

# *Economic Research Institute of Kazakhstan Republic*

*The XVIII INFORUM World Conference*

*Kazakhstan monthly econometrical model  
of short-term macroeconomic forecasting EMF  
(Econometrical monthly based forecasting model)*

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**Hikone, Japan**

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# **I. COMPETITIVE ABILITY OF KAZAKHSTAN IN THE WORLD ECONOMY**

## **I. COMPETITIVE ABILITY OF KAZAKHSTAN IN THE WORLD ECONOMY**

# Main indicators of Kazakhstan



## BASIC FACTS

		Rank
Capital	Astana	
Land area (km <sup>2</sup> '000)	2,724.9 (2008)	-
Exchange rate (per \$)	147.51 (2009)	-
Population (millions)	16.00 (2009)	32
GDP (\$ billions)	107.7 (2009)	48
GDP (PPP) per capita (\$)	11,218 (2009)	47
Real GDP growth (%)	1.2 (2009)	8
Consumer Price Inflation (%)	7.3 (2009)	53
Unemployment rate (%)	6.6 (2009)	21
Labor force (millions)	8.46 (2009)	30
Current Account Balance (%)	-3.2 (2009)	46
Direct Investment		
Stocks Inward (\$ billions)	58.3 (2008)	40
Flows Inward (% of GDP)	11.7 (2009)	3

# WORLD Competitiveness Yearbook



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**THE DRAGON VERSUS THE ELEPHANT**

Strategic differences and common success stories, by Suzanne Rosset, World Competitiveness Center, Deputy Director

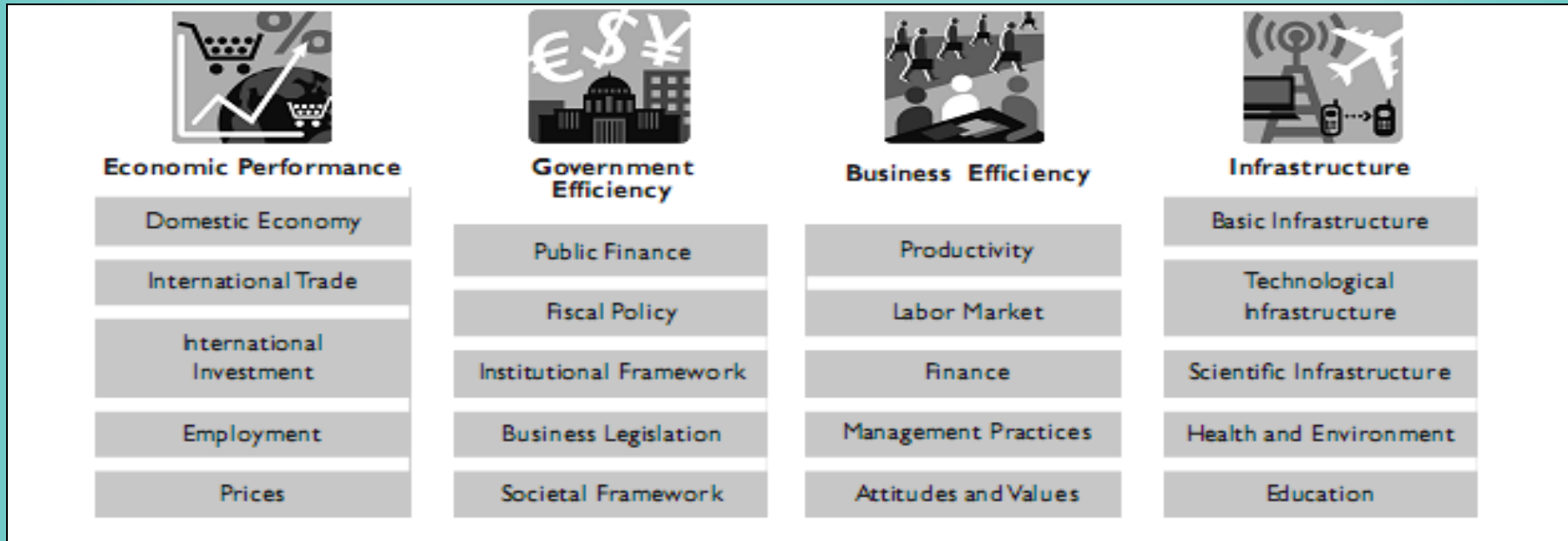
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*The rating of competitiveness of the separate countries in economic is made by the International Institute for Management Development in Lausanne (IMD) and published in the world famous, universal annual report on competitiveness «World Competitiveness Yearbook» (WCY).*

*The World Competitiveness Yearbook (WCY) analyzes and ranks how nations and enterprises manage the totality of their competencies to achieve increased prosperity.*

- **Features 58 industrialized and developing countries**
- **Provides 327 criteria, grouped into four Competitiveness Factors and aggregates data over a 5-year period**
- **Hard data are taken from international, national and regional organizations and private institutes**
- **Published since 1989**

# Competitiveness Factors



*The methodology of the WCY thus divides the national environment into four main factors:*

- **Economic Performance**
- **Government Efficiency**
- **Business Efficiency**
- **Infrastructure**

**In turn, each of these factors is divided into 5 sub-factors which highlight every facet of the areas analyzed.**

**Altogether, the WCY features 20 such sub-factors.**

# SUB-FACTOR RANKINGS 2010



## Economic Performance

## Government Efficiency

	Domestic Economy	International Trade	International Investment	Employment	Prices	Public Finance	Fiscal Policy	Institutional Framework	Business Legislation	Societal Framework
Japan	9	54	30	10	56	56	33	20	21	53
Jordan	46	14	51	53	19	40	18	45	39	55
Kazakhstan	38	55	27	23	49	16	12	39	26	24
Korea	10	22	50	4	41	19	13	23	44	49
Lithuania	56	49	49	55	36	41	34	37	33	26
Luxembourg	13	3	57	14	30	8	30	12	17	12
Malaysia	30	4	22	18	10	15	8	7	19	27
Mexico	45	46	26	6	7	26	28	52	53	54
Netherlands	14	9	21	12	38	25	42	10	13	7



# SUB-FACTOR RANKINGS 2010



## Business Efficiency

## Infrastructure

Productivity & Efficiency	Business Efficiency					Infrastructure					
	Labor Market	Finance	Management Practices	Attitudes and Values		Basic Infrastructure	Technological Infrastructure	Scientific Infrastructure	Health and Environment	Education	
42	14	17	15	31		18	23	2	11	29	Japan
43	51	28	51	43		57	51	53	47	45	Jordan
39	8	42	23	18		33	40	44	52	40	Kazakhstan
26	35	30	27	22		20	18	4	27	35	Korea
53	21	49	34	34		30	24	46	33	22	Lithuania
8	40	2	5	21		24	10	25	16	17	Luxembourg
27	4	9	1	1		16	19	27	34	33	Malaysia
51	30	51	47	51		52	54	42	43	52	Mexico
14	12	19	19	9		4	12	17	12	12	Netherlands



