81%	0,66%	0,46%	0,38%	
5	Cluster 1	6 441 043,00	5 989 056,00	5,95%	5,19%	16,67%	1,32%	47,42%	1,32%	1,15%	0,27%	-0,77%	0,55%	
6	Cluster 2	3 247 145,00	4 829 787,00	3,00%	4,19%	16,67%	1,56%	56,08%	1,56%	1,87%	0,18%	1,17%	0,30%	

Annex 13

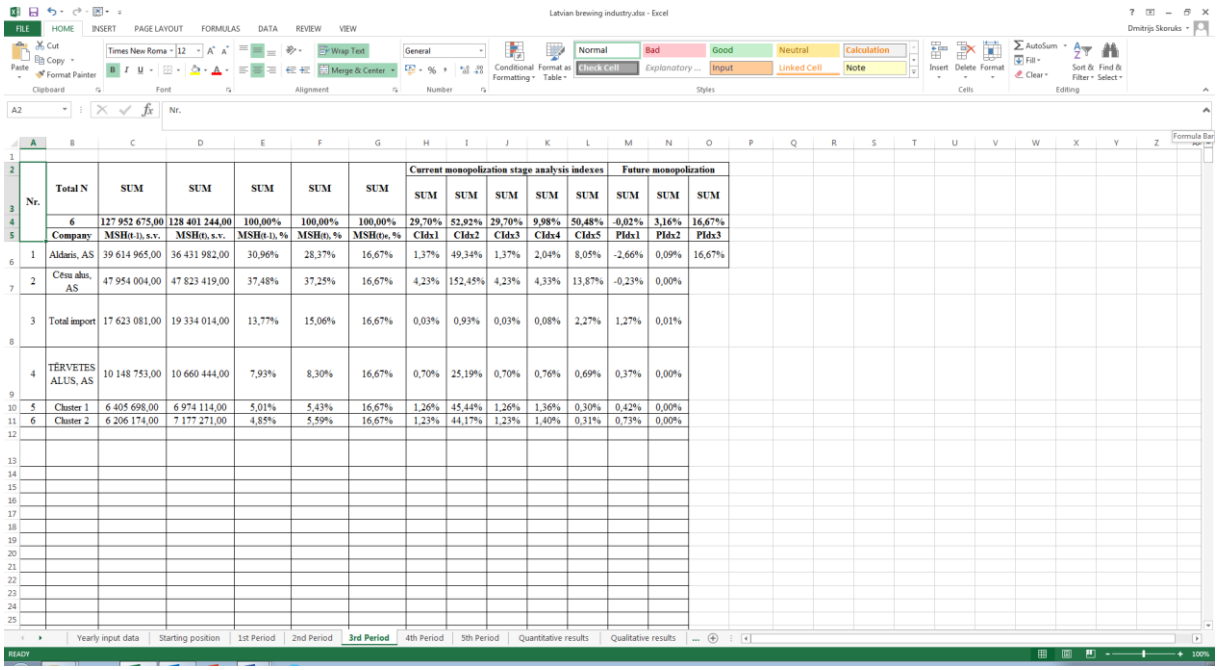
Analysis of monopolisation process progression in the Latvian brewing industry: intermediate results (Period 2)



Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	6	115 397 792,00	127 952 675,00	100,00%	100,00%	100,00%	31,59%	59,86%	30,59%	10,21%	51,62%	0,00%	26,66%	20,00%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t)e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	Aldaris, AS	36 266 140,00	39 614 965,00	31,43%	30,96%	16,67%	2,04%	73,55%	2,04%	2,18%	9,59%	-0,47%	1,29%	20,00%
2	Cēsu alus, AS	43 260 747,00	47 954 004,00	37,49%	37,48%	16,67%	4,33%	155,92%	4,33%	4,34%	14,05%	-0,01%	1,19%	
3	Total import	15 666 313,00	17 623 081,00	13,58%	13,77%	16,67%	0,08%	3,01%	0,08%	0,10%	1,90%	0,20%	1,14%	
4	TĒRVETES ALUS, AS	9 385 749,00	10 148 753,00	8,13%	7,93%	16,67%	0,76%	27,47%	0,76%	0,73%	0,63%	-0,20%	1,23%	
5	Cluster 1	5 989 056,00	6 405 698,00	5,19%	5,01%	16,67%	1,36%	48,95%	1,36%	1,32%	0,25%	-0,18%	1,22%	
6	Cluster 2	4 829 787,00	6 206 174,00	4,19%	4,85%	16,67%	1,40%	50,26%	1,40%	1,56%	0,24%	0,66%	1,04%	

Annex 14

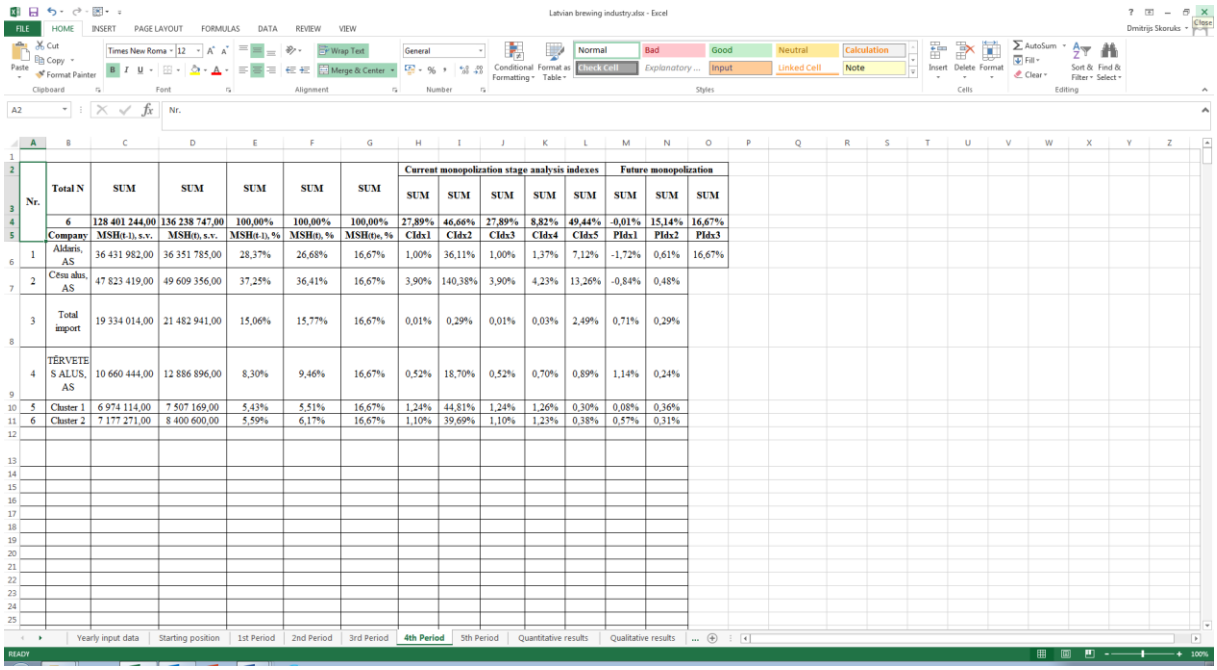
Analysis of monopolisation process progression in the Latvian brewing industry: intermediate results (Period 3)



Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	6	127 952 675,00	128 401 244,00	100,00%	100,00%	100,00%	29,70%	52,92%	29,70%	9,98%	50,48%	-0,02%	3,16%	16,67%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t)e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	Aldaris, AS	39 614 965,00	36 431 982,00	30,96%	28,37%	16,67%	1,37%	49,34%	1,37%	2,04%	8,05%	-2,66%	0,09%	16,67%
2	Cēsu alus, AS	47 954 004,00	47 823 419,00	37,48%	37,25%	16,67%	4,23%	152,45%	4,23%	4,33%	13,87%	-0,23%	0,00%	
3	Total import	17 623 081,00	19 334 014,00	13,77%	15,06%	16,67%	0,03%	0,93%	0,03%	0,08%	2,27%	1,27%	0,01%	
4	TĒRVETES ALUS, AS	10 148 753,00	10 660 444,00	7,93%	8,30%	16,67%	0,70%	25,19%	0,70%	0,76%	0,69%	0,37%	0,00%	
5	Cluster 1	6 405 698,00	6 974 114,00	5,01%	5,43%	16,67%	1,26%	45,44%	1,26%	1,36%	0,30%	0,42%	0,00%	
6	Cluster 2	6 206 174,00	7 177 271,00	4,85%	5,59%	16,67%	1,23%	44,17%	1,23%	1,40%	0,31%	0,73%	0,00%	

Annex 15

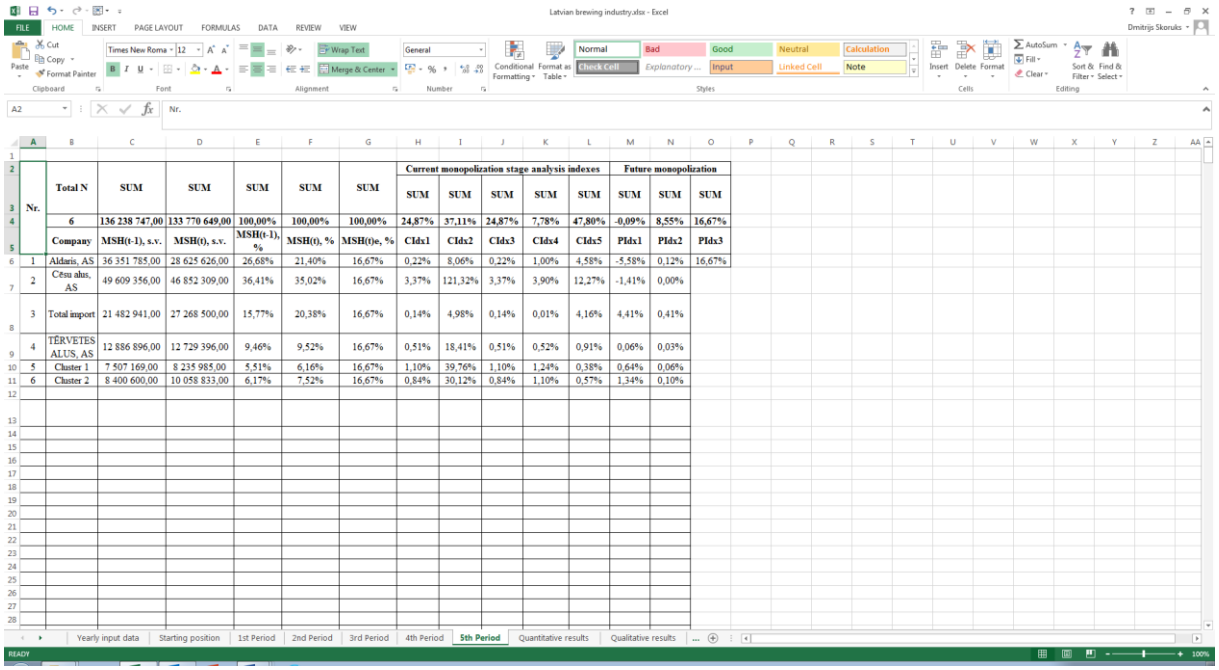
Analysis of monopolisation process progression in the Latvian brewing industry: intermediate results (Period 4)



Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	6	128 401 244,00	136 238 747,00	100,00%	100,00%	100,00%	27,89%	46,66%	27,89%	8,82%	49,44%	-0,01%	15,14%	16,67%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t)e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	Aldaris, AS	36 431 982,00	36 351 785,00	28,37%	26,68%	16,67%	1,00%	36,11%	1,00%	1,37%	7,12%	-1,72%	0,61%	16,67%
2	Cēsu alus, AS	47 823 419,00	49 609 356,00	37,25%	36,41%	16,67%	3,90%	140,38%	3,90%	4,23%	13,26%	-0,84%	0,48%	
3	Total import	19 334 014,00	21 482 941,00	15,06%	15,77%	16,67%	0,01%	0,29%	0,01%	0,03%	2,49%	0,71%	0,29%	
4	TĒRVETES ALUS, AS	10 660 444,00	12 886 896,00	8,30%	9,46%	16,67%	0,52%	18,70%	0,52%	0,70%	0,89%	1,14%	0,24%	
5	Cluster 1	6 974 114,00	7 507 169,00	5,43%	5,51%	16,67%	1,24%	44,81%	1,24%	1,26%	0,30%	0,08%	0,36%	
6	Cluster 2	7 177 271,00	8 400 600,00	5,59%	6,17%	16,67%	1,10%	39,69%	1,10%	1,23%	0,38%	0,57%	0,31%	

Annex 16

Analysis of monopolisation process progression in the Latvian brewing industry: intermediate results (Period 5)

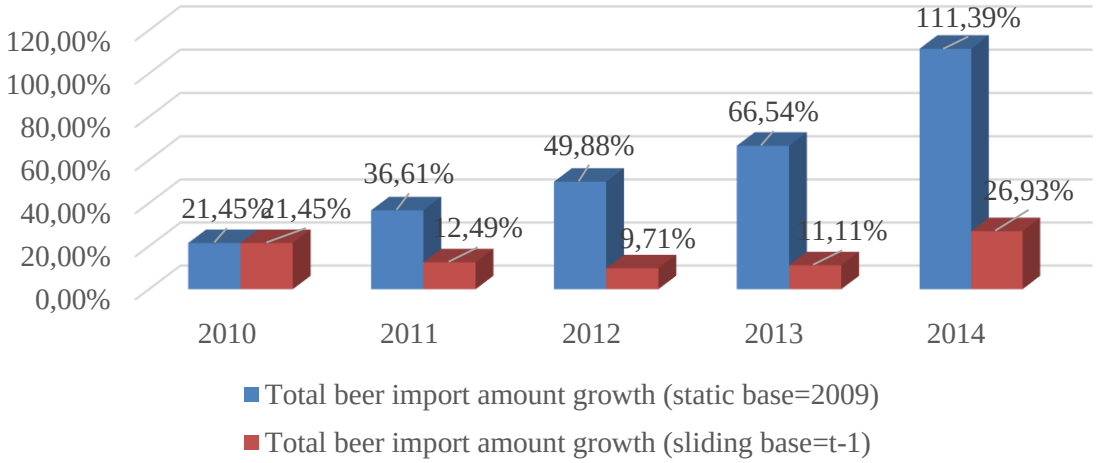


Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	6	136 238 747,00	133 770 649,00	100,00%	100,00%	100,00%	24,87%	37,11%	24,87%	7,78%	47,80%	-0,09%	8,55%	16,67%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t)e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	Aldaris, AS	36 351 785,00	28 625 626,00	26,68%	21,40%	16,67%	0,22%	8,06%	0,22%	1,00%	4,58%	-5,58%	0,12%	16,67%
2	Cēsu alus, AS	49 609 356,00	46 852 309,00	36,41%	35,02%	16,67%	3,37%	121,32%	3,37%	3,90%	12,27%	-1,41%	0,00%	
3	Total import	21 482 941,00	27 268 500,00	15,77%	20,38%	16,67%	0,14%	4,98%	0,14%	0,01%	4,16%	4,41%	0,41%	
4	TĒRVETES ALUS, AS	12 886 896,00	12 729 396,00	9,46%	9,52%	16,67%	0,51%	18,41%	0,51%	0,52%	0,91%	0,06%	0,03%	
5	Cluster 1	7 507 169,00	8 235 985,00	5,51%	6,16%	16,67%	1,10%	39,76%	1,10%	1,24%	0,38%	0,64%	0,06%	
6	Cluster 2	8 400 600,00	10 058 833,00	6,17%	7,52%	16,67%	0,84%	30,12%	0,84%	1,10%	0,57%	1,34%	0,10%	

Annex 17

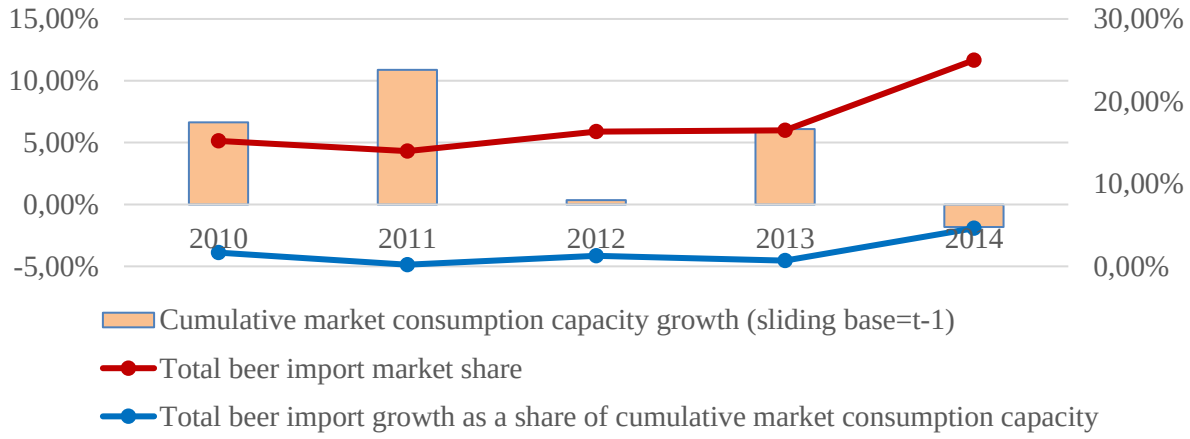
Role of import (CSB, 2015) in the Latvian brewing industry: dynamics, market shares and position changes

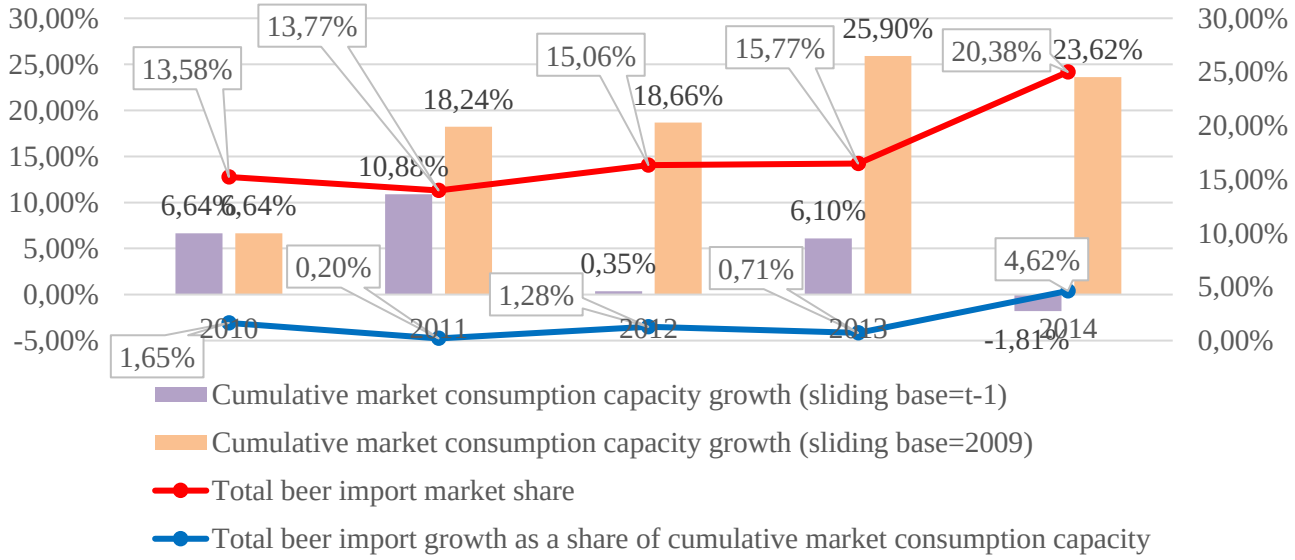
Analytical timeframe	2010	2011	2012	2013	2014
Total beer import amount growth (static base=2009)	21.45%	36.61%	49.88%	66.54%	111.39%
Total beer import amount growth (sliding base=t-1)	21.45%	12.49%	9.71%	11.11%	26.93%
Total beer import growth as a share of cumulative market consumption capacity	1.65%	0.20%	1.28%	0.71%	4.62%
Cumulative market consumption capacity growth (sliding base=t-1)	6.64%	10.88%	0.35%	6.10%	-1.81%
Cumulative market consumption capacity growth (sliding base=2009)	6.64%	18.24%	18.66%	25.90%	23.62%
Total beer import market share	13.58%	13.77%	15.06%	15.77%	20.38%



Annex 17 (continuation)

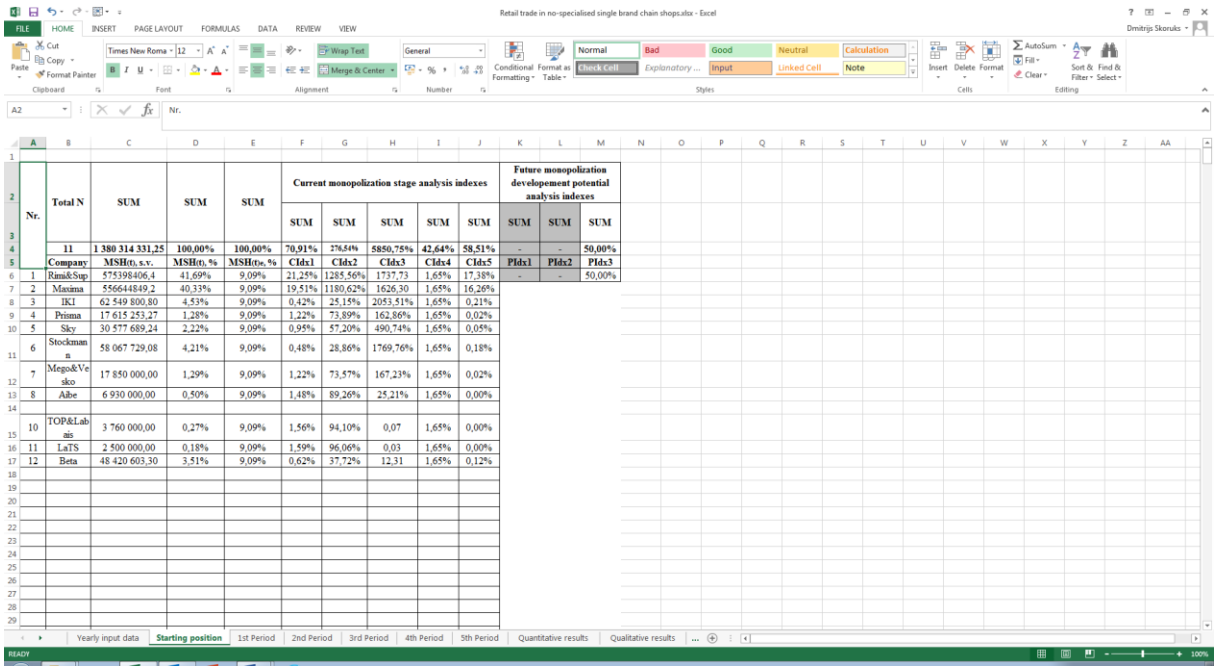
Role of import (CSB, 2015) in the Latvian brewing industry: dynamics, market shares and position changes





Annex 18

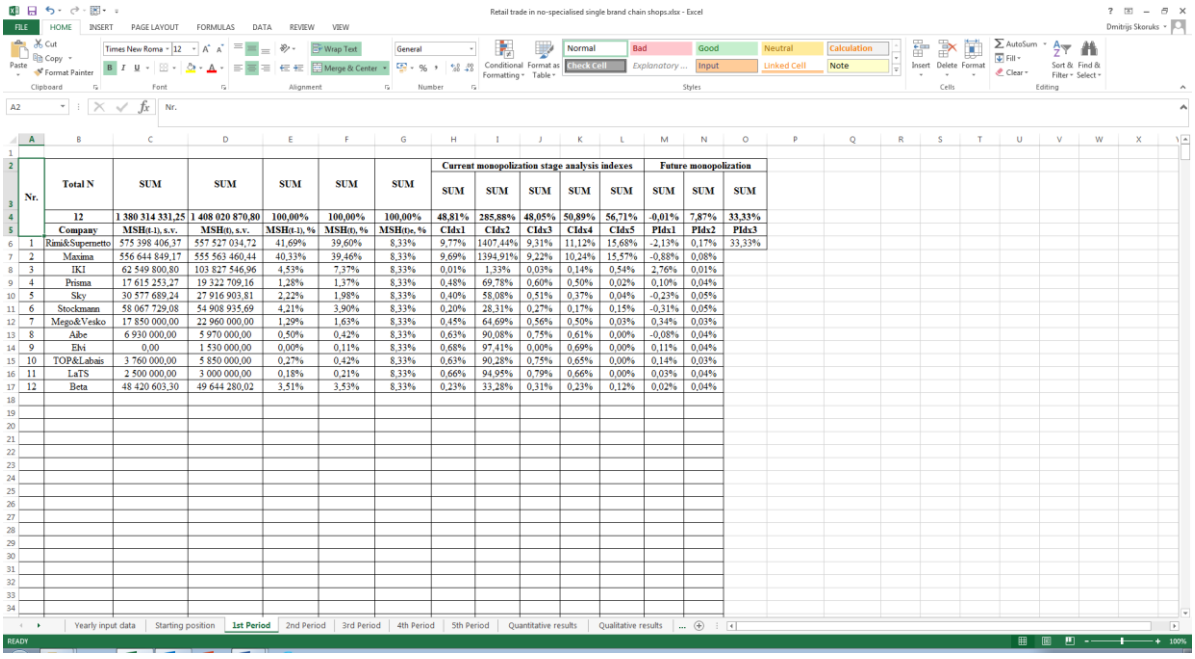
Analysis of monopolisation process progression in the Latvian non-specialised retail trade market: intermediate results (Base period)



