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ESTIMATION OF COMPANY VALUE IN CIRCUMSTANCES OF CHANGING ECONOMIC ENVIRONMENT

Summary of Doctoral Thesis

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GENERAL DESCRIPTION OF THE THESIS

Relevance of the theme and its description

After regaining independence Latvia has undergone a complicated period of political, social and economic development to transform from a totalitarian political and economic regime to a democratic State. In the course of this period as a result of economic reforms, Latvia has achieved a leading position in the Eastern European region and rapidly approaches the indicators of developed countries in Europe. This has allowed Latvia to become a market economy country, with a with favorable and safe macro-economic environment which is stimulating for economic development and investment.

Investment is one of most important aspects of the country's economic development which is currently being specifically addressed by the government of the Republic of Latvia. As investment is promoted, so fiscal and monetary politics are improved. The country's macro-economic and industry indicators show the successful development of enterprises in our country.

An enterprise is one of the most important elements of the economy system and it determines welfare and development. The enterprise becomes the object of investments only when it has an adequate form of entrepreneurship, its financial indicators are compliant with international criteria, it has professional managers, predictable development possibilities and its present value is available. The valuation of an enterprise is one of the most important elements of the investing process and its quality not only determines the volume of investment and its terms, but also the future strategy of the enterprise and prospects for its development.

The market economy and existence of private property creates the necessity for the valuation of property. The valuation is an estimate of the value of certain property in particular market circumstances and at a particular time.

A valuation is necessary:

• For investment activity to clarify the value of the investment target and to enable investment efficiency calculations.

• For transactions of buying and selling capital shares, to calculate the value of capital shares.

• For the event of enterprise mergers and divisions.

• For the liquidation of enterprises.

• In the process of privatization, to calculate the value of the property to be privatized.

• For auctions to set the initial price of the object and so forth.

Today in strategies for enterprises, more and more frequently one can find such terms as "value-based approach to company management", "value managers", "value promoters" and "economic value added". All these terms are related to a single aim - estimation of the company's value and its further increase. In many countries with developed economies (for example, USA, United Kingdom and Germany) the influence of shareholders to the value of a company has decreased, and generally it is in the hands of a company's management. To allow shareholders to learn about the efficiency of invested capital more frequent valuation of the company is necessary.

In developed markets for instance, such as Western Europe, USA and Japan, the valuation of a company is a well refined and developed process. In the United States of America, which is the model of a highly developed and efficient financial market, the use

of known company valuation methods (for example, discounted cash flow method) is common among practitioners. There are no uncertainties among academics and practitioners in relation to many issues of valuation - for instance such as how to select the mark-up of a particular market risk, or how precise the financial indicators method is in comparison with the discounted cash flow analysis. These problems become relevant in circumstances of a changing economic environment attributed to current economic conditions of Latvia. A market which features fluctuations makes the task of valuation even more complicated, because reliable financial information about the particular market is lacking, the *risk-free* investment indicator for this market is volatile, and the small volume of securities transacted does not allow to adequately appreciate the results of the valuation. Developing and new markets, which also include the Baltic States, have a changing economic environment. Evidence of this is the macro-economic and micro-economic indicators of these regions, which prove that this is an attractive area for activity both for investors, managers, and entrepreneurs, by offering new opportunities for development. In the 20^{1} century these economies started to turn to external trade and investment. During recent years the Eastern European region has been subject to considerable inflow of direct investment. These economies have been liberalized, deregulated, and stabilized their financial markets and restructured their enterprises. Mergers and acquisitions of enterprises, and the number of joint ventures and strategic alliances have considerably increased in these markets. These factors have intensified demand for enterprise valuation methods appropriate for the new circumstances. Newly-formed economies offer numerous opportunities for investors. As these markets open for international trade and investments they experience economic change. On the basis of statistical data of the last 5 years the following can be concluded:

- Industry structure is undergoing radical change.
- Demand is growing rapidly.
- Flow of foreign and domestic investment to the economy.
- Redistribution of resources are repeated. Company assets transfer to more skillful managers who are able to gain higher profits in a changing a economic environment.
- The number of company mergers and acquisitions increases by providing new stimulus to stock markets.

  In a market which features fluctuations, its international direction makes the task of valuation more complicated because:
- Reliable financial information about the future market is lacking.
- The market's *risk-free* indicator is difficult to identify.
- State risk must also be included in the valuation model.
- Mark-up of market risk must be specified.
- It is difficult to determine value of capital in a country without stock markets.
- No statistics of abnormal risk and transactions are available.

It is important for companies which operate in such conditions that adequate valuation methods are accessible. Successfully developed mechanisms for companies and their asset appraisal become important for entrepreneurs, managers, investors and banks - all who are involved in these transactions, need such mechanisms.

It is essential for the economy to have at its disposal adequate valuation methods appropriate for its specific conditions. Because the future markets are not so mature (thus less effective than developed markets from a financial perspective), use of traditional valuation methods (created mainly for developed countries) is limited.

In the last five years rapid changes have occurred in the world's economy and politics, which had not yet been experienced in history. Under the influence of

internationalization and globalization the economic environment and its space have become smaller, more dynamic, more changing, less safe and internally integrated. This leads to the certainty that using a valuation method and understanding of value which is only ten years old, there is a considerable probability of mistakes when estimating value of an advanced enterprise. This doctoral thesis provides a wide reflection of up-to-date value categories and understanding of value, which is substantiated by practical examples, proposals and conclusions.

This doctoral thesis analyzes the most important sources of a company's value, reviews aspects of a company's valuation and value increases, and provides proposals for the development of *"a valuable enterprise"* in circumstances of a changing economic environment.

By using integrated information sources and personal experience, a modified set of methods of estimating a company's value has been established which is examined and customized to circumstances of a a changing economic environment, as well proposals have been drafted on how to increase the company's value in a changing economic environment. Completed research reflects the peculiarities of business activity of Latvia's enterprises and its implications on value.

Upon development of this doctoral thesis the conclusion was that in Latvia there are no publications for applying company valuation methods to circumstances of a changing economic environment, and how to increase a company's value when working in such conditions.

Aim and tasks of the thesis

The aim of the doctoral thesis is to define the terms of a changing economic environment; develop a methodology and guidelines for a company valuation which are adjusted for use in circumstances of a changing economic environment. Based on the methodology developed, to formulate proposals for increasing a company's value in circumstances of a changing economic environment.

The following tasks are defined to achieve the set aim:

1) Determine the features of a changing economic environment;

2) Clarify the value sensitive aspects in circumstances of a changing economic environment and execute their analysis;

3) Investigate the characteristics and difficulties of a changing economic environment, which are encountered by financial specialists when estimating the company's value in these conditions;

4) Investigate the current world's experience in estimating the company's value and its increase.

5) Summarize, classify and analyze the company valuation methods used in current world's practice and their suitability to circumstances of a changing economic environment.

6) Develop a new method of company valuation which would be suitable for application in circumstances of a changing economic environment.

7) Investigate the structure of the valuation method of "a changing environment model" and provide proposals for further improvement of this method and increase of the company's value.

8) Execute research which would reflect the peculiarities of business activity of Latvia's enterprises and their implications to value.

Research methods

In development of the doctoral thesis the generally accepted quantitative and qualitative methods of economic research have been used. This academic thesis uses Latvia's and foreign statistical data, unpublished information sources of various State and non-governmental institutions, material of scientific conferences and seminars, and conclusions gained from these as well as the author's experience in company valuation and increase of its value. The thesis applies methods of synthesis and analyses, logically constructive methods, as well as mathematically statistical and hierarchy analysis methods. Subjective evaluation and mathematical examination methods have been applied in reviewing results.

Scientific uniqueness of the doctoral thesis

1) Based on the latest world's experience in company valuation, the methodology of company valuation has been developed for circumstances of a changing economic environment, which in the framework of calculations, provides inclusion of additional risk and specific adjustment of cash flows.
2) The terms of a changing economic environment have been defined and its influencing factors have been determined, from which the most important are:

- Demand;
- Current and future earnings of the evaluated enterprise;
- Costs of formation comparable enterprises;
- Demand and supply relationship of comparable objects;
- Risk related to income gained;
- Possibilities for the control of the company's operations and asset liquidity level;
- Environment of the company's operations.

3) Analysis of uncertainty and risk factors has been developed and economically substantiated, and its influence on a company's value, as well as the measurement of these factors adjusted to circumstances of an economic environment.
4) Examination and classification of current company valuation methods have been conducted which allow shortcomings to be revealed of current valuation methods, and provide opportunities for new improvements which are adjusted for their use in circumstances of a changing economic environment.
5) Basic principles of company valuation have been developed for circumstances of a changing economic environment which fall in three groups:

- Principles which are based on owners' conceptions of value,
- Principles related to property use;
- Principles envisaged for operation in a market environment.

6) Proposals for the increase of a company's value have been developed for circumstances of a changing economic environment.
7) Selection and classification of factors influencing the company's value have been conducted.
8) Research of specifics of business activity of Latvia's enterprises has been executed and its implication on their value.
9) Explanatory vocabulary of terms most frequently used in valuation practice' has been developed.

Practical application of the thesis

Conclusions of the scientific research have provided opportunities for investors (SA *Impel),* shareholders *(Hali Holdings* Ltd., *Serviks Riga* Ltd., *Laipa Serviss* Ltd.), company managers and valuation experts *(BDO Invest Riga* Ltd.) for a more qualitative and precise estimate of a company's value in circumstances of uncertainty and a changing economic environment.

Based on results of the research, the author has developed an up-to-date methodology of company valuation which, during the time period from the year 2000 to 2004, has been successfully applied in the operations of the investment company *Hali Holdings* Ltd. During this time, by using the method of "a changing environment model" examination of several investment projects has been conducted and their implementation both in Latvia and abroad (in Poland, Ukraine, Belarus, and China). The most successful are possibly those of *Hali Holdings* Ltd. daughter companies:

- *Uzņēmumu vadības ekspertu birojs* Ltd - Company Management Experts' Office (Latvia),
- *Matext Industries* Ltd. (Latvia) and
- establishment of *Sp.zo.o. Matadoor* (Poland) as well as the purchase, process of value increase and selling of companies:
- *Serviks Riga* Ltd.,
- *Laipa Serviss* Ltd. and
- *Karajavotu avoti* Ltd. (Royal Springs), as a the result of which *Hali Holdings*

Ltd., in a short time period, by using intellectual capital and up-to-date management technologies, has been able to ensure for its shareholders a return on invested capital which considerably exceeds average indicators of the industry. In the course of work the gained findings have been used in the development of a "Strategic management program" and a "Personnel management and motivation program" in the companies: JSC *Emblēmu Paklāju Serviss* (Label Carpet Service), *Betons* TT Ltd. (Concrete TT), *Kalna Rauduvītes* Ltd., *Tīrības Nams* Ltd. (Cleaning House) and others.