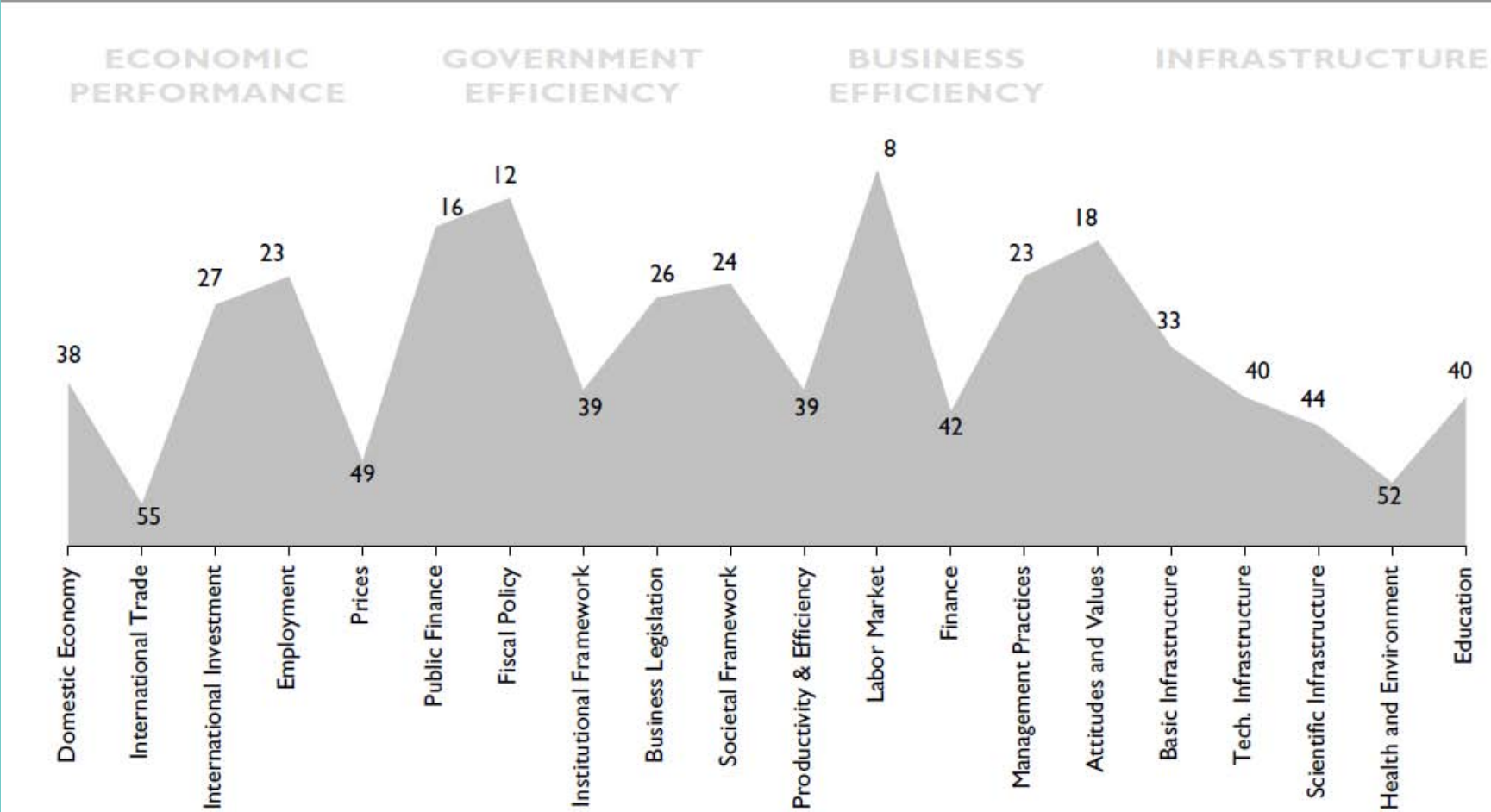
# COMPETITIVENESS EVOLUTION

IMPROVEMENTS		WCY 2009	WCY 2010
1.3.03	<b>Direct investment stocks abroad</b> US\$ billions	2.16	5.84
1.3.04	<b>Direct investment stocks abroad</b> % of GDP	2.06	4.38
1.5.01	<b>Consumer price inflation</b> Average annual rate	17.0	7.3
2.3.12	<b>Bureaucracy</b> does not hinder business activity (Survey)	1.94	2.91
2.2.11	<b>Employer's social security contribution rate</b> Compulsory contribution	10.86	5.90
4.3.16	<b>Number of patents in force</b> Per 100,000 inhabitants	33.2	43.7
1.3.07	<b>Direct investment stocks inward</b> US\$ billions	44.60	58.28
3.3.01	<b>Banking sector assets</b> % of GDP	58.92	75.60
2.4.21	<b>Labor market flexibility</b> Index on rigidity of employment (index 0-100)	23	17
2.4.12	<b>Parallel (black-market, unrecorded) economy</b> does not impair economic development (Survey)	2.37	3.01
3.3.09	<b>Stock markets</b> provide adequate financing to companies. (Survey)	3.46	4.34
4.4.12	<b>Energy intensity</b> Commercial energy consumed for each dollar of GDP in kilojoules	41,968	32,038
2.4.01	<b>Tariff barriers</b> Tariffs on imports: Most favored nation simple average rate	7.80	6.00
2.3.13	<b>Bribing and corruption</b> do not exist (Survey)	2.06	2.52
4.2.10	<b>Internet users</b> Number of internet users per 1000 people / Source: Computer Industry Almanac	127	153

