STAKEHOLDER'S FINANCIAL RELATIONS AND BANK BUSINESS MANAGEMENT EFFICIENCY: EVIDENCE FROM UKRAINE

presented by: Maryna Brychko

AGENDA

H. JAMES HARRINGTON

"MEASUREMENT is the first step that leads to control and eventually to improvement.
If you can't measure something, you can't understand it.
If you can't understand it, you can't CONTROL it.
If you can't control it, you can't IMPROVE it."

GEORGE E. P. BOX

"All MODELS are WRONG, but some are USEFUL"

Bank business management efficiency within homogeneous group of banks (Managerial efficiency (ME))

represents managerial behavior in procurement, allocation, management and control of financial resources, as well as risks of banking activities (applying management ideology of bank agents)

Business management efficiency of the homogeneous group of banks within banking system of Ukraine (Organizational efficiency (OE))

reflects different systems of financial relationships with their stakeholders, particularly but not exclusively, the model of corporate governance.

Bank business management efficiency (Technical efficiency (TE))

HOMOGENEOUS GROUPS

State-owned banks

Commercial banks with controlling share of domestic owner

50-100%

of equity capital belongs to foreigners

Banks, under the control of national ownership

Foreign controlled banks, banks with the residency of equity in Cyprus or other offshore zone are not included

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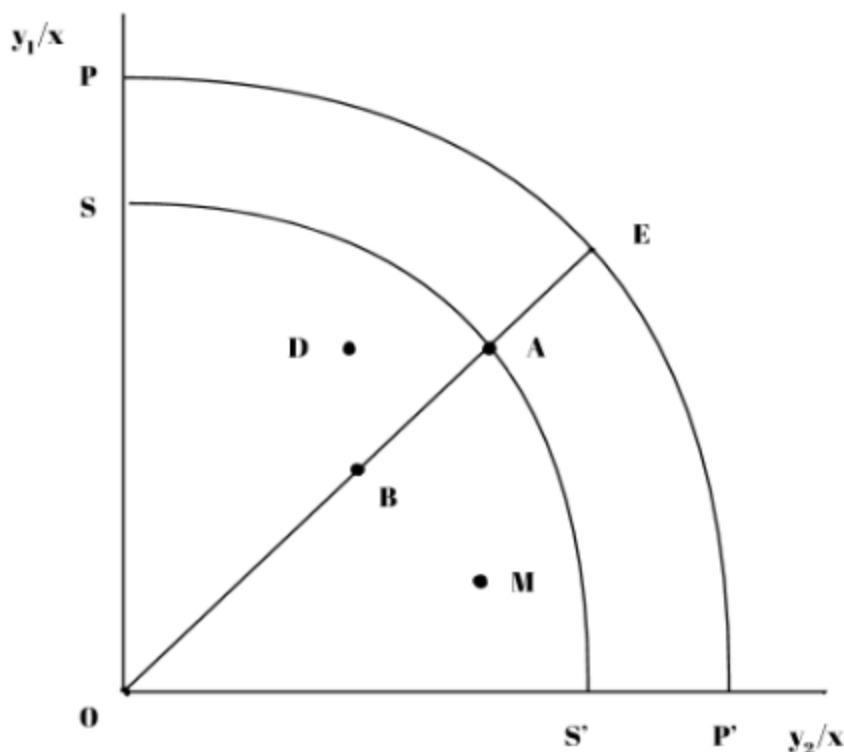
B - a bank under evaluation;

A - an efficient reference bank of the separate reference set (homogeneous group of banks) on the efficient frontier;

E - an efficient reference bank of the pooled reference set (banking system of Ukraine) on the efficient frontier;

SS' - a separate reference set (efficient frontier, represented by homogeneous group of banks, either banks controlled under domestic or foreign capital);

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Figure 1. Graphic illustration of the bank business management' efficiency (for example, two parameters used)

Research method DEA

Conceptually

Efficiency =
Outputs / Inputs

Reality is more complex

Inputs →

Technology + System of corporate governance + Decision making

→ Outputs

Why DEA?

01
No need to explicitly specify a mathematical form for the production function

02
Proven to be useful in uncovering relationships that remain hidden for other methodologies

03
Capable of handling multiple inputs and outputs and being used with any input-output measurement

04
The sources of inefficiency can be analyzed and quantified for every evaluated unit

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How efficient are banks under evaluation?

Efficiency score (TE) = 0,59

$$TE = \frac{\|OB\|}{\|OE\|}$$

y_1/x

P

S

E

D

A

59% of distance to frontier PP'

B

M

O

S'

P'