Scientific publications and lectures in conferences

Generally accepted scientific publications, which have been published in
various scientific issues:

1) *Sabulis R.* Development Trends of Today's Company Strategic Management. // International scientific conference. Economy and Entrepreneurship. Theory and Practice. Scientific publications. // Riga, March 2001 - R.:"RTU" 2001, pages 112-120.
2) *Sabulis R.* Value-based Approach to Development of Agricultural Companies.//International scientific conference. Opportunities of Rural Development and Solutions at the beginning of the 21st century. Scientific publications. //Jelgava, April 2002 - J.:"LLU" 2002, pages 368-374.
3) *Sabulis R.* Entrepreneurship and its Legal Environment.//International Scientific Conference. Current Problems of Economic Globalization. Scientific publications.//Riga, May 2002 - R.:"LU" 2002, pages 226-279.
4) *Sabulis R.* Specifics of Estimation of Company Value in Latvia.// Entrepreneurship and its Legal Environment. International Scientific

Conference. Scientific publications. //Riga, 12 April 2002 - R.: "Biznesa augst-skola Turība" 2002, pages 242.-249.

5) *Sabulis R., Zvanītājs J.* Increasing in Company Value by Using "Value-based Approach to Management.//International scientific conference devoted to 35th anniversary of the Faculty of Engineering Economics. Economic and Education Problems Today. Scientific publications.//Riga, May 2002 -R.:"RTU" 2002, pages 95.-105.

6) *Sabulis R.* Importance and problems of valuation of Latvian companies in emarging market conditions. Economic and entrepreneurship. Entrepreneurship and management. Scientific publications.//Riga, May 2002 -R.:"RTU" 2004, pages 88.-96.

Presentations at scientific conferences:

1. Value-based Approach in the Development of Agricultural Companies.//International scientific conference. Opportunities of Rural Development and Solutions at the beginning of the 21st century. Lecture themes. //Jelgava , April 2002 - J.:"LLU" 2002.
2. Specifics of Estimation of Company Value in Latvia.// Entrepreneurship and its Legal Environment. International scientific conference. Lecture themes .//Riga, 12 April 2002 - R.: "Biznesa augstskola Turība" 2002.
3. Increasing Company Value by Using a "Value-based Approach to Management".//43[r] International scientific conference. Engineering Economics and Development of Economy. Lecture themes.//Riga, October 2002 - R.:"RTU" 2002, page 17.
4. Increasing Company Value by Using "Value-based Approach to Management".//International scientific conference devoted to 35th anniversary of the Faculty of Engineering Economics. Economic and Education Problems Today. Lecture themes.//Riga, 17 May 2002 -R.:"RTU" 2002, page 50.

Structure and extent of the thesis

The doctoral thesis is comprised of 4 sections and 23 sub-sections. The thesis has been executed on 196 pages of printed text, excluding annexes. The research contains 50 tables, 18 figures, 2 schedules, 6 examples and 16 annexes, which explain and describe the contents of the thesis.

More than 110 various information sources have been used in the development of the scientific thesis, which have been indicated on the list of literature. The doctoral thesis has the following structure:

I. DEFINITION OF THE TERMS OF A CHANGING ECONOMIC ENVIRONMENT (CEE) AND REVIEW OF THE TERMS OF VALUE

1.1.Definition of the terms of a changing economic environment.
1.2.Definition of the terms, of a company's valuation and specification of valuation objects.
1.3.Conditions of value creation in a changing economic environment.
1.4.Selection and classification of value influencing factors.
1.5.Definition of the aims of a company's valuation in circumstances of a changing economic environment.
1.6.Basic principles of a company's valuation and their application in circumstances of a changing economic environment.

1.7. Specifics of a company's valuation in circumstances of a changing economic environment.

II. ANALYSIS OF METHODS OF ESTIMATING A COMPANY'S VALUE AND OPPURTUNITIES FOR THEIR APPLICATION IN CIRCUMSTANCES OF A CHANGING ECONOMIC ENVIRONMENT

2.1. Classification and application of valuation methods used today.

2.2. Opportunities for the application of an income approach in valuation of a company in circumstances of a changing economic environment.

2.3. Opportunities for the application of a comparative approach in valuation of a company in circumstances of a changing economic environment.

2.4. Opportunities for the application of a cost approach in the valuation of a company in circumstances of a changing economic environment.

2.5. Valuation of separate parts of a company in circumstances of a changing economic environment.

2.6. Selection of the basic method in valuation in circumstances of a changing economic environment.

2.7. Selection of an approach to valuation in circumstances of a changing economic environment.

III. USE OF A "CHANGING ENVIRONMENT MODEL" (CEM) METHOD IN ESTIMATING A COMPANY'S VALUE

3.1. *First stage.* Determination of possible cash flow options.

3.2. *Second stage.* Prognosis of cash flows for the prognosis period and final period.

3.3. *Third stage.* Adjustment of cash flows according to CEE specifics.

3.4. *Fourth stage.* Estimating equity capital cost.

3.5. *Fifth stage.* Determining the discount rate.

3.6. *Sixth stage.* Estimating a company's final value.

IV. APPLICATION OF A "CHANGING ENVIRONMENT MODEL"(CEM) METHOD IN ESTIMATING A COMPANY'S VALUE

4.1. Application of a "Changing environment model" method when estimating the value of SERVIKS RIGA Ltd.

4.2. Opportunities for further improvement of the "Changing environment model" method.

4.3. Specifics of business activity of Latvia's enterprises and its implication on their value.

In the introduction to the thesis the relevance of the theme has been explained, the aims and tasks of the thesis determined, methodology of the research described, scientific uniqueness revealed and a description of the practical application of the thesis provided. The conclusion of the thesis consists of a vocabulary of terms used in the valuation, conclusions and proposals, and a list of references and annexes.
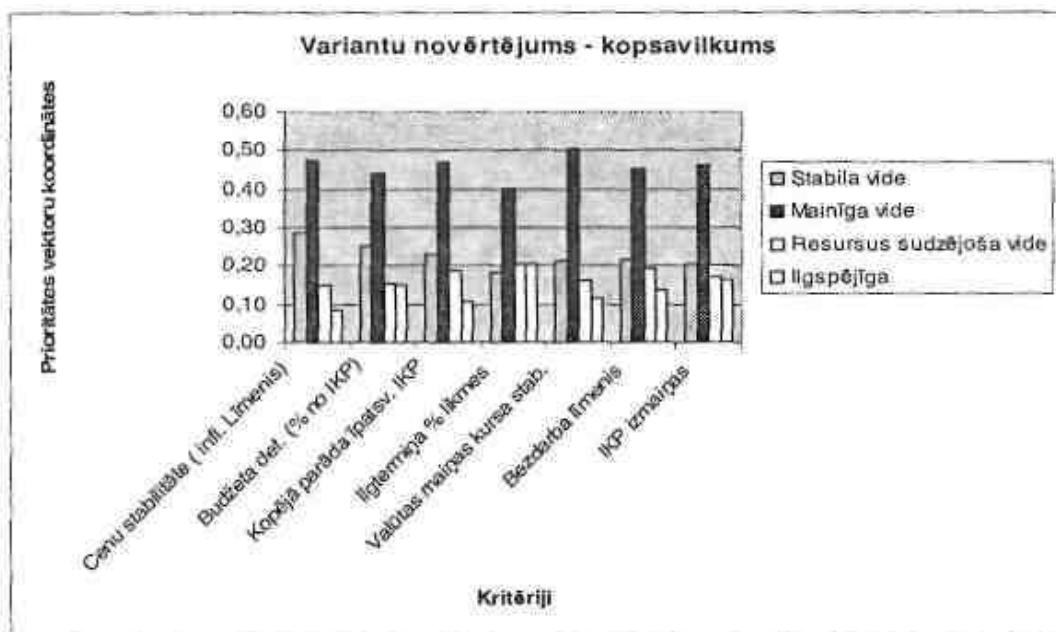
Main scientific developments of the thesis

Based on the latest world's experience in company valuation, the doctoral thesis provides a developed company valuation methodology for circumstances of a changing economic environment, and the term a "changing economic environment" has been defined. The research develops an analysis of risk factors and their influence on a company's value as well as the accommodation of measurements of these factors for circumstances of a changing economic environment. These have great importance in a company's valuation in circumstances of uncertainty and a changing economic environment. In the course of this doctoral thesis basic principles of company valuation have been developed for circumstances of a changing economic environment which has great practical importance in company valuations.

Theoretical conclusions attained in the course of the development of this thesis have been applied in practice when examining various investment projects and valuing companies. The main scientific developments of the thesis are:

1. To specify features of a changing economic environment and define the term a changing economic environment', the thesis includes research by using the *Method of hierarchy analysis.* The main output of the research is reflected in Tables 1 and 2 as well as in Figures 1 and 2.

2. Considering definitions for a *changing economic environment* offered by various authors (see Table 2), and research results on the characteristics of an economic environment, the author has developed a new definition and has concluded that *a changing economic environment* is set of economic phenomena which is not constant and changes over the process of economic development. This is distinct, where combinations of economic factors begin influencing the economic process which determines unstable economic relations in the field of manufacturing and consumption.
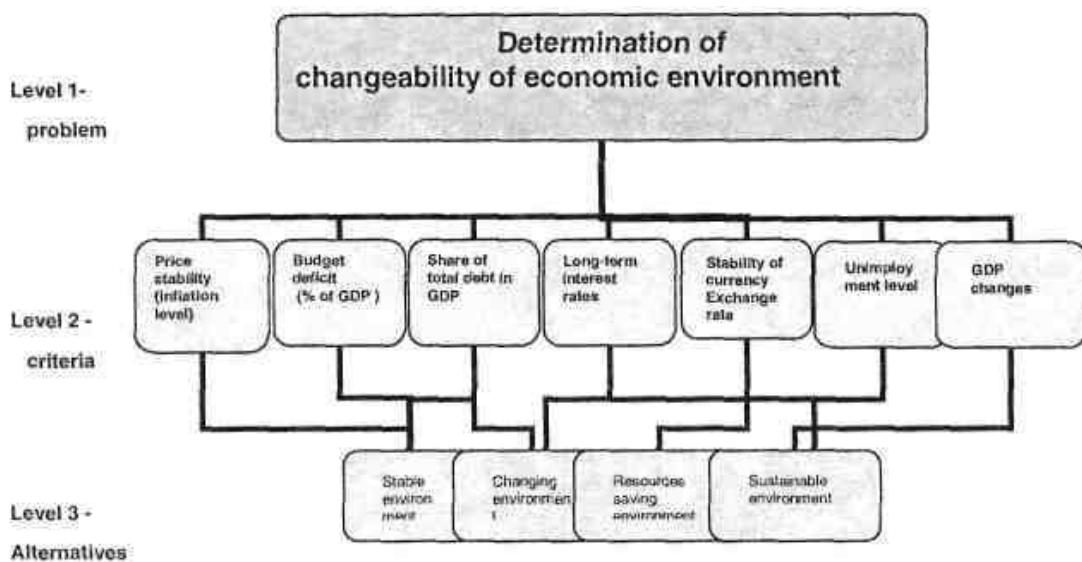
    A changing economic environment is characteristic of uncertainty, risk, dynamic economic, social and political processes, as well as the presence of innovations in these processes. A changing economic environment is depicted by indicators (criteria) which, in the framework of the period of comparison, change by more than 5% against the baseline indicator.