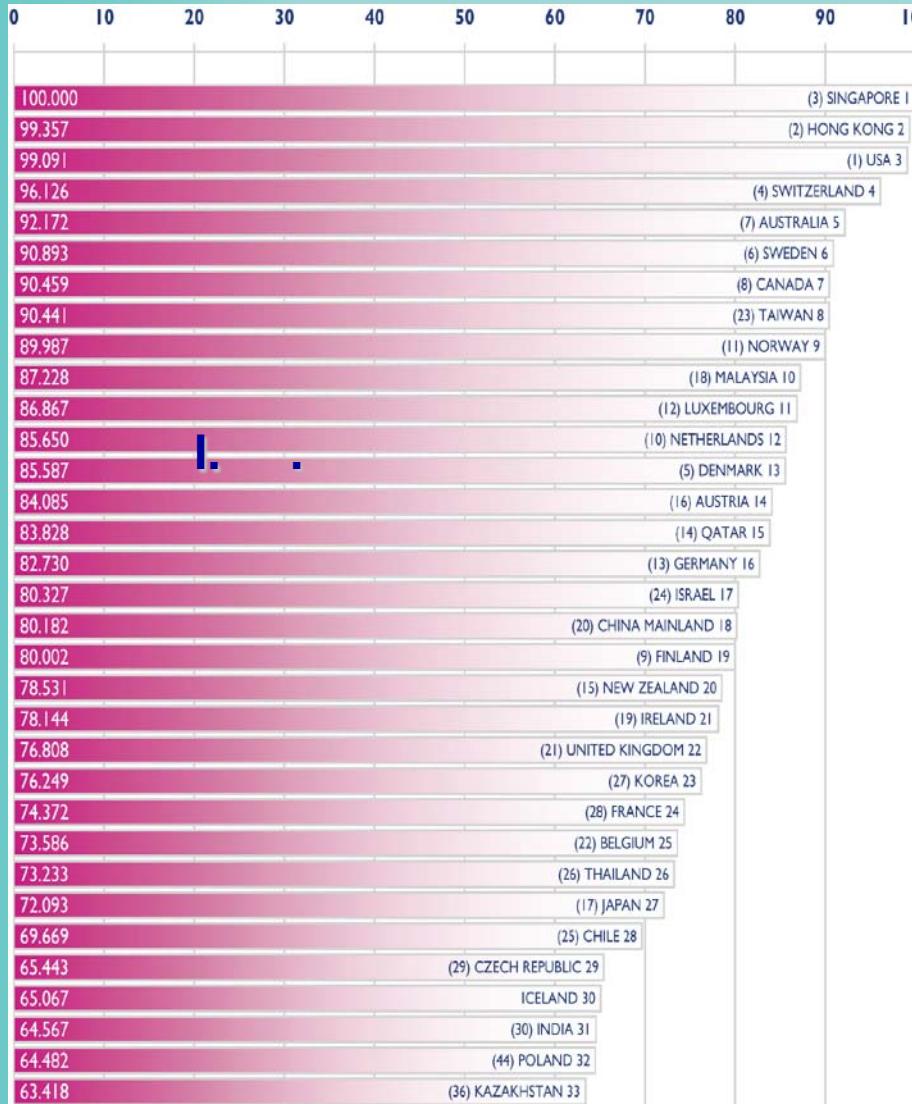
# COMPETITIVENESS LANDSCAPE

DECLINES		WCY 2009	WCY 2010
1.2.02	Current account balance % of GDP	4.71	-3.16
2.1.02	Government budget surplus/deficit % of GDP	4.80	-3.10
1.1.15	Real GDP Growth per capita % change, based on national currency in constant prices	1.82	-0.18
2.1.07	Central government foreign debt % of GDP	1.22	2.07
1.1.14	Real GDP Growth % change, based on national currency in constant prices	3.2	1.2
3.3.12	Value traded on stock markets US\$ per capita	572	218
2.1.04	Total general government debt % of GDP	8.29	13.18
3.3.11	Stock market capitalization % of GDP	39.47	23.29
1.2.08	Exports of goods US\$ billions	71.17	43.19
1.2.09	Exports of goods % of GDP	53.34	40.10
1.2.21	Tourism receipts International tourism receipts as a % of GDP	0.97	0.76
3.2.01	Compensation levels Total hourly compensation for manufacturing workers, US\$	4.13	5.01
1.1.20	GDP per capita US\$ per capita	8,456	6,732
1.3.01	Direct investment flows abroad US\$ billions	3.81	3.08
1.2.19	Trade to GDP ratio (Exports + Imports) / (2 x GDP)	46.39	39.31

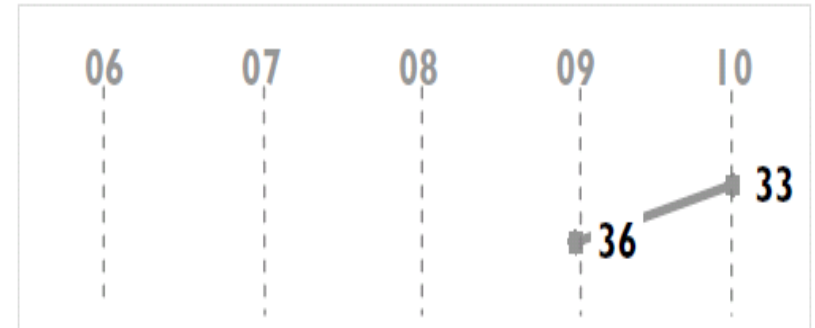
# COMPETITIVENESS LANDSCAPE



# COMPETITIVE ABILITY OF KAZAKHSTAN IN WORLD ECONOMY IN YEAR 2010



## OVERALL PERFORMANCE



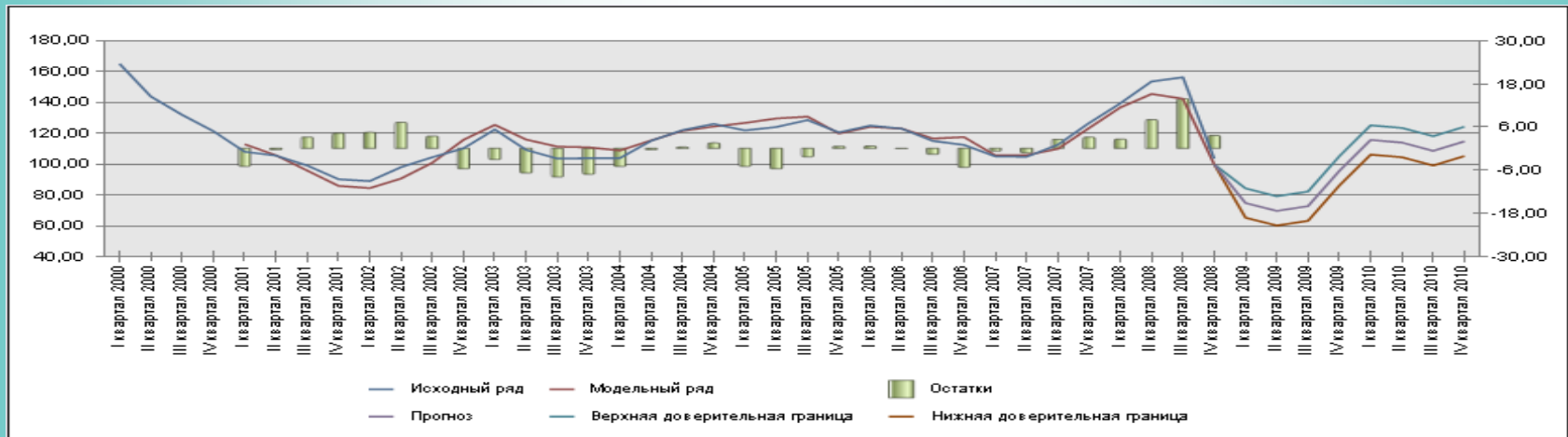
## CHALLENGES IN 2010

- Improve the business environment, financial sector and legal system.
- Accelerate diversification of economic activities.
- Modernize educational and health systems and improve human resources management.
- Modernize social protection, housing and communal services.
- Ensure interethnic cohesiveness, security, and international relations stability.