Nr.	Total N	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization developement potential analysis indexes		
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	11	1 380 314 331,25	100,00%	100,00%	70,91%	276,54%	5850,75%	42,64%	58,51%	-	-	50,00%
	Company	MSH(t), s.v.	MSH(t), %	MSH(t)s, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	Rimi&Sup	575398406,4	41,69%	9,09%	21,25%	1285,56%	1737,73	1,65%	17,38%	-	-	50,00%
2	Maxima	556644849,2	40,33%	9,09%	19,51%	1180,62%	1626,30	1,65%	16,26%			
3	IKI	62 549 800,80	4,53%	9,09%	0,42%	25,15%	2053,51%	1,65%	0,21%			
4	Prisma	17 615 253,27	1,28%	9,09%	1,22%	73,89%	162,86%	1,65%	0,02%			
5	Sky	30 577 689,24	2,22%	9,09%	0,95%	57,20%	490,74%	1,65%	0,05%			
6	Stockmann	58 067 729,08	4,21%	9,09%	0,48%	28,86%	1769,76%	1,65%	0,18%			
7	Mego&Vesko	17 850 000,00	1,29%	9,09%	1,22%	73,57%	167,23%	1,65%	0,02%			
8	Albe	6 930 000,00	0,50%	9,09%	1,48%	89,26%	25,21%	1,65%	0,00%			
10	TOP&Labais	3 760 000,00	0,27%	9,09%	1,56%	94,10%	0,07	1,65%	0,00%			
11	LaTS	2 500 000,00	0,18%	9,09%	1,59%	96,06%	0,03	1,65%	0,00%			
12	Beta	48 420 603,30	3,51%	9,09%	0,62%	37,72%	12,31	1,65%	0,12%			

Annex 19

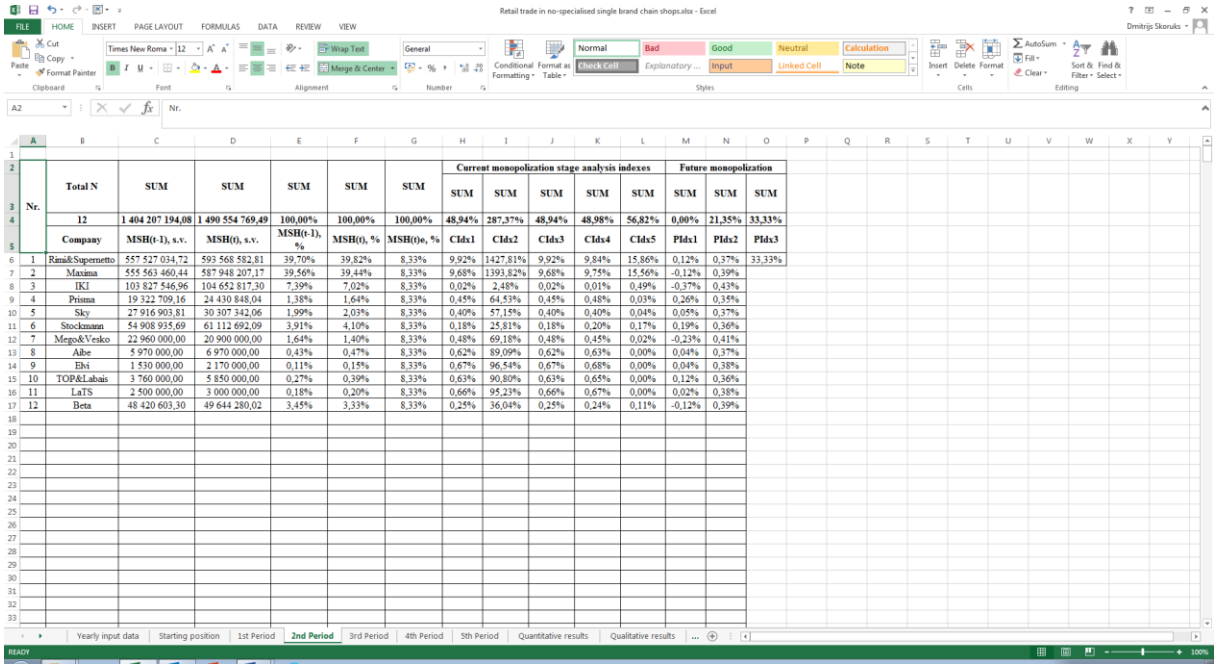
Analysis of monopolisation process progression in the Latvian non-specialised retail trade market: intermediate results (Period 1)



Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	12	1 380 314 331,25	1 408 020 870,80	100,00%	100,00%	100,00%	48,81%	285,88%	48,05%	50,89%	56,71%	-0,01%	7,87%	33,33%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t)e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	Rimi&Supernetto	575 398 406,37	557 527 034,72	41,69%	39,60%	8,33%	9,77%	1407,44%	9,31%	11,12%	15,68%	-2,13%	0,17%	33,33%
2	Maxima	556 644 849,17	555 563 460,44	40,33%	39,46%	8,33%	9,69%	1394,91%	9,22%	10,24%	15,57%	-0,88%	0,08%	
3	IKI	62 549 800,80	103 827 546,96	4,53%	7,37%	8,33%	0,01%	1,33%	0,03%	0,14%	0,54%	2,76%	0,01%	
4	Prisma	17 615 253,27	19 322 709,16	1,28%	1,37%	8,33%	0,48%	69,78%	0,60%	0,50%	0,02%	0,10%	0,04%	
5	Sky	30 577 689,24	27 916 903,81	2,22%	1,98%	8,33%	0,40%	58,08%	0,51%	0,37%	0,04%	-0,23%	0,05%	
6	Stockmann	58 067 729,08	54 908 935,69	4,21%	3,90%	8,33%	0,20%	28,31%	0,27%	0,17%	0,15%	-0,31%	0,05%	
7	Mego&Vesko	17 850 000,00	22 960 000,00	1,29%	1,63%	8,33%	0,45%	64,69%	0,56%	0,50%	0,03%	0,34%	0,03%	
8	Aibe	6 930 000,00	5 970 000,00	0,50%	0,42%	8,33%	0,63%	90,08%	0,75%	0,61%	0,00%	-0,08%	0,04%	
9	Elvi	0,00	1 530 000,00	0,00%	0,11%	8,33%	0,68%	97,41%	0,00%	0,69%	0,00%	0,11%	0,04%	
10	TOP&Labais	3 760 000,00	5 850 000,00	0,27%	0,42%	8,33%	0,63%	90,28%	0,75%	0,65%	0,00%	0,14%	0,03%	
11	LaTS	2 500 000,00	3 000 000,00	0,18%	0,21%	8,33%	0,66%	94,95%	0,79%	0,66%	0,00%	0,03%	0,04%	
12	Beta	48 420 603,30	49 644 280,02	3,51%	3,53%	8,33%	0,23%	33,28%	0,31%	0,23%	0,12%	0,02%	0,04%	

Annex 20

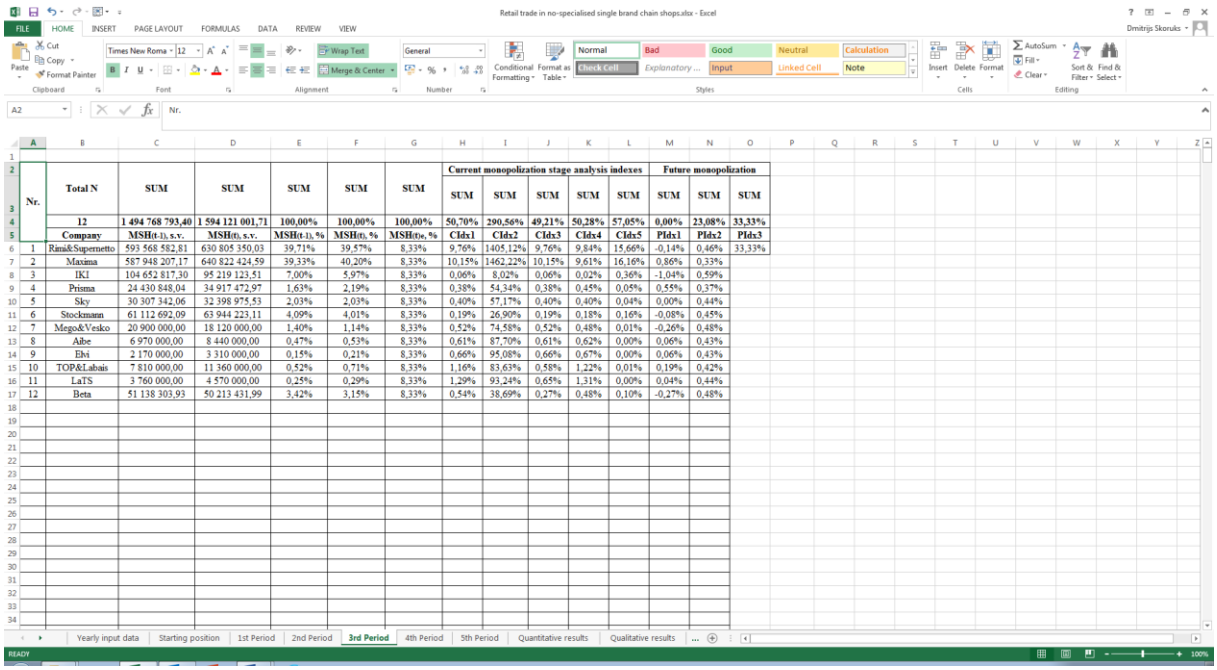
Analysis of monopolisation process progression in the Latvian non-specialised retail trade market: intermediate results (Period 2)



Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	12	1 404 207 194,08	1 490 554 769,49	100,00%	100,00%	100,00%	48,94%	287,37%	48,94%	48,98%	56,82%	0,00%	21,35%	33,33%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t)e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	Rimi&Supernetto	557 527 034,72	593 568 582,81	39,70%	39,82%	8,33%	9,92%	1427,81%	9,92%	9,84%	15,86%	0,12%	0,37%	33,33%
2	Maxima	555 563 460,44	587 948 207,17	39,56%	39,44%	8,33%	9,68%	1393,82%	9,68%	9,75%	15,56%	-0,12%	0,39%	
3	IKI	103 827 546,96	104 652 817,30	7,39%	7,02%	8,33%	0,02%	2,48%	0,02%	0,01%	0,49%	-0,37%	0,43%	
4	Prisma	19 322 709,16	24 430 848,04	1,38%	1,64%	8,33%	0,45%	64,53%	0,45%	0,48%	0,03%	0,26%	0,35%	
5	Sky	27 916 903,81	30 307 342,06	1,99%	2,03%	8,33%	0,40%	57,15%	0,40%	0,40%	0,04%	0,05%	0,37%	
6	Stockmann	54 908 935,69	61 112 692,09	3,91%	4,10%	8,33%	0,18%	25,81%	0,18%	0,20%	0,17%	0,19%	0,36%	
7	Mego&Vesko	22 960 000,00	20 900 000,00	1,64%	1,40%	8,33%	0,48%	69,18%	0,48%	0,45%	0,02%	-0,23%	0,41%	
8	Aibe	5 970 000,00	6 970 000,00	0,43%	0,47%	8,33%	0,62%	89,09%	0,62%	0,63%	0,00%	0,04%	0,37%	
9	Elvi	1 530 000,00	2 170 000,00	0,11%	0,15%	8,33%	0,67%	96,54%	0,67%	0,68%	0,00%	0,04%	0,38%	
10	TOP&Labais	3 760 000,00	5 850 000,00	0,27%	0,39%	8,33%	0,63%	90,80%	0,63%	0,65%	0,00%	0,12%	0,36%	
11	LaTS	2 500 000,00	3 000 000,00	0,18%	0,20%	8,33%	0,66%	95,23%	0,66%	0,67%	0,00%	0,02%	0,38%	
12	Beta	48 420 603,30	49 644 280,02	3,45%	3,33%	8,33%	0,25%	36,04%	0,25%	0,24%	0,11%	-0,12%	0,39%	

Annex 21

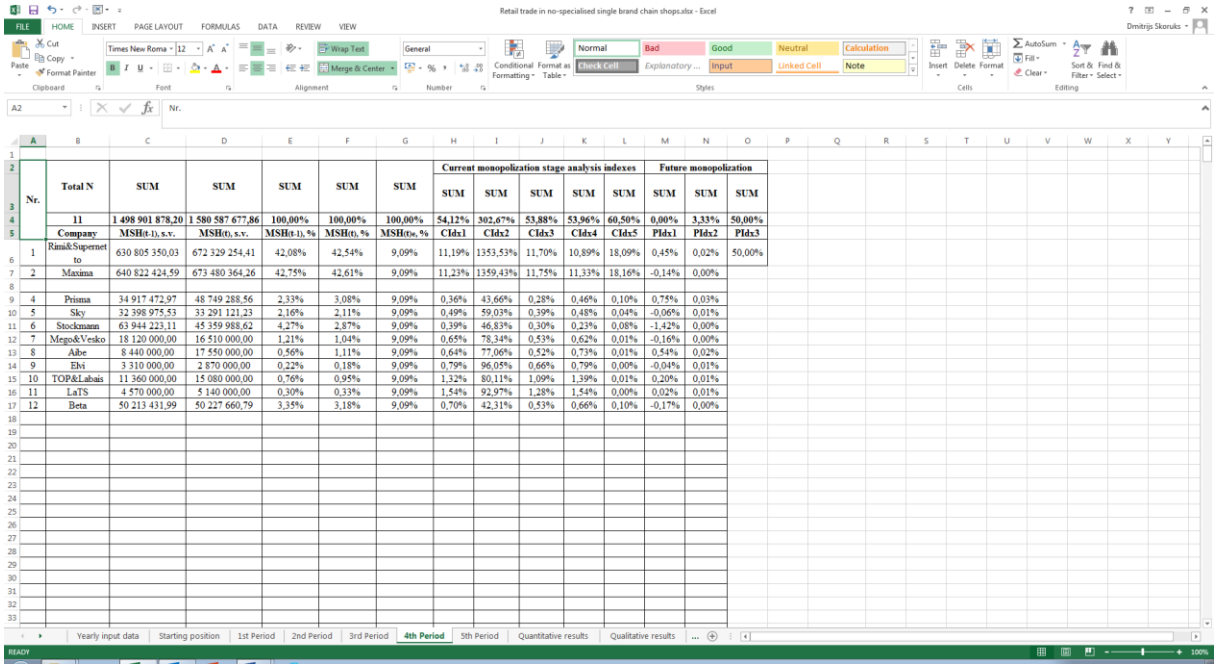
Analysis of monopolisation process progression in the Latvian non-specialised retail trade market: intermediate results (Period 3)



Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	12	1 494 768 793,40	1 594 121 001,71	100,00%	100,00%	100,00%	50,70%	290,56%	49,21%	50,28%	57,05%	0,00%	23,08%	33,33%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t)e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	Rimi&Supernetto	593 568 582,81	630 805 350,03	39,71%	39,57%	8,33%	9,76%	1405,12%	9,76%	9,84%	15,66%	-0,14%	0,46%	33,33%
2	Maxima	587 948 207,17	640 822 424,59	39,33%	40,20%	8,33%	10,15%	1462,22%	10,15%	9,61%	16,16%	0,86%	0,33%	
3	IKI	104 652 817,30	95 219 123,51	7,00%	5,97%	8,33%	0,06%	8,02%	0,06%	0,02%	0,36%	-1,04%	0,59%	
4	Prisma	24 430 848,04	34 917 472,97	1,63%	2,19%	8,33%	0,38%	54,34%	0,38%	0,45%	0,05%	0,55%	0,37%	
5	Sky	30 307 342,06	32 398 975,53	2,03%	2,03%	8,33%	0,40%	57,17%	0,40%	0,40%	0,04%	0,00%	0,44%	
6	Stockmann	61 112 692,09	63 944 223,11	4,09%	4,01%	8,33%	0,19%	26,90%	0,19%	0,18%	0,16%	-0,08%	0,45%	
7	Mego&Vesko	20 900 000,00	18 120 000,00	1,40%	1,14%	8,33%	0,52%	74,58%	0,52%	0,48%	0,01%	-0,26%	0,48%	
8	Aibe	6 970 000,00	8 440 000,00	0,47%	0,53%	8,33%	0,61%	87,70%	0,61%	0,62%	0,00%	0,06%	0,43%	
9	Elvi	2 170 000,00	3 310 000,00	0,15%	0,21%	8,33%	0,66%	95,08%	0,66%	0,67%	0,00%	0,06%	0,43%	
10	TOP&Labais	7 810 000,00	11 360 000,00	0,52%	0,71%	8,33%	1,16%	83,63%	0,58%	1,22%	0,01%	0,19%	0,42%	
11	LaTS	3 760 000,00	4 570 000,00	0,25%	0,29%	8,33%	1,29%	93,24%	0,65%	1,31%	0,00%	0,04%	0,44%	
12	Beta	51 138 303,93	50 213 431,99	3,42%	3,15%	8,33%	0,54%	38,69%	0,27%	0,48%	0,10%	-0,27%	0,48%	

Annex 22

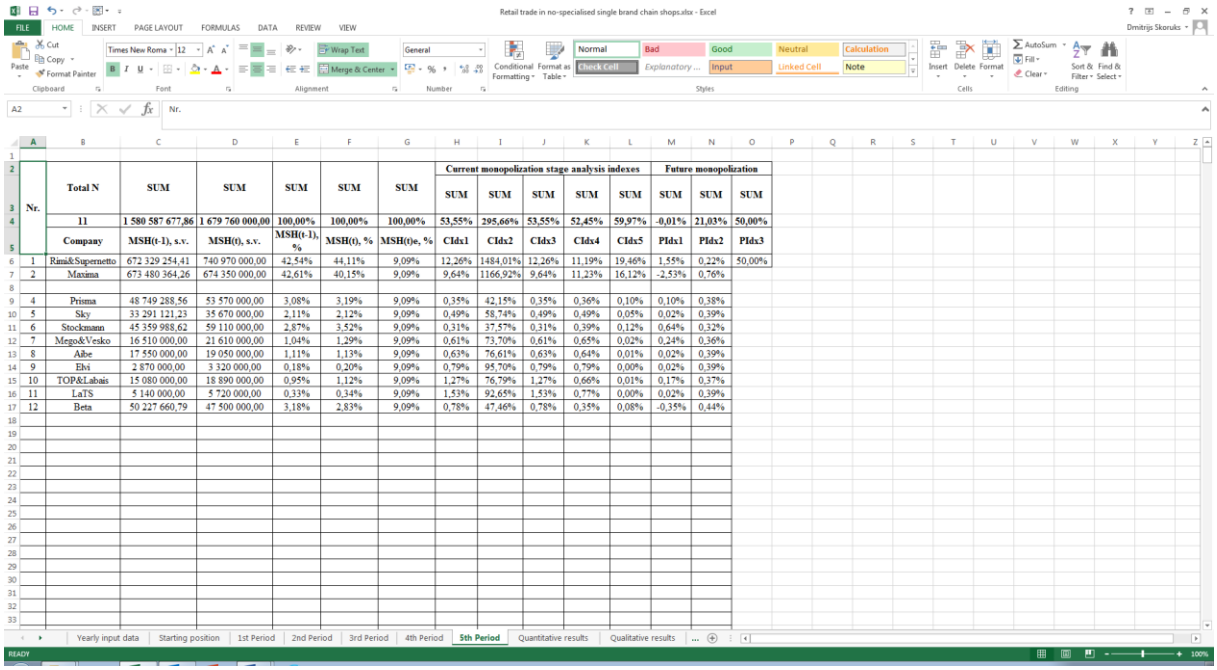
Analysis of monopolisation process progression in the Latvian non-specialised retail trade market: intermediate results (Period 4)



Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	11	1 498 901 878,20	1 580 587 677,86	100,00%	100,00%	100,00%	54,12%	302,67%	53,88%	53,96%	60,50%	0,00%	3,33%	50,00%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t)s, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	Rimi&Supernet to	630 805 350,03	672 329 254,41	42,08%	42,54%	9,09%	11,19%	1353,53%	11,70%	10,89%	18,09%	0,45%	0,02%	50,00%
2	Maxima	640 822 424,59	673 480 364,26	42,75%	42,61%	9,09%	11,23%	1359,43%	11,75%	11,33%	18,16%	-0,14%	0,00%	
4	Prisma	34 917 472,97	48 749 288,56	2,33%	3,08%	9,09%	0,36%	43,66%	0,28%	0,46%	0,10%	0,75%	0,03%	
5	Sky	32 398 975,53	33 291 121,23	2,16%	2,11%	9,09%	0,49%	59,03%	0,39%	0,48%	0,04%	-0,06%	0,01%	
6	Stockmann	63 944 223,11	45 359 988,62	4,27%	2,87%	9,09%	0,39%	46,83%	0,30%	0,23%	0,08%	-1,42%	0,00%	
7	Mego&Vesko	18 120 000,00	16 510 000,00	1,21%	1,04%	9,09%	0,65%	78,34%	0,53%	0,62%	0,01%	-0,16%	0,00%	
8	Aibe	8 440 000,00	17 550 000,00	0,56%	1,11%	9,09%	0,64%	77,06%	0,52%	0,73%	0,01%	0,54%	0,02%	
9	Elvi	3 310 000,00	2 870 000,00	0,22%	0,18%	9,09%	0,79%	96,05%	0,66%	0,79%	0,00%	-0,04%	0,01%	
10	TOP&Labais	11 360 000,00	15 080 000,00	0,76%	0,95%	9,09%	1,32%	80,11%	1,09%	1,39%	0,01%	0,20%	0,01%	
11	LaTS	4 570 000,00	5 140 000,00	0,30%	0,33%	9,09%	1,54%	92,97%	1,28%	1,54%	0,00%	0,02%	0,01%	
12	Beta	50 213 431,99	50 227 660,79	3,35%	3,18%	9,09%	0,70%	42,31%	0,53%	0,66%	0,10%	-0,17%	0,00%	

Annex 23

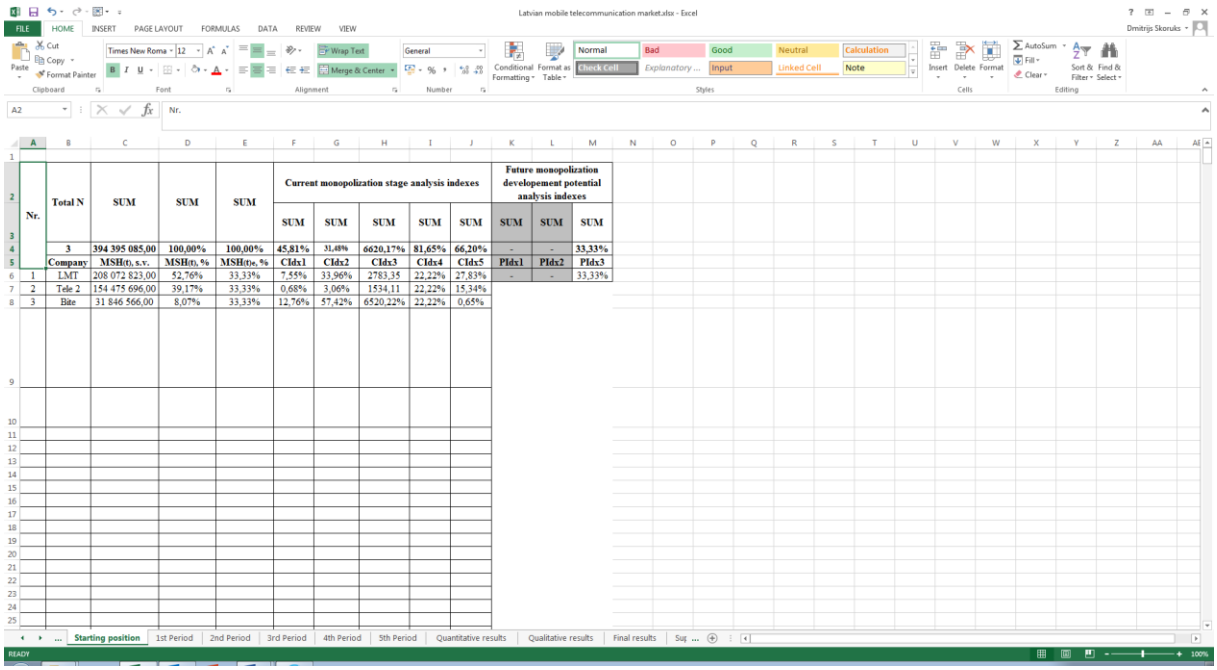
Analysis of monopolisation process progression in the Latvian non-specialised retail trade market: intermediate results (Period 5)



Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	11	1 580 587 677,86	1 679 760 000,00	100,00%	100,00%	100,00%	53,55%	295,66%	53,55%	52,45%	59,97%	-0,01%	21,03%	50,00%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t)e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	Rimi&Supernetto	672 329 254,41	740 970 000,00	42,54%	44,11%	9,09%	12,26%	1484,01%	12,26%	11,19%	19,46%	1,55%	0,22%	50,00%
2	Maxima	673 480 364,26	674 350 000,00	42,61%	40,15%	9,09%	9,64%	1166,92%	9,64%	11,23%	16,12%	-2,53%	0,76%	
4	Prisma	48 749 288,56	53 570 000,00	3,08%	3,19%	9,09%	0,35%	42,15%	0,35%	0,36%	0,10%	0,10%	0,38%	
5	Sky	33 291 121,23	35 670 000,00	2,11%	2,12%	9,09%	0,49%	58,74%	0,49%	0,49%	0,05%	0,02%	0,39%	
6	Stockmann	45 359 988,62	59 110 000,00	2,87%	3,52%	9,09%	0,31%	37,57%	0,31%	0,39%	0,12%	0,64%	0,32%	
7	Mego&Vesko	16 510 000,00	21 610 000,00	1,04%	1,29%	9,09%	0,61%	73,70%	0,61%	0,65%	0,02%	0,24%	0,36%	
8	Aibe	17 550 000,00	19 050 000,00	1,11%	1,13%	9,09%	0,63%	76,61%	0,63%	0,64%	0,01%	0,02%	0,39%	
9	Elvi	2 870 000,00	3 320 000,00	0,18%	0,20%	9,09%	0,79%	95,70%	0,79%	0,79%	0,00%	0,02%	0,39%	
10	TOP&Labais	15 080 000,00	18 890 000,00	0,95%	1,12%	9,09%	1,27%	76,79%	1,27%	0,66%	0,01%	0,17%	0,37%	
11	LaTS	5 140 000,00	5 720 000,00	0,33%	0,34%	9,09%	1,53%	92,65%	1,53%	0,77%	0,00%	0,02%	0,39%	
12	Beta	50 227 660,79	47 500 000,00	3,18%	2,83%	9,09%	0,78%	47,46%	0,78%	0,35%	0,08%	-0,35%	0,44%	

Annex 24

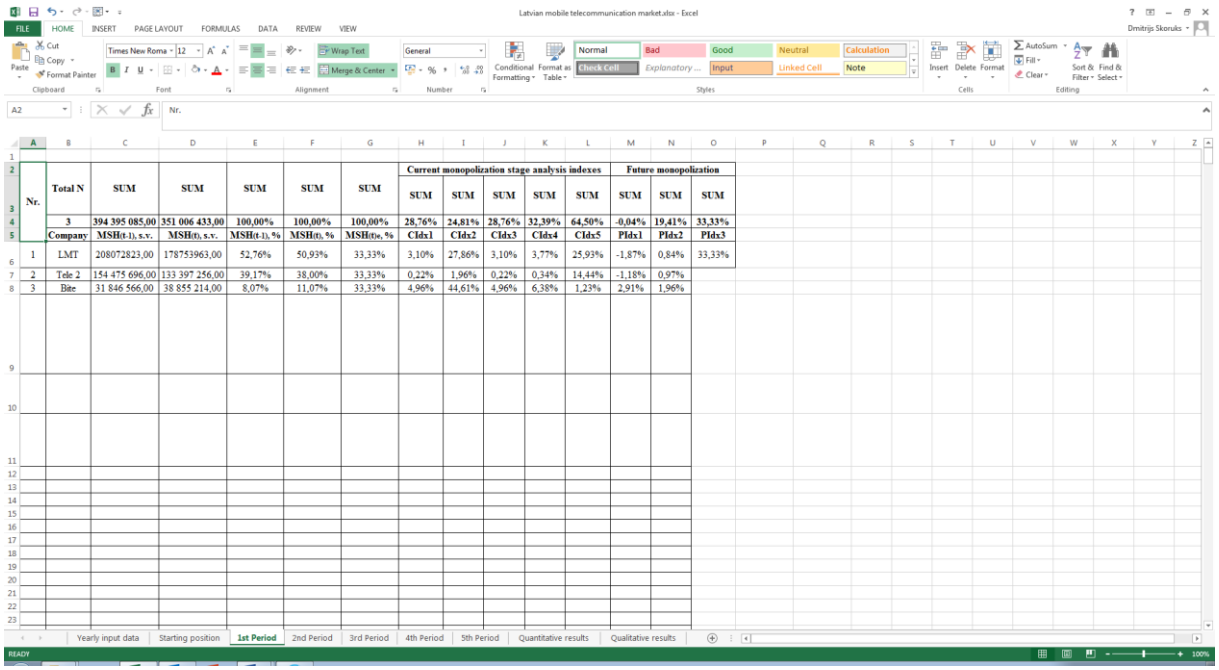
Analysis of monopolisation process progression in the Latvian mobile telecommunication market: intermediate results (Base period)



Nr.	Total N	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization developement potential analysis indexes		
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	3	394 395 085,00	100,00%	100,00%	45,81%	31,48%	6620,17%	81,65%	66,20%	-	-	33,33%
	Company	MSH(t), s.v.	MSH(t), %	MSH(t)e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	LMT	208 072 823,00	52,76%	33,33%	7,55%	33,96%	2783,35	22,22%	27,83%	-	-	33,33%
2	Tele 2	154 475 696,00	39,17%	33,33%	0,68%	3,06%	1534,11	22,22%	15,34%			
3	Bite	31 846 566,00	8,07%	33,33%	12,76%	57,42%	6520,22%	22,22%	0,65%			

Annex 25

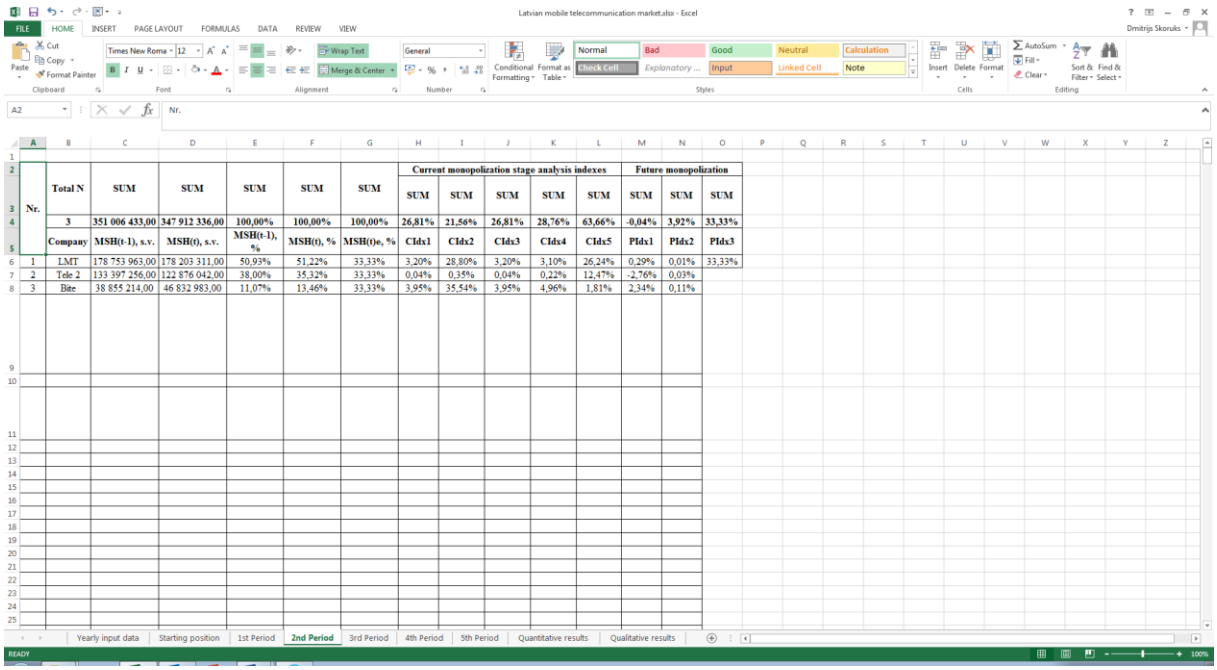
Analysis of monopolisation process progression in the Latvian mobile telecommunication market: intermediate results (Period 1)



Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	3	394 395 085,00	351 006 433,00	100,00%	100,00%	100,00%	28,76%	24,81%	28,76%	32,39%	64,50%	-0,04%	19,41%	33,33%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t)e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	LMT	208072823,00	178753963,00	52,76%	50,93%	33,33%	3,10%	27,86%	3,10%	3,77%	25,93%	-1,87%	0,84%	33,33%
2	Tele 2	154 475 696,00	133 397 256,00	39,17%	38,00%	33,33%	0,22%	1,96%	0,22%	0,34%	14,44%	-1,18%	0,97%	
3	Bite	31 846 566,00	38 855 214,00	8,07%	11,07%	33,33%	4,96%	44,61%	4,96%	6,38%	1,23%	2,91%	1,96%	

Annex 26

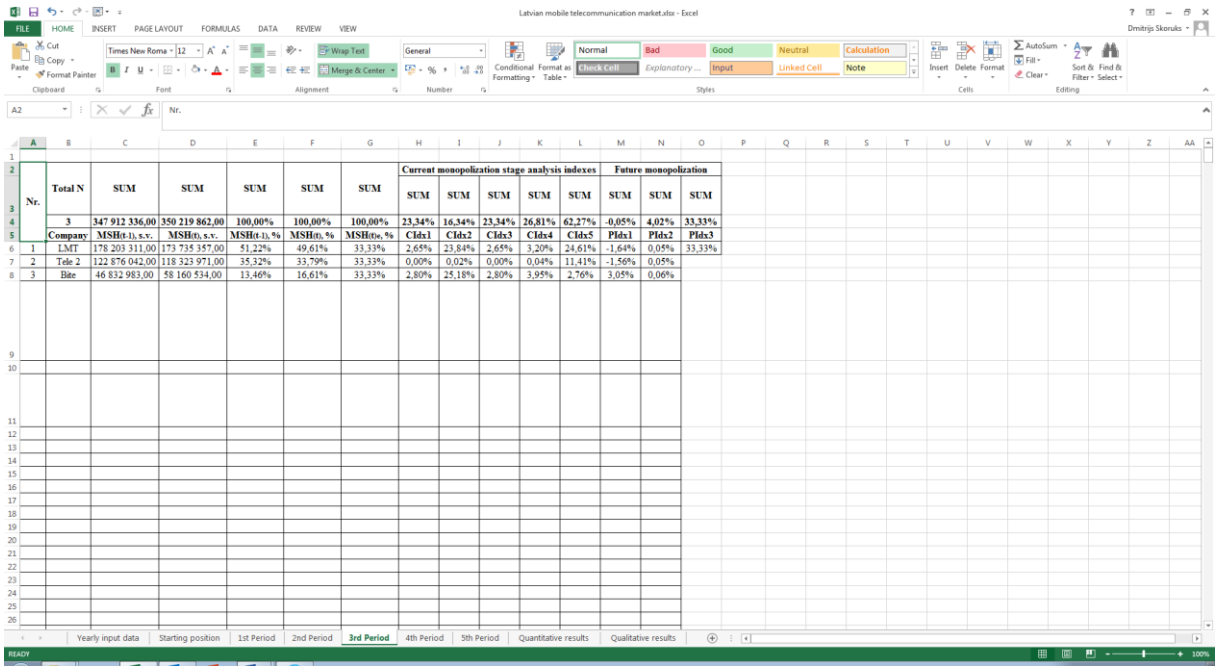
Analysis of monopolisation process progression in the Latvian mobile telecommunication market: intermediate results (Period 2)



Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	3	351 006 433,00	347 912 336,00	100,00%	100,00%	100,00%	26,81%	21,56%	26,81%	28,76%	63,66%	-0,04%	3,92%	33,33%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t)e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	LMT	178 753 963,00	178 203 311,00	50,93%	51,22%	33,33%	3,20%	28,80%	3,20%	3,10%	26,24%	0,29%	0,01%	33,33%
2	Tele 2	133 397 256,00	122 876 042,00	38,00%	35,32%	33,33%	0,04%	0,35%	0,04%	0,22%	12,47%	-2,76%	0,03%	
3	Bite	38 855 214,00	46 832 983,00	11,07%	13,46%	33,33%	3,95%	35,54%	3,95%	4,96%	1,81%	2,34%	0,11%	

Annex 27

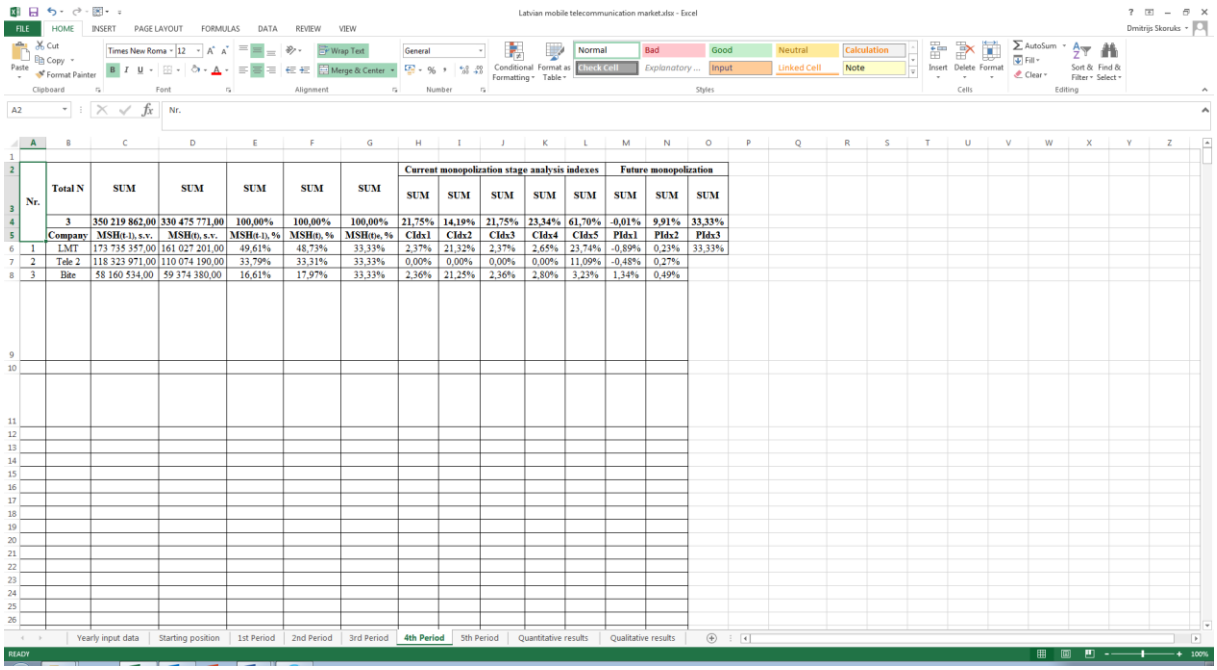
Analysis of monopolisation process progression in the Latvian mobile telecommunication market: intermediate results (Period 3)



Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	3	347 912 336,00	350 219 862,00	100,00%	100,00%	100,00%	23,34%	16,34%	23,34%	26,81%	62,27%	-0,05%	4,02%	33,33%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t)e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	LMT	178 203 311,00	173 735 357,00	51,22%	49,61%	33,33%	2,65%	23,84%	2,65%	3,20%	24,61%	-1,64%	0,05%	33,33%
2	Tele 2	122 876 042,00	118 323 971,00	35,32%	33,79%	33,33%	0,00%	0,02%	0,00%	0,04%	11,41%	-1,56%	0,05%	
3	Bite	46 832 983,00	58 160 534,00	13,46%	16,61%	33,33%	2,80%	25,18%	2,80%	3,95%	2,76%	3,05%	0,06%	

Annex 28

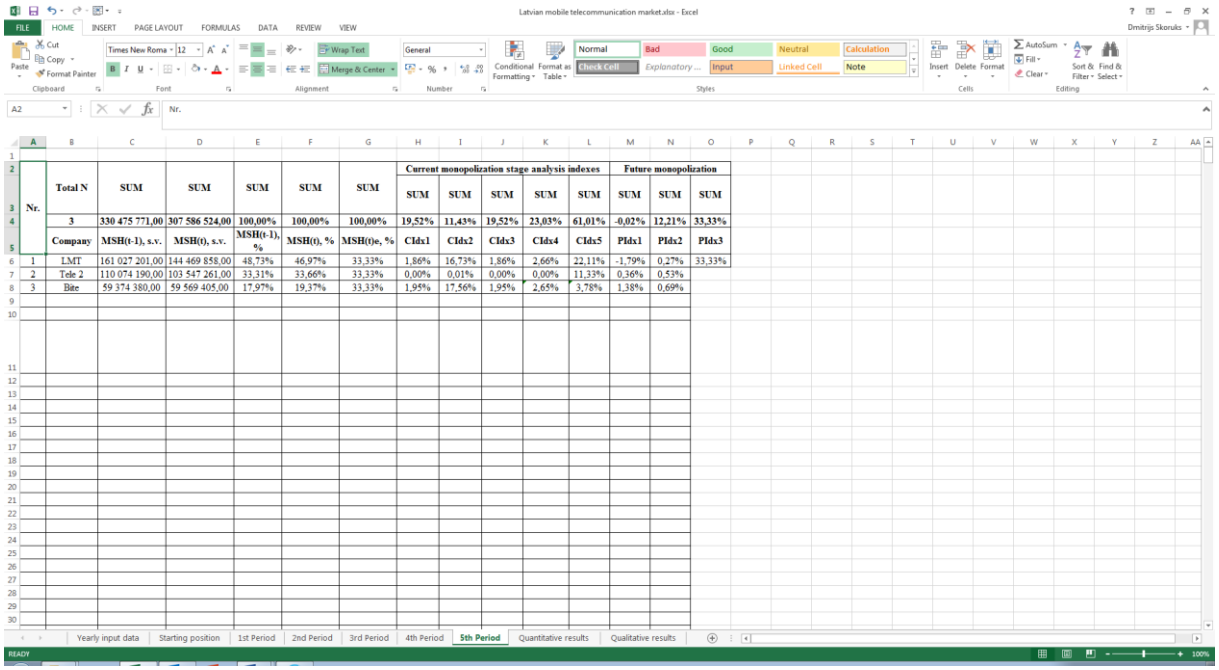
Analysis of monopolisation process progression in the Latvian mobile telecommunication market: intermediate results (Period 4)



Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	3	350 219 862,00	330 475 771,00	100,00%	100,00%	100,00%	21,75%	14,19%	21,75%	23,34%	61,70%	-0,01%	9,91%	33,33%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t)e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	LMT	173 735 357,00	161 027 201,00	49,61%	48,73%	33,33%	2,37%	21,32%	2,37%	2,65%	23,74%	-0,89%	0,23%	33,33%
2	Tele 2	118 323 971,00	110 074 190,00	33,79%	33,31%	33,33%	0,00%	0,00%	0,00%	0,00%	11,09%	-0,48%	0,27%	
3	Bite	58 160 534,00	59 374 380,00	16,61%	17,97%	33,33%	2,36%	21,25%	2,36%	2,80%	3,23%	1,34%	0,49%	

Annex 29

Analysis of monopolisation process progression in the Latvian mobile telecommunication market: intermediate results (Period 5)



Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	3	330 475 771,00	307 586 524,00	100,00%	100,00%	100,00%	19,52%	11,43%	19,52%	23,03%	61,01%	-0,02%	12,21%	33,33%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t)e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	LMT	161 027 201,00	144 469 858,00	48,73%	46,97%	33,33%	1,86%	16,73%	1,86%	2,66%	22,11%	-1,79%	0,27%	33,33%
2	Tele 2	110 074 190,00	103 547 261,00	33,31%	33,66%	33,33%	0,00%	0,01%	0,00%	0,00%	11,33%	0,36%	0,53%	
3	Bite	59 374 380,00	59 569 405,00	17,97%	19,37%	33,33%	1,95%	17,56%	1,95%	2,65%	3,78%	1,38%	0,69%	

Annex 30

Latvian banking sector: primary statistical data (ALCB, 2010) (ALCB, 2011) (ALCB, 2012) (ALCB, 2013) (ALCB, 2014) (ALCB, 2015) (ECB, 2014)

Nr.	Bank	Total asset, thousands EUR					
		2009	2010	2011	2012	2013	2014
1	Swedbank	7 035 132.41	6 476 781.44	5 277 402.09	5 103 533.28	7 435 735.28	5 195 749.20
2	SEB banka	4 197 938.12	4 119 407.40	3 840 531.36	4 058 008.92	6 052 775.03	3 684 282.60
3	Nordea Bank Finland Latvijas filiāle	3 206 276.43	3 125 909.93	3 095 060.50	3 261 443.73	4 013 734.84	2 898 660.20
4	DnB NORD Banka	2 708 575.36	2 655 927.40	2 547 145.01	2 535 944.87	3 608 297.33	2 388 427.50
5	Citadele banka	0.00	2 159 422.40	2 048 133.05	2 022 163.79	3 231 360.52	2 457 984.90
6	Aizkraukles banka	1 490 516.42	2 063 013.30	2 636 850.25	3 119 775.64	4 806 806.59	4 212 704.10
7	Rietumu Banka	1 442 607.75	1 650 269.07	2 046 209.04	2 417 527.08	4 300 762.80	3 587 136.60
8	Latvijas Hipotēku un zemes banka	1 375 341.77	1 150 205.46	1 074 912.92	575 887.45	466 345.24	0.00
9	UniCredit Bank	1 093 555.24	1 058 815.69	885 072.51	861 457.82	356 845.44	0.00
10	Latvijas Krājbanka	834 262.33	958 367.34	912 757.47	0.00	0.00	0.00
11	NORVIK BANKA	688 015.72	867 451.38	879 370.92	801 002.70	1 202 961.42	1 036 497.40
12	GE Money Bank	418 294.01	353 142.27	204 149.38	138 481.71	0.00	0.00
13	TRASTA KOMERCBANKA	403 390.28	335 076.21	444 986.80	447 301.24	619 034.18	606 877.10
14	LTB Bank	380 669.29	633 763.61	345 124.53	0.00	0.00	258 059.50
15	Danske Bank filiāle Latvijā	379 101.43	445 161.95	335 376.86	409 067.82	536 377.00	545 321.60
16	PrivatBank	283 027.99	430 217.81	427 463.28	790 274.81	1 251 586.79	701 403.70
17	Baltic International Bank	271 900.70	242 450.81	335 338.02	326 807.90	487 835.87	540 516.40
18	Reģionālā investīciju banka	183 675.25	256 611.66	350 742.45	499 301.37	671 230.39	622 046.30
19	Baltikums Bank	163 537.49	181 780.70	303 426.42	468 025.08	698 379.78	630 654.80
20	Latvijas Biznesa banka	155 894.96	139 552.99	6 368.77	6 059.87	0.00	0.00
21	SMP Bank	119 326.16	187 563.82	210 765.87	270 719.86	494 563.06	258 059.50
22	Allied Irish Banks Latvijas filiāle	67 210.20	54 187.37	40 222.02	0.00	0.00	0.00
23	BIGBANK Latvijas filiāle	27 632.60	80 777.71	83 950.29	88 755.76	135 925.66	97 489.40
24	Latvijas pasta banka	19 550.40	36 462.66	67 383.51	81 454.15	127 553.34	142 133.20
25	VEF banka	7 109.38	0.00	0.00	0.00	0.00	0.00
26	Svenska Handelsbanken AB Latvijas filiāle	5 569.83	28 630.60	37 506.76	36 924.38	45 867.55	37 829.40
27	Skandinaviska Enskilda Banken Rīgas filiāle	600.31	621.37	663.91	1 301.07	1 982.77	1 403.00
28	Eesti Krediidipank Latvijas filiāle	0.00	0.00	39 869.29	22 646.71	23 172.61	27 356.90
29	Rigensis Bank	0.00	0.00	18 800.12	63 198.13	216 065.08	168 237.20
30	Expobank	0.00	0.00	0.00	327 187.10	569 758.71	490 159.90
31	Pohjola Bank filiāle Latvijā	0.00	0.00	0.00	0.00	68 548.56	288 893.80
32	Bank M2M Europe	0.00	0.00	0.00	0.00	51 590.49	154 172.70