Calculation of global priorities

Table 1

Projects	Price stability (infl. level)	Budget deficit (% of GDP)	Share of total debt in GDP	Long-term interest rates	Stab. of currency exchange rate	Unemployment level	GDP changes	Global priorities
	0.33	0.13	0.09	0.14	0.16	0.07	0.07	
	Price stability (infl. level)	Budget deficit (% of GDP)	Share of total debt in GDP	Long-term interest rates	Stab. of currency exchange rate	Unemployment level	GDP changes	
Stable environment	0.08	0.25	0.23	0.19	0.22	0.2?	0.?0	0.24
Changing environment	0.45	0.44	0.17	0.18	0.50	0.46	0.46	0.46
Resource saving environment	0.15	0.15	0.19	0.2?	0.16	0.19	0.1?	0.17
Sustainable environment	0.00	0.16	0.11	0.31	?.12	0.14	0.16	0.13
								1.00

Comparison of valuation criteria

Table 2

Project evaluation criteria	Price stability (infl. level)	Budget deficit (% of GDP)	Share of total debt in GDP	Long-term interest rates	Stab. of currency exchange rate	Unemployment level	GDP changes	Priority vector	
Price stability (infl. level)	1	4	4	3	2	4	2	0.33	2.552
Budget deficit (% of GDP)	1/4	1	2	1	1	1	2	0.13	1.017
Share of total debt in GDP	1/4	1/2	1	1	1	1	2	0.09	0.741
Long-term interest rates	1/3	1	1	1	1	3	2	0.14	1.099
Stab. of currency exchange rate	1/2	1	1	1	1	4	3	0.16	1.276
Unemployment level	1/4	1	1	1/3	1/4	1	1	0.07	0.576
GDP changes	1/2	1/2	1/2	1/2	1/3	1	1	0.07	0.574
SA=	0.03							1.00	7.835
									7.258

Figure 1

Varinatu novērtējums - kopsavilkums

Hierarchy of economic environment valuation criteria

Figure 2

RESEARCH OF DOCTORAL THESIS
ON A CHANGING ECONOMIC ENVIRONMENT (CEE) –
CEE DEFINITIONS BY EXPERTS

Table 3

No.	Expert	Definition
1.	Jānis Ozoliņš Mag.oec	CEE is an economic environment whose characteristic indicators, in the framework of the period of comparison, change by more than 5 % against baseline indicator. This environment is characteristic of constant uncertainty and risk and features dynamic economic, social and political processes.
2.	Andris Deniņš Dr.oec.	CEE is the uncertainty of economic processes which are caused by unstable economic relations in the field of manufacturing and consumption. It may serve as an environment to achieve certain economic objectives by restructuring property relationships for production resources, changing proportions in the field of manufacturing and consumption, and ensuring efficient or optimum utilization of resources.
3.	Raita Karnīte Dr.oec.	CEE is distinct, where combinations of economic factors obtain influence. A changing economic environment is the altering of its characteristic criteria (by more than 5-7 % against reference indicators), which exceeds the indicators of criteria that are characteristic of a stable environment. This is depicted by the presence of innovations and a high share of risk in economic processes.
4.	Uldis Osis Dr.oec. Prof	This is an environment where one is not able to take qualitative long-term decisions and this is characterized by dynamic changes in innovations, in social and political life, investments and the technologies sphere.
5.	Baiba Rivža Dr.oec. Akad	CEE is an environment which is inherently unstable, cannot be predicted and has an increased threat of risks.
6.	Pēteris Rivža PhD. Prof.	A changing environment regardless of which science field it is investigated, is depicted by criteria which usually can be expressed quantitatively. Any mathematical value is regarded as changing if it exceeds a limit of error. Statistical error cannot be larger than 3-5 % from the value of entry data.

Indicators describing changing economic environment in Latvia.

Table 4

Developed and developing economies

Table 5

Grouping by annual income level	Number of economies	GDP (billions $)	Population (millions)	GDP per capita ($)
Developing economies	155	6243	5010	1246
Low income level ($760 or less)	63	1842	3536	520
Moderate – low income level ($761 - $3030)	57	1541	886	1740
Moderate – high income level ($3031 - $9360)	35	2860	588	4864
High income level ($9361 and more)				
Globally	206	28 835	5897	4890

3. The doctoral thesis proved that Latvia can be included in the group of developing economies with a changing economic environment and all specifics of company valuation and development which are common to such regions also pertain to Latvia.

The World Bank regards an economy as developing if its wealth level, which is measured by income per capita (GDP/per person), is lower than the economic level of developed countries. In defining the term 'a changing economic environment' it was clarified that such an environment can be found in Latvia. As can be seen in Table 4 the main criteria characterizing a changing economic environment („Price stability" and „Long-term interest rates") exceeds the limit of stability because on average these change by more than 5% annually.

By using GDP criteria, Table 5 shows that according to the World Bank, out of 206 countries of the world, 51 are considered developed economies and the remaining 155 are considered developing economies.

The World Bank's grouping is made difficult because of the fact that the countries which are regarded as those with developing markets considerably differs by the level of development: 23% countries have medium to high income levels; 37% -have medium to low income levels but the remaining 40% constitute the group of poorest countries. As can be seen in Table 6, differences exist also among countries which belong to the same geographical region.

Not all developing economies develop similarly. The best way one can judge is to analyze stock markets and financial structures in these regions against parameters describing a changing economic environment. Table 6 analyzes 34 very dynamic developing markets which comprise Standard & Poor's International Financial Corporation Global Composite Index, S7P/IFCG. Tables 5 and 6 show that by financial and stock market data Latvia is similar to the marked members of the developing markets. From this it can be concluded that Latvia is among the region of developing markets and all specifics of company valuations and development which are common to such regions also apply to Latvia. Latvia is a country with a changing economic environment, and countries with a developing market and a changing economic environment are specific because these:

• Attempt to balance their State budgets, privatize state enterprises and regulate economic activity;
• Stabilize their political system, transfer from an authoritarian regime to a liberal, democratic power; increased public interest to solve most constraining social problems;
• Rapidly remove barriers to external trade and investment, thereby increasing their share of the world's economy;
• Attract foreign capital, up-to-date technologies and begin to utilize intellectual capital to a wider extent.
• Experience great changes in all economy sectors and structures of private enterprises. These changes are based on rapidly growing productivity, allowing enterprises to achieve international standards of competitiveness;
• In economic reports, announce increased numbers of enterprise mergers and acquisitions, formation of joint ventures and fully-owned subsidiaries and transformation of large scale corporate technologies.
  Thus the market becomes attractive for enterprises, managers, risk capital investors, strategic investors and financial investors.
• Boast of increasing and a more intensive stock market, which attracts financial investors;

• Increase their influence on neighboring economies.

Tables 6
Developing and developed stock markets: basic parameters

Economy	GDP, 1998 (mill. $)	GDP per capita, 1998 ($)	Average annual growth, 1990 – 1998 (%)	Average annual inflation level, 1990 – 1998 (%)	Total external debt, 1990 – 1998 (mill. $)	Earnings from stock markets, 1994 – 1999 (%)	Inconstancy of stock markets, 1994 – 1999 (%)
Latin America							
Argentina	290 261	8030	4.2	7.8	144 050	13.4	34.2
Brazil	767 568	4630	1.7	347.4	232 004	13.2	44.1
Chile	73 935	4990	6.5	9.3	36 302	-1.4	25.6
Columbia	100 667	2470	1.7	21.5	33 263	-12.1	29.9
Mexico	368 059	3840	0.6	19.5	159 959	14.2	38.0
Peru	60 491	2440	4.0	33.7	32 397	2.3	28.5
Venezuela	82 096	3530	-0.1	49.2	37 003	11.0	53.5
Total or average	*1743077*	*3840*	*1.7*	*21.5*	*674 987*	*11.0*	*34.2*
Asia							
China	923 560	750	9.6	9.7	154 599	21.8	34.3
India	427 407	440	4.3	8.9	98 232	4.6	29.8
Indonesia	130 600	640	4.0	12.2	150 875	5.9	64.9
Corea	398 825	8600	4.9	6.4	139 097	10.7	58.1
Malaysia	81 311	3670	4.8	5.1	44 773	-2.4	50.3
Pakistan	61 451	470	1.5	11.1	32 229	-11.0	42.3
Philippines	78 938	1050	1.5	8.5	47 817	-7.9	40.2
Sri Lanka	15 176	810	3.9	9.7	8526	-14.0	27.8
Taiwan	N/A	N/A	N/A	N/A	N/A	5.8	32.1
Thailand	131 916	2160	4.4	4.8	86 172	-14.0	55.4
Total or average	*925 620*	*810*	*4.3*	*8..9*	*762 320*	*1.1*	*41.2*
Europe							
Latvia	6 088	2527	3.6	13.9	407	27.4	N/A
Czech Republic	53 034	5150	-0.2	13.7	25 301	-7.3	25.6
Greece	123 394	11740	1.2	11.0	N/A	35.2	32.7
Hungary	45 660	4510	0.9	22.0	28 580	24.8	40.7
Poland	151 285	3910	4.4	26.9	47 708	15.1	42.4
Russia	331 776	2260	-7.2	230.9	183 601	66.7	85.6
Slovakia	19 941	3700	1.1	11.4	9893	-35.4	25.0
Turkey	200 530	3160	2.9	79.4	102 074	47.4	63.6
Total or average	*2249184*	*3910*	*1.1*	*22..0*	*397 187*	*24.8*	*40.7*
Middle East / Africa							
Bahrain	4909	7640	1.5	-0.2	N/A	3.6	5.5
Egypt	79 185	1290	2.7	9.7	31 964	12.7	27.7
Israel	96 483	16180	2.2	11.0	N/A	18.4	23.8
Jordan	5252	1150	2.1	3.3	8485	4.7	12.3
Morocco	34 421	1240	0.4	3.5	20 687	21.8	16.6
Nigeria	36 373	300	0.4	38.7	30 315	7.6	42.6
Oman	N/A	N/A	-0.4	-2.9	3629	12.2	34.7
Saudi Arabia	143 361	6910	-2.4	1.4	N/A	3.7	19.0
South Africa	136 868	3310	-0.1	10.6	24 712	2.2	50.7
Zimbabwe	7214	620	-0.2	21.9	4716	5.9	41.9
Total or average	*544 066*	*1290*	*0.4*	*6.6*	*124 508*	*6.7*	*25.7*
Indexes of developed countries							
USA, S&P 500						24.5	13.9
UK, FT-SE 100						17.6	11.3
Japan, Nikkei 225						1.2	22.6
FT, EuroPac						10.9	14.1

Many stock exchanges of developing countries are very attractive for financial investors in the sense that these markets offer a greater investment return than in developed markets. Such returns are related to additional fluctuations and risk.

