National Bank of Poland
Measures taken during the crisis

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Head of the Financial System Department
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Agenda

- Financial Stability at the NBP
- Potential contagion channels
- Impact of the Lehman’s collapse
- NBP’s actions
- Future challenges
- Conclusions
Financial stability at the NBP

- *Formal* responsibility of the National Bank of Poland for promoting financial stability until 2008 was not explicitly stated in the law...
- … but for several years it has already been *perceived* by the central bank as its important task
- (The Act on NBP, 1997 as amended in 2008): „The responsibilities of the NBP shall also include:
  - organizing monetary settlements,
  - regulating the liquidity of the banks and providing them with refinancing facilities,
  - establishing the necessary conditions for the development of the banking system
  - acting to ensure the stability of the national financial system” (added in 2008)
The role of the NBP in the financial safety net

- The new responsibility of the NBP for the domestic financial system stability
- Macroprudential analysis
- Lender of Last Resort function
- Inter-institutional cooperation
  - within the Financial Stability Committee
  - personal links with PFSA and BGF
Division of functions in the financial safety net

<table>
<thead>
<tr>
<th>INSTITUTION</th>
<th>CENTRAL BANK</th>
<th>GOVERNMENT</th>
<th>SUPERVISORY AUTHORITY</th>
<th>DEPOSIT INSURANCE FUND</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROLE</td>
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<tr>
<td>CRISIS PREVENTION</td>
<td>FINANCIAL SYSTEM ANALYSES (macroprudential)</td>
<td>FINANCIAL REGULATIONS AND CODIFICATION</td>
<td>REGULATIONS, RECOMMENDATIONS, INSPECTIONS, SANCTIONS</td>
<td>SYSTEMIC RISK REDUCTION</td>
</tr>
<tr>
<td>CRISIS MANAGEMENT</td>
<td>EMERGENCY LIQUIDITY ASSISTANCE</td>
<td>GUARANTEE OF BANKS’ LIABILITIES</td>
<td>REHABILITATION PROGRAMMES</td>
<td>ASSISTANCE PROGRAMMES (in risk minimizer formula)</td>
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<tr>
<td>CRISIS RESOLUTION</td>
<td></td>
<td>PUBLIC SUPPORT</td>
<td></td>
<td>DEPOSIT PAY-OUTS</td>
</tr>
</tbody>
</table>
Monitoring of the financial system

ROUTINE MONITORING

- FSD. PSD. DOD – routine monitoring
- FSD – evaluation of information

Potentially important information

Chairman of the NBP’s Crisis Management Group

Decision

COMPREHENSIVE MONITORING

- Calling of the emergency meeting of the NBP’s Crisis Management Group
Monitoring of the financial system

COPREHENSIVE MONITORING

ROUTINE MONITORING

FSD – centre of monitoring

FSD

PSD

DOD

FSD – centre of monitoring

Motion to the Chairman for calling of the emergency meeting of the NBP’s Crisis Management Group

Contact with the PFSA

Information for the President of the NBP

Information for the First Deputy President of the NBP

Meeting with the problem bank

Decision

Calling of the emergency meeting of the NBP’s Crisis Management Group
Standard work schedule on financial stability

- Half-yearly
  - Financial Stability Report/Review
- Quarterly
  - Senior Loan Officer Survey
- Monthly
  - Compilation of key financial indicators for the banking system for quick internal review
Task schedule during current turmoil

- Daily
  - Monitoring of news agencies for information related to financial institutions
- Monthly
  - Short assessment of the present condition of banks for Financial Stability Committee meetings
- Occasionally
  - Internal reviews - extended risk assessment (note and presentation) for the Management Board, including stress test results
Banking sector – what to look at?

- **Macro-economic shocks**
- **Assessment of potential loss & ability to withstand shocks**
- **Current situation of the banking sector**
- **Impact on welfare of society**

**Diagram:**
- **Shocks**
  - **Vulnerabilities**
    - **Channels of impact**
      - **Banks’ income, capital, funding**
      - **Lending and other functions of the financial system**
      - **Real Economy**

**Assessment of potential loss & ability to withstand shocks**
Banking sector – what to look at?

- **Shocks**
  - Vulnerabilities
  - Channels of impact
  - Banks’ income, capital, funding
  - Lending and other functions of the financial system
  - Real Economy

**Strengths and high-risk areas in the financial system**

- Lending policy and loan portfolio structure
- Capital position
- Exposures to market risk
- Asset prices: real estate, shares...