## II. EMF (Econometrical monthly based forecasting model)

# MONTHLY BASED SHORT-TERM FORECASTING MACROECONOMICAL MODEL

## II. EMF (Econometrical monthly based forecasting model) MONTHLY BASED SHORT-TERM FORECASTING MACROECONOMICAL MODEL





## II. EMF (Econometrical monthly based forecasting model)

### MONTHLY BASED SHORT-TERM FORECASTING MACROECONOMICAL MODEL

- *The purpose of the development monthly based econometrical model EMF is a development of short-term monthly forecasts of the main Kazakhstan macroeconomical indicators to 1 year.*
- *For development of model EMF the statistical database of the basic macroeconomic indicators of Kazakhstan with 2000 on 2010 on months has been collected.*
- *Monthly based short-term forecasting macroeconomical model EMF consists of endogenous and exogenous variables.*
- *On base of the change exogenous variables are developed scenario of macroeconomical forecasts: base, optimistic and pessimistic forecasts.*
- *EMF model based on econometrical regressions in the way of main components method.*
- *The model was developed on automated package Prognoz 5.*

# The endogenous variables of EMF model

## Labor market block

- Number of economically active population (thousand people)
- Number of employed (thousand people)
- Number of unemployed (thousand people)
- Unemployment rate, %

## Monetary block

- Cash money (mln. tenge )
- Monetary stock (mln. tenge )
- Monetary base (mln. tenge )
- Deposits (mln. tenge )
- Credits for legal entities (mln. tenge )
- Credits for persons (mln. tenge )

## Real economy block

- Short-term economical indicator, (% to corr. month of previous year)
- Industrial production volume (bill. tenge)
- Industrial production volume index (% to corr. month of previous year)
- Agricultural production volume index (% to corr. month of previous year)
- Construction volume index (% to corr. month of previous year)
- Retail turnover volume index (% to corr. month of previous year)
- Fixed capital investments (bill. tenge)



# The endogenous variables of EMF model

## Foreign trade block



- Export of goods (US\$ mln.)
- Import of goods (US\$ mln.)
- Trade Balance (US\$ mln.)

## Fiscal block



- Tax revenues (mln. tenge )
- Non-tax receipts (mln. tenge )
- Receipts from fixed capital sale (mln. tenge )
- State budget incomes (mln. tenge )
- State budget expenses(mln. tenge )

## Inflation



- Consumer price index (% to corr. previous month)
- Producer price index (% to corr. previous month)

# Exogenous variables of EMF

Моделі ПК

Экзогенные переменные

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Факты: Факты (Всего 9)

Сценарии: Сценарии (Всего 4)

	A	B	F	G	H	I	J	K	L	M	N
0			апр 2010	май 2010	июн 2010	июл 2010	авг 2010	сен 2010	окт 2010	ноя 2010	дек 2010
1	Курс доллара (тенге за доллар)	Факт									
2		Базовый (для ежемес)	150,00	150,00	150,00	150,00	150,00	150,00	150,00	150,00	150,00
3		Оптимистичный (для ежемес)	150,00	150,00	150,00	150,00	150,00	150,00	150,00	150,00	150,00
4		Пессимистичный (для ежемес)	150,00	150,00	150,00	150,00	150,00	150,00	150,00	150,00	150,00
5	Мировая цена на нефть марки Brent (доллар за баррель)	Факт									
6		Базовый (для ежемес)	65,00	65,00	65,00	65,00	65,00	65,00	65,00	65,00	65,00
7		Оптимистичный (для ежемес)	75,00	75,00	75,00	75,00	75,00	75,00	75,00	75,00	75,00
8		Пессимистичный (для ежемес)	50,00	50,00	50,00	50,00	50,00	50,00	50,00	50,00	50,00
9	Мировая цена на медь (доллар за тонну)	Факт									
10		Базовый (для ежемес)	8 685,00	8 383,00	8 261,00	8 414,00	7 635,00	7 649,00	8 008,00	6 967,00	6 588,00
11		Оптимистичный (для ежемес)	9 206,10	8 885,98	8 756,66	8 918,84	8 093,10	8 107,94	8 488,48	7 385,02	6 983,28
12		Пессимистичный (для ежемес)	7 990,20	7 712,36	7 600,12	7 740,88	7 024,20	7 037,08	7 367,36	6 409,64	6 060,96
13	Мировая цена на пшеницу, HRW (доллар за тонну)	Факт									
14		Базовый (для ежемес)	202,00	202,00	202,00	202,00	202,00	202,00	202,00	202,00	202,00
15		Оптимистичный (для ежемес)	220,00	220,00	220,00	220,00	220,00	220,00	220,00	220,00	220,00
16		Пессимистичный (для ежемес)	180,00	180,00	180,00	180,00	180,00	180,00	180,00	180,00	180,00
17		Факт									

- Export of oil (thousands ton)
- The world price for oil of mark Brent (US\$/barr)
- The world price for copper (US\$/ton)
- The world price for wheat (US\$/ton)
- Exchange rate (tenge/US\$)
- Interest rates on credits for legal entities (%)
- Interest rates on credits for persons (%)
- Commissioning of residential buildings (th.m2)
- Vacancies amount (units)

# Designations of variables of EMF models

Foreign trade block	
Export of goods (US\$ mln)	exVCT
Import of goods (US\$ mln)	imVCT
Fiscal block	
Tax revenues (mln tenge )	taxrev
Non-tax receipts (mln tenge )	non-tax
Receipts from fixed capital sale (mln tenge )	sfixcap
State budget incomes (mln tenge )	inc_sb
State budget expenses(mln tenge )	exp_sb
Monetary block	
Cash money (mln tenge )	m0
Monetary stock (mln tenge )	m3
Monetary base (mln tenge )	mb
Deposits (mln tenge )	depoz
Credits for legal entities (mln tenge )	cred_jur
Credits for persons (mln tenge )	cred_phis
Exogenous variables	
Export of oil (thousands ton)	exoil_n
The world price for oil of mark Brent (US\$/barr)	brent
The world price for copper (US\$/ton)	copper
The world price for wheat (US\$/ton)	HRW
Exchange rate (tenge/US\$)	rate
Interest rates on credits for legal entities (% for month)	ratecredjur
Interest rates on credits for persons (% for month)	credphisrate
Commissioning of residential buildings (thousand square m)	inhouse
Vacancies amount (units)	vacant

# Designations of variables of EMF models

Indicator	Designation
<b>Real economy block</b>	
Short-term economical indicator, (% to corr. month of previous year)	econ_ind
Industrial production volume (bill. tenge)	indV
Industrial production volume index (% to corr. month of previous year)	indI
Agricultural production volume index (% to corr. month of previous year)	agrI
Construction volume index (% to corr. month of previous year)	cnsI
Retail turnover volume index (% to corr. month of previous year)	trdI
Fixed capital investments (bill. tenge)	inv
<b>Labor market block</b>	
Number of economically active population (thousand people)	activpopT
Number of employed (thousand people)	empT
Number of unemployed (thousand people)	unempT
Unemployment rate, %	rate_un
Monthly average wages (tenge)	averwag
Real wages index (% to previous year)	real_wage
<b>Inflation</b>	
Consumer price index (% to corr. previous month)	CPI
Producer price index (% to corr. previous month)	PPI