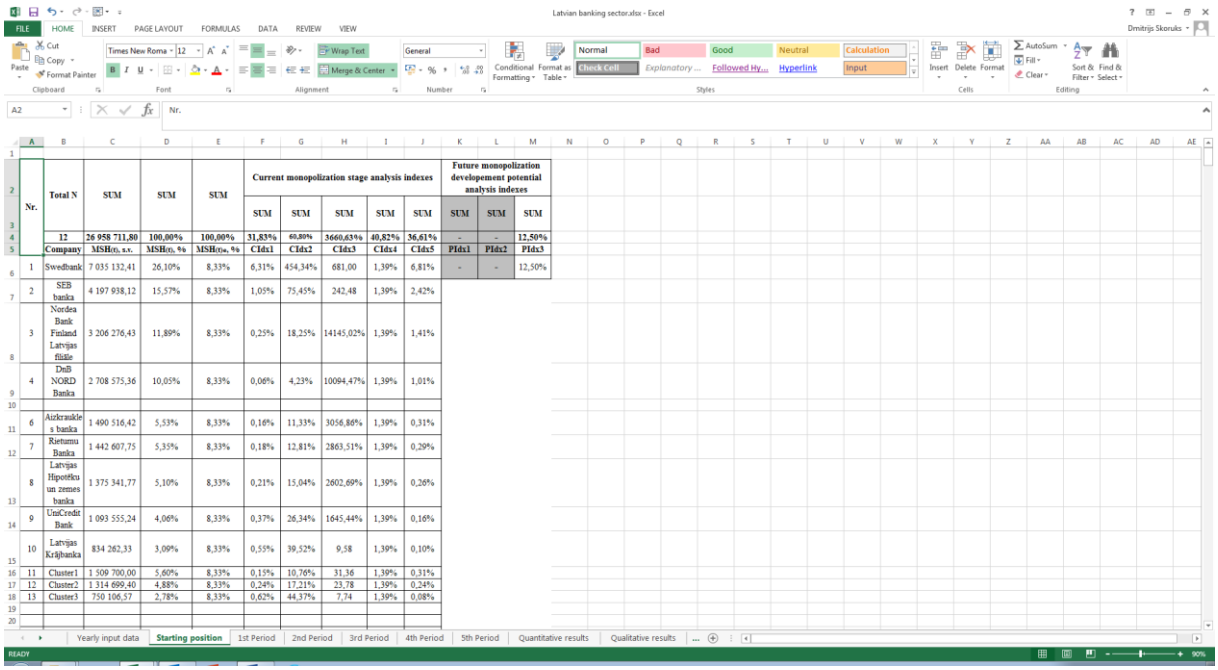
Annex 31

Latvian banking sector: primary statistical data-based (ALCB, 2010) (ALCB, 2011) (ALCB, 2012) (ALCB, 2013) (ALCB, 2014) (ALCB, 2015) (ECB, 2014) (ECB, 2014) harmonised inputs

Nr.	Bank	Total asset, thousands EUR					
		2009	2010	2011	2012	2013	2014
1	Swedbank	7 035 132.41	6 476 781.44	5 277 402.09	5 103 533.28	7 435 735.28	5 195 749.20
2	SEB banka	4 197 938.12	4 119 407.40	3 840 531.36	4 058 008.92	6 052 775.03	3 684 282.60
3	Nordea Bank Finland Latvijas filiāle	3 206 276.43	3 125 909.93	3 095 060.50	3 261 443.73	4 013 734.84	2 898 660.20
4	DnB NORD Banka	2 708 575.36	2 655 927.40	2 547 145.01	2 535 944.87	3 608 297.33	2 388 427.50
5	Citadele banka	0.00	2 159 422.40	2 048 133.05	2 022 163.79	3 231 360.52	2 457 984.90
6	Aizkraukles banka	1 490 516.42	2 063 013.30	2 636 850.25	3 119 775.64	4 806 806.59	4 212 704.10
7	Rietumu Banka	1 442 607.75	1 650 269.07	2 046 209.04	2 417 527.08	4 300 762.80	3 587 136.60
8	Latvijas Hipotēku un zemes banka	1 375 341.77	1 150 205.46	1 074 912.92	575 887.45	466 345.24	0.00
9	UniCredit Bank	1 093 555.24	1 058 815.69	885 072.51	861 457.82	356 845.44	0.00
10	Latvijas Krājbanka	834 262.33	958 367.34	912 757.47	0.00	0.00	0.00
11	Cluster1	1 509 700.00	1 555 669.86	1 528 507.09	1 786 785.65	1 445 446.12	2 143 374.50
12	Cluster2	1 314 699.40	1 509 143.37	1 443 302.68	1 499 342.63	1 599 441.10	2 287 241.70
13	Cluster3	750 106.57	1 208 639.68	1 159 699.43	1 492 381.38	1 581 952.00	2 458 952.50

Annex 32

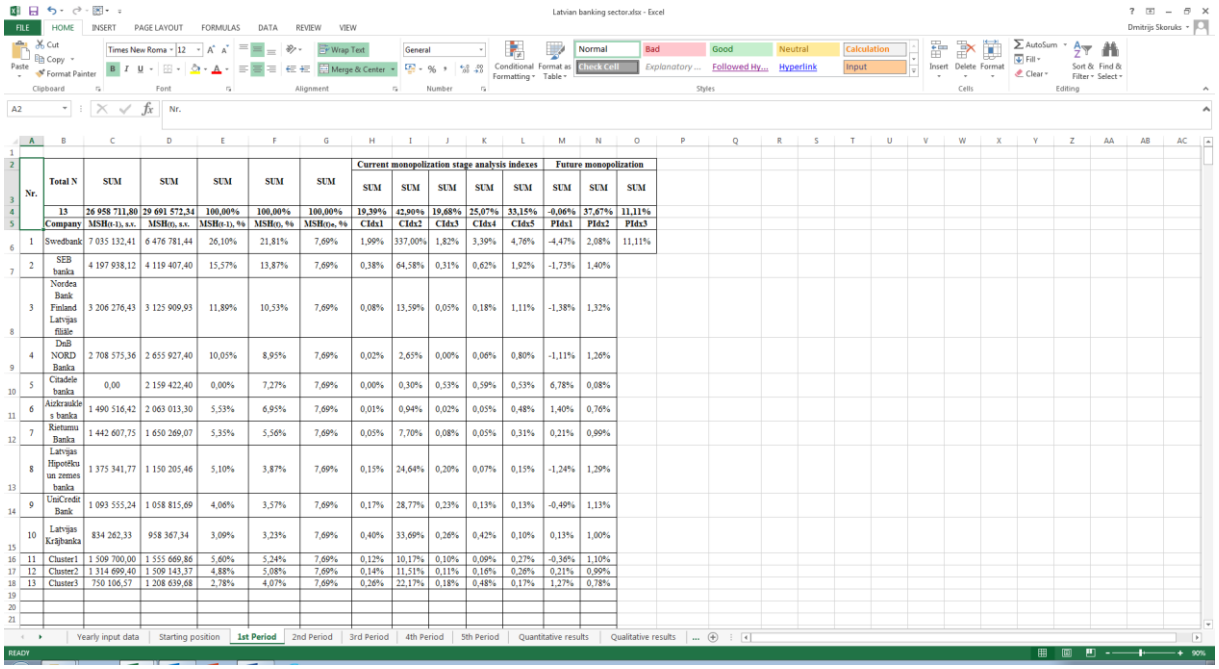
Analysis of monopolisation process progression in the Latvian banking sector: intermediate results (Base period)



Nr.	Total N	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization developement potential analysis indexes		
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	12	26 958 711,80	100,00%	100,00%	31,83%	60,80%	3660,63%	40,82%	36,61%	-	-	12,50%
	Company	MSH(t), s.v.	MSH(t), %	MSH(t)n, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	Swedbank	7 035 132,41	26,10%	8,33%	6,31%	454,34%	681,00	1,39%	6,81%	-	-	12,50%
2	SEB banka	4 197 938,12	15,57%	8,33%	1,05%	75,45%	242,48	1,39%	2,42%			
3	Nordea Bank Finland Latvijas filiāle	3 206 276,43	11,89%	8,33%	0,25%	18,25%	14145,02%	1,39%	1,41%			
4	Citā NORD Banka	2 708 575,36	10,05%	8,33%	0,06%	4,23%	10094,47%	1,39%	1,01%			
6	Aizkraukles banka	1 490 516,42	5,53%	8,33%	0,16%	11,33%	3056,86%	1,39%	0,31%			
7	Rietumu Banka	1 442 607,75	5,35%	8,33%	0,18%	12,81%	2863,51%	1,39%	0,29%			
8	Latvijas Hipotēku un zemes banka	1 375 341,77	5,10%	8,33%	0,21%	15,04%	2602,69%	1,39%	0,26%			
9	UniCredit Bank	1 093 555,24	4,06%	8,33%	0,37%	26,34%	1645,44%	1,39%	0,16%			
10	Latvijas Krājbanka	834 262,33	3,09%	8,33%	0,55%	39,52%	9,58	1,39%	0,10%			
11	Cluster1	1 509 700,00	5,60%	8,33%	0,15%	10,76%	31,36	1,39%	0,31%			
12	Cluster2	1 314 699,40	4,88%	8,33%	0,24%	17,21%	23,78	1,39%	0,24%			
13	Cluster3	750 106,57	2,78%	8,33%	0,62%	44,37%	7,74	1,39%	0,08%			

Annex 33

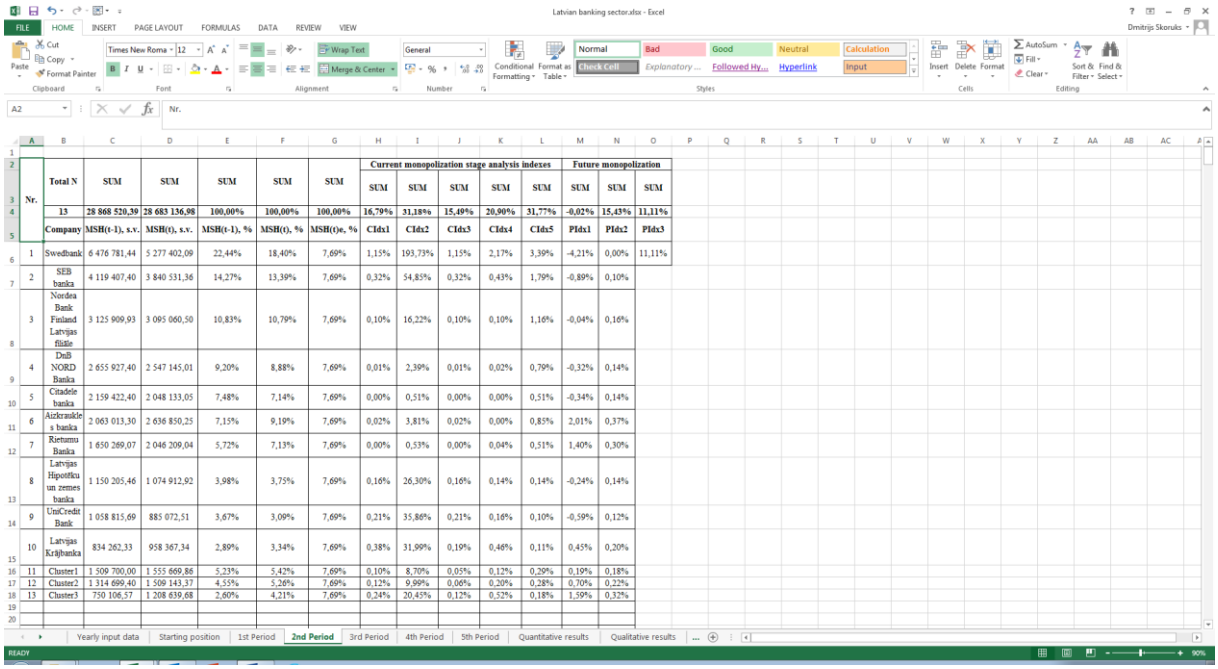
Analysis of monopolisation process progression in the Latvian banking sector: intermediate results (Period 1)



Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	13	26 958 711,80	29 691 572,34	100,00%	100,00%	100,00%	19,39%	42,90%	19,68%	25,07%	33,15%	-0,06%	37,67%	11,11%
	Company	$MSH_{(t-1),\ s.v.}$	$MSH_{(t),\ s.v.}$	$MSH_{(t-1),\ \%}$	$MSH_{(t),\ \%}$	$MSH_{(t)e,\ \%}$	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	Swedbank	7 035 132,41	6 476 781,44	26,10%	21,81%	7,69%	1,99%	337,00%	1,82%	3,39%	4,76%	-4,47%	2,08%	11,11%
2	SEB banka	4 197 938,12	4 119 407,40	15,57%	13,87%	7,69%	0,38%	64,58%	0,31%	0,62%	1,92%	-1,73%	1,40%	
3	Nordea Bank Finland Latvijas filiāle	3 206 276,43	3 125 909,93	11,89%	10,53%	7,69%	0,08%	13,59%	0,05%	0,18%	1,11%	-1,38%	1,32%	
4	Delfi NORD Banka	2 708 575,36	2 655 927,40	10,05%	8,95%	7,69%	0,02%	2,65%	0,00%	0,06%	0,80%	-1,11%	1,26%	
5	Citadele banka	0,00	2 159 422,40	0,00%	7,27%	7,69%	0,00%	0,30%	0,53%	0,59%	0,53%	6,78%	0,08%	
6	Aizkraukles banka	1 490 516,42	2 063 013,30	5,53%	6,95%	7,69%	0,01%	0,94%	0,02%	0,05%	0,48%	1,40%	0,76%	
7	Rietumu Banka	1 442 607,75	1 650 269,07	5,35%	5,56%	7,69%	0,05%	7,70%	0,08%	0,05%	0,31%	0,21%	0,99%	
8	Latvijas Hipotēku un zemes banka	1 375 341,77	1 150 205,46	5,10%	3,87%	7,69%	0,15%	24,64%	0,20%	0,07%	0,15%	-1,24%	1,29%	
9	UniCredit Bank	1 093 555,24	1 058 815,69	4,06%	3,57%	7,69%	0,17%	28,77%	0,23%	0,13%	0,13%	-0,49%	1,13%	
10	Latvijas Krājbanka	834 262,33	958 367,34	3,09%	3,23%	7,69%	0,40%	33,69%	0,26%	0,42%	0,10%	0,13%	1,00%	
11	Cluster1	1 509 700,00	1 555 669,86	5,60%	5,24%	7,69%	0,12%	10,17%	0,10%	0,09%	0,27%	-0,36%	1,10%	
12	Cluster2	1 314 699,40	1 509 143,37	4,88%	5,08%	7,69%	0,14%	11,51%	0,11%	0,16%	0,26%	0,21%	0,99%	
13	Cluster3	750 106,57	1 208 639,68	2,78%	4,07%	7,69%	0,26%	22,17%	0,18%	0,48%	0,17%	1,27%	0,78%	

Annex 34

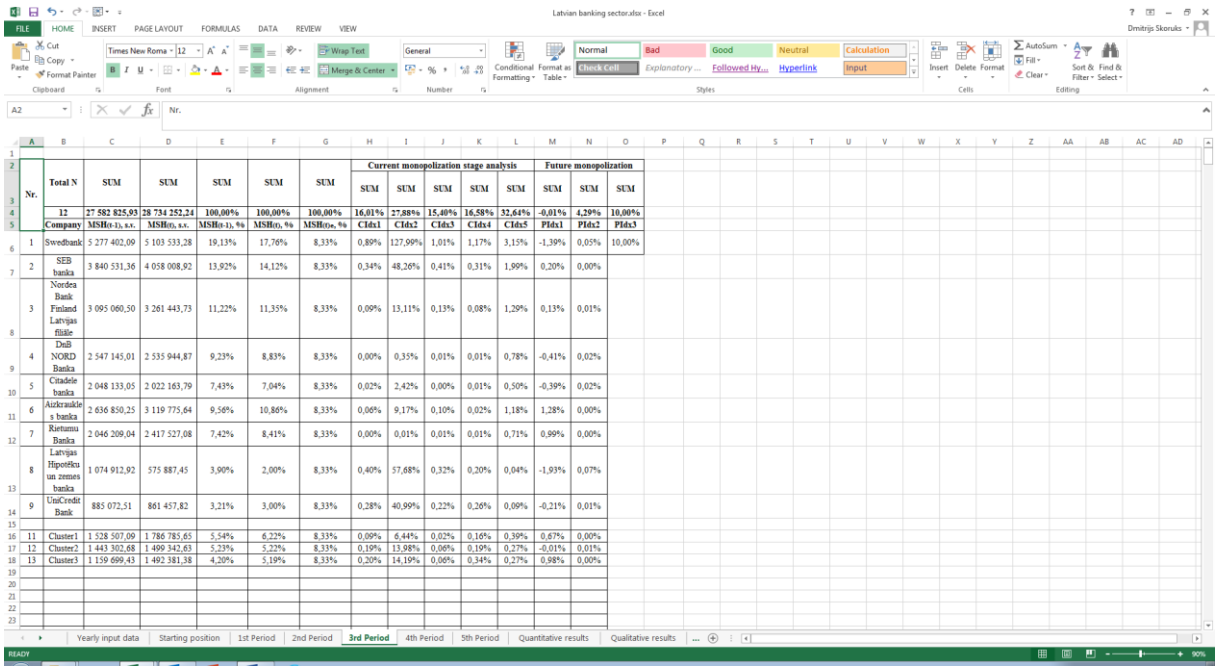
Analysis of monopolisation process progression in the Latvian banking sector: intermediate results (Period 2)



Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	13	28 868 520,39	28 683 136,98	100,00%	100,00%	100,00%	16,79%	31,18%	15,49%	20,90%	31,77%	-0,02%	15,43%	11,11%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t)e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	Swedbank	6 476 781,44	5 277 402,09	22,44%	18,40%	7,69%	1,15%	193,73%	1,15%	2,17%	3,39%	-4,21%	0,00%	11,11%
2	SEB banka	4 119 407,40	3 840 531,36	14,27%	13,39%	7,69%	0,32%	54,85%	0,32%	0,43%	1,79%	-0,89%	0,10%	
3	Nordea Bank Finland Latvijas filiāle	3 125 909,93	3 095 060,50	10,83%	10,79%	7,69%	0,10%	16,22%	0,10%	0,10%	1,16%	-0,04%	0,16%	
4	Dnīb NORD Banka	2 655 927,40	2 547 145,01	9,20%	8,88%	7,69%	0,01%	2,39%	0,01%	0,02%	0,79%	-0,32%	0,14%	
5	Citadele banka	2 159 422,40	2 048 133,05	7,48%	7,14%	7,69%	0,00%	0,51%	0,00%	0,00%	0,51%	-0,34%	0,14%	
6	Aizkraukles banka	2 063 013,30	2 636 850,25	7,15%	9,19%	7,69%	0,02%	3,81%	0,02%	0,00%	0,85%	2,01%	0,37%	
7	Rietumu Banka	1 650 269,07	2 046 209,04	5,72%	7,13%	7,69%	0,00%	0,53%	0,00%	0,04%	0,51%	1,40%	0,30%	
8	Latvijas Hipotēku un zemes banka	1 150 205,46	1 074 912,92	3,98%	3,75%	7,69%	0,16%	26,30%	0,16%	0,14%	0,14%	-0,24%	0,14%	
9	UniCredit Bank	1 058 815,69	885 072,51	3,67%	3,09%	7,69%	0,21%	35,86%	0,21%	0,16%	0,10%	-0,59%	0,12%	
10	Latvijas Krājbanka	834 262,33	958 367,34	2,89%	3,34%	7,69%	0,38%	31,99%	0,19%	0,46%	0,11%	0,45%	0,20%	
11	Cluster1	1 509 700,00	1 555 669,86	5,23%	5,42%	7,69%	0,10%	8,70%	0,05%	0,12%	0,20%	0,19%	0,18%	
12	Cluster2	1 314 699,40	1 509 143,37	4,55%	5,26%	7,69%	0,12%	9,99%	0,06%	0,20%	0,28%	0,70%	0,22%	
13	Cluster3	750 106,57	1 208 639,68	2,60%	4,21%	7,69%	0,24%	20,45%	0,12%	0,52%	0,18%	1,59%	0,32%	

Annex 35

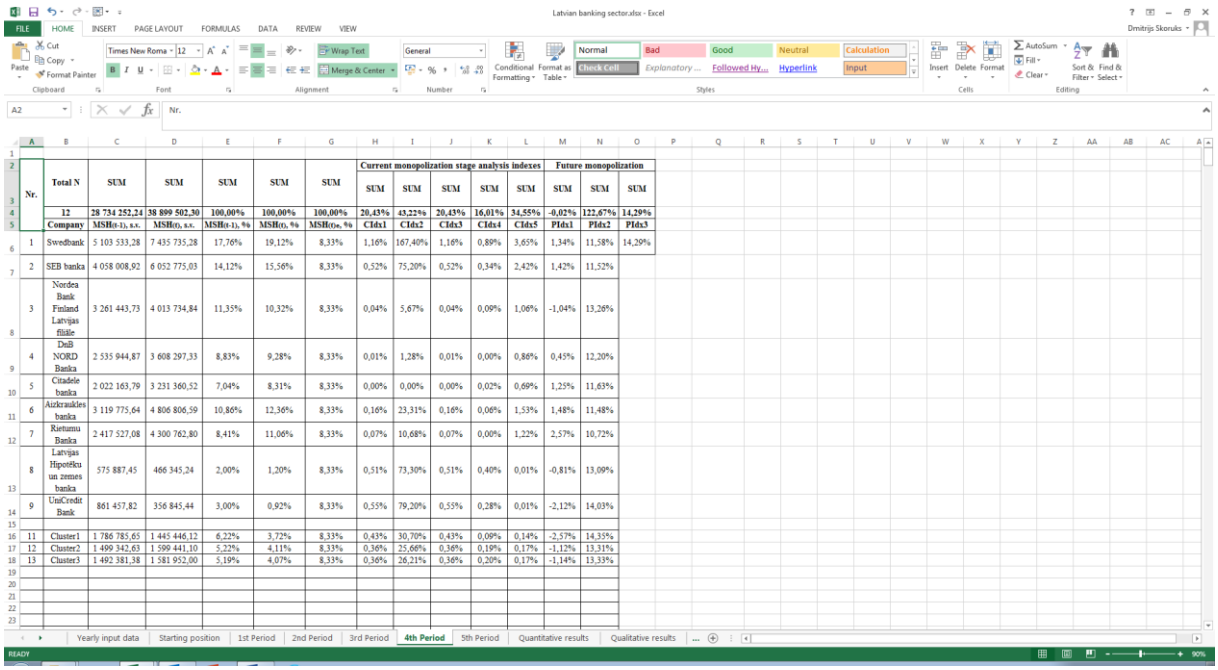
Analysis of monopolisation process progression in the Latvian banking sector: intermediate results (Period 3)



Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	12	27 582 825,93	28 734 252,24	100,00%	100,00%	100,00%	16,01%	27,88%	15,40%	16,58%	32,64%	-0,01%	4,29%	10,00%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t)e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	Swedbank	5 277 402,09	5 103 533,28	19,13%	17,76%	8,33%	0,89%	127,99%	1,01%	1,17%	3,15%	-1,39%	0,05%	10,00%
2	SEB banka	3 840 531,36	4 058 008,92	13,92%	14,12%	8,33%	0,34%	48,26%	0,41%	0,31%	1,99%	0,20%	0,00%	
3	Nordea Bank Finland Latvijas filiāle	3 095 060,50	3 261 443,73	11,22%	11,35%	8,33%	0,09%	13,11%	0,13%	0,08%	1,29%	0,13%	0,01%	
4	Dnīļ NORD Banka	2 547 145,01	2 535 944,87	9,23%	8,83%	8,33%	0,00%	0,35%	0,01%	0,01%	0,78%	-0,41%	0,02%	
5	Citadele banka	2 048 133,05	2 022 163,79	7,43%	7,04%	8,33%	0,02%	2,42%	0,00%	0,01%	0,50%	-0,39%	0,02%	
6	Aizkraukles banka	2 636 850,25	3 119 775,64	9,56%	10,86%	8,33%	0,06%	9,17%	0,10%	0,02%	1,18%	1,28%	0,00%	
7	Rietumu Banka	2 046 209,04	2 417 527,08	7,42%	8,41%	8,33%	0,00%	0,01%	0,01%	0,01%	0,71%	0,99%	0,00%	
8	Latvijas Hipotēku un zemes banka	1 074 912,92	575 887,45	3,90%	2,00%	8,33%	0,40%	57,68%	0,32%	0,20%	0,04%	-1,93%	0,07%	
9	UniCredit Bank	885 072,51	861 457,82	3,21%	3,00%	8,33%	0,28%	40,99%	0,22%	0,26%	0,09%	-0,21%	0,01%	
11	Cluster1	1 528 507,09	1 786 785,65	5,54%	6,22%	8,33%	0,09%	6,44%	0,02%	0,16%	0,39%	0,67%	0,00%	
12	Cluster2	1 443 302,68	1 499 342,63	5,23%	5,22%	8,33%	0,19%	13,98%	0,06%	0,19%	0,27%	-0,01%	0,01%	
13	Cluster3	1 159 699,43	1 492 381,38	4,20%	5,19%	8,33%	0,20%	14,19%	0,06%	0,34%	0,27%	0,98%	0,00%	