y_2/x

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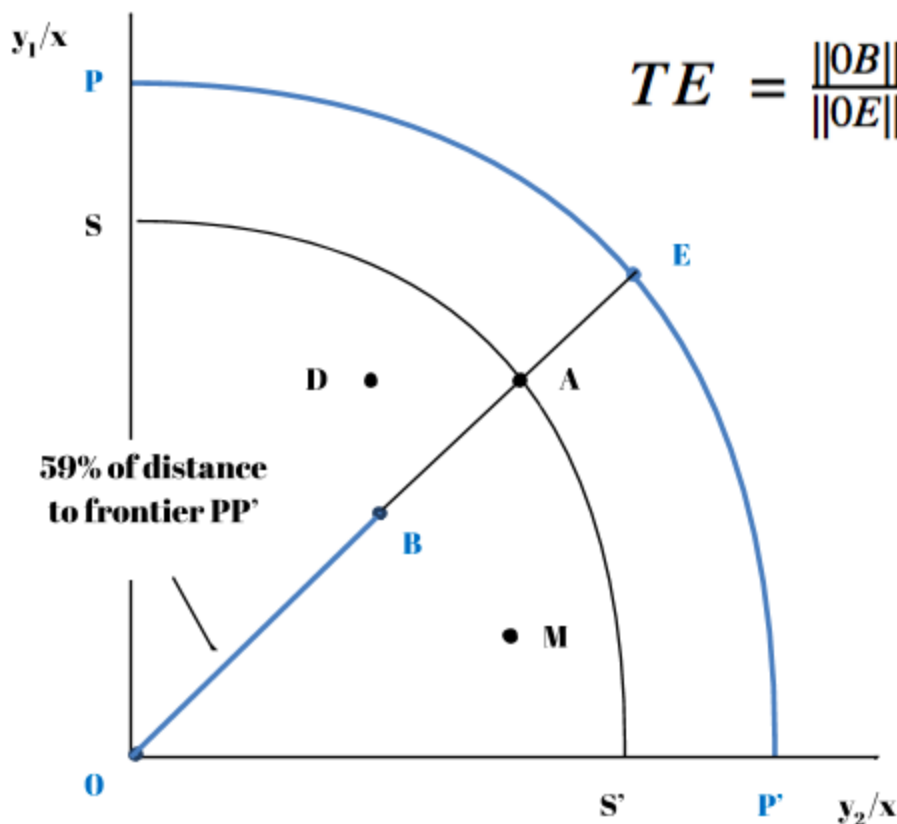
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How inefficiency could be explained?

Decomposition of efficiency measure

$$TE = ME \times OE$$

y_1/x

P

S

$$ME = \frac{\|0B\|}{\|0A\|}$$

D •

75% of distance to frontier SS'

E

A

B

$$OE = \frac{\|0B\|}{\|0E\|} \div \frac{\|0B\|}{\|0A\|} = \frac{\|0A\|}{\|0E\|}$$

O

S'

P'

y_2/x

79% of distance to frontier PP'

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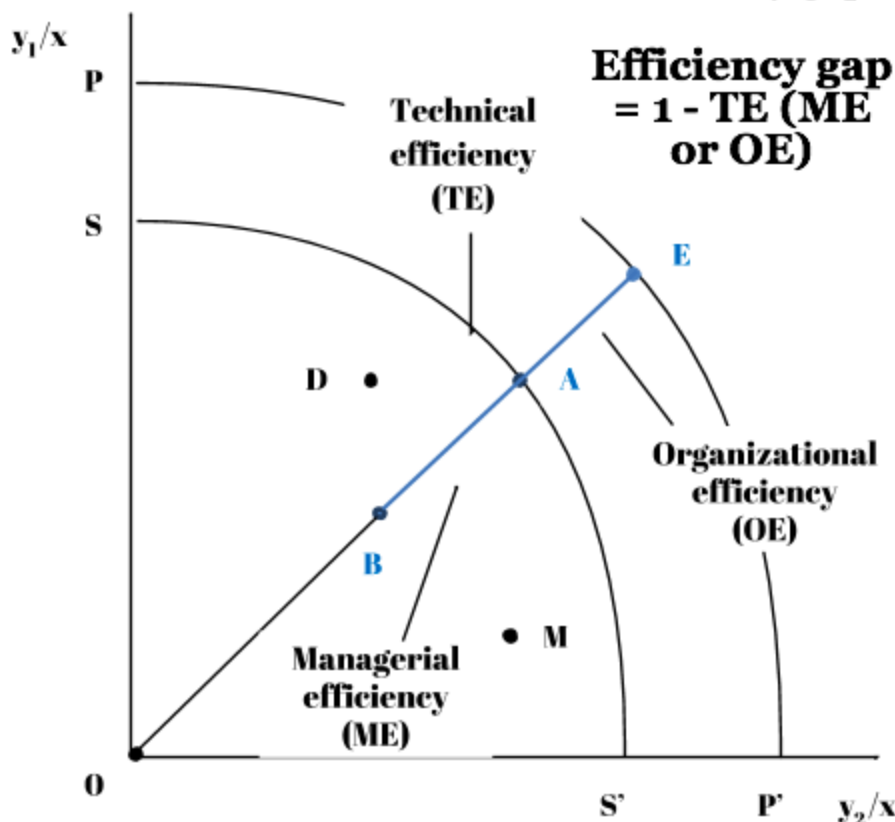
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How bad are the inefficient banks and where are the gaps?

Reserve of unused capacity ("efficiency gap")

Efficiency gap = 1 - TE (ME or OE)

y_1/x

P

S

Technical efficiency (TE)

E

D

A

Organizational efficiency (OE)

B

M

Managerial efficiency (ME)

0

S'

P'