Financial and stock market data in Tables 5 and 6 shows that Latvia is similar to countries with developing markets. From this it can be concluded that Latvia is among the regions of developing markets and all the specifics of company valuations and development which are common to such regions also apply to Latvia. Latvia is a country with a changing economic environment, and countries of developing markets with a changing economic environment are specific because these:

- Attempt to balance their State budgets, privatize state enterprises and regulate economic activity;
- Stabilize their political systems, transfer from authoritarian regimes to liberal, democratic powers; increased public interest to solve most constraining social problems;
- Rapidly remove barriers to external trade and investments, thereby increasing their share of the world's economy;
- Attract foreign capital, up-to-date technologies and begin to utilize intellectual capital to a wider extent.
- Experience great changes in all economy sectors and structure of private enterprises. These changes are based on rapidly growing productivity, allowing enterprises to achieve international standards of competitiveness;
- In economy reports announce increase number of enterprise mergers and acquisitions, formation of joint ventures and fully-owned subsidiaries and transformation of large scale corporate technologies.
- Thus the market becomes attractive for enterprises, managers, risk capital investors, strategic investors and financial investors. " Boast of increasing and more intensive stock market, which attracts financial investors;
- Increase their influence on neighboring economies.

Developing markets can also be defined as markets which, in the process of globalization, have opened their borders for international trade and flow of investment and the latest management practices. Consequently, the developing market becomes a place where buyers and sellers regard investment projects and private companies as attractive targets in the course of searching for greater productivity and profits. Developing markets are in sensitive, promising, and changing economies which, in terms of investment, provide the middle level between developed and less active economies.

4. When analyzing the business environment in circumstances of a changing economic environment, it was concluded that most important conditions for creating value in a company are:
- *Quantitative objectives connected to value*
- *Company orientation to value*
- *Management of company performance*
- *Regular control of company performance*
- *Management of individual performance of personnel*

5. By conducting an analysis of a changing economic environment, the author concludes that the main factors which determine value in circumstances of a changing economic environment are:
- Demand;
- Current and future profits of the evaluated enterprise;
- Cost of creating comparable companies;

- Demand and supply relationships of comparable objects;
- Risk related to income increases;
- Opportunities of company operations control and liquidity level of assets;
- Environment of a company's operations.

If value influencing factors are looked at from the point of view of parties involved in transacting a company's purchase/sale then each of parties has a different understanding of value increase or decrease:

- *For owners* it is important whether they continue controlling the state of the company after the transaction is made, or they lose this role as well as what are their future prospects. This can influence their understanding about the company's current value.

- *For managers* the most important elements of value generation are:
  - Maintaining their occupation after transaction,
  - Future career and growth prospects,
  - Opportunities of becoming a shareholder,
  - Future of current personnel of the company, etc.

- *For potential investors* - an understanding about the company's value is basically determined by future prospects of the company: planned earnings, capital increase, capital return, opportunities of control, ability to sell the obtained shares (in case of a financial investor).

- *For the State* a transaction will be a valuable one if it will result in new work places. Infrastructure is created or improved and income to State funds from taxes increase.

- *For society value* is mainly measured with impact to the environment and ecology.

6. The thesis analyzes objectives of company valuation and the main output is reflected in Table 7.

Table 7

Modification of valuation objectives in circumstances of a changing economic environment

No	Objective of valuation	Parties interested in valuation	Impact on valuation and result of valuation
1.	Increase efficiency of company management	Shareholders, investors	Company's profit and value of cash flow increase, internal risks of the company decrease, company's market value increase
2.	Identify securities price for purchase and sale of company's shares in stock exchange.	Investors, administrators, insurance companies, shareholders.	Makes investment decision making qualitative and faster. Helps to more precisely state and apply sector's risk coefficients to specify company's market value.
3.	To specify company's value in case of its purchase and sale	Shareholders, state, investors	Makes investment decision making qualitative and faster.
4.	Enterprise restructuring	Administrators, investors, shareholders, state	Increases company's operation efficiency. Increases company's market value.
5.	Development of the company's development plan	Administrators, suppliers, creditors	Improves quality of valuation parameters, increases options of valuation methods, decreases valuation risk. Improves opportunities for the company's intangible assets valuation.

6.	Determination of the company's credit standing	Creditors, administrators, insurance companies	Improves accurateness in determining the company's operational risk and increases value of company's assets resulting in greater market value for the company.
7.	Insurance	Insurance companies	Improves determination of the State's, sector's and company's self-risk indicator to adjust the valuation result.
8.	Taxation	State	Increases or decreases the State's risk indicator which accordingly decreases or increases the company's market value.
9.	Taking substantiated decisions by government	Administrators	Improvement of data quality of financial statements, which makes the result of valuation more accurate.
10	Implementation of investment projects	Investors,	More precise entry data for valuation and more accurate result of valuation.

7. Investigations included in the doctoral thesis allow assuming that today's circumstances of a changing economic environment are considerably different from market conditions of developed countries. Researches of recent years show that new markets (contrary to developed markets) are small, less liquid, more focused and with a tendency towards manipulations. In such conditions it is more difficult to use classic company valuation methods. Valuation is made more difficult also by the fact that information from the stock exchange tends to be insufficient and unreliable. Company valuation in circumstances of a changing economic environment is related to several peculiarities and the author distinguishes the following as most characteristic ones:

Peculiarities which are related to fundamental valuation (DCF and CAPM method)

Among the traditional valuation methods are the method of discounted cash flow (DCF) based on future cash flows, and the fixed assets valuation model (capital asset pricing model, CAPM). In circumstances of a changing economic environment it becomes more difficult when the target is a private company. With companies operating in circumstances of a changing economic environment, one cannot find information transparency or ability of risk diversification (which are main principles of a developed financial market). Evidence of this is provided by the following:

Firstly, for the most part of an enterprise's final price of buying-selling transactions is not transparent. This is more a combination of various opinions and deferred expectations for profits from risk which are represented by businessmen, strategic investors and risk capital investors. As a result there is no a single criterion to establish "true" value of assets.

Secondly, risk diversification is incomplete in transactions of company buying-selling where only several interested buyers and sellers operate. In such and environment use of CAPM is doubtful because it is not structured for inevitable and unsystematic risk, which occurs due to incomplete diversification. Such risk impacts value of fixed assets which are not publicly offered because the value of fixed assets must be carefully calculated and applied. In circumstances of CEE calculation and application is an important task because, contrary to developed markets, the dominating type of enterprise in developing countries are small, private companies not offered publicly. Moreover, in developing markets information about a company's unsystematic operational risk is limited.

Peculiarities related to company's relative valuation

Relative valuation is related to comparison of enterprises or transactions. As in company valuations, the financial information of comparable enterprises is taken as the basis for calculating value indicators. A pre-condition for use of this method is problematic in developing markets. Stock markets are usually small in these markets and companies to be compared are few or none. Sometimes a financial market does not include representation a whole sector of economy.

To avoid this problem, many practitioners normally utilize comparative indicators of developed economies. Direct use of, for example, USA indicators for a changing market is inaccurate, because the State risk and investors' opinion have greater role in specifying indicators of every enterprise in an economy. Not surprisingly, where share prices of the same enterprise differ when it is offered in stock markets of different countries even though evidently this enterprise has the same capital. Peculiarities of financial markets of these countries cause differences in value indicators in different stock exchanges. Consequently, the author suggests developing special application methods to solve this problem. In such cases it is usually useful to use coefficients or multipliers of a different kind, for example:
- Coefficient of the stock exchange's instability.
- Coefficient of systematic risk of capital shares *(Levered beta)*.
- Coefficient of the company's business organization risk *(Unlevered beta)*.

Peculiarities related to valuating enterprises of new technologies

In markets of a changing economic environment, especially in the case of Latvia, along with investment inflow to the economy the latest technologies are also rapidly brought in, especially in the sectors like IT, banking, and telecommunications. Valuation of companies with the latest technologies is the greatest challenge for valuators. Firstly the new enterprises have an unstable nature: their economic parameters are strongly volatile over time, consequently, long-term valuations becomes nearly impossible. With added uncertainty to the developing industry and volatility of a developing market, it becomes clear that the quality of the estimate of capital value is beyond the valuator's responsibility.

8. When examining current valuation methods, the author concludes that when applying the *Discounted Cash Flow* method in valuating new enterprises which operate in circumstances of a changing economic environment, aspects of an additional risk must be taken into account and certain a caution must be observed, because lack of information about earnings in the past burdens unbiased prognosis of the company's future cash flows. Peculiarities of a changing economic environment introduce several corrections in this process. Most important of these relate to estimates of the length of period for prognosis, expenditure analysis and prognosis, specification of discount rate and executing final corrections:

Estimation of length of cash flow period for prognosis

According to DCF, the company's value is based on future and not past cash flows. The valuator's task is to develop a cash flow prognosis (using reports of cash flow forecasts) for any of future periods beginning with the current year. Subject to prognosis is the time period, which lasts until the company's growth rate stabilizes (it is assumed that in the period *after prognosis* the growth rate must be stable in the long run or the cash flow is infinite).

Estimates of an adequate length for the prognosis period, in the context of a changing economic environment, is a difficult task. On the one hand - the longer the prognosis

period the longer the number of observations and the final indicator of the company's current value will be substantiated more from a mathematical point of view. On the other hand - the longer the prognosis period, it becomes more difficult to forecast indicators of particular earnings (income), expenditure, inflation rate, and cash flow. According to current practice in countries with developed market economies, the prognosis period of the company valuation depends on the objectives of valuation or a particular situation and may extend from 5 to 10 years. In countries with transitional economies with conditions of instability, when preparations of adequate long-term forecasts are especially difficult, it is useful to shorten the prognosis period to 3 years. To make results more accurate, the prognosis period in circumstances of CEE is suggested to be reduced to smaller phases: half-years or quarters.

Analysis and prognosis of expenditure

Prudent economy is the main aspect in relation to production costs. If it is systematically obtained by not harming quality then the company's production will maintain competitiveness. In circumstances of CEE these measures are important in addition to generating cash flow, which provides an increase in value in the future.

Specification of discount rate

Calculation of discount rate depends on what kind of cash flow the valuation is based on. For equity cash flow, the discount rate which is equal to the return rate on the invested capital is used which is needed by owners. For the cash flow of entire invested capital the used discount rate is equal to equity and loan weighted return rates (the loan return rate is the interest rate of a bank's loan), where the measures are proportions of debt and equity in the capital structure.

According to the *capital asset pricing model* discount rate is calculated by using the following equation:

$$R = R_f + \beta (R_m - R_f) + S_1 + S_2 + C + R_U, \qquad\qquad [1]$$

where R - income rate requested by the investor (for equity);

R_f - risk-free income rate;

β - Beta coefficient (level of systematic risk which is related to macroeconomic and political processes taking place in the country);

R_m - average return in the whole market (typical securities portfolio of the market);

S_1 - premium for small scale enterprises;

S_2 - risk premium specific to a particular society;

C - State risk;

R_U - a component, including influences which are not explained in previous terms of the equation.