# Equations of the EMF models

## Foreign trade block

- $exVCT = reg\ Pi(exoil\_n, brent, coper, HRW)$
- $imVCT = reg\ Pi(exVCT, rate, imVCT[-12], averwag)$

## Fiscal block

- $taxrev = reg\ Pi(exVCT, taxrev[-1], indC)$
- $non-tax = reg\ Pi(inv, sfixcap, non-tax[-1])$
- $sfixcap = reg\ Pi(brent, inv, sfixcap[-1])$
- $inc\_sb = reg\ Pi(taxrev, non-tax, inc\_sb[-1])$
- $exp\_sb = reg\ Pi(inc\_sb, indV, averwag[-1])$

## Monetary block

- $m0 = reg\ Pi(averwag, m0[-1])$
- $m3 = reg\ Pi(m0, depoz)$
- $mb = reg\ Pi(mb[-1], depoz, exVCT)$
- $depoz = reg\ Pi(depoz[-1], m0)$
- $cred\_jur = reg\ Pi(depoz, ratecredjur, cred\_jur[-1])$
- $cred\_phis = reg\ Pi(cred\_phis[-1], credphisrate, m0)$

# Equations of the EMF models

## Real economy block

- $econ\_ind = reg\ Pi(agrl, indl, cnsl, trdl)$
- $indV = reg\ Pi(brent, copper, exVCT, rate, inhouse, ratecredjur, cred\_jur)$
- $agrl = reg\ Pi(agrl(-12), exp\_sb(-3), s\_agrl)$
- $indl = reg\ Pi(inv(-6), exVCT, indl(-1))$

## Labor market block

- $empT = reg\ Pi(vacant, averwag, empT(-1), indV)$
- $unempT = reg\ Pi(empT, unempT(-1))$
- $averwag = reg\ Pi(indV, exVCT, averwag(-12))$
- $real\_wage = reg\ Pi(averwag, CPI, real\_wage(-12))$

## Inflation

- $CPI = reg\ Pi(m3, log(imVCT), PPI, rate, CPI(-1), s\_CPI)$
- $PPI = reg\ Pi(brent(-1), copper, PPI(-1), s\_PPI, rate, m3, ratecredjur, credphisrate)$

# The exogenous variables of EMF monthly based model

		Aug.	Sept.	Oct.	Nov.	Dec.	Year
<b>Tenge exchange rate (tenge for USD)</b>	Base	150.0	150.0	150.0	150.0	150.0	148.4
	Optim.	150.0	150.0	150.0	150.0	150.0	148.4
	Pessim.	150.0	150.0	150.0	150.0	150.0	148.4
<b>Brent oil price (USD for barrel)</b>	Base	75.0	75.0	75.0	75.0	75.0	76.4
	Optim.	80.0	80.0	80.0	80.0	80.0	78.4
	Pessim.	50.0	50.0	50.0	50.0	50.0	65.9
<b>The world copper price(USD for ton)</b>	Base	7 635.0	7 649.0	8 008.0	6 967.0	6 588.0	7 196.8
	Optim.	8 093.1	8 107.9	8 488.5	7 385.0	6 983.3	7 381.0
	Pessim.	7 024.2	7 037.1	7 367.4	6 409.6	6 061.0	6 951.1
<b>The world wheat price, HRW (USD for ton)</b>	Base	200.0	200.0	200.0	200.0	200.0	192.8
	Optim.	220.0	220.0	220.0	220.0	220.0	201.1
	Pessim.	180.0	180.0	180.0	180.0	180.0	184.5
<b>Entrance of apartment buildings(thous. sq.m.)</b>	Base	574.4	423.3	641.0	354.8	1 135.1	6 280.6
	Optim.	591.6	423.3	660.2	365.4	1 169.2	6 361.8
	Pessim.	545.7	423.3	609.0	337.1	1 078.3	6 145.3
<b>Number of vacancies(persons)</b>	Base	18 497.0	16 620.0	17 320.0	16 777.0	15 592.0	16 703.4
	Optim.	22 196.4	19 944.0	20 784.0	20 132.4	18 710.4	18 425.1
	Pessim.	14 797.6	13 296.0	13 856.0	13 421.6	12 473.6	14 981.7
<b>Credit rate for legal entities(%)</b>	Base	13.1	12.8	13.0	13.0	12.2	13.7
	Optim.	12.6	12.3	12.5	12.5	11.7	13.4
	Pessim.	13.6	13.3	13.5	13.5	12.7	13.9
<b>Credit rate for persons (%)</b>	Base	19.7	18.7	18.7	18.9	18.0	19.7
	Optim.	19.2	18.2	18.2	18.4	17.5	19.5
	Pessim.	20.2	19.2	19.2	19.4	18.5	20.0
<b>Export of oil and gas condensate (thous. tons)</b>	Base	6 812.0	6 313.0	5 974.0	5 987.0	7 509.6	73 710.8
	Optim.	7 654.0	7 093.3	6 712.4	6 727.0	8 152.0	78 251.7
	Pessim.	6 275.2	5 815.5	5 503.2	5 515.2	7 159.6	70 875.4



***KAZAKHSTAN EMF MONTHLY BASED  
SHORT-TERM FORECASTING MACROECONOMICAL MODEL***

**III. SHORT-TERM FORECASTS OF THE MAIN  
MACROECONOMICAL INDICATORS OF KAZAKHSTAN  
ON THE BASE OF MONTHLY MODEL EMF AND  
QUARTER MODEL KAZSTEM**