y_2/x

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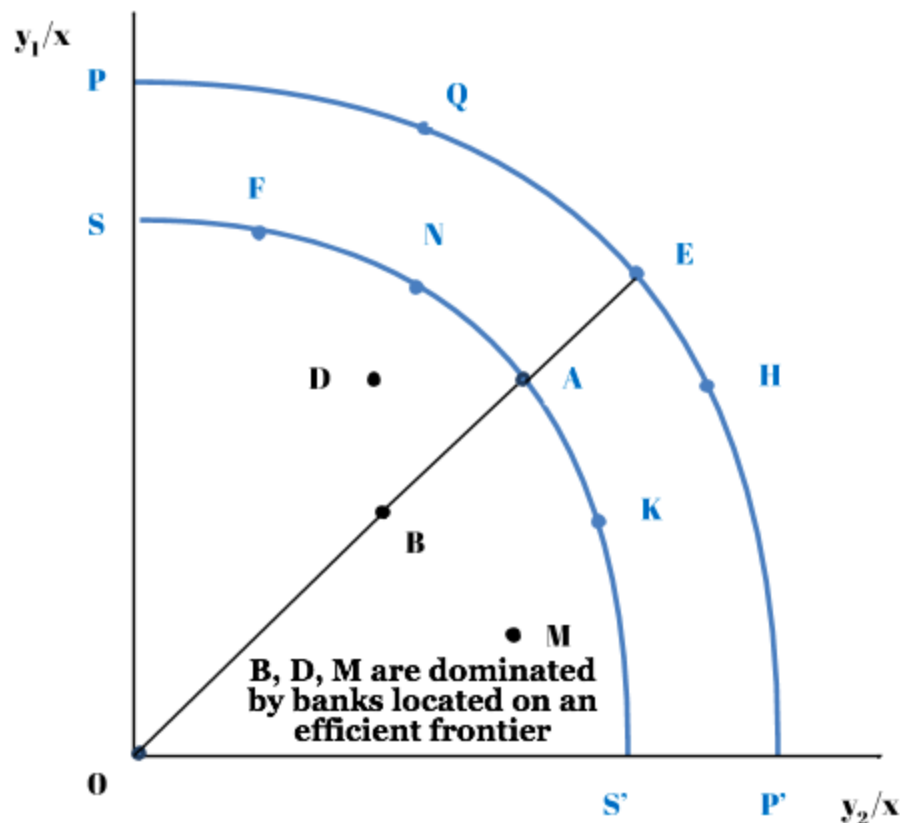
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Which banks are efficient?

Efficient frontier (frontier envelopment surface)

B, D, M are dominated by banks located on an efficient frontier

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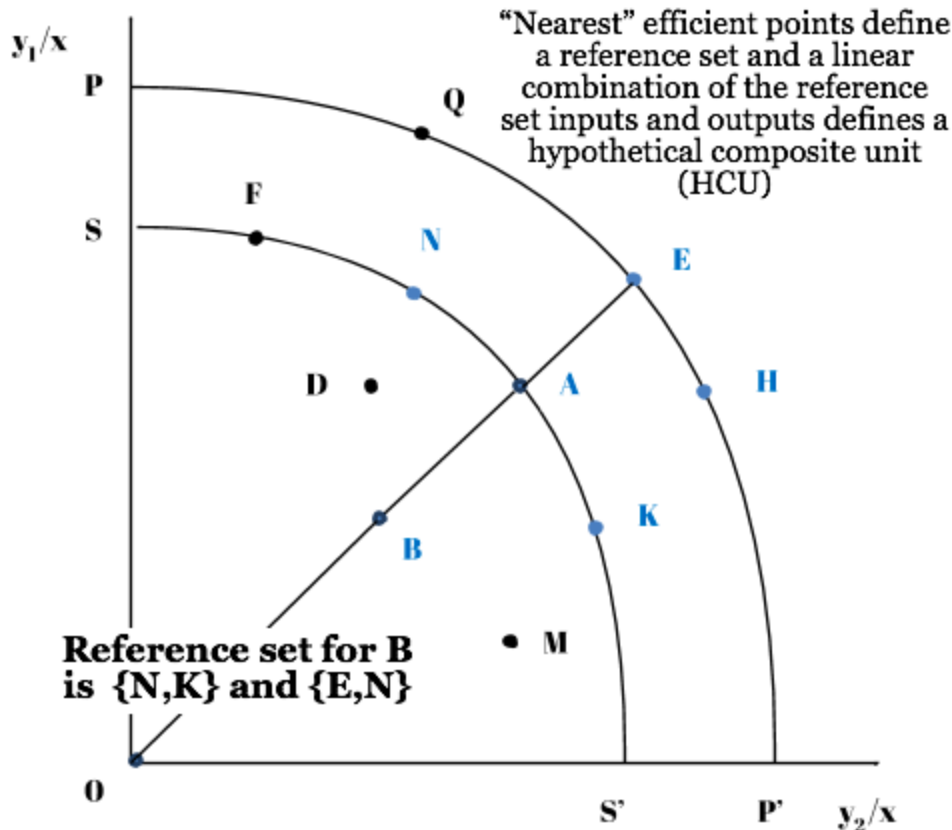
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What is a peer group for the inefficient banks?

Reference set ("peer group")

"Nearest" efficient points define a reference set and a linear combination of the reference set inputs and outputs defines a hypothetical composite unit (HCU)

y_1/x

P

Q

F

S

N

E

D

A

H

B

K

M

Reference set for B is {N,K} and {E,N}

O

S'   P' y_2/x

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What should be pursued by the inefficient banks?