Annex 36

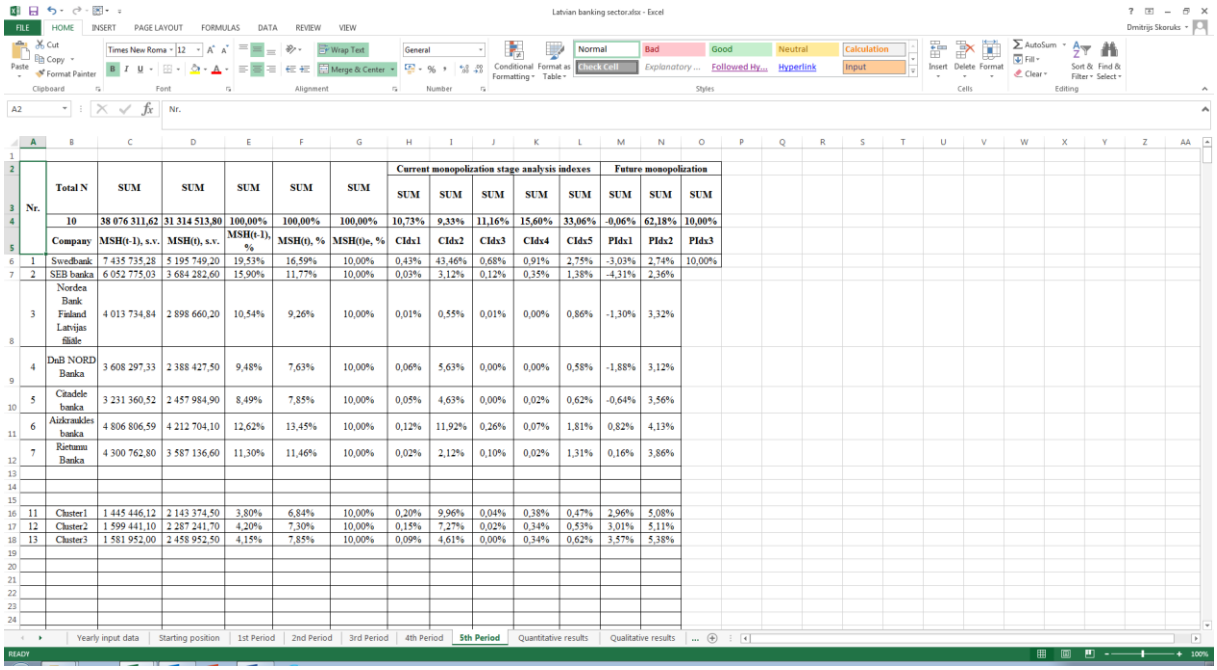
Analysis of monopolisation process progression in the Latvian banking sector: intermediate results (Period 4)



Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	12	28 734 252,24	38 899 502,30	100,00%	100,00%	100,00%	20,43%	43,22%	20,43%	16,01%	34,55%	-0,02%	122,67%	14,29%
	Company	MSH(t-1), s.s.	MSH(t), s.s.	MSH(t-1), %	MSH(t), %	MSH(t_∞, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	Swedbank	5 103 533,28	7 435 735,28	17,76%	19,12%	8,33%	1,16%	167,40%	1,16%	0,89%	3,65%	1,34%	11,58%	14,29%
2	SEB banka	4 058 008,92	6 052 775,03	14,12%	15,56%	8,33%	0,52%	75,20%	0,52%	0,34%	2,42%	1,42%	11,52%	
3	Nordea Bank Finland Latvijas filiāle	3 261 443,73	4 013 734,84	11,35%	10,32%	8,33%	0,04%	5,67%	0,04%	0,09%	1,06%	-1,04%	13,26%	
4	DnB NORD Banka	2 535 944,87	3 608 297,33	8,83%	9,28%	8,33%	0,01%	1,28%	0,01%	0,00%	0,86%	0,45%	12,20%	
5	Citadele banka	2 022 163,79	3 231 360,52	7,04%	8,31%	8,33%	0,00%	0,00%	0,00%	0,02%	0,69%	1,25%	11,63%	
6	Aizkraukles banka	3 119 775,64	4 806 806,59	10,86%	12,36%	8,33%	0,16%	23,31%	0,16%	0,06%	1,53%	1,48%	11,48%	
7	Rietumu Banka	2 417 527,08	4 300 762,80	8,41%	11,06%	8,33%	0,07%	10,68%	0,07%	0,00%	1,22%	2,57%	10,72%	
8	Latvijas Hipotēku un zemes banka	575 887,45	466 345,24	2,00%	1,20%	8,33%	0,51%	73,30%	0,51%	0,40%	0,01%	-0,81%	13,09%	
9	UniCredit Bank	861 457,82	356 845,44	3,00%	0,92%	8,33%	0,55%	79,20%	0,55%	0,28%	0,01%	-2,12%	14,03%	
11	Cluster1	1 786 785,65	1 445 446,12	6,22%	3,72%	8,33%	0,43%	30,70%	0,43%	0,09%	0,14%	-2,57%	14,35%	
12	Cluster2	1 499 342,63	1 599 441,10	5,22%	4,11%	8,33%	0,36%	25,66%	0,36%	0,19%	0,17%	-1,12%	13,31%	
13	Cluster3	1 492 381,38	1 581 952,00	5,19%	4,07%	8,33%	0,36%	26,21%	0,36%	0,20%	0,17%	-1,14%	13,33%	

Annex 37

Analysis of monopolisation process progression in the Latvian banking sector: intermediate results (Period 5)



Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	10	38 076 311,62	31 314 513,80	100,00%	100,00%	100,00%	10,73%	9,33%	11,16%	15,60%	33,06%	-0,06%	62,18%	10,00%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t)e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	Swedbank	7 435 735,28	5 195 749,20	19,53%	16,59%	10,00%	0,43%	43,46%	0,68%	0,91%	2,75%	-3,03%	2,74%	10,00%
2	SEB banka	6 052 775,03	3 684 282,60	15,90%	11,77%	10,00%	0,03%	3,12%	0,12%	0,35%	1,38%	-4,31%	2,36%	
3	Nordea Bank Finland Latvijas filiāle	4 013 734,84	2 898 660,20	10,54%	9,26%	10,00%	0,01%	0,55%	0,01%	0,00%	0,86%	-1,30%	3,32%	
4	DnB NORD Banka	3 608 297,33	2 388 427,50	9,48%	7,63%	10,00%	0,06%	5,63%	0,00%	0,00%	0,58%	-1,88%	3,12%	
5	Citadele banka	3 231 360,52	2 457 984,90	8,49%	7,85%	10,00%	0,05%	4,63%	0,00%	0,02%	0,62%	-0,64%	3,56%	
6	Aizkraukles banka	4 806 806,59	4 212 704,10	12,62%	13,45%	10,00%	0,12%	11,92%	0,26%	0,07%	1,81%	0,82%	4,13%	
7	Rietumu Banka	4 300 762,80	3 587 136,60	11,30%	11,46%	10,00%	0,02%	2,12%	0,10%	0,02%	1,31%	0,16%	3,86%	
11	Cluster1	1 445 446,12	2 143 374,50	3,80%	6,84%	10,00%	0,20%	9,96%	0,04%	0,38%	0,47%	2,96%	5,08%	
12	Cluster2	1 599 441,10	2 287 241,70	4,20%	7,30%	10,00%	0,15%	7,27%	0,02%	0,34%	0,53%	3,01%	5,11%	
13	Cluster3	1 581 952,00	2 458 952,50	4,15%	7,85%	10,00%	0,09%	4,61%	0,00%	0,34%	0,62%	3,57%	5,38%	

Annex 38

Lithuanian banking sector: primary statistical data (Association of Lithuanian Banks, 2015)
(ECB, 2015)

Nr.	Bank	Total asset, EUR					
		2009	2010	2011	2012	2013	2014
1	AB bankas "Snoras"	1 836 937.27	2 217 621.35	0.00	0.00	0.00	0.00
2	AB Parex bankas	417 845.52	0.00	0.00	0.00	0.00	0.00
3	AB "Citadele" bankas	0.00	269 613.36	272 999.30	297 873.32	288 596.21	209 781.63
4	Danske Bank A/S Lietuvos filialas	1 578 726.54	1 539 954.24	1 410 789.79	1 474 264.94	1 405 449.78	985 209.40
5	AB DnB NORD bankas	3 458 153.96	3 272 585.73	3 256 141.68	3 353 994.85	3 486 014.54	2 782 868.98
6	UAB Medicinos bankas	233 025.37	247 271.78	231 370.77	257 542.28	254 807.98	123 471.96
7	Nordea Bank Finland Plc Lietuvos skyrius	2 369 435.24	2 406 963.04	2 624 080.17	2 711 443.47	2 530 729.26	2 298 327.44
8	AB SEB bankas	6 966 111.56	6 090 205.63	7 378 815.16	6 540 670.47	6 837 057.46	4 726 123.44
9	AB Swedbank	5 250 218.66	5 015 395.62	5 166 544.25	5 474 270.74	5 623 974.46	4 035 925.05
10	AB Šiaulių bankas	597 693.18	676 161.67	791 116.20	849 011.24	1 520 744.90	747 541.99
11	AS UniCredit Bank Lietuvos skyrius	407 247.45	395 901.30	329 126.80	366 660.97	0.00	0.00
12	AB Ūkio bankas	1 222 406.16	1 425 870.60	1 222 317.25	0.00	0.00	0.00
13	Pohjola Bank plc Lietuvos filialas	0.00	0.00	0.00	0.00	54 077.85	271 015.41

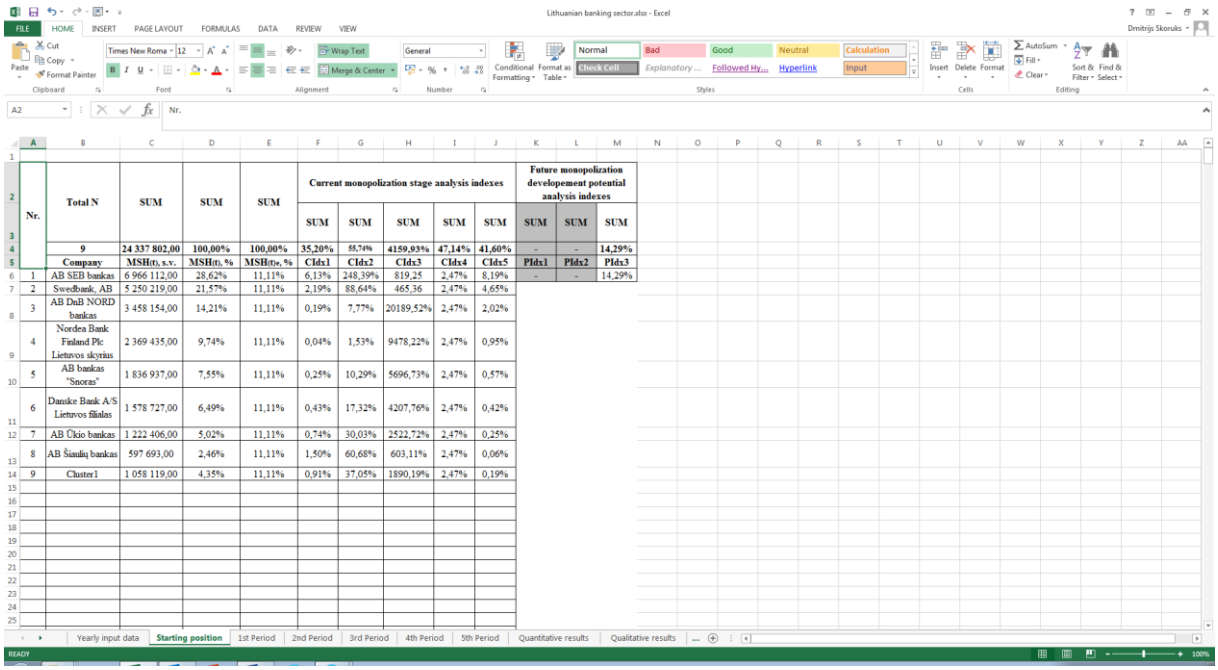
Annex 39

Lithuanian banking sector: primary statistical data-based (Association of Lithuanian Banks, 2015) (ECB, 2015) harmonised inputs

Nr.	Bank	Total asset, thousands EUR					
		2009	2010	2011	2012	2013	2014
1	AB SEB bankas	6 966 112.00	6 090 206.00	7 378 815.00	6 540 671.00	6 837 058.00	4 726 123.00
2	AB Swedbank	5 250 219.00	5 015 396.00	5 166 544.00	5 474 271.00	5 623 975.00	4 035 925.00
3	AB DnB NORD bankas	3 458 154.00	3 272 586.00	3 256 142.00	3 353 995.00	3 486 015.00	2 782 869.00
4	Nordea Bank Finland Plc Lietuvos skyrius	2 369 435.00	2 406 963.00	2 624 080.00	2 711 444.00	2 530 729.00	2 298 327.00
5	AB bankas "Snoras"	1 836 937.00	2 217 621.00	0.00	0.00	0.00	0.00
6	Danske Bank A/S Lietuvos filialas	1 578 727.00	1 539 954.00	1 410 790.00	1 474 265.00	1 405 450.00	985 209.00
7	AB Ūkio bankas	1 222 406.00	1 425 871.00	1 222 317.00	0.00	0.00	0.00
8	AB Šiaulių bankas	597 693.00	676 162.00	791 116.00	849 011.00	1 520 745.00	747 542.00
9	Cluster1	1 058 119.00	912 786.00	833 497.00	922 076.00	597 482.00	604 269.00

Annex 40

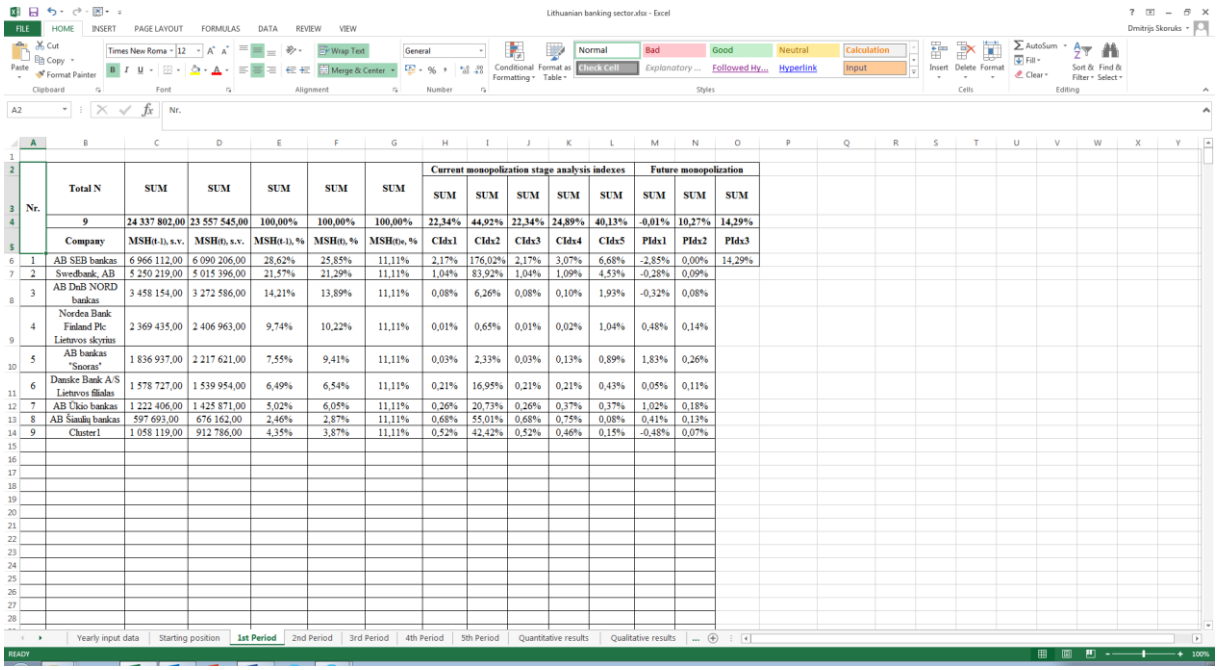
Analysis of monopolisation process progression in the Lithuanian banking sector: intermediate results (Base period)



Nr.	Total N	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization developement potential analysis indexes		
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	9	24 337 802,00	100,00%	100,00%	35,20%	55,74%	4159,93%	47,14%	41,60%	-	-	14,29%
	Company	MSH(t), s.v.	MSH(t), %	MSH(t)s, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	AB SEB bankas	6 966 112,00	28,62%	11,11%	6,13%	248,39%	819,25	2,47%	8,19%	-	-	14,29%
2	Swedbank, AB	5 250 219,00	21,57%	11,11%	2,19%	88,64%	465,36	2,47%	4,65%			
3	AB DnB NORD bankas	3 458 154,00	14,21%	11,11%	0,19%	7,77%	20189,52%	2,47%	2,02%			
4	Nordea Bank Finland Plc Lietuvos skyrius	2 369 435,00	9,74%	11,11%	0,04%	1,53%	9478,22%	2,47%	0,95%			
5	AB bankas "Snoras"	1 836 937,00	7,55%	11,11%	0,25%	10,29%	5696,73%	2,47%	0,57%			
6	Danske Bank A/S Lietuvos filialas	1 578 727,00	6,49%	11,11%	0,43%	17,32%	4207,76%	2,47%	0,42%			
7	AB Ūkio bankas	1 222 406,00	5,02%	11,11%	0,74%	30,03%	2522,72%	2,47%	0,25%			
8	AB Šiaulių bankas	597 693,00	2,46%	11,11%	1,50%	60,68%	603,11%	2,47%	0,06%			
9	Cluster1	1 058 119,00	4,35%	11,11%	0,91%	37,05%	1890,19%	2,47%	0,19%			

Annex 41

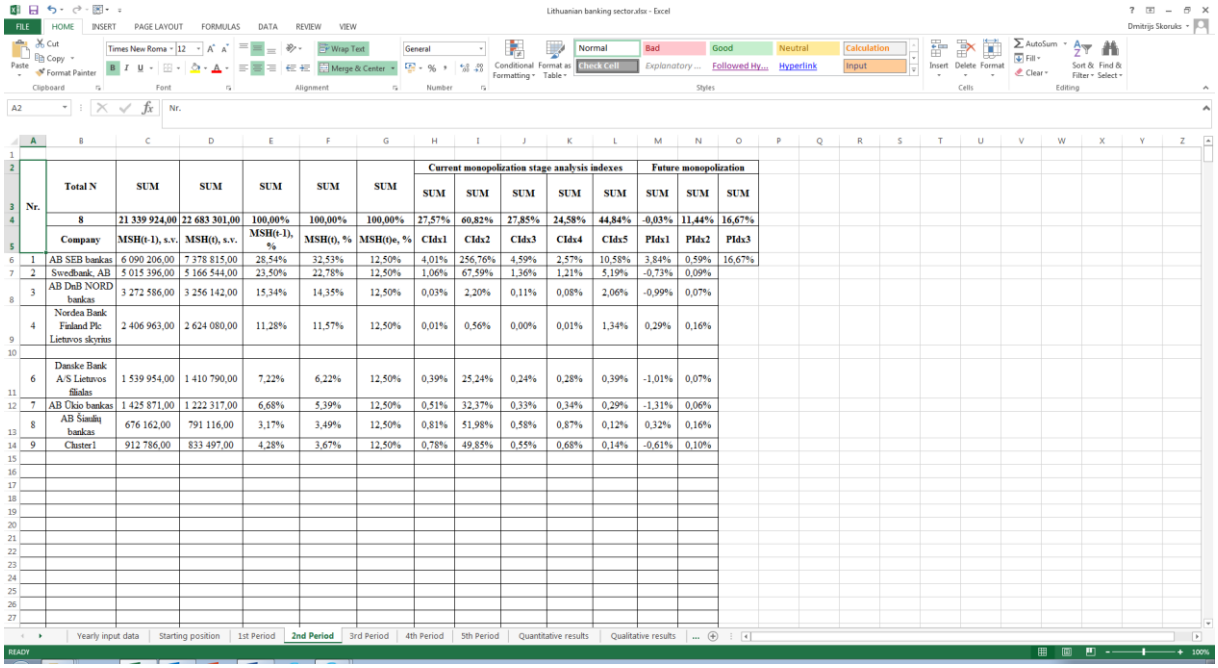
Analysis of monopolisation process progression in the Lithuanian banking sector: intermediate results (Period 1)



Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	9	24 337 802,00	23 557 545,00	100,00%	100,00%	100,00%	22,34%	44,92%	22,34%	24,89%	40,13%	-0,01%	10,27%	14,29%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t)e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	AB SEB bankas	6 966 112,00	6 090 206,00	28,62%	25,85%	11,11%	2,17%	176,02%	2,17%	3,07%	6,68%	-2,85%	0,00%	14,29%
2	Swedbank, AB	5 250 219,00	5 015 396,00	21,57%	21,29%	11,11%	1,04%	83,92%	1,04%	1,09%	4,53%	-0,28%	0,09%	
3	AB DnB NORD bankas	3 458 154,00	3 272 586,00	14,21%	13,89%	11,11%	0,08%	6,26%	0,08%	0,10%	1,93%	-0,32%	0,08%	
4	Nordea Bank Finland Plc Lietuvos skyrius	2 369 435,00	2 406 963,00	9,74%	10,22%	11,11%	0,01%	0,65%	0,01%	0,02%	1,04%	0,48%	0,14%	
5	AB bankas "Snoras"	1 836 937,00	2 217 621,00	7,55%	9,41%	11,11%	0,03%	2,33%	0,03%	0,13%	0,89%	1,83%	0,26%	
6	Danske Bank A/S Lietuvos filialas	1 578 727,00	1 539 954,00	6,49%	6,54%	11,11%	0,21%	16,95%	0,21%	0,21%	0,43%	0,05%	0,11%	
7	AB Ūkio bankas	1 222 406,00	1 425 871,00	5,02%	6,05%	11,11%	0,26%	20,73%	0,26%	0,37%	0,37%	1,02%	0,18%	
8	AB Šiaulių bankas	597 693,00	676 162,00	2,46%	2,87%	11,11%	0,68%	55,01%	0,68%	0,75%	0,08%	0,41%	0,13%	
9	Cluster1	1 058 119,00	912 786,00	4,35%	3,87%	11,11%	0,52%	42,42%	0,52%	0,46%	0,15%	-0,48%	0,07%	

Annex 42

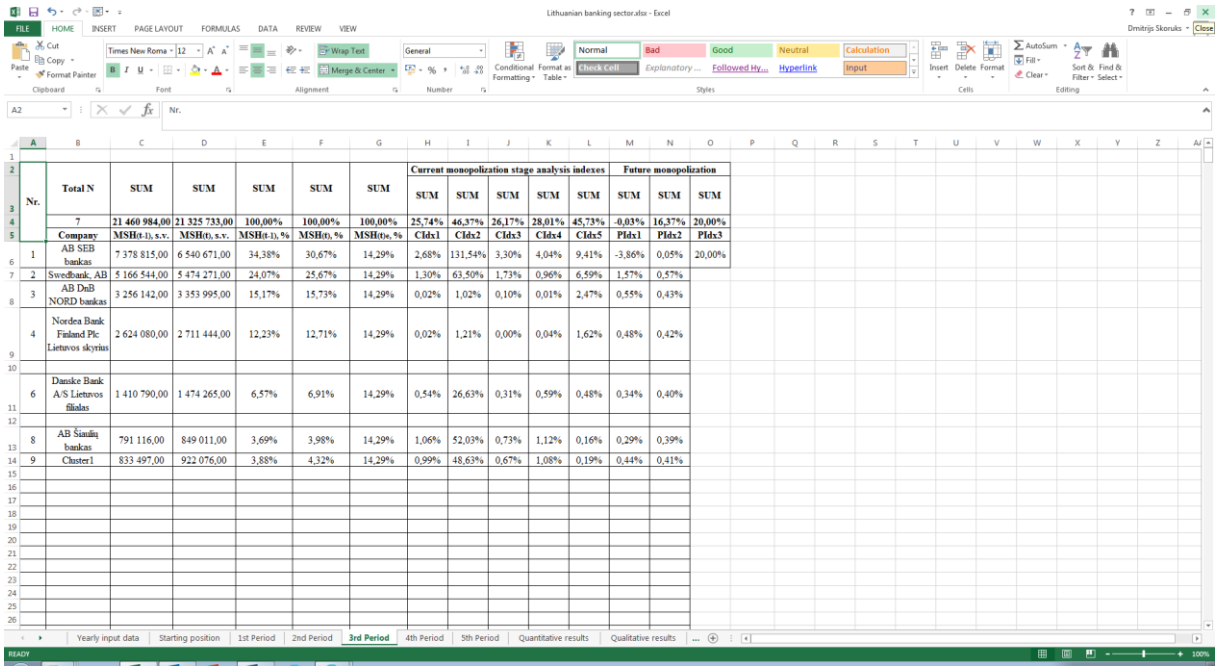
Analysis of monopolisation process progression in the Lithuanian banking sector: intermediate results (Period 2)



Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	8	21 339 924,00	22 683 301,00	100,00%	100,00%	100,00%	27,57%	60,82%	27,85%	24,58%	44,84%	-0,03%	11,44%	16,67%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t)e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	AB SEB bankas	6 090 206,00	7 378 815,00	28,54%	32,53%	12,50%	4,01%	256,76%	4,59%	2,57%	10,58%	3,84%	0,59%	16,67%
2	Swedbank, AB	5 015 396,00	5 166 544,00	23,50%	22,78%	12,50%	1,06%	67,59%	1,36%	1,21%	5,19%	-0,73%	0,09%	
3	AB DnB NORD bankas	3 272 586,00	3 256 142,00	15,34%	14,35%	12,50%	0,03%	2,20%	0,11%	0,08%	2,06%	-0,99%	0,07%	
4	Nordea Bank Finland Plc Lietuvos skyrius	2 406 963,00	2 624 080,00	11,28%	11,57%	12,50%	0,01%	0,56%	0,00%	0,01%	1,34%	0,29%	0,16%	
6	Danske Bank A/S Lietuvos filialas	1 539 954,00	1 410 790,00	7,22%	6,22%	12,50%	0,39%	25,24%	0,24%	0,28%	0,39%	-1,01%	0,07%	
7	AB Citio bankas	1 425 871,00	1 222 317,00	6,68%	5,39%	12,50%	0,51%	32,37%	0,33%	0,34%	0,29%	-1,31%	0,06%	
8	AB Šiaulių bankas	676 162,00	791 116,00	3,17%	3,49%	12,50%	0,81%	51,98%	0,58%	0,87%	0,12%	0,32%	0,16%	
9	Cluster1	912 786,00	833 497,00	4,28%	3,67%	12,50%	0,78%	49,85%	0,55%	0,68%	0,14%	-0,61%	0,10%	