Term $(R_U - R_f)$ is called *market risk premium.*

A central element of the equation is *systematic risk premium* of the analyzed shares. Systematic risk only partly explains payback of the company's shares.

Payback of the company in circumstances of a changing economic environment is similarly to the economy on the whole: it increases in an economic boom and decreases in an economic recession. In several cases there can also be enterprises having payback tendencies which are contrary to these cycles - in such cases Beta value is negative.

R_U factor occurs from so-called unsystematic risk (R_U unconformity) and includes impact of all variables which influence the value of shares and *does not change* in the same direction as the market. These are specific conditions such as management and personnel relations or quality of offered products which can improve or worsen payback regardless economic trends, i.e., unsystematically.

Wide popularity of CAPM among valuators can be explained by its simplicity. It creates a sense of control, accuracy and confidentiality for an analyst who uses this model.

Capital asset pricing model (CAPM - abbrev.) is based on analysis of information of stock exchange, particularly, changes in the yield of shares in public offer. State long-term debt (bonds or bills) income rate is normally used in the world's practice as a risk-free income rate; it is assumed that the State is the most reliable guarantor of its liabilities (probability of its bankruptcy is practically impossible). As practice shows, in the case of Russia, securities issued by the State are not regarded as risk-free securities. To specify a discount rate, investment rate characteristics of smallest risk (rate of currency deposits in Krājbanka or in other trustworthy banks) can be assumed as a risk-free rate. It is also possible to rely on the risk-free rate of Western companies, but in this case adding the State risk is a must, by taking into account real local investment conditions (for example, in Latvia). For investors it is an alternative income rate which features that risk is practically non-existent, and there is high level of liquidity. The author proposes to use the risk-free rate as a reference to which the valuation of various risk is attached and on the basis of it the necessary income rate is created.

Beta coefficient is the risk level. Two kinds of risk are distinguished in the stock exchange: specific risk of a particular enterprise, also called the *unsystematic risk* (it is determined by micro-economic factors), and the average risk in the market is known as the *systematic risk* (this is determined by macro-economic factors). In the capital asset pricing model the size of systematic risk is specified with the help of the Beta coefficient. The Beta coefficient is calculated on the basis of total range of share yield fluctuations of a particular enterprise in comparison with the total yield in stock exchange on the whole.

Investments in the enterprise with high volatility of share rate are most risky and vice versa. The Beta coefficient for the market as a total is 1. Therefore, if any of the enterprises has a Beta coefficient of 1; it means that its total yield volatility correlates to yield volatility in the total market; its systematic risk is like the average risk in the market. For an enterprise whose Beta coefficient is 1.5, total yield will change by 50% faster than market yield. For example, if the average market yield will decrease by 10%, the total yield of the company will decrease by 15%.

9. By conducting analysis of valuation costs and opportunities for use of the comparative method, the author concluded that peculiarity of the comparative approach to company valuation is orientated to the ultimate size of value to market prices of buying - selling shares for similar enterprises on the one hand, and actually achieved financial results on the other hand.

When examining enterprises in circumstances of a changing economic environment it is useful to pay special attention to:

• Evaluation of reliably available data;
• Selection criteria for similar enterprises;
• Characteristics of multipliers of most important prices and specifics of its use in valuation practice in circumstances of a changing economic environment;
• Justification for creation of ultimate size of value;
• Choice of size of multipliers for the evaluation of main interim results and for making corrections.

Most significant peculiarities which must be taken into account when executing a company valuation in circumstances of a changing economic

environment by using the cost approach relates to the stage of real estate and intangible assets valuations.

Nowadays the company's intangible property is regarded as the most significant factor determining the company's value and its increase. The amount of equipment and buildings are allocated progressively smaller role in the structure of the company's value. In circumstances of a changing economic environment with increasing speed and share of up-to-date information technologies in business strategies, such intangible assets as patents, software and personnel with specific knowledge begin dominating as crucial.

During the last ten years, as a result of company buying and mergers, the share of intangible property has increased by 70 % of total assets. It is required that investments include increasingly larger share of intellectual capital to successfully develop the enterprise in the future. It has been proved that intellectual capital when transformed in terms of money generates much greater value added than material assets.

In a company's operations in circumstances of a changing economic environment, there frequently appear problems estimating the value of intangible assets. This happens as a result of:

- Sale of rights of intellectual property items;
- Voluntary sale of licenses for use of intellectual property items;
- Forced licensing and estimates of losses which have been caused by intellectual property rights violation;
- By investing in statutory capital;
- Valuation of entrepreneurship;
- Transformation to a joint stock company, privatization and merger.
- Valuation of the company's intangible assets which is made with an aim to introduce changes in financial statements.

Peculiarities of a company's valuation in circumstances of a changing economic environment are dependent of the company's value from:

- Volume of rights to be transmitted;
- Opportunities of unauthorized usage;
- Readiness to use it for commercial purposes.

10. Based on the results of investigations conducted within the doctoral thesis the author has developed a new methodology for company valuation which is adjusted to circumstances of a changing economic environment.
The process of estimating the company's value is complicated and consists of several elements. There are several methods and models developed for company evaluation which is used in practice, however, these approaches valuate the company in generally and they can be incorrect in cases when the company operates in circumstances of a changing economic environment (CEE). To gain more accurate and objective result, choice of any of classical methods and its use is not sufficient. When valuing the company in circumstances of CEE, there is a need for a broader understanding of the valued company, which includes a definition of values and a wider analysis of value influencing factors. In this process greater attention is paid to the examination of value generating conditions to clarify their impact on the ultimate value of the company. The company's ultimate value is adjusted depending on its future prospects, risk and share of variable factors at the moment of company valuation.

The latest research in the company valuation process has indicated new development trends, which are based on a wider examination of risk and uncertainty of the environment, more effective use of information flows as well as creation of a new understanding of

personnel's and top management's value. More frequently in various sources of literature "a value-based approach" is recommended for company management, which is actually interpreted as a daily activity of the owner of any enterprise to constantly raise the company's value. This process is viewed as long-term activities in which all interested parties are involved: the company's shareholders (direct owners of the company), management, personnel, suppliers, creditors, the State, public (indirect owners of the company).

Based on the above-mentioned peculiarities of a changing economic environment and their characteristic conditions, a new method of company valuation has been developed for use in circumstances of a changing economic environment which comprises of six stages.

The structure of the method and sequence of application is presented in Figure 3

Figure 3. Process of estimating a company's value by using the method of "a changing environment model" (CEE)

Stage One
Specification of possible options for cash flow

As it was clarified in the investigation of section 2 of the doctoral thesis, the author acknowledges that the most adequate general method of valuation for circumstances of a changing economic environment is the method of *Discounted cash flow,* which provides a theoretical base for the method of "a changing environment model". Saying in other words - the method of "a changing environment model" (CEE) is a model of DCF method which is adjusted to the peculiarities of a changing economic environment.

To use this method in practice, first it is necessary to determine the future cash flow of the enterprise to be valued. In circumstances of a changing economic environment which characterizes uncertainty of cash flows and increased risk it is useful to apply two kinds of strategies for estimating cash flows:

• Estimation of cash flows for one scenario of events;
• Estimation of cash flows for several scenarios.

One scenario cash flow is suggested for those companies which are of least 3-5 years duration that has formed a sufficient data base of financial and operative indicators; this allows to analytically examine the previous operations of the company and to identify existing regularities and trends. Based on this analysis, modeling of future cash flows is conducted. Shortcomings of the one scenario cash flow estimation is that it is not possible with this approach to qualitatively predict results of the company for a period longer than 3-4 years, because in circumstances of a changing economic environment forecasts of longer periods are distorted by greater uncertainty and higher risk level, which is expressed in the form of coefficient of variance. Therefore in such cases it is useful to apply the strategy of cash flow estimation for several scenarios.

Several scenarios cash flows are useful to be applied for companies with short activity experience or new business projects. This is usually connected to greater uncertainty about possible future cash flows and therefore several scenarios of events development should be established as a result of which different cash flows are generated. When developing different scenarios it is suggested they be divided by possible probabilities:

• Optimistic cash flow scenario;
• Optimum cash flow scenario and
• Pessimistic cash flow scenario.

Along with this it is also suggested to develop scenarios for cash flows generated by different investment projects. Company shareholders, when investing their funds in a particular investment program; anticipate that return on each particular capital would be connected to smaller, not greater risk. It can be stated that a company's shareholder gains less utility by earning additional 1000 lats than by refusing to lose 1000 lats. It is based on the term of marginal utility which provides that that by increasing wealth the marginal utility decreases more and more rapidly. Therefore, the utility function for investors who are not willing risk is a curve shown in Figure 4. If it is possible to identify the decision-maker's utility function this method is useful for use in decision making and examination of risks in circumstances of a changing economic environment.
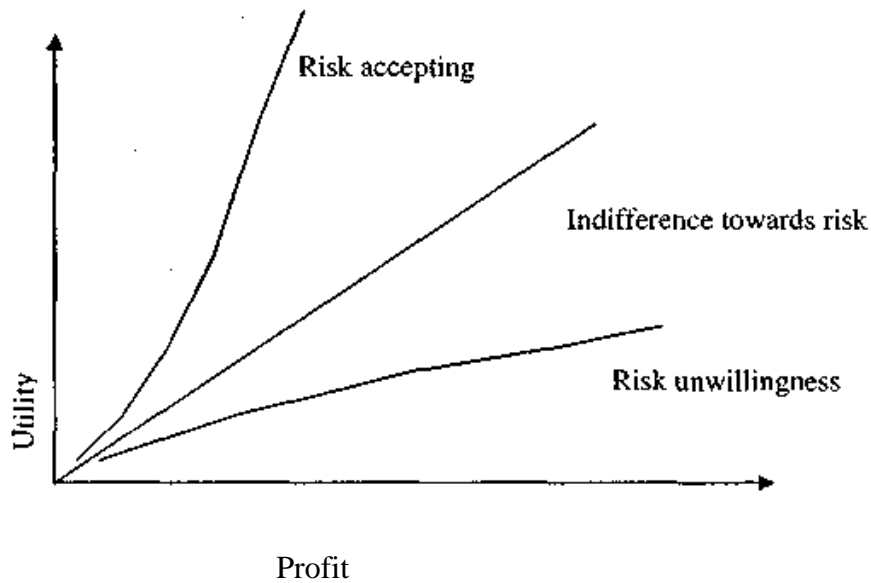
Profit

Figure 4. Risk measuring for one-period cash flows

Calculating the probability of uncertain forecast results is difficult; also it is difficult to accurately specify the risk level. By using existing information about the company's future and using previous experience in conjunction with a historical analysis of the project and its conditions, it is possible to develop a probability distribution, of the project's financial results. It can be used to measure in different ways risks related to project's cash flows. If it is assumed that a range of possible consequences of decisions are distributed around the expected value, investors who are not willing to risk can determine the project's risk by using expected the value and a standard deviation. This process is best characterized by three statistical units: standard deviation, partial discrepancy and a coefficient of variance for one-period cash flows.