Efficient targets

Research method DEA
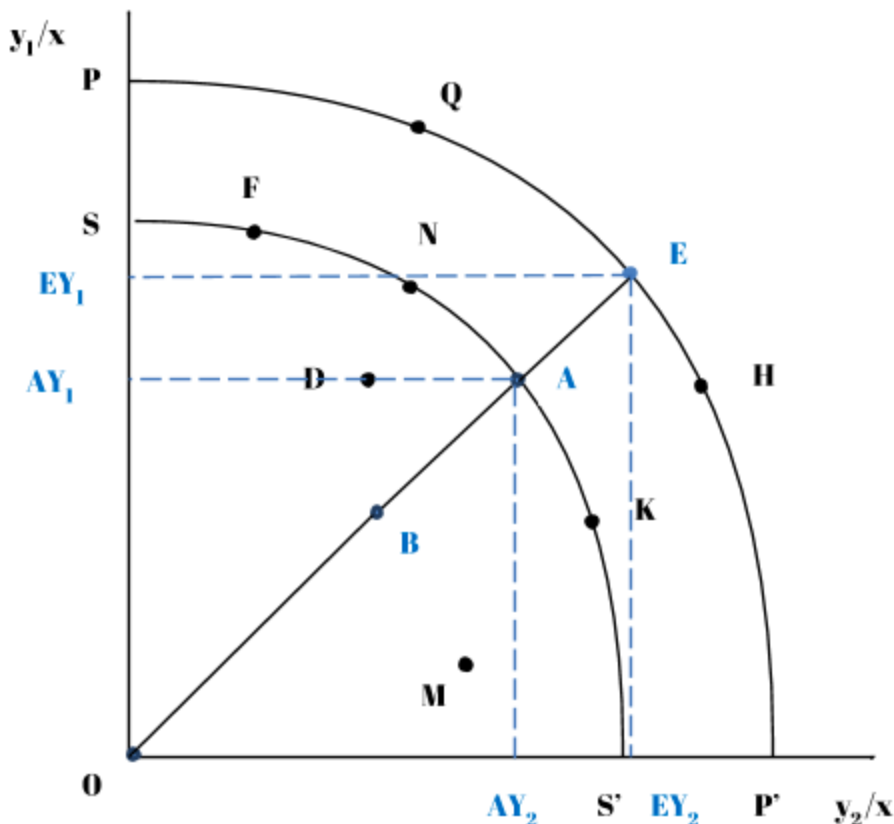
VRS-model

or model of variable return to scale will be referred to as short-run efficiency.

Model VRS is assumed that transformational changes in scale of financial flows between the bank and its stakeholders are not accompanied by corresponding rapid structural changes in internal mechanisms of corporate governance.

CRS-model

or model of constant return to scale referred to as long-run efficiency.

The CRS model takes into account the banks' ability during the year to adapt the mechanisms of the bank business management to quantitative and qualitative changes in the system of financial relationships with their stakeholders.

Approach	Inputs	Outputs
Intermediation	Deposits Labour (salaries) Capital related operating expenses	Loans Investments
Value-added	Capital related operating expenses Labour (salaries) Interest expenses	Loans Deposits
Operating	Capital related operating expenses Labour(salaries/e mployee expenses) Interest expenses	Interest income Non-interest income

significant value added components

DATA AND EMPIRICAL DEFINITIONS

INPUTS

Interest expenses
represents interest payable on depositors' savings accounts and interest revenues on its loans and bond investments.

Non-interest expenses
represents financial relations with bank's stakeholders' incidental to securities, foreign exchange, bank commissions and costs of running a banking business (employee salaries and benefits).

OUTPUTS

Customer deposits
Deposits from customers are the main products of bank's value-added.

Net loans
Volume of bank loans received from various stakeholder groups providing fundamental contributions to the creation of new value added.
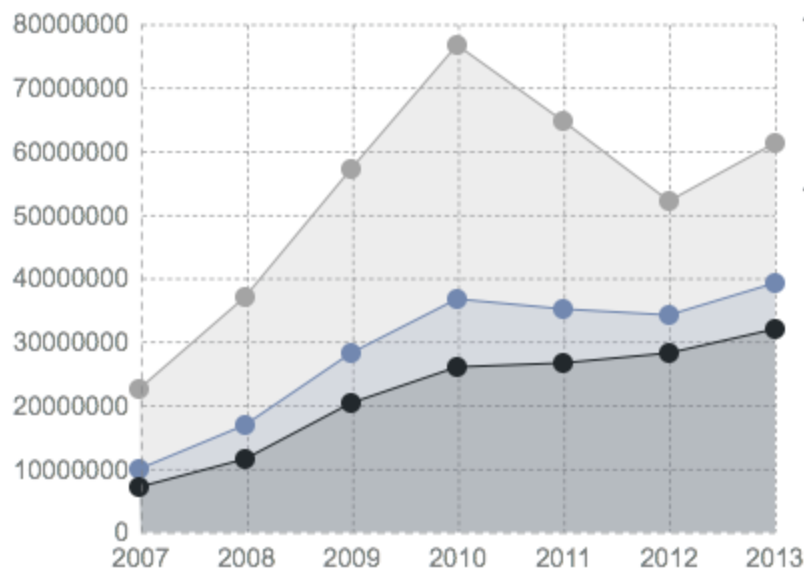
Operating profit
Operating income consists of interest (interest on loans, securities and other interest) income and non-interest (net positive balance) income from service charges on deposit accounts, trading on the financial market, dividends, income from financial leasing, and other noninterest income.
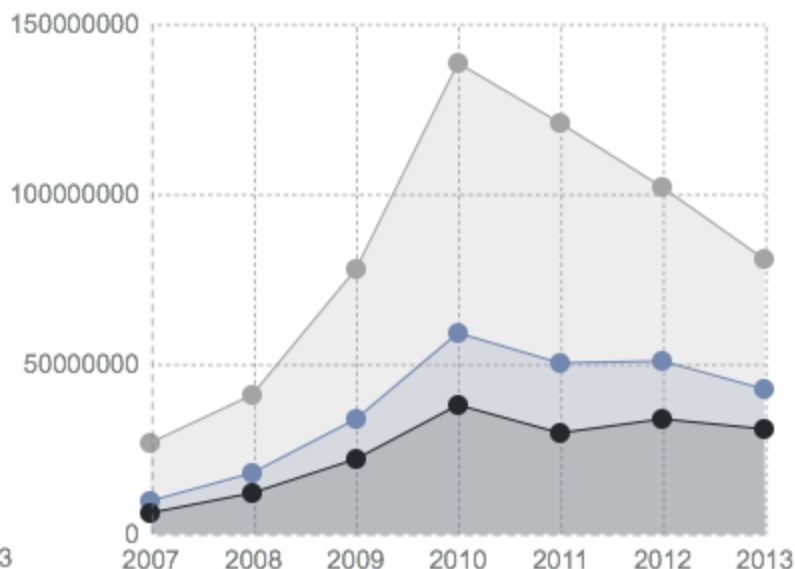
DATA COLLECTION AND DESCRIPTIVE STATISTICS