**Tools:** indicators of financial system „health”, e.g. IMF’s Financial Soundness Indicators as a starting point
Banking sector – what to look at?

**Shocks**

**Vulnerabilities**

**Channels of impact**

**Banks’ income, capital, funding**

**Lending and other functions of the financial system**

**Real Economy**

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**Potential shocks to financial stability**

**Examples:**
- Macroeconomic imbalances – e.g. inflation, current account deficit, fiscal deficit – which may lead to weaker future economic growth
- Materialisation of risk factors for industries with significant bank debt
- Tensions in financial markets
- Commodity prices

**Tools:** macroeconomic analysis
Banking sector – what to look at?

**Shocks**

**Vulnerabilities**

**Channels of impact**

**Banks’ income, capital, funding**

**Lending and other functions of the financial system**

**Real Economy**

**Shock impact, transmission and amplification**

- Which institutions are influenced?
- What are the consequences of shocks?
- What mechanisms can exacerbate the impact of shocks? (e.g. liquidity squeeze on money markets can also worsen the situation of borrowers with floating-rate debt)
Banking sector – what to look at?

- Shocks
- Vulnerabilities
- Channels of impact
- Banks’ income, capital, funding
- Lending and other functions of the financial system
- Real Economy

Impact on banks’ financial position
- Can institutions withstand the shocks?
- What is their capital, liquidity and profit position after the shock?

Tools: stress tests
Banking sector – what to look at?

- Shocks
- Vulnerabilities
- Channels of impact
- Banks’ income, capital, funding
- Lending and other functions of the financial system
- Real Economy

Banks’ capacity to lend and risk appetite:

- Would banks change their lending policy as a result of shocks?
- Does their capital and funding position allow to continue to provide lending?

Tools: most often through expert assessments. Macroeconomic models with detailed financial sector modules still uncommon but dynamically developing.
Banking sector – what to look at?

- **Shocks**
- **Vulnerabilities**
- **Channels of impact**
- **Banks’ income, capital, funding**
- **Lending and other functions of the financial system**
- **Real Economy**

Impact on consumption, investment, unemployment, economic growth…

Tools: expert assessments in cooperation with macroeconomic analysts; residual adjustments in macro forecasting models
Stress tests

Shocks to FSIs are assumed by analysts

A single risk factor is shocked – can be a macro variable or simply an FSI

Impact on FSIs is based on econometric models

Possibly multiple risk factors, comovements from macro model or historical experience

“ad-hoc”

“model-based”

“single factor”

“sensitivity”

“scenario”
Before the Lehman Brothers default

- Polish banking sector relatively unaffected mainly because of:
  - Traditional banking business model
  - Negligible exposure towards subprime-backed securities

- However…
Identification of potential transmission channels

• Direct channels
  – Credit channel
  – Funding channel
  – Direct market channel

• Indirect channels
  – Macroeconomic channel
  – Capital channel
  – Indirect market channel
  – Indirect credit channel
  – Confidence channel

What is the potential impact?
## Transmission channels

<table>
<thead>
<tr>
<th>Channel</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Credit channel</strong></td>
<td>Outstanding and potential credit exposure to non-resident financial institutions</td>
</tr>
<tr>
<td><strong>Funding channel</strong></td>
<td>Volatile (short-term) foreign funding of banks, often intra-group</td>
</tr>
<tr>
<td><strong>Direct market channel</strong></td>
<td>Holdings of securities issued by non-residents</td>
</tr>
<tr>
<td><strong>Macroeconomic channel</strong></td>
<td>Slowdown in the domestic economy induced by events in other economies</td>
</tr>
<tr>
<td><strong>Capital channel</strong></td>
<td>Dependence on the foreign owner with regard to dividends and capital increase</td>
</tr>
<tr>
<td><strong>Indirect market channel</strong></td>
<td>Correlation of prices in the domestic financial market with the prices in the international financial market</td>
</tr>
<tr>
<td><strong>Indirect credit channel</strong></td>
<td>Exposure of domestic borrowers to the situation in the international financial market, e.g. via FX loans</td>
</tr>
<tr>
<td><strong>Confidence channel</strong></td>
<td>Disruption of public confidence in a domestic financial institution(s)</td>
</tr>
</tbody>
</table>
Lehman Brother’s default