Annex 43

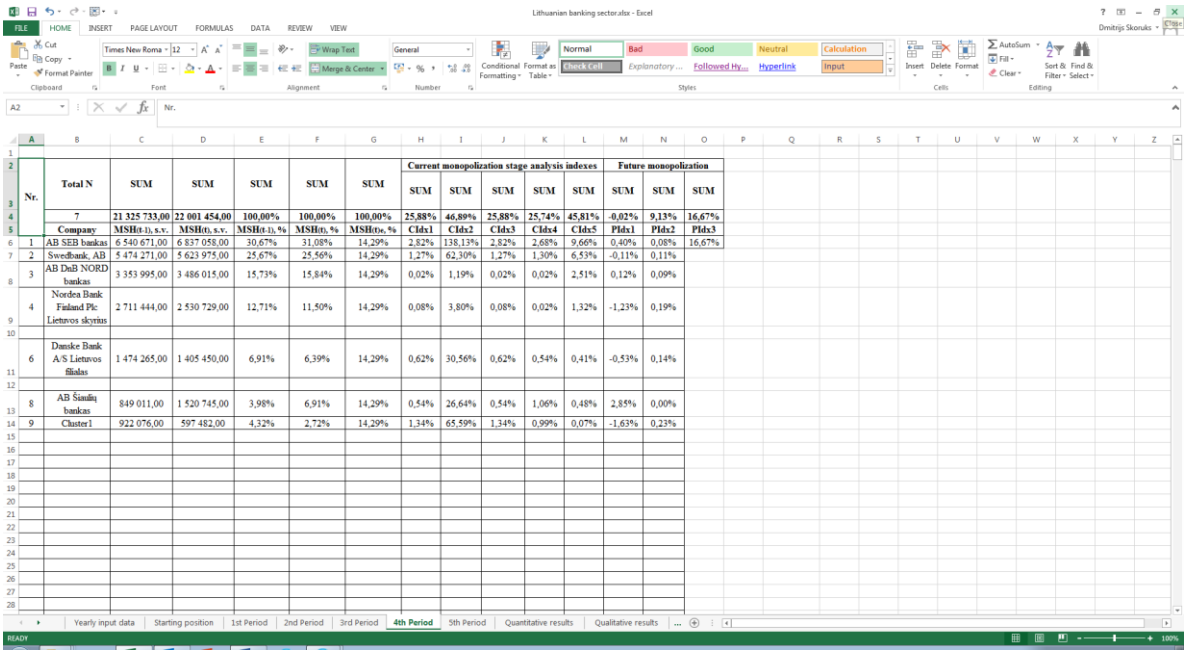
Analysis of monopolisation process progression in the Lithuanian banking sector: intermediate results (Period 3)



Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	7	21 460 984,00	21 325 733,00	100,00%	100,00%	100,00%	25,74%	46,37%	26,17%	28,01%	45,73%	-0,03%	16,37%	20,00%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t=e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	AB SEB bankas	7 378 815,00	6 540 671,00	34,38%	30,67%	14,29%	2,68%	131,54%	3,30%	4,04%	9,41%	-3,86%	0,05%	20,00%
2	Swedbank, AB	5 166 544,00	5 474 271,00	24,07%	25,67%	14,29%	1,30%	63,50%	1,73%	0,96%	6,59%	1,57%	0,57%	
3	AB DnB NORD bankas	3 256 142,00	3 353 995,00	15,17%	15,73%	14,29%	0,02%	1,02%	0,10%	0,01%	2,47%	0,55%	0,43%	
4	Nordea Bank Finland Plc Lietuvos skyrius	2 624 080,00	2 711 444,00	12,23%	12,71%	14,29%	0,02%	1,21%	0,00%	0,04%	1,62%	0,48%	0,42%	
6	Danske Bank A/S Lietuvos filialas	1 410 790,00	1 474 265,00	6,57%	6,91%	14,29%	0,54%	26,63%	0,31%	0,59%	0,48%	0,34%	0,40%	
8	AB Šiaulių bankas	791 116,00	849 011,00	3,69%	3,98%	14,29%	1,06%	52,03%	0,73%	1,12%	0,16%	0,29%	0,39%	
9	Cluster1	833 497,00	922 076,00	3,88%	4,32%	14,29%	0,99%	48,63%	0,67%	1,08%	0,19%	0,44%	0,41%	

Annex 44

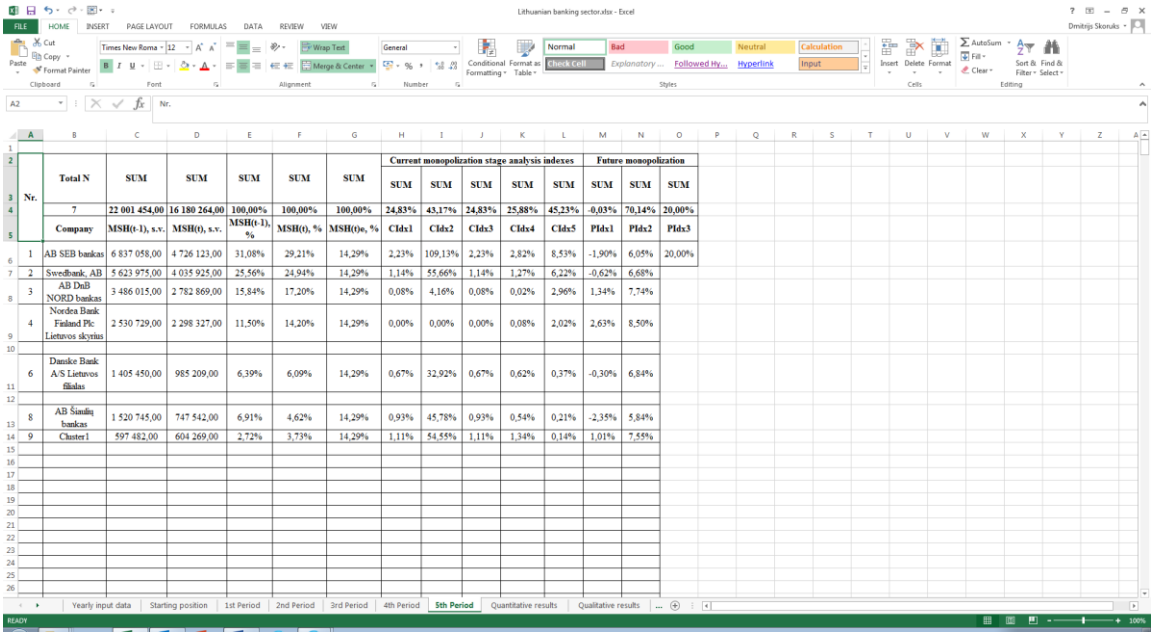
Analysis of monopolisation process progression in the Lithuanian banking sector: intermediate results (Period 4)



Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	7	21 325 733,00	22 001 454,00	100,00%	100,00%	100,00%	25,88%	46,89%	25,88%	25,74%	45,81%	-0,02%	9,13%	16,67%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t)e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	AB SEB bankas	6 540 671,00	6 837 058,00	30,67%	31,08%	14,29%	2,82%	138,13%	2,82%	2,68%	9,66%	0,40%	0,08%	16,67%
2	Swedbank, AB	5 474 271,00	5 623 975,00	25,67%	25,56%	14,29%	1,27%	62,30%	1,27%	1,30%	6,53%	-0,11%	0,11%	
3	AB DnB NORD bankas	3 353 995,00	3 486 015,00	15,73%	15,84%	14,29%	0,02%	1,19%	0,02%	0,02%	2,51%	0,12%	0,09%	
4	Nordea Bank Finland Plc Lietuvos skyrius	2 711 444,00	2 530 729,00	12,71%	11,50%	14,29%	0,08%	3,80%	0,08%	0,02%	1,32%	-1,23%	0,19%	
6	Danske Bank A/S Lietuvos filialas	1 474 265,00	1 405 450,00	6,91%	6,39%	14,29%	0,62%	30,56%	0,62%	0,54%	0,41%	-0,53%	0,14%	
8	AB Šiaulių bankas	849 011,00	1 520 745,00	3,98%	6,91%	14,29%	0,54%	26,64%	0,54%	1,06%	0,48%	2,85%	0,00%	
9	Cluster1	922 076,00	597 482,00	4,32%	2,72%	14,29%	1,34%	65,59%	1,34%	0,99%	0,07%	-1,63%	0,23%	

Annex 45

Analysis of monopolisation process progression in the Lithuanian banking sector: intermediate results (Period 5)



							Current monopolization stage analysis indexes					Future monopolization		
Nr.	Total N	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	7	22 001 454,00	16 180 264,00	100,00%	100,00%	100,00%	24,83%	43,17%	24,83%	25,88%	45,23%	-0,03%	70,14%	20,00%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t)e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	AB SEB bankas	6 837 058,00	4 726 123,00	31,08%	29,21%	14,29%	2,23%	109,13%	2,23%	2,82%	8,53%	-1,90%	6,05%	20,00%
2	Swedbank, AB	5 623 975,00	4 035 925,00	25,56%	24,94%	14,29%	1,14%	55,66%	1,14%	1,27%	6,22%	-0,62%	6,68%	
3	AB DnB NORD bankas	3 486 015,00	2 782 869,00	15,84%	17,20%	14,29%	0,08%	4,16%	0,08%	0,02%	2,96%	1,34%	7,74%	
4	Nordea Bank Finland Plc Lietuvos skyrius	2 530 729,00	2 298 327,00	11,50%	14,20%	14,29%	0,00%	0,00%	0,00%	0,08%	2,02%	2,63%	8,50%	
6	Danske Bank A/S Lietuvos filialas	1 405 450,00	985 209,00	6,39%	6,09%	14,29%	0,67%	32,92%	0,67%	0,62%	0,37%	-0,30%	6,84%	
8	AB Šiaulių bankas	1 520 745,00	747 542,00	6,91%	4,62%	14,29%	0,93%	45,78%	0,93%	0,54%	0,21%	-2,35%	5,84%	
9	Cluster1	597 482,00	604 269,00	2,72%	3,73%	14,29%	1,11%	54,55%	1,11%	1,34%	0,14%	1,01%	7,55%	

Annex 46

Estonian banking sector: primary statistical data (Estonian Financial Supervision Authority, 2015) (ECB, 2011)

Nr.	Bank	Total asset, EUR					
		2009	2010	2011	2012	2013	2014
1	SWEDBANK	10 116 447 023.63	9 737 131 389.57	7 970 662 000.00	8 067 868 000.00	6 699 924 000.00	8 491 762 000.00
2	SEB	4 137 640 126.29	4 188 897 268.42	3 701 306 000.00	3 733 949 000.00	3 393 923 000.00	4 837 713 000.00
3	NORDEA	2 695 345 953.75	2 619 738 473.53	2 629 042 000.00	3 004 084 000.00	1 591 746 000.00	3 014 560 000.00
4	DANSKE BANKA	1 979 982 871.68	1 950 583 513.35	1 898 918 000.00	1 985 400 000.00	1 842 018 000.00	2 063 881 000.00
5	EKRE	390 627 995.86	347 871 102.99	479 431 000.00	307 477 000.00	233 773 000.00	254 226 000.00
6	DNB	309 779 760.46	317 960 451.47	327 759 000.00	485 110 000.00	470 178 000.00	645 646 000.00
7	UniCR	308 884 997.38	270 474 096.61	289 608 000.00	263 679 000.00	0.00	0.00
8	BIG	205 667 684.99	222 987 741.75	310 539 000.00	364 278 000.00	311 255 000.00	392 219 000.00
9	HANDELSB	128 973 706.75	135 684 429.84	222 221 000.00	219 189 000.00	267 845 000.00	211 799 000.00
10	ÄRIP	125 075 096.19	185 727 250.65	172 984 000.00	140 544 000.00	155 029 000.00	189 031 000.00
11	CITADELE	101 619 521.17	137 154 397.76	104 509 000.00	173 595 000.00	87 257 000.00	128 715 000.00
12	VERSO	47 230 708.27	48 636 764.54	42 478 000.00	62 142 000.00	132 719 000.00	255 919 000.00
13	LHV	40 903 455.06	47 294 619.92	229 791 000.00	311 745 000.00	373 323 000.00	540 045 000.00
14	AIRISH	32 403 205.81	31 124 972.84	23 562 000.00	0.00	0.00	0.00
15	SNORAS	127 823.30	127 823.30	0.00	0.00	0.00	0.00
16	SCANIA	0.00	29 655 004.92	37 530 000.00	39 018 000.00	39 567 000.00	41 066 000.00
17	POHJOLA	0.00	0.00	35 296 000.00	210 712 000.00	367 506 000.00	273 412 000.00
18	FOLKE	0.00	0.00	1 084 000.00	1 233 000.00	297 000.00	1 930 000.00

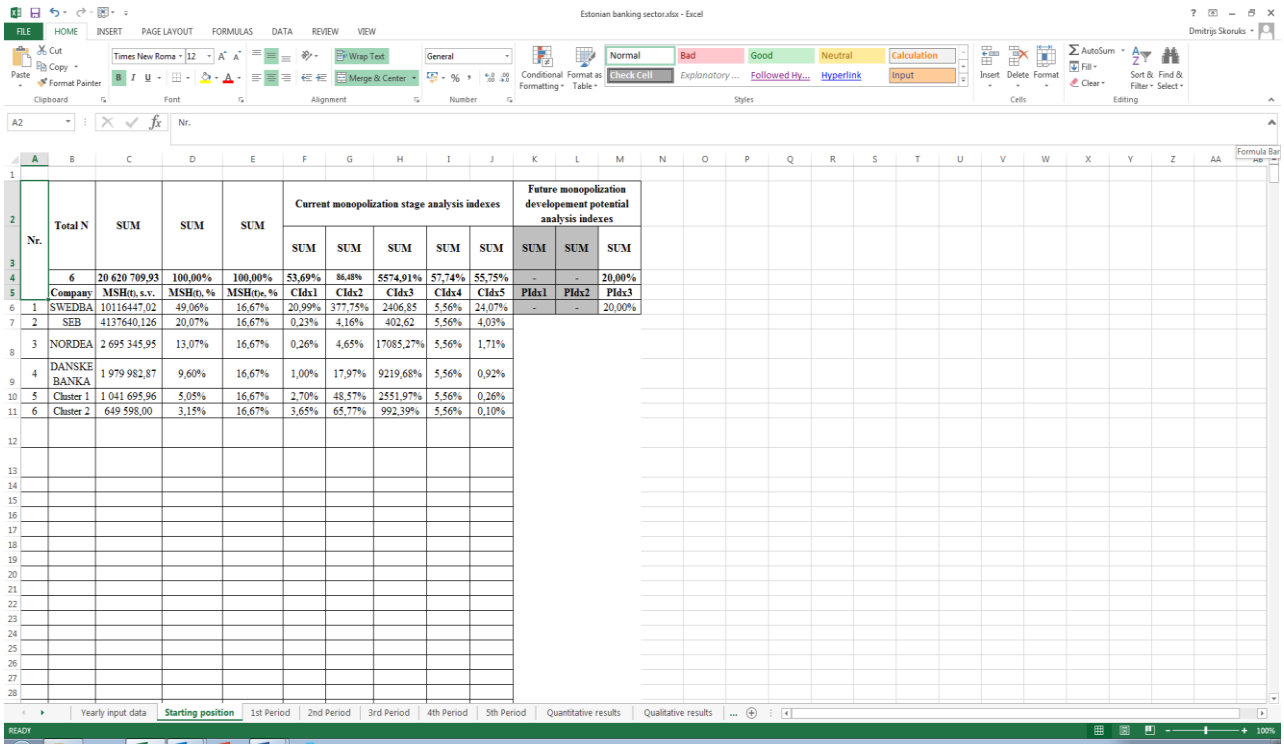
Annex 47

Estonian banking sector: primary statistical data-based (Estonian Financial Supervision Authority, 2015) (ECB, 2011) harmonised inputs

Nr.	Bank	Total asset, thousands EUR					
		2009	2010	2011	2012	2013	2014
1	SWEDBANK	10 116 447.02	9 737 131.39	7 970 662.00	8 067 868.00	6 699 924.00	8 491 762.00
2	SEB	4 137 640.13	4 188 897.27	3 701 306.00	3 733 949.00	3 393 923.00	4 837 713.00
3	NORDEA	2 695 345.95	2 619 738.47	2 629 042.00	3 004 084.00	1 591 746.00	3 014 560.00
4	DANSKE BANKA	1 979 982.87	1 950 583.51	1 898 918.00	1 985 400.00	1 842 018.00	2 063 881.00
5	Cluster 1	1 041 695.96	1 032 237.04	1 139 276.00	1 314 473.00	1 210 099.00	1 503 890.00
6	Cluster 2	649 598.00	742 461.62	1 137 516.00	1 264 249.00	1 228 650.00	1 430 118.00

Annex 48

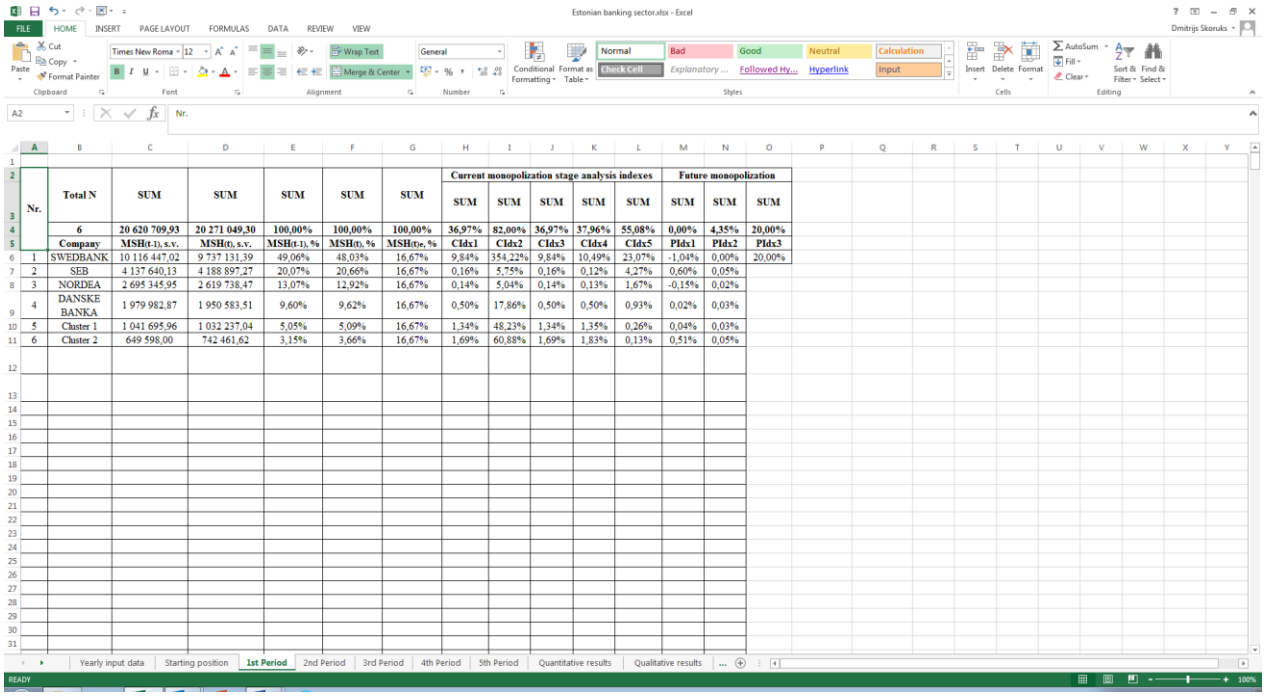
Analysis of monopolisation process progression in the Estonian banking sector: intermediate results (Base period)



Nr.	Total N	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization developement potential analysis indexes		
					SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	6	20 620 709,93	100,00%	100,00%	53,69%	86,48%	5574,91%	57,74%	55,75%	-	-	20,00%
	Company	MSH(t), s.v.	MSH(t), %	MSH(t)e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	SWEDBA	10116447,02	49,06%	16,67%	20,99%	377,75%	2406,85	5,56%	24,07%	-	-	20,00%
2	SEB	4137640,126	20,07%	16,67%	0,23%	4,16%	402,62	5,56%	4,03%			
3	NORDEA	2 695 345,95	13,07%	16,67%	0,26%	4,65%	17085,27%	5,56%	1,71%			
4	DANSKE BANKA	1 979 982,87	9,60%	16,67%	1,00%	17,97%	9219,68%	5,56%	0,92%			
5	Cluster 1	1 041 695,96	5,05%	16,67%	2,70%	48,57%	2551,97%	5,56%	0,26%			
6	Cluster 2	649 598,00	3,15%	16,67%	3,65%	65,77%	992,39%	5,56%	0,10%			

Annex 49

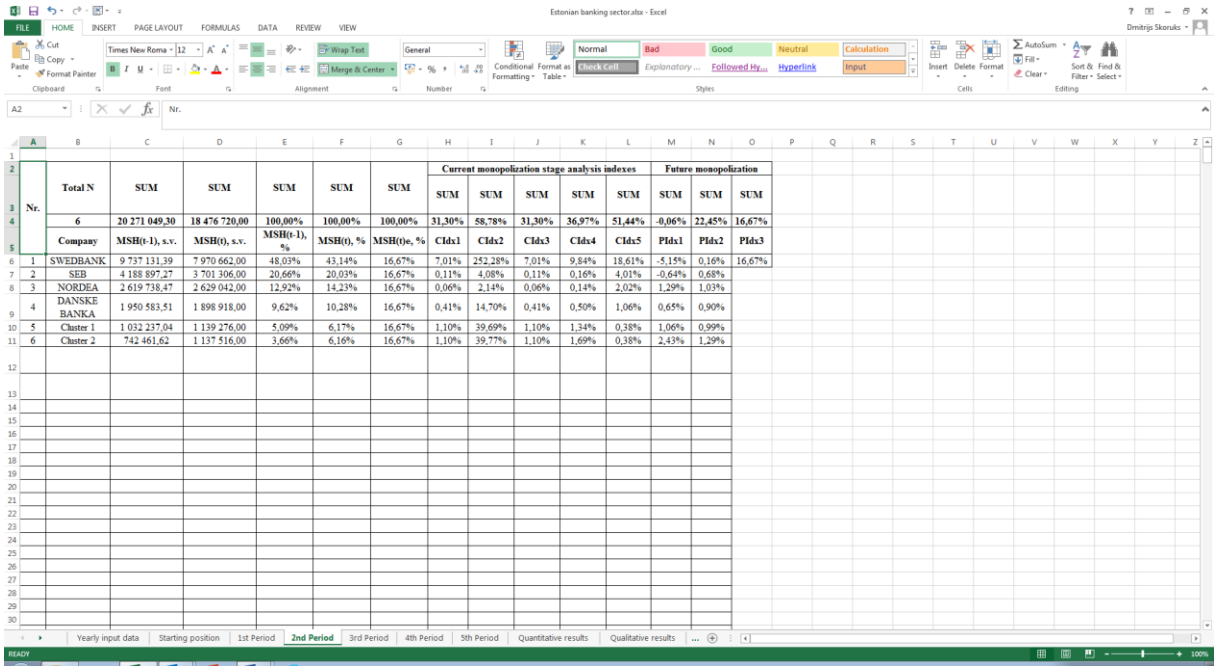
Analysis of monopolisation process progression in the Estonian banking sector: intermediate results (Period 1)



Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	6	20 620 709,93	20 271 049,30	100,00%	100,00%	100,00%	36,97%	82,00%	36,97%	37,96%	55,08%	0,00%	4,35%	20,00%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t)e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	SWEDBANK	10 116 447,02	9 737 131,39	49,06%	48,03%	16,67%	9,84%	354,22%	9,84%	10,49%	23,07%	-1,04%	0,00%	20,00%
2	SEB	4 137 640,13	4 188 897,27	20,07%	20,66%	16,67%	0,16%	5,75%	0,16%	0,12%	4,27%	0,60%	0,05%	
3	NORDEA	2 695 345,95	2 619 738,47	13,07%	12,92%	16,67%	0,14%	5,04%	0,14%	0,13%	1,67%	-0,15%	0,02%	
4	DANSKE BANKA	1 979 982,87	1 950 583,51	9,60%	9,62%	16,67%	0,50%	17,86%	0,50%	0,50%	0,93%	0,02%	0,03%	
5	Cluster 1	1 041 695,96	1 032 237,04	5,05%	5,09%	16,67%	1,34%	48,23%	1,34%	1,35%	0,26%	0,04%	0,03%	
6	Cluster 2	649 598,00	742 461,62	3,15%	3,66%	16,67%	1,69%	60,88%	1,69%	1,83%	0,13%	0,51%	0,05%	