Interest expenses

Non-interest expenses

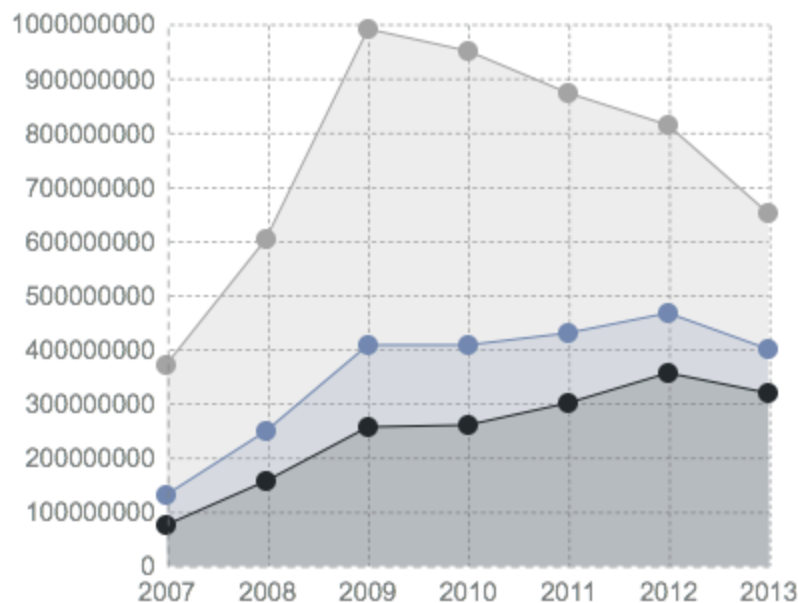■ Pooled data set ■ Banks with domestic capital ■ Foreign controlled banks

Resource base of banks with domestic capital primary formed from financial relations with depositors. Foreign-controlled banks had advanced capabilities of the resource base' formation from other principals.

During 2007-2010 there was an increase in non-interest expenses, but over the period 2011-2013 banks' agents have started to implement cost-cutting drive.
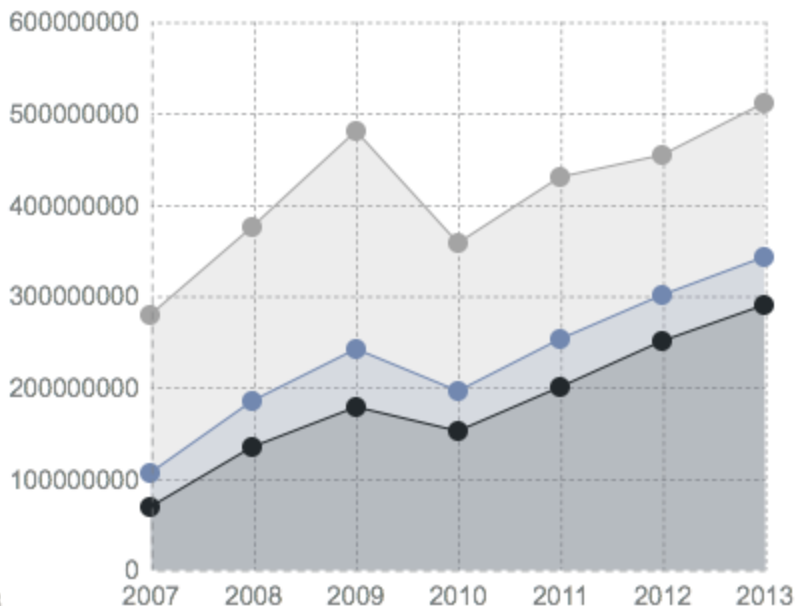
Volume of customer deposits

Net loans

- Pooled data set
- Banks with domestic capital
- Foreign controlled banks

Decreasing in deposits of foreign controlled banks indicates the lack of harmony of financial relationships with depositors as the bank' stakeholders.

By the end of 2009 there was a significant reduction in lending (18%) as the most negative consequences of the financial crisis, while deepening its factor
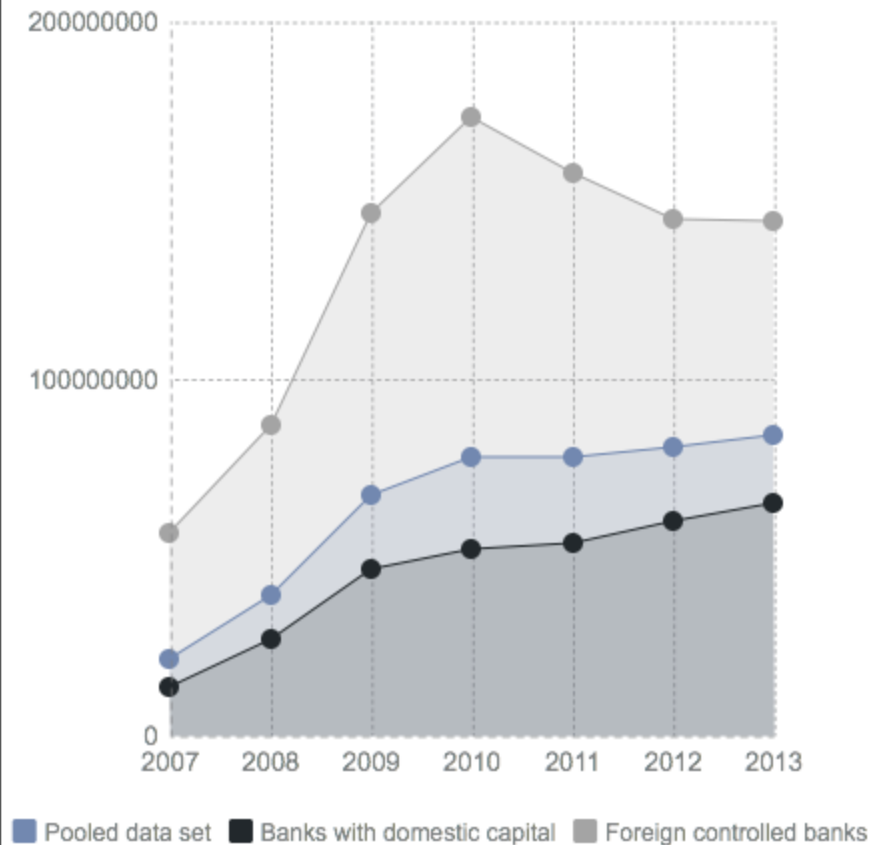
Operating profit