Significant rise in risk aversion and perception of credit risk on core markets

Lack of mutual confidence between Polish banks, resulting from the fact that most of the Polish banks are part of foreign banking groups

Fall in liquidity of Polish interbank money market and FX swaps market
Fall in liquidity of the interbank market

- **Whole market** – on the basis of data from SORBNET system
- **Data forming basis for POLONIA rate calculation**
Fall in liquidity of the interbank market

Liabilities towards other domestic banks
## Exposure to FX risk

<table>
<thead>
<tr>
<th>FX assets</th>
<th>226 zł billion</th>
</tr>
</thead>
<tbody>
<tr>
<td>FX liabilities</td>
<td>160 zł billion</td>
</tr>
</tbody>
</table>

Currency mismatch that needs to be hedged by off-balance operations:

| 66 zł billion |
Exposure to FX risk

Open balance sheet position
Exposure to FX risk

FX swap market monthly turnover

Net turnover (left axis) — Share of transactions with foreign banks (right axis)
NBP’s Confidence Package

• Announced on 14th October 2008
• Main goals:

  – Enable banks to obtain PLN funding for longer maturities (up to 3 month)

  – Enable banks to obtain FX funding
# Confidence Package - Instruments

<table>
<thead>
<tr>
<th>INSTRUMENT</th>
<th>EFFECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introducing 3-month repo</td>
<td>Availability of PLN funding for longer maturities</td>
</tr>
<tr>
<td>Introducing FX swaps (USD/PLN, EUR/PLN, CHF/PLN)</td>
<td>Supporting FX liquidity</td>
</tr>
<tr>
<td>Introducing currency deposits as collateral for refinancing loan</td>
<td>Availability of obtaining emergency PLN liquidity on non-standard collateral</td>
</tr>
<tr>
<td>Decreasing haircut for collateral on Lombard loan</td>
<td>Increasing the scope of available funding on the given level of collateral</td>
</tr>
<tr>
<td>Broadening the range of collateral on Lombard loan</td>
<td>Increased elasticity of banks’ liquidity management</td>
</tr>
<tr>
<td>Possibility of increasing the frequency of open market operations</td>
<td>Stabilization of POLONIA rate and increased elasticity of banks’ liquidity management</td>
</tr>
<tr>
<td>Possibility of earlier redemption of NBP bills</td>
<td>Stabilization of POLONIA rate and increased elasticity of banks’ liquidity management</td>
</tr>
<tr>
<td>Consideration of earlier redemption of NBP 10-year bonds issued in 2002 (eventually performed in January 2009)</td>
<td>Increased structural liquidity of the banking sector</td>
</tr>
</tbody>
</table>
Confidence Package - extension

- January 2009 earlier redemption of NBP 10-year bonds (8.2 bn PLN injected into the system)

- Beginning in May 2009 introduction of 6 month repo transactions

- Introduction of 1 month EUR/PLN and USD/PLN swaps

- Broadening the range of collateral accepted by NBP
NBP’s FX swaps

- **The EBC Agreement.** The National Bank of Poland and the European Central Bank jointly announced an agreement to support the NBP's instruments of euro liquidity provision. Under this agreement, which was concluded on 6 November 2008, the ECB provides the Polish central bank with a facility to borrow up to EUR 10 billion in order to provide additional support to NBP's operations.