# SHORT-TERM FORECASTS BY EMF MONTHLY BASED MODEL

## Monthly forecast of real economy sector for 2010

Indicators	Scen.	Aug.	Sep.	Oct.	Nov.	Dec.	Year
<b>Short-term economical indicator, (% to corr. month of previous year)</b>	Base	107.7	105.1	104.4	103.4	103.8	107.0
	Optim.	107.8	105.3	104.7	103.6	104.0	107.1
	Pessim..	107.4	104.8	104.0	102.9	103.3	106.8
<b>Industrial production volume (bill. tenge)</b>	Base	899.2	888.6	903.1	866.4	910.0	10 941.3
	Optim.	950.2	938.3	954.0	915.7	958.4	11 190.6
	Pessim..	759.3	749.8	762.4	728.0	772.5	10 245.9
<b>Industrial production volume index (% to corr. month of previous year)</b>	Base	105.6	105.3	105.0	104.9	104.7	108.0
	Optim.	105.8	105.5	105.2	105.2	105.0	108.1
	Pessim..	105.4	104.9	104.5	104.3	104.0	107.8
<b>Agricultural production volume index (% to corr. month of previous year)</b>	Base	117.9	102.5	96.7	98.2	94.4	102.7
	Optim.	117.9	102.5	96.7	98.3	94.5	102.7
	Pessim..	117.9	102.5	96.7	98.0	94.2	102.6
<b>Construction volume index (% to corr. month of previous year)</b>	Base	92.2	86.1	97.5	82.7	105.8	96.6
	Optim.	92.5	87.9	98.8	85.0	108.5	97.5
	Pessim..	91.2	85.4	97.3	82.0	104.9	96.3
<b>Retail turnover volume index (% to corr. month of previous year)</b>	Base	112.8	111.2	109.6	108.2	107.2	111.7
	Optim.	112.9	111.4	109.9	108.6	107.5	111.8
	Pessim..	112.4	110.7	109.1	107.5	106.4	111.4
<b>Fixed capital investments (bill. tenge)</b>	Base	302 782.7	332 831.4	333 244.6	341 614.9	469 190.8	4 037 300.3
	Optim.	313 443.5	344 451.7	345 632.8	354 236.2	481 838.7	4 097 239.0
	Pessim..	276 580.1	303 711.3	302 208.7	309 953.1	437 330.4	3 887 419.6

# SHORT-TEM FORECASTS BY EMF MONTHLY BASED MODEL

## Monthly forecast of monetary sector for 2010.

Indicators	Scen.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Year
<b>M0 – cash money (bill.tenge/at the end of period)</b>	<b>Base</b>	1 043.1	1 048.4	1 048.3	1 047.5	1 045.5	1 091.8	1 091.8
	<b>Optim.</b>	1 044.2	1 051.8	1 053.4	1 054.0	1 053.1	1 100.1	1 100.1
	<b>Pessim..</b>	1 042.4	1 041.8	1 037.1	1 032.5	1 027.6	1 071.5	1 071.5
<b>M3 (bill.tenge/at the end of period)</b>	<b>Base</b>	8 428.3	8 563.5	8 690.4	8 813.4	8 931.9	9 110.0	9 110.0
	<b>Optim.</b>	8 429.8	8 568.2	8 698.4	8 824.7	8 946.5	9 127.7	9 127.7
	<b>Pessim..</b>	8 427.4	8 554.8	8 673.6	8 788.4	8 898.7	9 068.6	9 068.6
<b>Money base – reserve money (bill.tenge/at the end of period)</b>	<b>Base</b>	2 847.9	2 928.0	2 996.6	3 057.9	3 113.4	3 161.2	3 161.2
	<b>Optim.</b>	2 844.3	2 919.3	2 985.9	3 046.7	3 102.5	3 151.3	3 151.3
	<b>Pessim..</b>	2 850.2	2 945.0	3 020.4	3 084.2	3 140.0	3 186.1	3 186.1
<b>Deposits (bill.tenge/at the end of period)</b>	<b>Base</b>	7 385.2	7 515.2	7 642.1	7 766.0	7 886.4	8 018.3	8 018.3
	<b>Optim.</b>	7 385.6	7 516.5	7 645.0	7 770.8	7 893.4	8 027.7	8 027.7
	<b>Pessim..</b>	7 385.0	7 512.9	7 636.5	7 755.9	7 871.1	7 997.1	7 997.1
<b>Credits for legal entities (bill.tenge/at the end of period)</b>	<b>Base</b>	5 397.6	5 442.1	5 490.1	5 533.4	5 575.2	5 630.3	5 630.3
	<b>Optim.</b>	5 406.3	5 460.1	5 517.7	5 570.8	5 622.6	5 687.8	5 687.8
	<b>Pessim..</b>	5 388.3	5 423.3	5 461.8	5 495.3	5 527.4	5 572.5	5 572.5
<b>Credits for persons (bill.tenge/at the end of period)</b>	<b>Base</b>	2 135.5	2 150.3	2 176.8	2 202.6	2 225.1	2 258.2	2 258.2
	<b>Optim.</b>	2 141.4	2 162.0	2 194.1	2 225.5	2 253.5	2 292.0	2 292.0
	<b>Pessim..</b>	2 129.6	2 138.6	2 159.3	2 179.5	2 196.5	2 224.1	2 224.1

# SHORT-TEM FORECASTS BY EMF MONTHLY BASED MODEL

## Monthly forecast of the fiscal block for 2010.

Indicators	Scen.	Aug.	Sep.	Oct.	Nov.	Dec.	Year
State budget revenues (bill.tenge)	Base	275.1	281.7	286.1	287.0	296.1	3 758.7
	Optim.	287.5	299.3	306.3	308.3	317.4	3 851.5
	Pessim..	250.1	240.8	236.7	233.5	241.4	3 535.2
Tax revenues (bill.tenge)	Base	211.5	218.2	220.5	218.8	227.4	2 548.0
	Optim.	223.1	232.4	235.6	234.2	242.4	2 619.2
	Pessim..	186.3	184.1	182.8	179.9	188.5	2 373.2
Fixed capital sale revenues (bill.tenge)	Base	4.2	4.5	4.7	4.9	5.6	49.1
	Optim.	4.3	4.6	4.9	5.1	5.8	49.8
	Pessim..	4.0	4.2	4.3	4.4	5.1	47.2
State budget expenditures (bill.tenge)	Base	307.2	306.7	311.2	303.0	315.8	3 930.8
	Optim.	322.9	323.9	329.5	321.3	333.9	4 018.4
	Pessim..	267.0	261.4	262.7	253.8	266.4	3 698.3

## Monthly forecast of inflation for 2010.

Indicators	Scen.	% to previous month					
		Aug.	Sep.	Oct.	Nov.	Dec.	Year
Consumer price index	Base	100.1	100.3	100.9	101.0	101.0	108.2
	Optim.	100.1	100.4	100.9	101.0	101.0	108.4
	Pessim..	100.1	100.1	100.8	100.9	100.9	107.7
Producer price index	Base	102.8	101.8	101.6	99.9	100.0	108.9
	Optim.	103.5	104.0	102.1	100.1	100.2	112.9
	Pessim..	101.9	92.2	99.4	99.3	99.8	94.9

# SHORT-TEM FORECASTS BY EMF MONTHLY BASED MODEL

## Monthly forecast of trade balance for 2010.

Indicators	Scen.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Year
Export of goods (mln. USD)	Base	4 641.1	4 825.8	4 623.5	4 493.8	4 476.1	5 085.9	57 725.7
	Optim.	4 965.1	5 448.0	5 220.7	5 074.5	5 056.0	5 625.7	60 969.5
	Pessim..	4 434.6	3 389.3	3 203.0	3 083.5	3 067.2	3 727.1	50 484.1
Import of goods (mln. USD)	Base	2 322.9	2 295.8	2 258.8	2 199.6	2 329.4	2 488.0	26 853.9
	Optim.	2 342.7	2 335.4	2 296.9	2 236.8	2 366.4	2 522.7	27 060.3
	Pessim..	2 310.3	2 203.0	2 167.0	2 108.3	2 238.3	2 399.9	26 386.2