The agents of domestic banks were increasing amounts of operating income during 2007-2013; in 2007, 2008 and 2009 at the fastest pace than before the crisis period. In the post-crisis period operating income increased, that could be explained as a positive trend, however the share of growth was less.
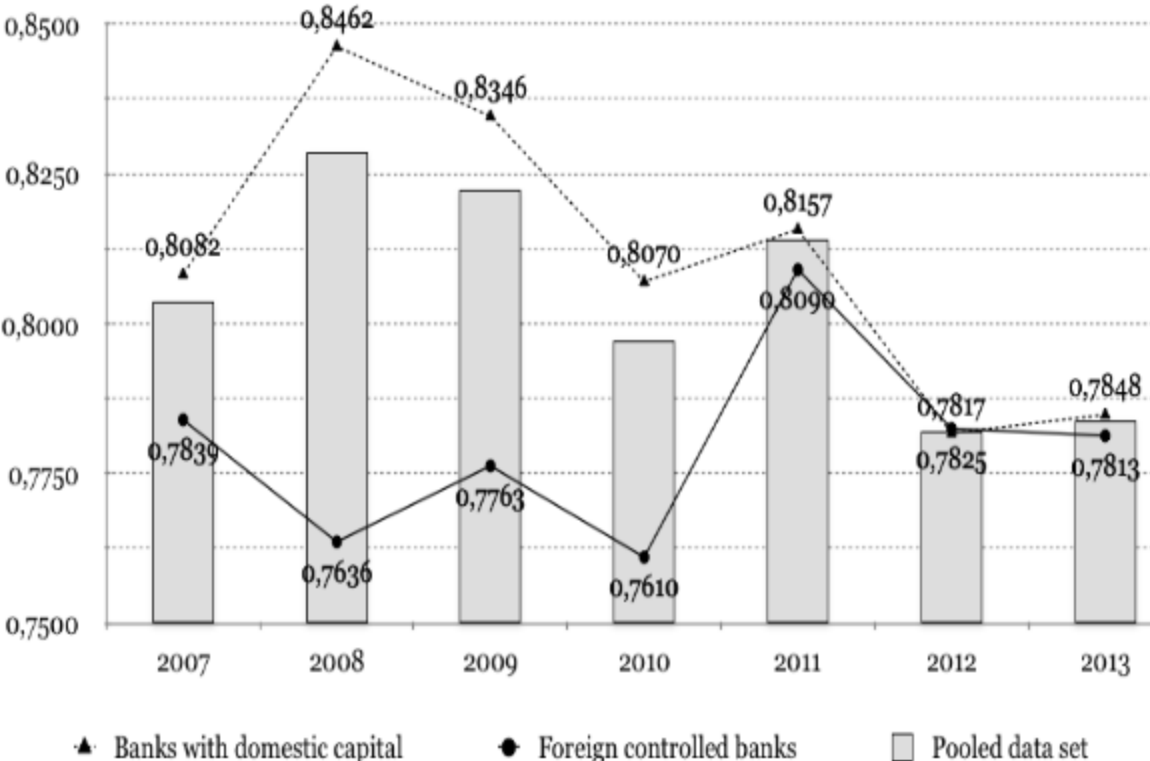
Foreign controlled banks have a positive trend in the increase of operating income before the crisis period, and its larger than the average value for the whole banking sector is 3 times.

Pooled data set   Banks with domestic capital   Foreign controlled banks

Bank business management efficiency (Technical efficiency (TE))

VRS model (Short-run model)

Legend:
- ▲ Banks with domestic capital
- ● Foreign controlled banks
- ▢ Pooled data set

Data points (Banks with domestic capital): 0,8082 (2007), 0,8462 (2008), 0,8346 (2009), 0,8070 (2010), 0,8157 (2011), 0,7817 (2012), 0,7848 (2013)