Table 8 includes information about two projects of a company.

Table 8

Data of the company's investment projects

Cash flow scenario	Probability of result	Cash flow (lats)	
		Investment Project A	Investment Project B
Optimistic	0.2	700	550
Optimum	0.5	400	400
Pessimistic	0.3	200	300

According to given information it can be seen that the expected value does not take into account important information about the result dispersion (or risk). It is also known that different investors in risky situations behave differently (see Figure 5). The figure shows a distribution of "net present value" (NPV) for projects A and B. Both projects have the same expected NPV, which is marked with M, whereas project A has a greater dispersion. The company's manager who is not willing to take a risk will choose option B, because of the desire to decrease risk to a minimum level. A manager who takes risk will choose option A because project A has greater prospects (W) for greater NPV than X (which cannot be offered by project B), however it also

has prospects that this value (L) will be lower than Y. For a further explanation it is useful to assume that most investors are not willing to risk.

The standard deviation is a unit of probable result dispersion: the wider the dispersion the higher the standard deviation.

Expected value of cash flows is expressed with the equation:

[2]

$$\overline{X} = \sum_{i-1}^{N} p_i X_i$$

where p - probability
X - value of cash flows

Standard deviation of cash flows is expressed with the equation:

[3]

$$\sigma = \sqrt{\sum_{i-1}^{N} p_i (X_i - \overline{X})^2}$$

1 Table 9 presents the results of risk calculation for projects A and B for different scenarios of cash flow development.
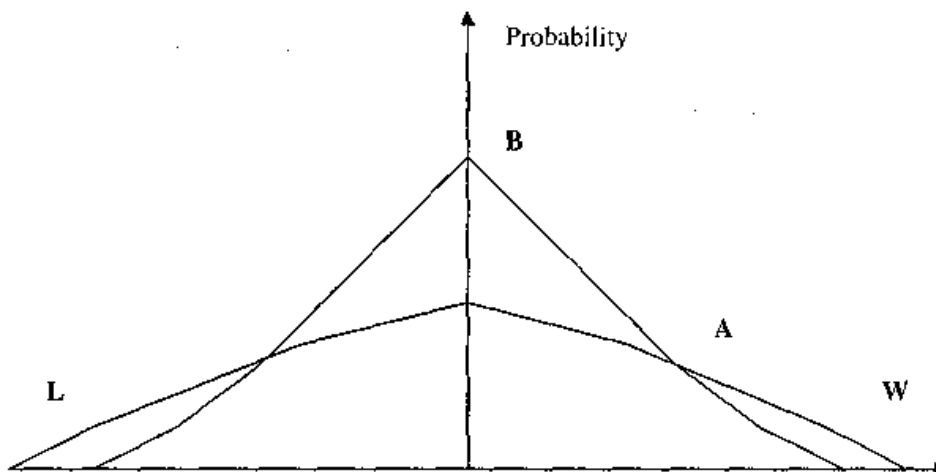

Figure 5. Result probability for results of investment projects A and B

Table 9

Calculation of risks for investment projects A and B

Economic state	Probability	Result	Expected value	Deviation	Square deviation	Variance
	(a)	(b)	(c=a*b)	(d=b-X̄)	e=d2	(f=a*e)
Project A						
Strong	0.2	700	140	300	90000	18000
Normal	0.5	400	200	0	0	0
Weak	0.3	200	60	-200	40000	12000
		X̄a =	400		Variance= σa 2=30000.0	
					Standard deviation = σa =	173 2
Project B						
Strong	0.2	550	110	150	22500	4500
Normal	0.5	400	200	0	0	0
Weak	0.3	300	90	-100	10000	3000
		X̄b =	400		Variance= σa 2= 7500 0	
					Standard deviation = σa =	86.6

Alternatively :

$$\overline{X}a = 700(0.2) + 400(0.5) + 200(0.3) = 400$$

$$\sigma = \sqrt{[0.2(550-400)_2 + 0.5(400-400)_2 + 0.3(300-400)_2]} = 173,2$$

$$\overline{X}b = 550(0.2) + 400(0.5) + 300(0.3) = 400$$

$$\sigma b = \sqrt{[0.2(550-400)_2 + 0.5(400-400)_2 + 0.3(300-400)_2]} = 86,6$$

From calculations expected cash flow reached 400 lats both for project and B. If the investor's attitude towards risk is neutral he will perceive both of these projects equally unfavorably. Considering that the investor will most likely choose the least risk it is suggested to explore standard deviations of both probability dispersions. Here it is evident that the standard deviation of project A is two times larger than that of project B, therefore it is more risky and less attractive. The same could be concluded also by simply observing the dispersion of results and noticing that both projects have the same probabilities. However, in observation it is not possible to find out to what extent one project is more risky than the other.

Although investors can favorably evaluate the deviation above the average level, the "negative risk" (i.e., deviation below expected results) is mainly taken into account in the decision making process. Negative risk is measured with the help of partial discrepancy, which is a special case of discrepancy. It is reached with the following equation:

[4]

$$SV = \sum_{j=1}^{K} p_i (X_i - \overline{X})^2$$

where SV - partial discrepancy,
        j - value of each result which is lower than expected,
        K - number of outcome lower than expected value.

By applying partial discrepancy to the examples mentioned in Table 9, negative risk pertains only to a "weak" economic state:

$$SV_A = 0.3 \, (200 - 400)^2 = 12\,000 \text{ lats}$$

$$SV_B = 0.3 \, (300 - 400)^2 = 3000 \text{ lats}$$

Again, project B has a much lower risk level. In both cases partial discrepancy constitutes 40 per cent of the project's discrepancy.

If projects differ by scale, then more a credible comparison is possible by applying a unit of relative risk; for example, coefficient of variance (CV). The lower the CV the lower the relative risk level. It is calculated by dividing standard deviation with expected value of net cash flows, as showed in this equation:

[5]

$$CV = \sigma / X$$

Table 10 Results of calculation of coefficient of variance

	Standard deviation (1)	Expected value (2) (LVL)	Coefficient of variance (1 + 2)
Investment project A	173.2	400	0.43
Investment project B	86.6	400	0.22

Both projects have the same expected value, however, project B has considerably lower risk level shown by a lower coefficient of variance.

From the above-mentioned the author concluded that in the case of establishing *several-scenarios* cash flow it is more possible to adjust to the specific situation of company valuation by more strongly taking into account conditions of the particular valuation objective. The main task of the first stage of the method of "a changing economic model" is to create the company's cash flow as credibly as possible, which will later serve as the basis for estimating the ultimate value in circumstances of a changing economic environment.

Stage Two
Forecast of cash flow for planning period and the whole period

Development of every company is based on planning of financial activity which is closely related to the company's strategic plans. Process of financial planning has a significant role also in estimating the company's value when the method of discounted cash flow is used. By using CEM method for financial planning basically the financial statements are used (balance sheets, profit and loss statement, and cash flow); with their help the cash flow for the next 3-4 years is forecast.

For application of the CEM method it is useful to use the cash flow prognosis method of "Interest from turnover". It is based on the forecast of income (turnover) for the required time period by using dynamics of indicators over preceding periods, and the company strategy afterwards equalizes items of financial statements to already established turnover, expressing these as a percent of turnover.

By establishing discounted cash flow with the CEM method there are two challenges:
• Forecast of credible cash flow.
• Establishment of credible capital cost which will be used as discount rate (this will be reviewed in stage four of CEM).

The main task of *Stage two* of the CEM method is to help establish credible cash flows for the company by applying a corresponding prognosis period.

Stage Three
Adjustment of cash flows according to peculiarities of CEE

As confirmed by results of the doctoral thesis, the changeability of economic environment is to the greatest extent influenced by the inflation level and stability of currency exchange rate. Therefore, taking into consideration influence of these factors on changeability of the company's economic environment which provides direct influence on the expected cash flows, it is useful to execute cash flows adjustment. Also, in sub-section 4.3 are shown results of an investigation in "Peculiarities of economic operations of Latvia's enterprises" which reveal a finding that in companies

with domestic capital, reports are deliberately falsified by showing lower earnings and including in cash flows expenses not connected with the company's core business; on the basis of this the author acknowledges it is useful to include in the „A changing environment model" method three kinds of cash flow adjustments:
- Currency adjustments: exchange risk and inflation,
- Adjustment for over-stared compensation: salaries towards dividends,
- Adjustment of over-stated expenses: personal expenses as corporate.

Stage Four
Specification of the cost of equity

Specification of the cost of capital is the most important element in the structure of CEM method, because it determines the discount rate which considerably influences the result of valuation in circumstances of CEE. Over-valuation of the cost of capital can lead to rejection of prospective investment opportunities, which in the future could serve as the real source of the company's value. On the other hand, if the investor estimates the cost of capital too low then he unconsciously involves in destroying the company's value.

As found out in section 2 of the doctoral thesis, methods of establishing the cost of capital have several shortcomings that do not allow to apply these in circumstances of CEE. Cost of capital in circumstances of CEE is mostly dependent on volatility (i.e. markup for the State risk and markup for the market risk). To include CEE risk in calculating the cost of capital, the author proposes to use several parameters which are reflected in equation 7:

$$C_E = R_{fG} + R_C + B_{LL} \times (R_{ML} - R_{fL}) \times (1 - R_i^2) \qquad [6]$$

where
C_E - Cost of equity
R_{fG} - Risk free rate of a world's global investment
R_C - State risk premium
B_{LL} - *Beta* of a local company which is calculated using index of local market
R_{ML} - Payback rate of local market
R_{fL} - Risk free rate of a local state investment
R_i - Variance volume of the equity unsteadiness for the company to be valued which can be explained by State risk
$(1 - R_i^2)$ - Unsystematic risk of the company to be valued

Stage Five

Specification of discount rate

Specification of a discount rate is an important stage in applying the CEE method. Small changes in discount rate can cause huge differences in value of the company to be valued. In the CEE method it is useful to use the *Weighted average cost of capital (WACC)* as a discount rate that is applied for discounting the calculated cash flow (see stage 1-3 of the CEE method). WACC indicates both values of equity and debt. Weighted average cost of capital (WACC) includes expense for share capital and debt by valuating these with the proportion of each in the company's financial structure.

Stage Six
Estimating a company's ultimate value

To include all aspects of a company's operations in ultimate value, its estimation in circumstances of CEE along with the *'A changing environment model'* it is useful to use several valuation methods. Application of different methods generates different alternative values for the same company. An analysis is suggested to use this group of values to choose one which is unique or synthesizes the value of the respective company.

To estimate a synthesized value it is useful to use two approaches :

• *Approach of indirect weighting.* In this option the analyst simply expresses his opinion regarding the value of the company without explaining the judgment this synthesis has been based on. This is why this option is not suggested because it leaves at a loss both the investor and the company's manager, as well as any other person who attempts to understand how and why the analyst has estimated exactly this value.