Annex 50

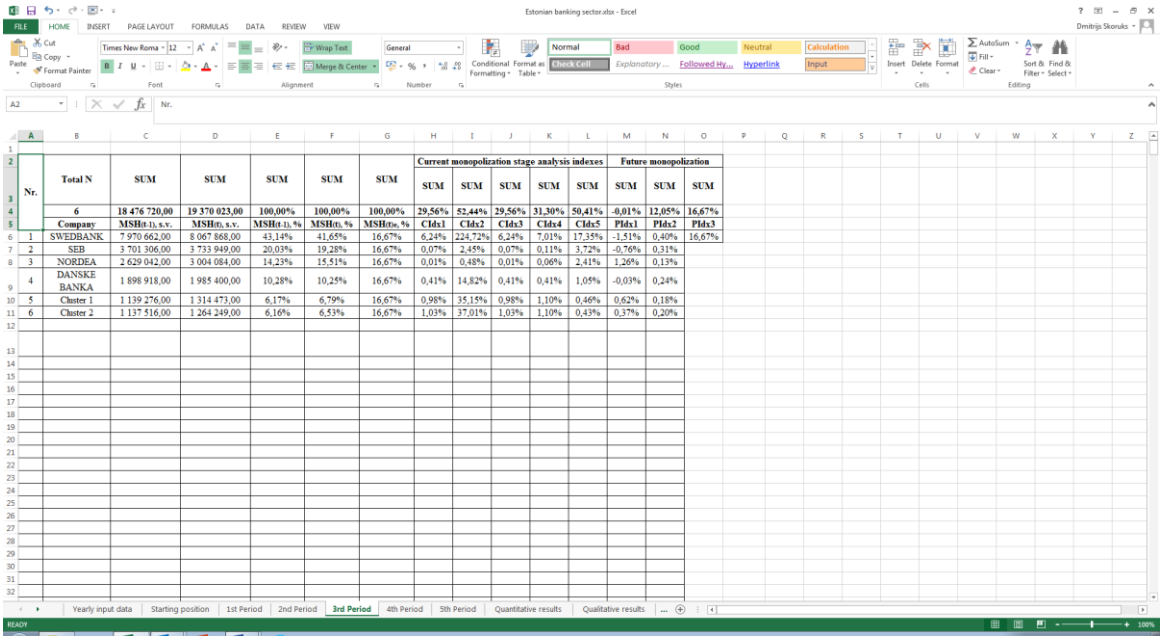
Analysis of monopolisation process progression in the Estonian banking sector: intermediate results (Period 2)



Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	6	20 271 049,30	18 476 720,00	100,00%	100,00%	100,00%	31,30%	58,78%	31,30%	36,97%	51,44%	-0,06%	22,45%	16,67%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t)e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	SWEDBANK	9 737 131,39	7 970 662,00	48,03%	43,14%	16,67%	7,01%	252,28%	7,01%	9,84%	18,61%	-5,15%	0,16%	16,67%
2	SEB	4 188 897,27	3 701 306,00	20,66%	20,03%	16,67%	0,11%	4,08%	0,11%	0,16%	4,01%	-0,64%	0,68%	
3	NORDEA	2 619 738,47	2 629 042,00	12,92%	14,23%	16,67%	0,06%	2,14%	0,06%	0,14%	2,02%	1,29%	1,03%	
4	DANSKE BANKA	1 950 583,51	1 898 918,00	9,62%	10,28%	16,67%	0,41%	14,70%	0,41%	0,50%	1,06%	0,65%	0,90%	
5	Cluster 1	1 032 237,04	1 139 276,00	5,09%	6,17%	16,67%	1,10%	39,69%	1,10%	1,34%	0,38%	1,06%	0,99%	
6	Cluster 2	742 461,62	1 137 516,00	3,66%	6,16%	16,67%	1,10%	39,77%	1,10%	1,69%	0,38%	2,43%	1,29%	

Annex 51

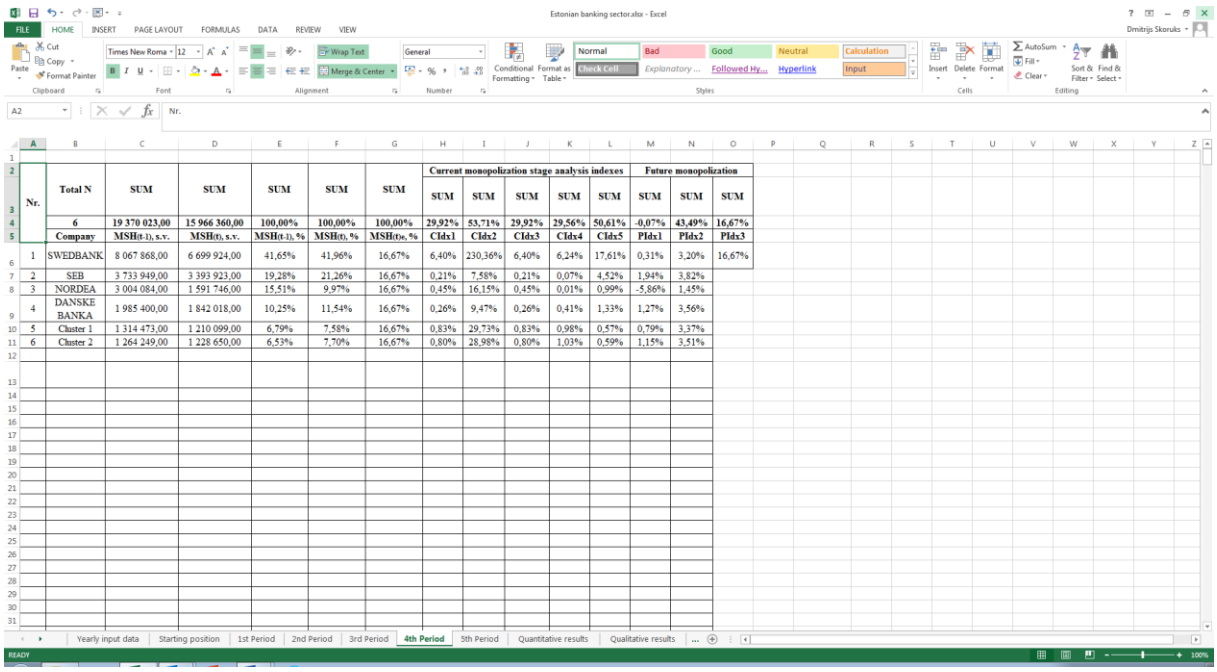
Analysis of monopolisation process progression in the Estonian banking sector: intermediate results (Period 3)



Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	6	18 476 720,00	19 370 023,00	100,00%	100,00%	100,00%	29,56%	52,44%	29,56%	31,30%	50,41%	-0,01%	12,05%	16,67%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t)e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	SWEDBANK	7 970 662,00	8 067 868,00	43,14%	41,65%	16,67%	6,24%	224,72%	6,24%	7,01%	17,35%	-1,51%	0,40%	16,67%
2	SEB	3 701 306,00	3 733 949,00	20,03%	19,28%	16,67%	0,07%	2,45%	0,07%	0,11%	3,72%	-0,76%	0,31%	
3	NORDEA	2 629 042,00	3 004 084,00	14,23%	15,51%	16,67%	0,01%	0,48%	0,01%	0,06%	2,41%	1,26%	0,13%	
4	DANSKE BANKA	1 898 918,00	1 985 400,00	10,28%	10,25%	16,67%	0,41%	14,82%	0,41%	0,41%	1,05%	-0,03%	0,24%	
5	Cluster 1	1 139 276,00	1 314 473,00	6,17%	6,79%	16,67%	0,98%	35,15%	0,98%	1,10%	0,46%	0,62%	0,18%	
6	Cluster 2	1 137 516,00	1 264 249,00	6,16%	6,53%	16,67%	1,03%	37,01%	1,03%	1,10%	0,43%	0,37%	0,20%	

Annex 52

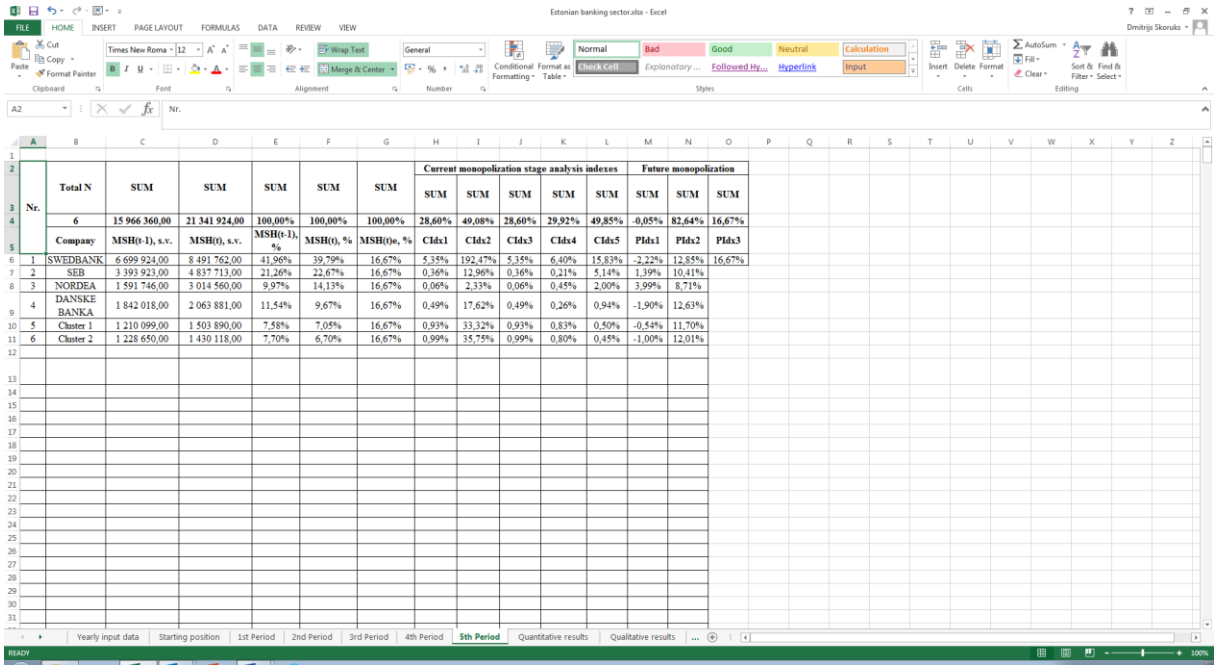
Analysis of monopolisation process progression in the Estonian banking sector: intermediate results (Period 4)



Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	6	19 370 023,00	15 966 360,00	100,00%	100,00%	100,00%	29,92%	53,71%	29,92%	29,56%	50,61%	-0,07%	43,49%	16,67%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t)e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	SWEDBANK	8 067 868,00	6 699 924,00	41,65%	41,96%	16,67%	6,40%	230,36%	6,40%	6,24%	17,61%	0,31%	3,20%	16,67%
2	SEB	3 733 949,00	3 393 923,00	19,28%	21,26%	16,67%	0,21%	7,58%	0,21%	0,07%	4,52%	1,94%	3,82%	
3	NORDEA	3 004 084,00	1 591 746,00	15,51%	9,97%	16,67%	0,45%	16,15%	0,45%	0,01%	0,99%	-5,86%	1,45%	
4	DANSKE BANKA	1 985 400,00	1 842 018,00	10,25%	11,54%	16,67%	0,26%	9,47%	0,26%	0,41%	1,33%	1,27%	3,56%	
5	Cluster 1	1 314 473,00	1 210 099,00	6,79%	7,58%	16,67%	0,83%	29,73%	0,83%	0,98%	0,57%	0,79%	3,37%	
6	Cluster 2	1 264 249,00	1 228 650,00	6,53%	7,70%	16,67%	0,80%	28,98%	0,80%	1,03%	0,59%	1,15%	3,51%	

Annex 53

Analysis of monopolisation process progression in the Estonian banking sector: intermediate results (Period 5)



Nr.	Total N	SUM	SUM	SUM	SUM	SUM	Current monopolization stage analysis indexes					Future monopolization		
							SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	6	15 966 360,00	21 341 924,00	100,00%	100,00%	100,00%	28,60%	49,08%	28,60%	29,92%	49,85%	-0,05%	82,64%	16,67%
	Company	MSH(t-1), s.v.	MSH(t), s.v.	MSH(t-1), %	MSH(t), %	MSH(t)e, %	CIdx1	CIdx2	CIdx3	CIdx4	CIdx5	PIdx1	PIdx2	PIdx3
1	SWEDBANK	6 699 924,00	8 491 762,00	41,96%	39,79%	16,67%	5,35%	192,47%	5,35%	6,40%	15,83%	-2,22%	12,85%	16,67%
2	SEB	3 393 923,00	4 837 713,00	21,26%	22,67%	16,67%	0,36%	12,96%	0,36%	0,21%	5,14%	1,39%	10,41%	
3	NORDEA	1 591 746,00	3 014 560,00	9,97%	14,13%	16,67%	0,06%	2,33%	0,06%	0,45%	2,00%	3,99%	8,71%	
4	DANSKE BANKA	1 842 018,00	2 063 881,00	11,54%	9,67%	16,67%	0,49%	17,62%	0,49%	0,26%	0,94%	-1,90%	12,63%	
5	Cluster 1	1 210 099,00	1 503 890,00	7,58%	7,05%	16,67%	0,93%	33,32%	0,93%	0,83%	0,50%	-0,54%	11,70%	
6	Cluster 2	1 228 650,00	1 430 118,00	7,70%	6,70%	16,67%	0,99%	35,75%	0,99%	0,80%	0,45%	-1,00%	12,01%	

Annex 54

Elasticity of demand dynamics in the selected sector over the timeframe of 2009 – 2012

While implementing the elasticity of demand concept of analysis, a clear understanding of the relevant concepts' advantages and shortcomings must be established in order to focus of the former and mitigate the latter. As it had been elaborately explained in the Section 2.1. of the current Doctoral Thesis, the quantitative core of the analysed method consists of two general elements – the sales price and the corresponding demand amount. Therefore, several vital acknowledgements simultaneously occur: (1) Data on sales prices is quantitatively objective; (2) Data on current sales prices is available on the market; (3) Data on historic sales prices is most likely unavailable and not fully accurate do to the lack of justification for such volatile information storage; (4) Data on sales amounts will greatly differ from source to source as a clear definition of the relevant element will depend of the corresponding analytical framework; (5) Data of sales amounts is most accurately expressed in monetary rather that physical unit terms as enterprises tend to provide wholesome financial statements, based on their operational activity reflection as currency flows, not revealing the inside data of the actual number of product/service units sold within a particular timeframe.

Consequentially, it must be noted that for the purpose of the current research, the elements of sales amount shall be expressed as a certain company's net turnover, acquired in a certain calendar year, while the element of sales prices shall be provided in its de facto form – provided telecommunication service tariff – due to the analytical objectiveness of relevant influence factor.

In order to calculate the elasticity of demand coefficient for each tariff type, statistical weights, reflecting their contribution to operational income acquisition, must be assigned, however, such data is unavailable due to its confidentiality and, furthermore, most likely absence in terms of historical retrospect. Thus, the only analytically objective way to determine the corresponding sales price is to use the simple statistical average method. Such simplification of the evaluation methodology creates fertile ground for statistical error occurrence yet alternative solutions, such as individual elasticity of demand calculation for each provided group of services and their further unification or service assortment individual evaluation will, firstly, incorporate the same simple average principle, which they are expected to avoid, and, secondly, such analysis is quite time-consuming and

lays outside the framework of the currently conducted research and the limitation, set in the introduction to the current Doctoral Thesis.

Using the available market data, a lengthy quantitative processing exercise had been conducted and the acquired results of calculating the demand elasticity coefficient conducted in full accordance with the Formulas (2.12) and (2.13), along with the necessary input information is reflected in the Table below

The dynamics of elasticity of demand in the Latvian mobile telecommunication industry (2010 – 2012)

Supplier	**2010**			**2011**			**2012**		
	Q = net turnover, EUR	**P, EUR**	**|Ed|**	**Q = net turnover, EUR**	**P, EUR**	**|Ed|**	**Q = net turnover, EUR**	**P, EUR**	**|Ed|**
Bite Latvija	38 855,21	5,53	0,43	46 832,98	5,53	0,43	58 160,53	5,53	0,43
Tele2	133 397,26	4,84	2,67	122 876,04	15,03	0,04	118 323,97	14,66	1,52
LMT	178 753,96	5,83	0,23	178 203,31	5,78	0,36	173 735,36	6,86	0,13

As it may be seen from the Table, where the Ed indicator (elasticity of demand coefficient) is reflected in absolute (positive) values, the elasticity of demand of Bite Latvia Company remained relatively inelastic and quite stable in quantitative terms over the period of 2010 – 2012 due to its consistent pricing policy and a clearly outlined service package with each individual offer targeting a specific clientele cluster. As a result, the demand for Bite Latvija remained relatively inelastic as the strategy of brand popularisation, combined with a low – price policy enabled the emergence and consequential strengthening of customer loyalty. On the contrary, the demand for Tele2 mobile telecommunication services had shown a steady tendency of being highly elastic, resulting in sharp net revenue loss in 2010 and 2012 with a divergent results in 2011, which reflect the quantitative imperfections of the currently analysed methodology as a momentous shift from highly elastic to virtually inelastic demand may only occur in case of Veblen goods, while the telecommunication services may under no current economic circumstances be defined as atypical commodities. The same methodological malaise may be seen in the case of LMT as the demand for the mentioned company's services remains relatively inelastic over the reference timeframe, while its market share declined by 3.16% per cent in the context of service package average price increase by 3.27%, by no means reflecting a near – zero elasticity of demand.

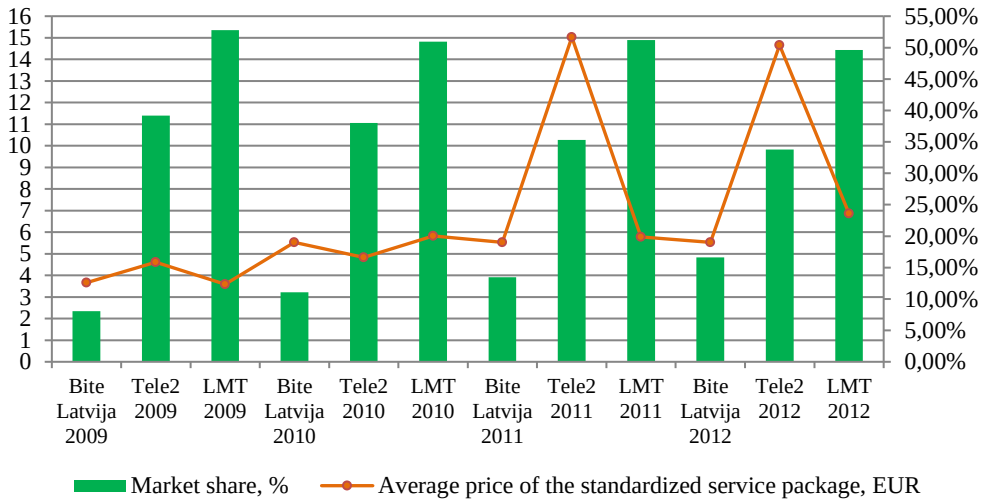
While the acquired outcomes deviate greatly form the expected outputs, the conducted experimental calculation reflects the shortcoming of the analysed method, proving beneficial if time-consuming for the development of the proposed quantitative market monopo0lization level evaluation model. In order to fully assess the practical applicability of the mentioned empirical concept, an industry level elasticity of demand coefficient had been calculated, using individual supplier market shares as statistical weight in order to reflect the district impact each of the companies has on the general price trend of the relevant industry:

Dynamic of general elasticity of demand in the Latvian mobile telecommunication industry (2010 – 2012)

Supplier	**2010**			**2011**			**2012**		
	|Ed|	**Market share, %**	**∑|Ed|**	**|Ed|**	**Market share, %**	**∑|Ed|**	**|Ed|**	**Market share, %**	**∑|Ed|**
Bite Latvija	0,43	11,07%	**1,18**	0,43	13,46%	**0,26**	0,43	16,61%	**0,65**
Tele2	2,67	38,00%		0,04	35,32%		1,52	33,79%	
LMT	0,23	50,93%		0,36	51,22%		0,13	49,61%	

As it may be seen from the Table, the common industry elasticity of demand in 2010 is in the relatively elastic value range, followed by a sharp decline into the relatively non – elastic zone with and as rapid recovery, while still remaining in the same diapason. The uncovered turbulent tendency reflects a decline in demand elasticity over a period of increase in average prices, conducted by Tele2 and LMT enterprises in the context of Bite upholding of an even average pricing level, which is possible only in the case of Veblen and Giffen goods. As mobile telecommunication services fall under neither of the aforementioned types of goods, the uncovered deviation points out a structural inaccuracy in the currently analysed methodology. Therefore, the elasticity of demand concept may be defined as a profound empirically – theoretical methodology, which has a reasonable, although limited applicability in cases of individual enterprise internal strategic planning, while proving to be an inconsistent and volatile tool of industry – level analysis of the prevailing monopolisation trends.

In order to completely justify the inaccuracy of the uncovered tendency, a correlation between individual supplier market shares and their executed pricing policies had been reflected in the below available Figure below:



Dynamics of standardized service package average prices and the corresponding suppliers' market shares in the Latvian mobile telecommunication industry (2009 – 2012)

(Source: developed by the author)

As it may be seen from the Figure above, supplier individual market shares tend to grow, when the standardized service package average prices are in decline et vice versa, indicating a reversely – proportionate correlation between the two involved influence factors, further proving the quantitative inaccuracy, imbedded in the elasticity of demand concept in those particular cases, when the mentioned methodology is applied for practical evaluation of an industry – wide monopolisation process development level analysis.

The conducted analysis had proven to be rigid in terms of its implementation in historic retrospect due to the lack of objective data on prices, sales amounts and the contribution of specific services to the general net revenue configuration even at individual enterprise level, although if a certain business entity possesses the necessary operational data, a screening exercise may be conducted with apparently better outcomes. However, the previously mentioned data is strictly confidential and individually applicable, thus narrowing the application possibilities of the relevant methodology as no competitor inside data is usually available or acquired by legal measures.

Therefore, it may be concluded that the elasticity of demand methodology, while undoubtedly being a respected and economically justified empirical methodology, has severe applicability limitations, based on the transparency and availability of the necessary objective input data and the consequentially occurring high level of statistical errors, while, due to its use of demand amount and sales price elements, having a near full complementarity with the Lerner index in terms of quantitative cohesion.

Lerner index value dynamics in the selected sector over the timeframe of 2009 – 2012

As it has been previously acknowledged in the Section 2.1. of the current Doctoral Thesis, the value range of Lerner index vary between zero and one in scalar units with higher numbers implying greater individual monopoly power. In quantitative terms, the Lerner Index equals the inverse negative price elasticity of demand, assuming that the equilibrium sales price maximizes the involved enterprises profits.

Dynamic of the Lerner index, reflecting the monopolisation level of the Latvian mobile telecommunication industry (2010 – 2012)

Supplier	**2009**		**2010**		**2011**		**2012**	
	|Ed|	**L**	**|Ed|**	**L**	**|Ed|**	**L**	**|Ed|**	**L**
Bite Latvija	-	-	0,43	2,33	0,43	2,33	0,43	2,33
Tele2	-	-	2,67	0,37	0,04	26,65	1,52	0,66
LMT	-	-	0,23	4,43	0,36	2,78	0,13	7,45

As it may be seen from the conducted calculations' results, reflected in Table above, the acquired outcome to a tremendous extend contradict with the theoretical framework of the currently analysed market monopolisation level assessment method. In each year over the chosen reference period at least two suppliers' individual Lerner index's values overlap the theoretically maximum benchmark of one scalar unit, thus uncovering a more than significant deviation from the expected outputs.

The answer to the raised question covers within the very essence of Lerner index, viewed as an economic and not strictly mathematical tool.

The Lerner index describes a complex relationship between price elasticity of demand and marginal prices and does so strictly for a profit – maximizing market entity. Therefore, if the Lerner index may not exceed the minimal and maximum limits, defined as zero and one respectively, then price elasticity of demand may never reflect a value less that minus one or, in other word, absolute value of price elasticity of demand may never fall into the negative scalar range. Such logic, while fully supporting the minimum limits, set in the theoretical background of the Lerner index, clearly contradicts with the maximum limit, as if an elasticity of demand is relatively inelastic, meaning that its scalar value is close to zero, the Lerner index mathematically may exceed the higher limit of one scalar unit. Therefore, the type of demand must differ from the currently used general market type of the relevant definition.

If elasticity of demand is low, the reaction on price increase is less severe, indicating a higher profit generation potential *et vice versa*, meaning that a firm's supply curve becomes more elastic in the corresponding zone.

Thus, it may be stated that the elasticity of demand, used in the empirical Lerner index formula reflect the individual demand of a single enterprise as a company, aimed on profits maximization will never operate along the inelastic segment of its demand curve. While the calculation of Lerner index, based on Formula 2.7. is impossible due to the strict confidentiality of data on individual enterprises marginal costs, the currently used method had proven to be inaccurate for the scope of the current analysis, justifying the argument, regarding contradictions and mutual incompliance of the commonly used methods of market monopolisation level assessment.

Therefore, as the necessary data for the calculation of the Lerner index by employing either Formula 2.7 or Formula 2.8 are classified and unavailable respectively, it may be concluded that the currently analysed method is unsuitable for an industry level assessment of the monopolisation process development stage due to its use of highly confidential information of strictly individual origin, meaning that the Lerner index may be used at the level of distinct enterprises, which have access to objective information regarding their profit maximization price and the configuration of marginal costs, for strategic decision making and in virtually no other circumstance.