- **The SNB Agreement.** The Swiss National Bank (SNB) and Narodowy Bank Polski (NBP) announced on 7 November 2008 the establishment of a temporary EUR/CHF swap arrangement.
  - This facility, like the one signed by the SNB and the European Central Bank (ECB), allows the NBP to provide Swiss franc funding to banks in its jurisdiction in the form of foreign exchange swaps.
  - Under this arrangement, the SNB provides the NBP with Swiss francs against euro, while the NBP provides the Swiss francs to its counterparties against Polish zloty. The operations are conducted with a term of 7 days at a fixed price. Longer-term transactions are also offered from time to time.
NBP’s FX swaps

- Intended to be a ‘last resort’ instrument for banks that cannot hedge their open FX position elsewhere
- Therefore, relatively tight pricing conditions (example as of 15 April 2009)
  1W FX swaps:
  - PLN interest rate: NBP reference rate – a bp
  - FX interest rate: LIBOR 1W + b bp
  - Haircut on spot exchange rate: (EUR/PLN 5%, USD/PLN 7%, CHF/PLN 5%)
  1M FX swaps:
  - PLN interest rate: 1M WIBID – x bp
  - FX interest rate: LIBOR 1M + y bp
  - Haircut on spot exchange rate: (EUR/PLN: 10%, USD/PLN: 15%)
NBP’s FX swaps

- As it was intended, used by a small group of banks which cannot hedge the FX risk with their parent entities or other counterparties
- As a result, limited turnover

<table>
<thead>
<tr>
<th>Liquidity provided in</th>
<th>Total amount (million) (as of end of April 2009)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EUR</td>
<td>635</td>
</tr>
<tr>
<td>USD</td>
<td>2270</td>
</tr>
<tr>
<td>CHF</td>
<td>(7 D): 7960 (84 D): 475</td>
</tr>
</tbody>
</table>
REPOs

- As of 15 May – 11 operations totaling 53.1 zloty billion
NBP operations

Structure of NBP monetary policy operations

- Net FX swaps
- End of day deposits
- Net fine-tunning operations (excluding repo)
- Net basic operation
- NBP bonds
- Lombard loan
- Net fine-tunning repo operations
REPOs

- Possibility of arbitrage
- Reappearance of bilateral quotations on the interbank deposit market and transactions longer than O/N
- WIBOR 3M rates movements in line with policy rate
- Redistribution of liquidity in the banking sector
REPOs – impact on interbank market

-225 bp  \[\rightarrow\]  -257 bp

WIBOR 3M  NBP Reference Rate
Transmission channels

• Direct channels
  – Credit channel
  – Funding channel
  – Direct market channel

• Indirect channels
  – Macroeconomic channel
  – Capital channel
  – Indirect market channel
  – Indirect credit channel
  – Confidence channel

To what extent have these channels materialized?
Credit channel

Claims on foreign financial institutions

- Amount
- % of total assets

NBP

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Funding channel

Liabilities towards foreign financial institutions

- Long term - amount
- Short term - amount
- Long term - percent of total assets
- Short term - percent of total assets
Funding channel

Implied spread for A-rated Polish banks

maturity in years

basis points
Market channel

Distribution of assets of banks by the total holdings of debt securities issued by non-residents as percent of total assets

As of March 2008:

- No exposure: 43%
- Under 1%: 12%
- 1-2%: 3%
- Over 2%: 10%

As of March 2009:

- No exposure: 45%
- Under 1%: 42%
- 1-2%: 5%
- Over 2%: 10%
Macroeconomic channel

- The macroeconomic forecasts are changing very rapidly, often downward revisions of future GDP growth
- Decoupling hypothesis might fail
- Real economy relies on export revenues from EU (78% of export flows to EU countries)
- Increasing probability of credit risk materialization
Macroeconomic channel
macro stress test

- Designed to determine the **vulnerability of the Polish banking sector to unfavourable changes of external conditions**

- **Baseline scenario** - GDP projection prepared for the February 2009 edition of "Inflation Report"

- **The "shock" scenario** - much stronger economic slowdown in US and strong economic recession in euro area (the growth of GDP in Poland is 4-5 percentage point lower than in baseline scenario).
Macroeconomic channel

macro stress test

Baseline scenario

• Strong increase in loan losses, but still on comparable level with that during the economic slowdown of the years (2001-2002),

• Hypothetical losses originating from the impaired loans portfolio could be absorbed by almost all of the banks (the capital adequacy ratio in three small banks would fall below 8%).