• *Weighting according to methodological utility.* By applying this option, the analyst weighs the value according to his own view in relation to level of adequacy of each of the used valuation methods to a particular company and the volatility of the economic environment. Weighting is suggested to be used by allocating to each of the used methods the weight in %. Thus weighted values of gained results through each method are obtained and consequently their sum constitutes the company's synthesized or the ultimate value.

11. Company valuation analysis completed in the doctoral thesis revealed several value influencing factors, value generating conditions and basic principles which provide good opportunities for further development of the CEE method and development of proposals for the value increase. The doctoral thesis finds that a successful introduction of a *value-based management* (VBM) and its maintaining in the company is essential to increase the company's value, and in the process of implementing long-term strategies. Therefore, by developing this new approach to management it is useful to take into account several conditions:

Firstly

The right company economic performance indicators must be selected. Selection of the right economic performance indicators is related to the company's financial operation. To use financial indicators in the process of increasing the company's and the shareholders' value the analysis of indicators of the past financial activity should be conducted. Past indicators also serve as the basis for prognosis of the financial future which is an integral part of the company valuation. According to analysis of the company's financial situation as well as discussing the desirable financial results, the company shareholders determine their financial requirements, whereas the management - the financial objectives. Depending on what is the difference between the set objectives and actual indicators it is possible to judge about the financial stability and value. Financial analysis is usually executed by using the financial statements: balance sheets, profit and loss statements, and cash flow statements. Some of the traditional indicators of financial analysis can be used as indicators of the company's economic performance. For example, 'income per share' or 'gross income per share'. By using only these data information about the balance sheet, management is ignored. Accordingly, companies which focus on income are relatively inefficient in using the balance sheet data. In this approach one can possibly

fail to notice whether one Lat is earned from a capital share in the amount of one Lat, or one lat is earned with 50% use of capital investment.

As one of the indicators it is possible to use return on invested capital or return on assets or return on net assets; this notion has different definitions. The above-mentioned indicators are better because information about income is counted and invested capital is called. This is balance data which reflects increase of income.

The easiest way to improve indicators of economic performance is to let capital investments drop in price. In such a way return on invested capital will increase. After a certain time period the company may turn out to be uncompetitive because consequently insufficient amount of funds will be generated for development; this indicator also is not the best choice. It is best to use three valuation levels in evaluation of the VBM performance. Corporate or company level, structural unit level and production level.

By evaluating economic performance at the *company and structural unit* level it is necessary to explore sources of value generation which is best reflected in the above-mentioned financial statements. In case of VBM the level value generation in particular strategy is more exactly determined by "value promoters". These are factors which define the company's capacity in generating free cash flows. With the help of these factors it is possible to calculate the current shareholders' value as well as shareholder's value of the optimum strategy. Seven factors are considered "promoters of financial value". They are: increase of sales, EBITDA *(gross profit),* investments in operative capital, investment in fixed assets, and time of competitive advantage, capital costs and effective tax rates.

At the manufacturer's level where income calculations and balance sheets are not available, "value promoters" include share of defects of production or supply time accuracy indicator or in the banking sector creditworthiness of the main book.

<div align="center">*Secondly*</div>

For implementation of *value-based management* a positive attitude should be promoted within the team of the company's managers and personnel. The company's top management is among the "agents" and they are mediators for shareholders to implement their intentions to increase the value of invested capital. If the work of these agents is inefficient or of low quality it may cause a "breakdown of value" allowing the company to be considered insolvent. A "breakdown of value" appears also in the cases if the information which is available to potential investors and shareholders about the company considerably differs from that which is at the disposal of management. This creates the „agents' problem", which can be overcome by:

- Good communication,
- Executing improvements in company performance indicators - both at the strategic and operative level,
- Optimizing the company's capital and risk structure using knowledge in the field of corporate finance and *cash flow* management,
- Comparing the company's current market value with its value after analysis,
- By completing the necessary measures to improve the company's market value to the maximum possible level and thereby improving also the shareholders' value.

Along with development of a good attitude towards implementation of VBM in the company, the psychological problems are considerable. It is a common situation that at the top management level everyone is full of enthusiasm, whereas the managers of lower levels fail to understand why changes need to be introduced in real

life and why this must be taken care of. To change the attitude in the whole company support of the top management is required, as well as there is a need for training which would help to take the right decisions and to better understand the processes taking place within the company (specialized training courses and informative discussions); also, the system of salary calculation should be changed so that stimulation of every individual would be more closely attached to the increase of the company's value. This is basically the foundation of the "value-based management" concept.

Already today, in several enterprises in Latvia special "Strategic management programs" and "Personnel motivation programs" are being developed for these aims; these clearly define short-term and long-term remuneration for each *"team'* member's contribution.

By implementing these programs in practice an important condition is: all must be involved. In the value creation process everyone is needed. Part of the company's employees has difficulties to determine what has been the annual contribution to value. To identify and evaluate contribution of each "team" member's to increase of the company's value, evaluation sheets can be used which summarize the most important driving forces for value. Some of these driving forces can be transformed in non-financial indicators which, if they are set right, provide insight in the process of value generation for departments or even small working groups. By using evaluation sheets everyone can identify what contribution he/she has given to value creation for the whole company. Later these results can be adapted to long-term motivation for employees.

Thirdly

It is useful to implement an effective system which would bring the necessary result. "Executive power supporting systems" which is frequently used in strategic management could serve as the basis for development and implementation of above-mentioned system in the company; they consist of:

- Informative systems of administration,
- Decision supporting systems,
- Management supporting systems.

The above-mentioned systems fully cover all basic functions of the company's administration (i.e. planning, organization, control, communication, motivation and exchange of information) and they are computerized. This provides an opportunity to guarantee fast and qualitative help to executive power in taking important decisions. Without having such systems in a company it is not possible to develop "value-based management system" because today the amount, availability, quality and speed of information is crucial to ensure competitiveness of any company as well as providing a considerable impact on value.

"Executive power supporting systems" is basically a means for company managers to use for achievement of set objectives.

Because two completely identical companies or company managers cannot be found in the world there is not a standardized "Executive power supporting systems". Each manager designs and customizes it for oneself in a clear and available way by using common principles. The most important in this process is to achieve a real result. Internal administration system of a company should be oriented to realization of the economic value rather than the traditional concept of profit. Along with appearance of VBM the company managers and directors should understand that money is not free. This sets a task to carefully reconsider one's strategy and evaluate each investment whether it will bring a reasonable return. Good results can be reached

with the help of VBM only if managers of different business units perceive its implementation very seriously and if information about markets and financial state of the company is true, detailed and available. It is important to make sure that managing employees has all necessary information about the value promoters and opportunity to use them in practice.

Fourthly

To begin implementation of VBM in the company, effective use of current resources should be achieved first and positive cash flows must be generated, which will further serve to increase value in the future. Core of the method is to prevent too rapid growth to avoid encountering difficulties with operative cash flow. As long as business results are negative, growth is not possible and the invested capital should be even decreased, otherwise it is not possible to cover the deficit of business results. VBM begins with this: production capacities are strongly controlled and their effective use is reached. It is tempting opportunity to invest funds to demonstrate the company's capability however there must be some reserve. If the company grows too fast with too little reserve the result will be unsuccessful.

By developing "value-based management" in any company all four above-mentioned conditions must be applied in a complex way, not distinguishing any to a priority status or by using only part of them.

Using the above-mentioned factors and including them in the model of estimating the company's value, the structure of the VBM method it is possible to improve the quality of the obtained result. This provides good pre-conditions for further development and improvement of the method.

11. Analyzing peculiarities of economic operation of Latvia's enterprises and differences of financial activities by sectors, the author reveals several facts which influence a company's value and which should be taken into account when valuing companies in circumstances of a changing economic environment:

• By comparing domestic and foreign enterprises it can be concluded that in domestic private enterprises:

       a) Loan repayment period considerably longer;

       b) Gross coverage considerably lower;

       c) Much less cash;

       d) Financial indicators lower (little) and

       e) Profit on equity greater (little),

from which one can conclude that from the point of view of investors they are less valuable than foreign enterprises.

• The reason why enterprises with foreigner owners manage to pay their suppliers faster than domestic firms may be a lack of private interest to bargain for more advantage deadlines of loan repayments. In foreign owned companies managers are usually local people without participation rights, therefore they are not financially interested and they have greater opportunities for cash flow administration. From this it can be concluded that an enterprise is more efficient and more valuable if managers own company shares.

• Larger gross coverage in foreign owned enterprises can be explained with less hiding of profit because foreign owners possibly falsify accounting data less; furthermore, financial accounting and control is maintained by using special (previously adopted) software.

• The fact that foreign owned enterprises have more cash relative to assets confirms an opinion that these enterprises have greater financial capacity and financial

support from parent company which from the point of view of value make an enterprise less effective.

     • In Latvia most business decisions (even daily) are taken by owners, not managers. Even if an owner does not manage an enterprise many decisions should be confirmed by him. Managers who are also owners and who are entitled to make daily decisions possibly can deserve more trust from business partners and suppliers; therefore they receive more advantageous credit terms. Speed of decision making is also potentially larger in enterprises of "internal control". In circumstances of a changing economic environment this is a crucial factor for ensuring competitiveness. In such conditions ability to quickly process unique information and quickly take a qualitative decision may ensure for the enterprise a short-term monopoly in some narrow niche of operation. The more such short-term *monopoly situations* can be achieved by the enterprise, the larger added value it can provide for shareholders.

     • Results of investigation show that in enterprises with local capital possibly falsifying of financial data is occurs (especially, hiding of profit) in all financial indicators related to profit. For example, gross profit as per cent of total turnover is much less in Latvia than in Germany or the USA, although all carriers of direct cost (labor, energy resources, raw materials) are cheaper in Latvia.

     • The investigation concluded that a proportion of gross profit in turnover is considerably higher in foreign owned enterprises, which indicates that local enterprises falsify accounting data,

     • Financial data of Latvia's companies have been compared with data of the USA and Germany, and the results show that enterprises in Latvia have much lower gross coverage (gross profit to total sales), lower *liquidity* (current assets to all assets), worse *financial capacity* and greater *growth of sales* (growth of sales is one of the most important value increasing factors and it is a good pre-condition for Latvia's enterprises).

     • The investigation showed a high concentration of property rights - the largest owners in Latvia possess on average 74% of capital. Obtained results provide that there are considerable differences in financial operations depending on property rights structure, for example, local private firms have lower gross coverage, longer loan payback period (i.e. longer time to repay suppliers) and less cash in comparison with foreign owned firms. Companies where the most part of shares are owned by their managers (more than 50% owners with signing rights) are in better situation for bargaining when negotiation credit terms, i.e., these firms repay debt to suppliers later which tells about more efficient administration of financial resources.

Conclusions and proposals

     According to the latest world's experience in company valuation the doctoral thesis developed a method of company valuation for circumstances of a changing economic environment and defined the terms of a changing economic environment. The research developed analysis of risk factors and their impact to the company's value as well as conducted application of measurements of these factors for circumstances of a changing economic environment. They have great significance in company valuation in circumstances of unstable and a changing economic environment. In the course of the doctoral thesis basic principles of company valuation were developed for circumstances of a changing economic environment which have large practical significance in company valuation.