Consequentially, it may been quantitatively considered as proven that the Lerner index, while being a most profound empirical concept, is unsuitable for both use in applied modelling in the context of market monopolisation level assessment and the scope of the currently conducted research, consequentially defining its level of complementarity with other methods, analysed in Section 2.3. of the current Doctoral Thesis, as not only equal no zero, but negative, specifically in the case of elasticity of demand analysis due to the occurring deliverance of inaccurate and false results, while combining the use of the two mentioned methods.

Annex 56

Herfindahl – Hirschman index value dynamics in the selected sector over the timeframe of 2009 – 2012

In order to conduct a scientifically objective analysis of the Herfindahl – Hirschman index applicability relevance and efficiency of the delivered results in the context of synergetic compatibility with the methods, previously evaluated in Section 2.3. of the current Doctoral Thesis, a quantitative background must be establishes, enabling the transparent accessibility of the required data.

Due to the methodological specifics of the currently analysed market monopolisation level assessment tool, the Herfindahl – Hirschman index value dynamics must be taken into account in the wider context of individual monopoly power concentration clusters and consequentially calculated, based on the distribution of the total market consumption capacity among the involved suppliers as the individual market shares compose the foundation of monopoly power, while a common timeframe must be established for each of the analysed entities, thus enabling the use of a common statistical denominator. Therefore, a statistical background must be established in order to commence the calculation of the Herfindahl – Hirschman index change in value over a period of four consistent calendar years. The mentioned necessity had been met by developing the below given Table below

Supplier	**2009**		**2010**		**2011**		**2012**	
	Net turnover, thousand of EUR	**Market share, %**	**Net turnover, thousand of EUR**	**Market share, %**	**Net turnover, thousand of EUR**	**Market share, %**	**Net turnover, thousand of EUR**	**Market share, %**
Bite Latvija	31 846,57	8,07%	38 855,21	11,07%	46 832,98	13,46%	58 160,53	16,61%
Tele2	154 475,70	39,17%	133 397,26	38,00%	122 876,04	35,32%	118 323,97	33,79%
LMT	208 072,24	52,76%	178 753,96	50,93%	178 203,31	51,22%	173 735,36	49,61%
Total market capacity	***394 394,51***	**100,0%**	***351 006,43***	**100,0%**	***347 912,33***	**100,0%**	***350 219,86***	**100,0%**

As it clearly may be seen from the Table above, while the Latvian mobile telecommunication industry's internal conjuncture undoubtedly exists in the state of a classic oligopoly, the interchange of individual supplier market shares occurs on a regular basis, reflecting a rather unusual state of affairs for the mentioned market type, as oligopolies generally tend to uphold a static endogenic structure, while the level of competition is low and prices are mostly constant contrast to a dynamic environment of diversification and aggressive marketing campaign in the struggle for addition clientele attraction.

The situation indicates an on-going price war, which is a highly uncommon development in the context of an oligopoly market type, however, proving to be quite beneficial in analytical terms as the current research's focus lies in the field of both progressive and regressive conduction of the process of monopolisation.

Having qualitatively acknowledged the 2009 – 2012 prevailing situation in the Latvian mobile telecommunication industry, it would be most beneficial, in analytical terms, to implement the Herfindahl – Hirschman index as an assessment methodology and provide a quantitative interpretation of the logically deducted state of affairs with the goal of evaluation the efficiency of applying the relevant method for the purpose of analysing the development of the process of monopolisation under the modern market conditions.

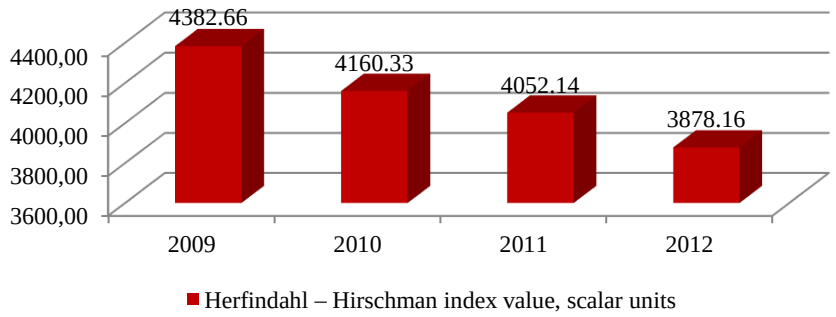
The result of calculating the Herfindahl – Hirschman index according to the formula (2.1) had been reflected in Table below:

Period	**HHI**	**ΔHHI**
2009	4382.66	
2010	4160.33	-222.33
2011	4052.14	-108.19
2012	3878.16	-173.97

According to Horizontal Merger Guidelines of the US Department of Justice and Federal Trade Commission, (U.S. Department of Justice and the Federal Trade Commission 2010, 16-19) the Herfindahl – Hirschman index values, available in the Table above, constantly reflect a "high concentration market", meaning that the unilateral concentration of individual monopoly power in the relevant industry is at an above average level. The data also reflect a trend of the Herfindahl – Hirschman index value to steadily decrease over the entire analytical period, however, the currently evaluated methodology does not provide an opportunity to accordingly address the relevant issue as it merely indicates the current level of market monopolisation in absolute terms, foreseeing a quite vogue qualitative interpretation of the acquired quantitative results, which had been previously elaborately explained in the Section 2.1. of the current Doctoral Thesis.

Furthermore, an oligopoly is by definition a market type with above average, generally – high, level of individual monopoly power concentration, thus the implementation of the Herfindahl – Hirschman index had proven the obvious in both quantitative and qualitative terms.

However, in order to gain full information on the practical applicability of the currently analysed methodology, an assessment of the provided outcome dynamics is in order. Determination of the Herfindahl – Hirschman index relevance for untypical case evaluation and implementing the dynamic series analysis approach as the stress – test conduction tool is presented below:



Herfindahl – Hirschman index value dynamic in the Latvian mobile telecommunication industry (2009 – 2012)

(Source: developed by the author)

As it may be seen from the Figure above, the dynamics of the Herfindahl – Hirschman index value in the currently analysed industry had shown a consistent trend of decreasing over the entire reference periods, reflecting the effect of the triggered by Bite and on – going "price war" as the suppliers are forced to adopt dumping tactics in order to preserve the clientele or at least hamper its decline, thus giving up a portion of their individual market power to both the aggressive newcomer (Bite) and the demand side of the general market equilibrium upholding dialectic bias. Therefore, it may be argued that, while the Herfindahl – Hirschman index is not fully suitable for every possible case objective assessment, its value dynamic provide a far closer analytical scope and, while not providing a fully transparent explanation to the occurring problematic, remains a fairly topical method of market current level of monopolisation basement.

Annex 56

Continuation

While summarizing the results of the conducted experimental implementation of the Herfindahl – Hirschman index with the goal of evaluation the market level of monopolisation of the Latvian mobile telecommunications market, it may be concluded that the analysed method is scientifically accurate and relatively sophisticated tool, fully functional in its intended area of application. However, performs at a below average operational efficiency if implemented in nonstandard situation and cases of obviously high concentrated markets, while simultaneously having a low possibility of mutual intelligible application together with the methods, described in the Section 2.3. of the current Doctoral Thesis, if applied in a linear fashion due to the relevant method's utilization of completely differrent data sets and the corresponding calculation techniques. The greatest strengths of the Herfindahl – Hirschman index is its profoundly high level of adaptability and openness to modifications without irregularity occurrence in its core structure, thus making it one of the most flexible and adaptable quantitative tools of market level of monopolisation assessment, which, however, is currently not integrated with either of the other commonly used methodologies, relevant for the previously mentioned analysis conduction. Consequentially, it may be stated that the Herfindahl – Hirschman index may and should be put to a wider use in terms of quantitative integration of the mentioned methods within the coherent structure of the model, developed over the course of the currently conducted research, while its functionality and especially the scale of output qualitative interpretation is subjected to further improvements in terms of achieving a higher level of specialization and adopting a more detailed approach to evaluation of the acquired results.

Annex 57

Expert opinion questionnaire (template)

EXPERT OPINION QUESTIONNAIRE

Topic: monopolisation process assessment under modern economic conditions

Responding Expert information (please fill the relevant fields):

First Name:_____

Family Name: _____

Current position/office: _____

Former Notable Positions (optional):_____

Education/Scientific degree(s) (optional): _____

Question 1:

In Your professional opinion, does the existing scientific/research literature provide a unified definition of monopolisation as a market process?

☐ Yes

☐ No

Question 2:

In Your professional opinion, is there a methodological consensus among the Classic, the Neoclassic, the French liberal, the Austrian and the Keynesian schools of economic thought on the issue of monopolisation process definition and assessment paradigm of the relevant market phenomenon?

☐ Yes

☐ No

Question 3:

In Your professional opinion, would a comprehensive definition and a unified methodological framework of monopolisation process assessment be of empirical and applicable value in both scientific and practical terms?

☐ Yes

☐ No

Question 4:

In Your professional opinion, would a unilateral and singularized application of the Herfindal – Hirschman index be sufficient to fully and objectively analyse market (power) concentration progression trends, hence constituting an optimal approach of monopolisation process assessment?

☐ Yes

☐ No

Question 5:

In Your professional opinion, would a unilateral and singularized application of the Lerner index be sufficient to fully and objectively analyse market (power) concentration progression trends, hence constituting an optimal approach of monopolisation process assessment?

☐ Yes

☐ No

Question 6:

In Your professional opinion, would a unilateral and singularized application of price elasticity (of demand) ratios be sufficient to fully and objectively analyse market (power) concentration progression trends, hence constituting an optimal approach of monopolisation process assessment?

☐ Yes

☐ No

Question 7:

In Your professional opinion, how mutually compatible and complementary are the Herfindal – Hirschman index, the Lerner index and price elasticity (of demand) ratios? (please choose a corresponding level of mutual compatibility and complementarity and give a short justification)

☐ Very high _____

☐ High _____

☐ Medium _____

☐ Low_____

☐ Very low_____

Question 8:

In Your professional opinion, what statistical data would be the most available (swiftly retrievable), trustworthy and accurate as well as cost-efficient in terms of both time and financial resource allocation, when used to conduct market concentration, market power stratification and monopolistic trend progression analysis/screening tests? (please choose only one answer)

☐ Enterprise turnover/operating income/asset data

☐ Average daily prices

☐ Average monthly prices

☐ Average annual prices

☐ Supplier and client contracts

Question 9:

In Your professional opinion, while considering the globalised nature of modern economic interactions, are market concentration (as well as monopolistic) trends more likely to appear in those markets, which for objective or subjective reasons are less engaged in international trade and have higher new supply-side market actor entry barriers?

☐ Yes

☐ No

Question 10:

Do You agree with the following statement? Monopolisation trends in contemporary small open economies are more likely to emerge in those relevant markets, which have higher entry barriers and are generally less engaged in international and/or regional trade and cross-border economic cooperation. (please choose only one answer)

☐ Fully agree

☐ Generally agree

☐ Partially agree

☐ Do not agree

Question 11:

In Your professional opinion, is the commonly employed market type (monopoly, oligopoly, monopolistic competition, perfect competition, etc.) stratification system complete and is there sufficient "scientific space" for empirical improvement implementation to the mentioned system? (please choose no more than two answers)

☐ The system is absolutely holistic and complete

☐ The system is robust, however it may be improved by enabling a higher level of precision

☐ The system is robust, however it may be improved by adding more market types

☐ The system is robust, however it may be improved by specifying the "sub-types" of the existing general market types

☐ The system is incomplete and nothing may be done to improve its analytical applicability

THANK YOU VERY MUCH FOR YOUR TIME AND INVOLVEMENT!

Date: _____

Signature: _____

Annex 58

List of experts, consulted during the conduction of the research (in alphabetic order by currently occupied position/held office)

1. Advisor of the Latvian Association of Local and Regional Governments Dr. oec. Andra FELDMANE;
2. Analytical Department Director of the Competition Council of the Republic of Latvia Ilze TARVĀNE;
3. Chief Economist of the Czech Competition Authority (Czech Republic) Ing. Marek SMYSL, Ph.D.;
4. Chief Expert in Retail Sector of the Competition Council of the Republic of Latvia Sanita ULJANE;
5. Director of Energy Market and Infrastructure department of the Ministry of Economics of the Republic of Latvia Dr.oec. Olga BOGDANOVA;
6. Economist of the Chief Economist Department at Czech Competition Authority (Czech Republic) Jaroslav BIL;
7. Entrepreneurship development specialist of Mārupe Municipality (Latvia) Dr. oec. Liena ADAMSONE;
8. Executive Director of the Competition Council of the Republic of Latvia Māris SPIČKA;
9. Professor of RISEBA University (Riga, Latvia) Dr. oec. Aleksandrs FEDOTOVS;
10. Senior Expert of the Competition Council of the Republic of Latvia Baiba LAPIŅA;
11. Strategic Planning and Development Manager of the Competition Council of the Republic of Latvia Jūlija LINKEVIČA.

Annex 59

Cumulative summary of expert method application-generated results

	Questions (in descending order) and expert opinion cumulative summary										
Expert opinion cumulative summary (acquired answer stratification)	Q_1	Q_2	Q_3	Q_4	Q_5	Q_6	Q_7	Q_8	Q_9	Q_{10}	Q_{11}
Yes	0,00%	0,00%	100,00%	0,00%	0,00%	0,00%	n/a	n/a	100,00%	n/a	n/a
No	100,00%	100,00%	0,00%	100,00%	100,00%	100,00%	n/a	n/a	0,00%	n/a	n/a
Very high	n/a	n/a	n/a	n/a	n/a	n/a	0,00%	n/a	n/a	n/a	n/a
High	n/a	n/a	n/a	n/a	n/a	n/a	0,00%	n/a	n/a	n/a	n/a
Medium	n/a	n/a	n/a	n/a	n/a	n/a	18,18%	n/a	n/a	n/a	n/a
Low	n/a	n/a	n/a	n/a	n/a	n/a	72,73%	n/a	n/a	n/a	n/a
Very low	n/a	n/a	n/a	n/a	n/a	n/a	9,09%	n/a	n/a	n/a	n/a
Enterprise turnover/operating income/asset data	n/a	n/a	n/a	n/a	n/a	n/a	n/a	100,00%	n/a	n/a	n/a
Average daily prices	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0,00%	n/a	n/a	n/a
Average monthly prices	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0,00%	n/a	n/a	n/a
Average annual prices	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0,00%	n/a	n/a	n/a
Supplier and client contracts	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0,00%	n/a	n/a	n/a
Fully agree	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	72,73%	n/a
Generally agree	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	27,27%	n/a
Partially agree	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0,00%	n/a
Do not agree	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0,00%	n/a
The system is absolutely holistic and complete	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0,00%
The system is robust, however it may be improved by enabling a higher level of precision	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0,00%
The system is robust, however it may be improved by adding more market types	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	72,73%
The system is robust, however it may be improved by specifying the "sub-types" of the existing general market types	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	100,00%
The system is incomplete and nothing may be done to improve its analytical applicability	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0,00%

Q_i – *Question*$_{nr}$;

n/a – *not applicable* – the answer is not relevant to the corresponding question.

Annex 60

Protocol extract of the focus group meeting and discussion session (in Latvian language)

IZRAKSTS

RTU Būvuzņēmējdarbības un nekustamā īpašuma ekonomikas institūts
Uzņēmumu, iestāžu un organizāciju pārstāvju
darba grupas sēdes

PROTOKOLS Nr.1

Rīgā

2017.gada 19.jūnijā.

Mērķa grupa: uzņēmumu, iestāžu un organizāciju pārstāvji
Dalībnieku skaits: 15
Ilgums: 2 stundas
Norises vieta: Rīga
Tematika: 1. Definīciju *monopolvara (angļ. monopoly power), monopolizācijas process (angļ process of monopolisation) un pilnīgs monopols (angļ full monopoly)* noteikšana un izmantošana monopolizācijas procesa metodoloģiskajā novērtēšanā mūsdienu ekonomikas apstākļos.

2. *Monopolizācijas procesa novērtēšanas mūsdienu ekonomikas apstākļos metodoloģijas* izstrādes nepieciešamība, metodoloģiskie risinājumi un tās aprobācija mūsdienu tautsaimniecības vidē.

Moderators: Dmitrijs Skoruks - RTU Būvuzņēmējdarbības un nekustamā īpašuma ekonomikas institūts
Dalībnieki:
Aleksandrs Švaikovs – SIA "Orocon" vadītājs;
Andra Zencaka - Rīgas Valsts tehnikuma Tālākizglītības nodaļas vadītāja;
Āris Ādlers - Biedrība "Latvijas Zaļā kustība", projektu vadītājs
Baiba Pļaviņa - Latvijas namu pārvaldnieku ģilde, pārstāve;
Daina Silakalne-Arāja – Biedrība "Savai pilsētai" pārstāve;
Edgars Pudzis - VSIA "Kultūras un sporta centrs "Daugavas stadions" stratēģiskās plānošanas un attīstības konsultants
Inesa Pavlova - RTU Uzņemšanas komisijas Atbildīgā sekretāra vietniece;
Iveta Puķīte, SIA "Ādažu namsaimnieks", Apsaimniekošanas projektu vadītāja
Iveta Stāmure – SIA "Cēres nami", konsultants nekustamā īpašuma pārvaldīšanas un apsaimniekošanas jautājumos, RTU Būvuzņēmējdarbības un īpašuma vērtēšanas, darījumu un apsaimniekošanas kompetences centrs (BUIK)
Jānis Viesturs - SIA "Pastorāts", Projektu vadītājs
Jekaterina Nazarova - "Dukascopy Bank" SA, ekonomiste;
Nikolajs Rauza – SIA "Apdrošināšanas darbnīca", līdzīpašnieks
Ņikita Kočanovs - SIA "Oberon", valdes loceklis, tehniskais direktors;
Renāte Muskate - AS "Citadele", nekustamā īpašuma vērtētāja.
Tatjana Tambovceva - RTU Būvuzņēmējdarbības un nekustamā īpašuma ekonomikas institūts, profesore.

Protokolē: Iveta Stāmure - RTU Būvuzņēmējdarbības un īpašuma vērtēšanas, darījumu un apsaimniekošanas kompetences centrs (BUIK)

Annex 60

Continuation

Klausījās Dmitrija Skoruka ziņojumu:

1. Par pētījumu saistībā ar definīciju *monopolvara (angļ. monopoly power), monopolizācijas process (angļ process of monopolisation) un pilnīgs monopols (angļ full monopoly)* izmantošanu monopolizācijas procesa metodoloģiskajā novērtēšanā mūsdienu ekonomikas apstākļos, to teorētiskajām un zinātniskajām atziņām, to praktiskās aprobācijas iespējām un aprobācijas veikšanu praksē.
   Fokusgrupa tiek iepazīstināta ar definīcijām (angļu valodā).

Monopoly power is the ability to influence the composition of market conjuncture and conduct of the competition – related processes with the goal of achieving certain individually required outputs and, if the above-mentioned degree of influence is sufficient, desired outcomes, rooting from the exercised supplier long – term control over income flows, deriving from a cluster of solvent demand amount, commonly referred to as the enterprise's individual market share.

The process of monopolisation is an industry – wide or sectorial economic process of supplier individual market share consolidation, caused by either internal (conjecture) or external (trend) influence factors, followed by directly – proportionate growth in monopoly power of the process – involved individual suppliers.

Full monopoly is an extreme case of monopoly power concentration, achieved via fully – conducted and effectively concluded process of monopolisation, enabling a certain enterprise to eliminate all efficient competition and deprive new potentially successful competitors from engagement in economic interaction within a certain industry or market, leading to a de facto rise in the level of prices through customer alternative consumption opportunity deprivation.

Diskusijās un debatēs piedalījās visi fokusa grupā iesaistītie dalībnieki (*balsošanas rezultāti:* vienbalsīgi).

Lēmums:

1) **Atbalstīt** definīciju *monopolvara (angļ. monopoly power), monopolizācijas process (angļ process of monopolisation) un pilnīgs monopols (angļ full monopoly)* izmantošanu monopolizācijas procesa metodoloģiskajā novērtēšanā mūsdienu ekonomikas apstākļos, saglabājot piedāvātos formulējumus un apstiprinot tos šādi:

   Monopoly power *is the ability to influence the composition of market conjuncture and conduct of the competition – related processes with the goal of achieving certain individually required outputs and, if the above-mentioned degree of influence is sufficient, desired outcomes, rooting from the exercised supplier long – term control over income flows, deriving from a cluster of solvent demand amount, commonly referred to as the enterprise's individual market share.*

   The process of monopolisation *is an industry – wide or sectorial economic process of supplier individual market share consolidation, caused by either internal (conjecture) or external (trend) influence factors, followed by directly – proportionate growth in monopoly power of the process – involved individual suppliers.*

   Full monopoly *is an extreme case of monopoly power concentration, achieved via fully – conducted and effectively concluded process of monopolisation, enabling a certain enterprise to eliminate all efficient competition and deprive new potentially successful competitors from engagement in economic interaction within a certain industry or market, leading to a de facto rise in the level of prices through customer alternative consumption opportunity deprivation.*

2. Par *monopolizācijas procesa novērtēšanas mūsdienu ekonomikas apstākļos metodoloģijas* izstrādes nepieciešamību, piedāvātajiem metodoloģiskajiem risinājumi un to aprobācija mūsdienu tautsaimniecības vidē.

Fokusgrupa tiek iepazīstināta izstrādāto monopolizācijas procesa novērtēšanas metodoloģiju mūsdienu ekonomikas apstākļos. **Monopolizācijas procesa novērtēšanas metodoloģijas mūsdienu ekonomikas apstākļos** aprobācija izpaužas nodrošinot efektīvu monopolizācijas procesa analīzi; efektīvu tirgus struktūras, konjunktūras un koncentrācijas līmeņa analīze, tirgus tipoloģiskās piederības un veida noteikšanas procesa sistematizācija, optimizēšana un efektivizēšana; pilnveidotas tirgus tipoloģiskās stratifikācijas sistēmas izstrāde un ieviešana praksē; valsts un uzņēmēju, organizāciju tirgus analīzes un pētniecības veicināšana un attīstības sekmēšana; pētījumu veikšana un plānošana kā valsts, tā neatkarīgo valsts organizāciju vai vairāku nozaru komersantu līmenī; pētījuma rezultātus izmantojot akadēmiskajos studiju kursos tirgus ekonomikas un rīcībpolitikas jomā, nacionālās konkurences iestādes praktiskajā ikdienas darbā.

Diskusijās un debatēs piedalījās visi fokusa grupā iesaistītie dalībnieki (*balsošanas rezultāti:* vienbalsīgi).

Lēmums:

1) Tā kā **Monopolizācijas procesa novērtēšanas metodoloģijas mūsdienu ekonomikas apstākļos** nepieciešamību nosaka teorētisko pamatu un praktisko darbību attīstības konkurences ekonomikas un tirgus struktūras analīzes jomās, veidojot principu, metožu, risinājumu, formu un organizācijas līdzekļu kopumu tirgus konjunktūras un tās monopolizācijas pakāpes vērtēšanā, tās **aprobācija ir atzīstama par pietiekamu.**
2) **Atbalstīt Monopolizācijas procesa novērtēšanas metodoloģijas mūsdienu ekonomikas apstākļos** ieviešanas **metodoloģiskos risinājumus** valsts, tai skaitā uzraugošo iestāžu, nevalstiskajās organizācijas un privātās komercdarbības uzņēmumos visā Latvijas teritorijā.

Moderators:	oriģinālparaksts	Dmitrijs Skoruks
Protokoliste	oriģinālparaksts	Iveta Stāmure

IZRAKSTS PAREIZS
Būvuzņēmējdarbības un nekustamā īpašuma ekonomikas institūta
Mācību biroja vadītāja, Mg.oec.

oriģinālparaksts Iveta Stāmure
Rīgā, 2017.gada 19.jūijā

Annex 60

Continuation

IZRAKSTS

Pielikums protokolam Nr. 1
2017.gada 19.jūnijā.

RTU Būvuzņēmējdarbības un nekustamā īpašuma ekonomikas institūts
Uzņēmumu, iestāžu un organizāciju pārstāvju
darba grupas sēde

Dalībnieku saraksts

Aleksandrs Švaikovs	oriģinālparaksts	Renāte Muskate	oriģinālparaksts
Andra Zencaka	oriģinālparaksts	Tatjana Tambovceva	oriģinālparaksts
Āris Ādlers	oriģinālparaksts		
Daina Silakalne-Arāja	oriģinālparaksts		
Baiba Pļaviņa	oriģinālparaksts		
Edgars Pudzis	oriģinālparaksts		
Inesa Pavlova	oriģinālparaksts		
Iveta Puķīte	oriģinālparaksts		
Iveta Stāmure	oriģinālparaksts		
Jānis Viesturs	oriģinālparaksts		
Jekaterina Nazarova	oriģinālparaksts		
Nikolajs Rauza	oriģinālparaksts		
Ņikita Kočanovs	oriģinālparaksts		

IZRAKSTS PAREIZS
Būvuzņēmējdarbības un nekustamā īpašuma ekonomikas institūta
Mācību biroja vadītāja, Mg.oec.

oriģinālparaksts Iveta Stāmure

Rīgā, 2017.gada 19.jūijā