Data points (Foreign controlled banks): 0,7839 (2007), 0,7636 (2008), 0,7763 (2009), 0,7610 (2010), 0,8090 (2011), 0,7825 (2012), 0,7813 (2013)
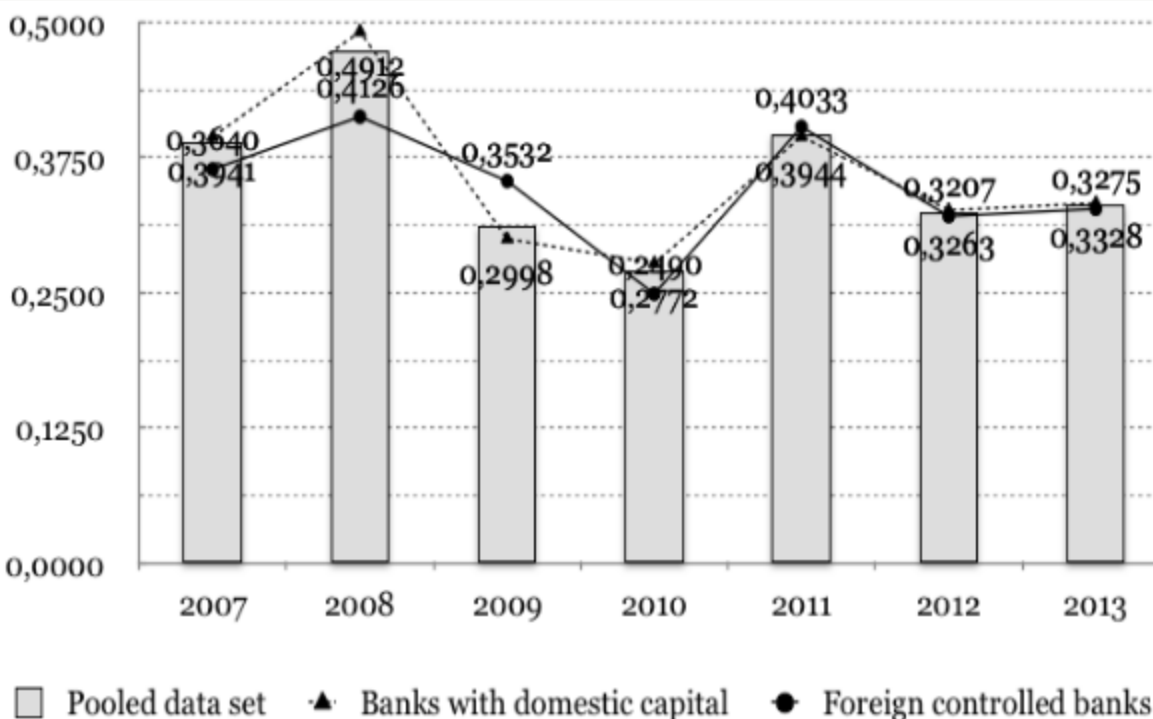
Summary Points #1

In 2007-2008 banks were increasing volume of transactions.

During the crisis 2009 and in the post-crisis 2010 banks reached the maximum amount of inefficiency that shows the inability of most banks to neutralize exacerbation and inconformity of the economic interests of individual groups of stakeholders.

Bank business management efficiency (Technical efficiency (TE))

CRS model (Long-run model)

Pooled data set · ▲· Banks with domestic capital · ● Foreign controlled banks
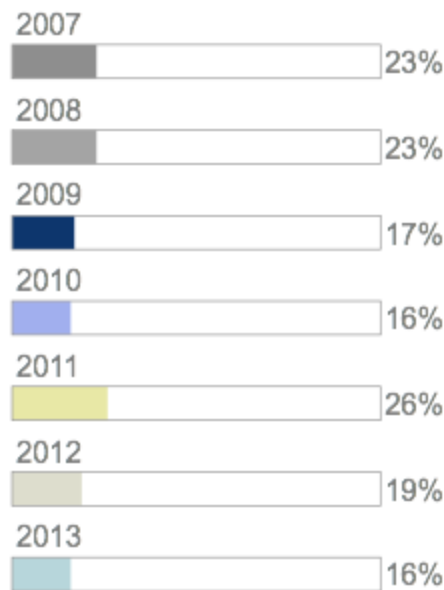
Summary Point #2

In 2011 banks reviewed and optimized financial relationships with their stakeholders.

In 2012-2013 the financial condition of a number of parent banks began to deteriorate, and the state of public finances characterized by recession. This has led to significant changes in the existing systems financial relationships banks with their stakeholders and respectively to decreasing TE
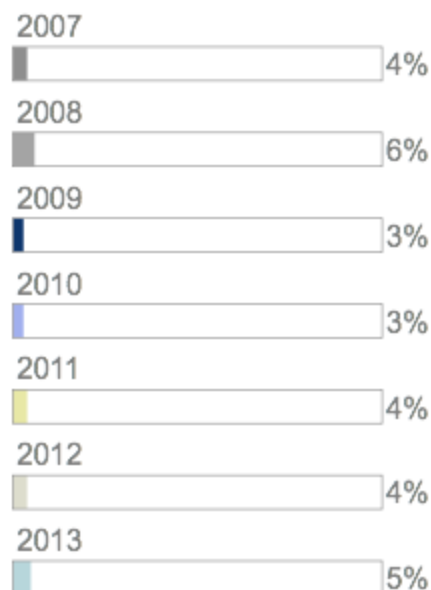
Bank business management efficiency (Technical efficiency (TE))

Percentage of absolutely efficient banks to the entire banking system, %

VRS model (Short-run model)		CRS model (Long-run model)	
2007	23%	2007	4%
2008	23%	2008	6%
2009	17%	2009	3%
2010	16%	2010	3%
2011	26%	2011	4%
2012	19%	2012	4%
2013	16%	2013	5%

VRS model (Short-run model)

CRS model (Long-run model)

Summary Points #3

In 2007 only domestic banks were located on the long run best practice frontier. Among them were banks with different groups of assets.

The number of banks that located on the short run best practice frontier was from 16 to 26 percent of the entire banking system of Ukraine. Among them are largest domestic and foreign controlled banks.