The "shock" scenario

• Loan losses more than double over the simulation horizon as compared with the baseline scenario,

• Number of banks with the capital adequacy ratio below 8% increase, but the value of hypothetical recapitalization is still insignificant in relation to banks’ assets.
### 2009 vs 2010

<table>
<thead>
<tr>
<th>Metric</th>
<th>Baseline Scenario</th>
<th>Stress Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP Growth y/y</td>
<td>1.1</td>
<td>-2.0</td>
</tr>
<tr>
<td>CPI Inflation</td>
<td>3.2</td>
<td>1.0</td>
</tr>
<tr>
<td>WIBOR3M</td>
<td>4.78</td>
<td>4.78</td>
</tr>
</tbody>
</table>

### Baseline Scenario

- Net charges to provision for loans (zloty billion): 25.0
  - Corporate loans: 13.3
  - Loans to households: 11.7

### Stress Scenario

- Net charges to provision for loans (zloty billion): 55.0
  - Corporate loans: 29.4
  - Loans to households: 25.6

### Net charges to provisions for loans as percentage of total assets (as of 12.2008)

- Baseline Scenario: 2.24%
- Stress Scenario: 5.3%
Capital channel

• Despite losses incurred by many parent-entities, majority of Polish banks decided to assign the 2008 profits for increasing own funds.

• Some banks received subordinated loans from their parent entities
Indirect market channel

- Decreased liquidity of markets for instruments used for market risk hedging. As a result impeded market risk management
- However, banks have the possibility to enter into FX swaps transactions with the NBP (Confidence Pact)
- Increase in global risk aversion affected the PLN exchange rate. Depreciation of zloty was stronger than it would emerge from fundamental factors

![Exchange rates against the EUR, 01.01.2007=100](image)
Indirect credit channel

Theoretical loan installments
Confidence channel

- Client confidence - challenges for subsidiaries of institutions involved in government bailouts
  - Orderly/disorderly sale of CEE operations?

- Interbank market – influence of groupwide risk management policies on interbank limits „imported confidence crisis”
Current challenges

- Impact of economic slowdown
- Capital position of banks

Note: Data adjusted for exchange rate movements
Current challenges

Corporate loans

Household loans

<table>
<thead>
<tr>
<th>Date</th>
<th>m/m change in loans</th>
<th>average m/m change in loans in 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2008</td>
<td></td>
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<td>2-2008</td>
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<tr>
<td>4-2009</td>
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</tbody>
</table>

$m/m$ change in loans

average $m/m$ change in loans in 2008
Loan survey - enterprises

- Realised
- Expected

Large enterprises
- Short term loans
- Long term loans

Small- and medium-sized enterprises
- Short term loans
- Long term loans
Loan survey - enterprises

Capital position

- Current or expected capital position of the bank
- NBP's monetary policy decisions

Economic conditions

- Risk related to the expected general economic situation
- Industry-specific risk (please specify the industry or industries)
- Risk related to the financial standing of bank's largest borrowers
- Changes in the share of adversely classified loans in bank's loan portfolio
- Changes in competitive pressure
- Changes in corporate loan demand
- Other factors
Loan survey – housing loans

Capital position

Economic conditions

- Realised
- Expected

Factors:
- Current or expected capital position of the bank
- NBP’s monetary policy decisions
- Risk related to the expected general economic situation
- Housing market prospects
- Changes in the share of adversely classified loans in the housing loan portfolio
- Changes in competitive pressure
- Changes in housing loan demand
- Other factors
Loan survey – consumer loans
Risk of a ‘vicious circle’

More pessimistic credit risk assessment by banks

Lower availability of loans

Worsening financial standing of enterprises

Decreased domestic demand

Decreased external demand
Current challenges – policy response

• NBP’s proposal on **Lending Support Pact**

• Meetings with representatives of commercial banks discussing the issue of how to stimulate lending to real economy

• Need for a firm reaction of the Supervision Authority – foreign parent entities are obliged to support Polish subsidiaries with sufficient capital

• Availability of public intervention – Flexible Credit Line granted by IMF