## Monthly forecast of labor market for 2010.

Indicators	Scen.	Aug.	Sep.	Oct.	Nov.	Dec.	Year
Number of economically active population (thousand people)	Base	8 638.0	8 633.1	8 631.5	8 623.6	8 699.2	8 622.1
	Optim.	8 656.6	8 660.9	8 665.7	8 661.5	8 738.7	8 635.3
	Pessim..	8 605.4	8 581.3	8 566.8	8 550.9	8 622.0	8 597.2
Number of employed (thousand people)	Base	8 132.5	8 124.9	8 121.4	8 111.6	8 189.8	8 111.0
	Optim.	8 152.2	8 154.8	8 158.7	8 153.7	8 234.2	8 125.5
	Pessim..	8 098.2	8 069.4	8 050.7	8 031.2	8 103.4	8 083.7
Number of unemployed (thousand people)	Base	505.4	508.2	510.2	511.9	509.4	511.1
	Optim.	504.4	506.1	507.0	507.8	504.5	509.9
	Pessim..	507.1	512.0	516.1	519.7	518.7	513.5
Unemployment rate, %	Base	5.9	5.9	5.9	5.9	5.9	5.9
	Optim.	5.8	5.8	5.9	5.9	5.8	5.9
	Pessim..	5.9	6.0	6.0	6.1	6.0	6.0
Monthly average wages (tenge)	Base	77 164.7	75 703.8	75 456.2	75 017.0	91 041.9	75 729.4
	Optim.	77 990.9	76 500.6	76 241.4	75 795.0	91 776.9	76 087.1
	Pessim..	75 162.4	73 722.0	73 476.1	73 048.2	89 126.1	74 888.9
Real wages index (% to previous year)	Base	99.1	98.1	99.2	98.9	119.5	131.4
	Optim.	99.6	98.2	99.3	99.0	120.1	133.6
	Pessim..	97.1	98.0	99.2	98.9	119.1	127.9

# THE SHORT-TERM FORECAST ON THE QUARTERLY MODELS KAZSTEM

## The base scenario of the forecast of GDP by production for 2010

Indicators	9 months 2010			2010 year		
	Billion tenge	Real growth	Deflator	Billion tenge	Real growth	Deflator
<b>Gross domestic product</b>	<b>12 893.40</b>	<b>107.10</b>	<b>107.30</b>	<b>18 165.20</b>	<b>104.30</b>	<b>108.20</b>
Agriculture	747.3	104.5	103.7	1009.8	95.6	105.3
Industry	3894.5	109.5	107.5	5467.9	106.4	107.8
Construction	997.2	99.8	115.7	1311.5	93.3	108.8
Trade	1717.1	108.8	107.4	2393.5	106.8	108.4
Hotels and restaurant	124.5	108.4	111.6	166.6	109.7	111.6
Transport	1052	105.7	110.6	1477.6	102.7	107.8
Communication	335.4	110.8	116.6	505.4	107.8	111.1
Financial activities	617.9	96.5	108.9	922.1	100.3	116.9
Real estate transactions, lease and services to consumers	1881.2	104.9	102	2792.5	104.7	103.7
Government administration	250.4	103.7	89.6	332	103.3	92.2
Education	439.6	103.6	107.2	637.5	102.9	112.6
Healthcare	257.2	103.8	102.4	335.8	104.1	107.2
Other services	275.3	102.2	105.1	361.7	102.2	111.7
FISIM	-344.2	87.7	89.1	-473.5	94.2	92.7
Taxes on products and import	647.8	110.3	105.5	924.7	109.4	113.4

# THE SHORT-TERM FORECAST ON THE QUARTERLY MODELS KAZSTEM

## The optimistic scenario of the forecast of GDP by production for 2010

Indicators	9 months 2010			2010 year		
	Billion tenge	Real growth	Deflator	Billion tenge	Real growth	Deflator
<b>Gross domestic product</b>	<b>13 595.10</b>	<b>107.40</b>	<b>112.80</b>	<b>18 919.90</b>	<b>104.80</b>	<b>113.60</b>
Agriculture	795.8	102	103.9	1046.5	98.5	106.1
Industry	4430.8	109.8	122	6177.2	107.1	123.3
Construction	925.8	100.5	106.8	1241.1	93.5	102.9
Trade	1772.7	107.5	112.2	2486.2	105.8	113.5
Hotels and restaurant	124.7	109.2	111	167.6	110.8	112.3
Transport	1083.2	108.9	110.6	1507.6	105.8	110.2
Communication	308.2	112.1	105.9	465.9	109.8	121
Financial activities	560.6	107.6	88.6	716.6	106.8	85.3
Real estate transactions, lease and services to consumers	1988.8	104.1	108.6	2836.6	104.5	106.9
Government administration	279.9	106.1	97.9	360.9	105.8	99.4
Education	450.4	102.9	110.6	639.1	102.5	113.5
Healthcare	258.2	103.4	103.1	333.9	103.9	107.3
Other services	296.6	101.7	113.7	396.8	102	115.9
FISIM	-423.5	105	91.6	-511	104.4	90.8
Taxes on products and import	742.9	106.8	125	1054.8	107.1	129.9



# THE SHORT-TERM FORECAST ON THE QUARTERLY MODELS KAZSTEM

## The pessimistic scenario of the forecast of GDP by production for 2010

Indicators	9 months 2010			2010 year		
	Billion tenge	Real growth	Deflator	Billion tenge	Real growth	Deflator
<b>Gross domestic product</b>	<b>12 123.40</b>	<b>105.70</b>	<b>102.20</b>	<b>16 449.10</b>	<b>102.90</b>	<b>100.60</b>
Agriculture	763.3	98	102.3	996.4	95.7	104
Industry	3469.2	109	96.2	4504	106.1	90.7
Construction	860.2	100.5	99.2	1145.4	93.5	94.9
Trade	1739	105.7	112	2428.6	103.7	113.2
Hotels and restaurant	120.8	105.5	111.3	160.8	106.1	112.5
Transport	952.7	108.7	97.4	1300.5	105.6	95.3
Communication	294.7	107.2	105.9	442.3	104.4	120.8
Financial activities	625	96	110.7	828.7	94.7	111.3
Real estate transactions, lease and services to consumers	1942	100	110.4	2773.1	100.2	109
Government administration	279.3	106.2	97.7	359.9	105.8	99
Education	450	102.9	110.5	638	102.5	113.3
Healthcare	257.9	103.4	103	333.3	103.9	107.1
Other services	290	101.1	111.9	385.8	101.3	113.5
FISIM	-473.6	92.6	116.1	-584.1	91.6	118.2
Taxes on products and import	553	106.7	93.1	736.4	106.9	90.8