As far apart as possible from the best practice frontier located captive banks that operate exclusively on some principals, their owners. Among the banks with ineffective bank business management were also banks controlled by foreign capital.

Bank business management efficiency within homogeneous group of banks (Managerial efficiency (ME))

VRS model (values):
0.90, 0.91, 0.88, 0.89, 0.86, 0.81, 0.83, 0.84, 0.83, 0.84, 0.82, 0.82

VRS model (Short-run model)

Foreign controlled banks
Banks with domestic capital

CRS model (values):
0.62, 0.63, 0.57, 0.57, 0.65, 0.61, 0.40, 0.50, 0.45, 0.48, 0.59, 0.44, 0.39, 0.39

CRS model (Long-run model)

Foreign controlled banks
Banks with domestic capital
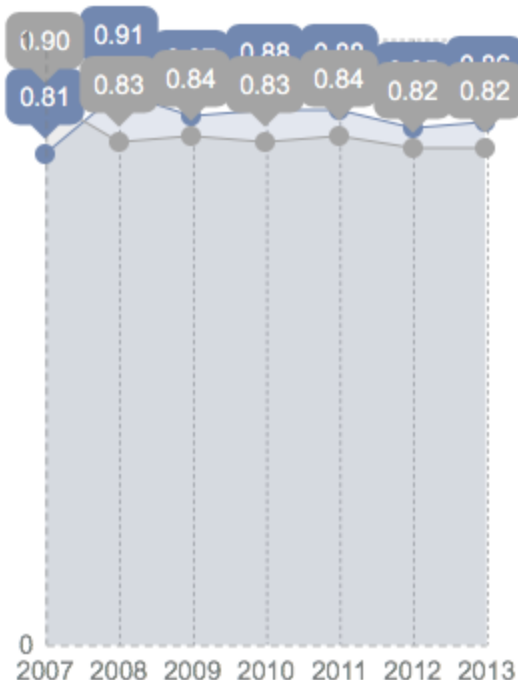
Summary Points #1

A large amount of inefficiency indicates inefficient managerial behavior.

Efficiency within homogeneous group of foreign controlled banks is higher compared to the same period for homogeneous group of domestic banks for the short run model (VRS).
The inefficiency score for:
foreign controlled banks - 9-18%
domestic banks - 10-19%

For the model CRS foreign controlled banks are less efficient compared to domestic banks in 2009, 2011-2013.
Agents of banks controlled by foreign capital had to operate in more severe conditions.
The inefficiency score for:
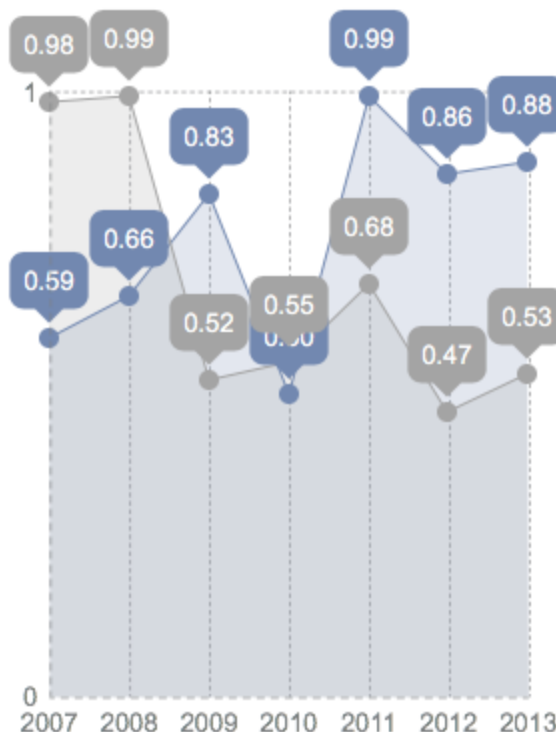foreign controlled banks - 37-61% domestic banks - 35-60%

Business management efficiency of the homogeneous group of banks within banking system of Ukraine (Organizational efficiency (OE))

4.3

VRS model
(Short-run model)

VRS chart values:
- 0.99, 1.00, 0.99, 0.97, 0.97, 0.93, 0.95
- 0.93, 0.84, 0.88, 0.87

Legend:
- Foreign controlled banks
- Banks with domestic capital

CRS model
(Long-run model)

CRS chart values:
- 0.98, 0.99, 0.83, 0.99, 0.86, 0.88
- 0.59, 0.66, 0.52, 0.55, 0.50, 0.68, 0.47, 0.53
- 1

Legend:
- Foreign controlled banks
- Banks with domestic capital

Summary Points #1

Domestic banks were better adapted to the conditions of the banking business in Ukraine than banks controlled by foreign capital in short run period (VRS). This fact can be explained in terms of the adequacy of corporate governance system to national stereotypes functioning of commercial banks in Ukraine.

According to CRS, organizational efficiency is higher for foreign controlled banks in post crisis period. The existence of such trend shows that to date there is no universal type of forming the system of financial relationships with stakeholders that would ensure maximum efficiency.

"Remember that all MODELS are WRONG; the practical question is how wrong do they have to be to not be USEFUL"

**BOX AND DRAPER,
EMPIRICAL MODEL-BUILDING**

THANK YOU FOR ATTENTION!

Maryna Brychko (corresponding author)
PhD in "Money, Finance and Credit",
Senior lecturer, Department of Finance, Sumy State
University (before 2016 - Ukrainian Academy of
Banking of the National bank of Ukraine), Ukraine.
contact - m.brychko@uabs.sumdu.edu.ua

Hassan Obeid
PhD in "Financial Management",
Professor of Finance, Head of Finance and Accounting
Department, European Business School, Paris.