Theoretical conclusions gained in the framework of the thesis development have been applied in practice by reviewing different investment projects and valuation companies. Results of the doctoral thesis have given a chance to reach these main conclusions:

Conclusions

1. On the basis of investigation results of *Method of hierarchy analysis* used in the doctoral thesis, the most important conclusions are:

   •Economic volatility is best reflected by "A changing economic environment"

   •A changing economic environment is most precisely described by four criteria:

   1. Stability of currency exchange rate.
   2. Long term interest rates.
   3. Price stability (inflation level).
   4. Budget deficit (% of GDP).

   • Volatility of the economic environment is most influenced by - inflation levels, stability of currency exchange rates and long term interest rates.

2. Considering definitions of *a changing economic environment* offered by different authors, the author has developed his own definition and concludes that *a changing economic environment* is group of economic phenomena which is not constant and changes in course of process of economic development. This is where a distinct combination of economic factors begins to have an influence on the economic process, which determines unstable economic relations in the production and consumption fields.

3. A changing economic environment is characteristic of uncertainty, risk, dynamics of economic, social and political processes, as well as presence of innovations in processes.

4. A changing economic environment is characterized by economic indicators (criteria) which in the framework of comparing a period change by more than 5% against a baseline indicator.

5. In the course of research it was concluded that Latvia is among the countries with a developing economy and a changing economic environment, and all peculiarities of company valuating and development common to these regions also apply to Latvia.

6. Analyzing the most important conditions of value generation it was concluded that the most significant conditions of value generation in an enterprise are:

   • Commitment of top management to ensure employees understand that this is not simply following the latest fashion but efforts to change basic values and action.

   • Wide involvement by managers of the company's units, especially in the analysis of value carriers, both to get their evaluation and to achieve that they acquire the owner's attitude towards their company.

   • Combining to increase the company's value with current processes that ensure efforts to generate value impact on strategic planning, capital attracting, decisions on employees' promotion and their salaries.

• A pragmatic and action-orientated approach to management, which makes the process of value generation creative.

7. Analyzing value influencing factors, it was concluded that the main factors determining value in circumstances of a changing economic environment are:
• Demand;
• Current and future profits of the evaluated enterprise;
• Cost of creation comparable companies;
• Demand and supply relation of comparable objects;
• Risk related to income earning;
• Opportunities of company operations control and liquidity level of assets;
• Environment of the company's operations.

8. Analyzing the factors influencing a changing economic environment it is possible to conclude that company valuation in these circumstances is related to several peculiarities, from which the most characteristic are:
• Limited or unavailable information,
• Valuation is based on many assumptions,
• Small practical experience of company valuation transactions,
• Valuation is related to review and inclusion in calculations of several additional risks,
• Result of the valuation is dependent on the experience and professionalism of the valuator.

From this it is possible to conclude that a company valuation in circumstances of CEE is a *science* which provides many possible answers to the question about the company's value. Valuation in circumstances of a changing economic environment is consolidation of science and art, where the science has a form of precise quantitative valuations whereas art constitutes experience and prudence from the point of view of valuator. Regardless of the used method of valuation, the company's value in the circumstances of CEE is greatly influenced by the investor's perception and motivation, because when assuming risk with capital any investor examines alternatives of what can be offered by investment within stable economic conditions.

9. Using the *Discounted cash flow* method in valuating new enterprises which operate in circumstances of a changing economic environment, one should consider factors of additional risk and observe certain prudence because lack of earning retrospective can cause difficulties in an objective forecast.

10. Analyzing the widely used CAPM valuation model several shortcomings were revealed which burdens its use in circumstances of a changing economic environment.
The most significant can be pointed out as:
• Incomplete diversification of investments which cause unsystematic risk. Traditional CAPM is not structured for such terms. Empirical data shows that unsystematic risk greatly influences the value of such real assets which are not offered publicly in securities stock exchange. Such risk is especially important in volatile and new markets where the dominating form of business is small, non-public companies where most of buying-selling transactions correspond to the value of the assets themselves.

• In changing and undeveloped markets publicity requirements are not so strict. As a result accounting information is more rarely supplemented. Reporting systems are not so detailed which makes persistent comparing difficult. Qualitative empirical investigations about costs of equity are also lacking, contrary to Asia, Canada, Europe and USA. Inflation, stock exchange risk, unstable governments, a changing laws, weak central banks, restrictions to capital inflow and outflow, corruption in State and private sector - all these factors cause chaos in data reliability.

11. Analyzing suitability of valuation methods, it can be concluded that the comparative method, according to the author, has many shortcomings which restrict its use in valuation practice in circumstances of a changing economic environment. Most important of these are:

Firstly, previously achieved financial results constitute the basis for calculations. Consequently the method ignores the prospects of company's development in the future.

Secondly, comparative method is possible only when multi-faceted financial information is available, not only about the valued company but also great number of similar firms, which have been selected by the valuator as comparable. Obtaining additional information from analogue enterprises is a rather difficult process.

Thirdly, the valuator must execute complicated adjustments; corrections must be introduced in the ultimate value and interim calculations which require serious justification. This is related to the fact that in practice no companies are alike. Therefore, the valuator must find differences and specify ways for their reduction in the process of estimating the company's ultimate value.

12. Based on the review of company valuation methods and their suitability for application in circumstances of a changing economic environment, it can be concluded that today existing company valuation methods cannot fully address all peculiarities of a changing environment. Consequently, in the course of evaluating process, developing different improvements and corrections suggested through practice have been introduced. The investigation finds that existing methods should be developed and modified to adequately use these in circumstances of a changing economic environment.

13. Based on the analysis of company valuation methods, it can be concluded that when selecting a basic method for company valuation in circumstances of a changing economic environment, crucial conditions are:
• Careful investigation and analysis of all the particular conditions of an enterprise.
• Analysis of potential risks (SWOT analysis).
• Understanding of the intentions and views of particular interested parties.
• Understanding of values regarding the company's future opportunities.

14. Considering results of the doctoral thesis, the author acknowledges that the most suitable basic method for valuation in circumstances of a changing economic environment is the *Discounted cash flow* method, which constitutes a theoretical base for the method of „A changing environment model". In other words the method of „A changing environment model" (CEM) is a model of

DCF method, which is customized for the peculiarities of a changing economic environment.

15. By applying the developed the method of *A changing environment model* the author concluded that in circumstances of a changing economic environment which are characteristic of uncertainty of cash flows and increased risk, it is useful to apply two kinds of strategies for establishment of cash flows:
   • Establishment of cash flows for one scenario of events;
   • Establishment of cash flows for several scenarios.

16. As confirmed by results of the doctoral thesis volatility of the economic-environment is most influenced by inflation levels and stability of currency exchange rates. Therefore, considering influence of these factors to volatility of the company's economic environment, in the framework of the method of *A changing environment model* it is useful to execute the adjustment of cash flows. Furthermore, the investigation about "Peculiarities of economic operations of Latvia's enterprises" for the doctoral thesis, it was found out that in companies with domestic capital, financial statements are deliberately falsified by showing smaller profit and including expenses not connected to core business in the cash flow; on the basis of these results, the author acknowledges that in the method of "A changing environment model" it is useful to include three kinds of cash flow adjustments:
   • Currency adjustments: exchange risk and inflation,
   • Adjustment for over-stated compensation: salaries towards dividends,
   • Adjustment of over-stated expenses: personal expenses as corporate.

17. Investigation of the doctoral thesis clarified that method of establishing cost of capital have several shortcomings, which do not allow to use these in circumstances of CEE. Cost of capital in circumstances of CEE is to a great extent dependent on volatility (i.e., markup of State risk and markup of market risk). To take into account risk in the calculating the cost of capital, the author proposes to use several parameters which are included in the method of *A changing environment model.*

18. Application of A *changing environment model* when selling capital shares of SERVIKS RIGA Ltd. showed that the new method can be efficiently applied in practice.

19. Information about changing economy markets is insufficient in size and quality and is one of the main restricting factors for the investigation, which proves that a large volume of scientific work still needs to be executed in the future to improve the information data base.

20. Analysis of the investigation on conditions and factors for value generation provides that today in a changing economic environment everything is determined by volume of available information and speed of its transfer. Accordingly, shares of those companies which have been able to offer to the market something novel, new, and added to a new idea a qualitative service which has been distributed over the world via IT, are considered more

valuable. This usually takes time from a year to three years depending on the kind of product or service. Such enterprises maintain their maximum value as long as a new product's *know-how* is at their disposal. Today, it is usually not longer than three years, because with the help of technologies currently available in the world, competitors without difficulties can make a new idea easily substitutable or widely accessible.

21. Analyzing opportunities for improvement of valuation methods the conclusion is that value of an up-to-date enterprise is found in the ability to generate something new and previously non-existent (human factor), preserve it and maintain it at least for a short time in a monopoly situation in a respective market and finally distribute it quickly. Afterwards to maximize the company's value one can choose between two options - sell the company's shares for a most advantageous price or search for opportunities of creating other new products.

Proposals

Theoretical findings, executed investigations and the developed company valuation method of *A changing environment model* gives the possibility to draw the following proposals:

1. In countries with a transitional economy in conditions of instability, when it is especially difficult to make adequate long-term forecasts, it is useful to shorten a prognosis period to 3 years. To promote greater accuracy of results the prognosis period in circumstances of CEE it is suggested to be divided in smaller units: half-years or quarters.

2. To create additional cash flows in circumstances of a changing economic environment which provides additional increase to value the following is important:

   - Take into account mutual dependencies and trends;
   - Explore structure of expenses, especially relations of fixed and variable costs;
   - Evaluate possible inflation for each expense category;
   - explore unique and extraordinary expenditures which can appear in financial statements for previous years and may discontinue in coming years;
   - Specify depreciation according to current status of assets and their increase or decrease in the future;
   - Calculate interest expense on the basis of forecast debt level;
   - Compare predicted expense with respective indicators of competitors or analogue companies - average level of companies of the same sector.

3. The investigation's analysis of valuation methods allows concluding that comparing the discounted cash flow evaluation with the real market price, the correlation level between these figures achieves even 80% and more. Therefore, when developing new models of company valuation, the DCF method is useful for use as a theoretical base.

4. As a result of the investigation's analysis into valuation methods, it is possible to conclude that when valuing enterprises in circumstances of a changing economic environment it is suggested to pay special attention to:
- Evaluation of reliably available data;
- Selection criteria for similar enterprises;
- Characteristics of multipliers of most important prices and specifics of its use in valuation practice in circumstances of a changing economic environment;
- Justification for creation of ultimate size of value;
- Choice of size of multipliers for evaluation of main interim results and making corrections.

5. To increase the company's value in the framework of company administration the managers need to implement a new - *Value-based management* (VBM) approach.
Successful implementation and maintenance of VBM in the company today is important not only for increase of the company's value but also in the process of long-term strategy planning.