# THE COMPARISON OF REAL VALUES OF THE INDICATORS AND THEIR FORECASTS BY EMF MONTHLY BASED MODEL

Indicators	Actual data		Forecast		Deviation, %	
	April	May	April	May	April	May
Short-term economical indicator (% to corr. month of previous year)	110.3	109.7	104.0	103.1	5.7	6.0
Industrial production volume (bill. tenge)	970.5	940.8	875.7	876.8	9.8	6.8
Industrial production volume (% to corr. month of previous year)	111.8	112.3	105.3	104.2	5.9	7.2
Agricultural production volume (% to corr. month of previous year)	103.3	103.9	105.2	105.4	-1.8	-1.5
Construction volume (% to corr. month of previous year)	96.2	97.4	103.3	103.6	-7.4	-6.4
Retail turnover (% to corr. month of previous year)	112	117.1	108.6	108.1	3.1	7.7
Number of economically active population (thousand people)	8 709.4	8 748.6	8 474	8 474	2.7	3.1
Number of employed (thousand people)	8 174.1	8 215	7 930	7 929	3.0	3.5
Number of unemployed (thousand people)	535.3	533.6	545	545	-1.7	-2.1
Unemployment rate, %	6.1	6.1	6.4	6.4	-5.4	-5.4
Fixed capital investments (bill. tenge)	315 298	385 648	316 046	322 520	-0.2	16.4
Consumer price index (% to previous month)	100.7	100.6	100.5	100.4	0.2	0.2
Producer price index (% to previous month)	103.1	105.3	99.8	101.0	3.2	4.1

***KAZAKHSTAN EMF MONTHLY BASED  
SHORT-TERM FORECASTING MACROECONOMICAL MODEL***

**IV. VISUALIZATION AND PUBLICATION OF THE  
FORECASTS OF MACROECONOMICAL INDICATORS OF  
KAZAKHSTAN ON THE BASE OF SHORT-TERM  
FORECASTING MODELS IN QUARTERLY REPORTS AND  
AT BI MONITORING SYSTEM**

# THE PUBLICATION OF THE FORECASTS IN REPORTS

***THE RESULTS OF THE FORECASTS MADE BY KAZSTEM AND EMF MODELS WERE USED FOR WRITING THE FOLLOWING REPORTS:***

- ❖ ***«The analysis of the economy development factors and the macroeconomical forecast to 2009-2013» annual report of 2008***
- ❖ ***«The analysis of the economy development factors and the macroeconomical forecast to 2010-2014» annual report 2009***
- ❖ ***«THE ANALYSIS AND ESTIMATION OF MACROECONOMICAL INDICATORS ON THE BASE OF SHORT-TERM FORECASTING INSTRUMENTS» quarterly report of 2010***



АО «Институт экономических исследований»

«УТВЕРЖДАЮ»

И.о. Президента

Бошева Ж.К.

«\_\_» \_\_\_\_\_ 2010 г.

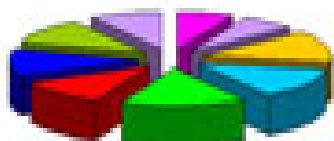
ОТЧЕТ ПО ТЕМЕ:

«АНАЛИЗ И ОЦЕНКА МАКРОЭКОНОМИЧЕСКИХ  
ПОКАЗАТЕЛЕЙ НА ОСНОВЕ ИНСТРУМЕНТОВ КРАТКОСРОЧНОГО  
ПРОГНОЗИРОВАНИЯ»  
ЗА 1 КВАРТАЛ 2010 ГОДА

Научный руководитель и ответственный исполнитель:  
Начальник Управления среднесрочного  
прогнозирования

Айдарханова Б.Б.

# VISUALIZATION OF KAZSTEM AND EMF MODELS AT BI MONITORING SYSTEM



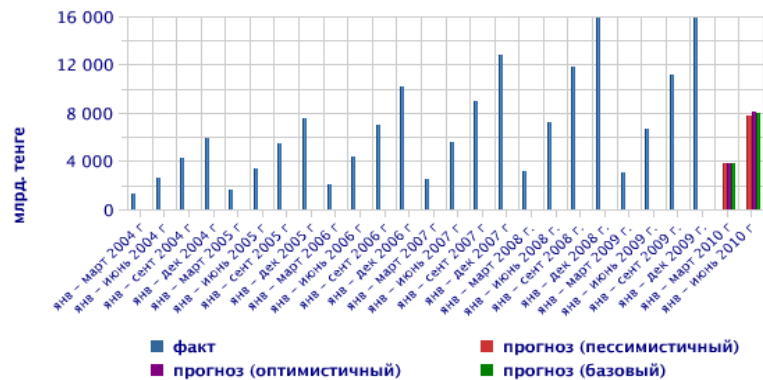
Модель краткосрочного прогнозирования KazSTEM

<b>ВВП</b>	Составляющие ВВП методом производства	Составляющие ВВП методом конечного использования	Государственные финансы	Денежно- кредитный сектор	Инфляция	Платежный баланс	Рынок труда	Экзогенные переменные	Модель ежемесячного прогнозирования
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# VISUALIZATION OF KAZSTEM AND EMF MODELS AT BI MONITORING SYSTEM

<b>ВВП</b>	Составляющие ВВП методом производства	Составляющие ВВП методом конечного использования	Государственные финансы	Денежно-кредитный сектор	Инфляция	Платежный баланс	Рынок труда	Экзогенные переменные	Модель ежемесячного прогнозирования	Параметры страницы
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**ВВП методом производства**



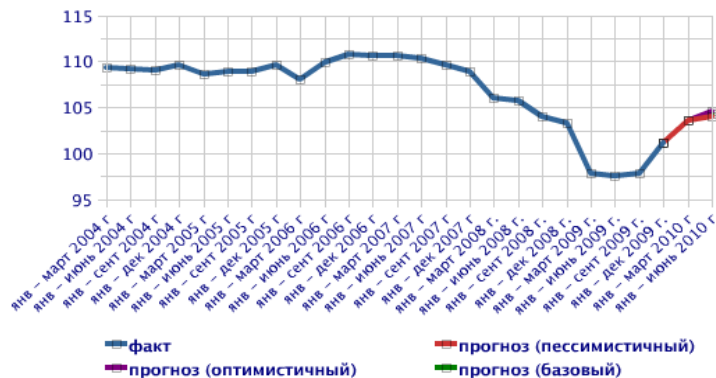
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**ВВП методом конечного использования**



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**ИФО ВВП методом производства, в % к соотв. периоду предыдущего года**



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**ИФО ВВП методом конечного использования, в % к соотв. периоду предыдущего года**



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## THE MAIN DIRECTIONS FOR ECONOMETRICAL MODELS IMPROVEMENT

- ❖ *The main directions for econometrical models improvement:*
  - *The all-time refreshment and improvement of KazSTEM and EMF models.*
  - *The development of new econometrical and economy-mathematical models at new directions of economy researches and various sectors of economy.*
  - *The cooperation with leading international institutions in economical forecasting and economical modeling area for new economy-mathematical models development.*

***Thank you for your attention!***