
PART I

**RISK ASSESSMENT AND EARLY
WARNING SYSTEMS FROM A DEPOSIT
INSURER & SUPERVISORY PERSPECTIVE**

- Overview of Early Warning Systems in use -

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CEMLA Seminar on Early Warning Systems for Anticipating Financial
Vulnerabilities: Kingston, Jamaica, March 29-April 2, 2004

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Agenda

Part I:

1. General overview of supervisory risk assessment and EWS in use

Part II:

1. CDIC EWS: rationale
2. Description of CDIC EWS:
 - CDIC information
 - Supervisory assessments
 - Financial condition and performance
 - Market indicators
 - Economics and emerging issues

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Introduction

- ◆ Macro-prudential indicators can provide early warning for overall problems in the banking sector.
- ◆ But, banking system stability is also related to the health of individual financial institutions (i.e. banks).
- ◆ An EWS for individual banks can help with:
 - 1) early detection and intervention of problems; and
 - 2) help reduce costs associated with failures for the financial system.

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EWS Objectives

- ◆ An effective EWS for banks usually involves three objectives:
 - 1) assess and track changes in the financial condition and risk profile of banks;
 - 2) detect bank problems early; and
 - 3) coordinate intervention to address problems.
- ◆ EWS have long been a part (implicitly or explicitly) of indicators used by supervisors, regulators and deposit insurers. But, the growing complexity of modern banking is increasing the need for more explicit and systematic approaches to EWS.

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EWS Principles and Practices

- ◆ No perfect EWS or supervisory system
- ◆ Different country circumstances (e.g. political and legal systems, economic factors, safety-net arrangements, banking system structure and characteristics...) mean EWS must be tailor-made.
- ◆ EWS approaches can be classified into 4 general types*:
 1. Supervisory bank rating systems
 2. Financial ratio and peer group analysis
 3. Comprehensive bank risk assessment systems
 4. Statistical models

**Sahajwda and Van Den Bergh (2000).*

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1) Supervisory Bank Rating Systems

- ◆ Banks given “regular” supervisory/regulatory ratings based on examinations.
- ◆ Ratings are intended to provide an indication of the current financial condition of the bank
- ◆ Have the potential of providing early warning of problems
- ◆ Examinations may be “on-site”, “off-site” or some combination.
- ◆ Commonly collect confidential information
- ◆ Examination criteria vary from system to system, examples include:
 - CAMEL(S) and CAEL(S)

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◆ Advantages:

- Comprehensive (use quantitative and qualitative indicators)
- Good at assessing past (ex-post) and current conditions

◆ Disadvantages:

- Require frequent examinations and reviews
- Ex-post nature not always suitable for EWS

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2) Financial Ratio and Peer Group Analysis

- ◆ Emphasizes financial ratios and peer group comparisons
- ◆ Looks at capital adequacy, asset quality, profitability, liquidity...
- ◆ Information gleaned from off-site and on-site reviews
- ◆ Early warning signals produced when ratios diverge from pre-determined triggers or individual bank ratios diverge from peer group measures
- ◆ Used in some countries to create “screens” (e.g. Federal Reserve and FDIC)

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◆ Advantages:

- objective
- show trends and comparisons of individual banks

◆ Disadvantages:

- only as good as data (frequency and quality)
- ignores qualitative inputs
- models often miss banks (Type I error) or flag too many (Type II error).

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3) Comprehensive Bank Risk Assessment Systems

- ◆ Sometimes called “risk-based” supervisory systems
- ◆ Designed to identify key business areas and risks
- ◆ Scores are assigned and aggregated to provide a single risk score
- ◆ Some examples include U.K., OCC/Fed, Canada
- ◆ Utilize a wide range of quantitative and qualitative indicators
- ◆ Assessments determined on a “supervisory period” for each bank. Period usually from 3-months to 3 years and depends on factors such as risk profile and problems.

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Main Steps:

- 1) Identify significant business areas undertaken by the bank
- 2) Identify key risks associated with these areas
- 3) Provide individual risk assessments for these groupings
- 4) Weight and aggregate all groupings to arrive at a single score or rating.
- 5) Communicate scores to bank

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◆ Advantages:

- Comprehensive but focused on key risk areas
- Emphasis on quantitative and qualitative factors
- Relatively cost-effective
- Adaptable to individual banks

◆ Disadvantages:

- High level of judgment required
- Critical to accurately identify key risks areas
- Must get supervisory period right
- Self-assessment requires quality assurance and appropriate incentives to work

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4) Statistical Models

- ◆ Driven by quantitative data and designed to be highly objective
- ◆ Directed at risks (explanatory variables) that are likely to lead to bank fragility or failure
- ◆ Examples...
 1. Models which estimate ratings or rating downgrades
 2. failure prediction models
 3. expected loss models
 4. Others (e.g. TRAM).

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- ◆ **Advantages:**
 - Objective and rigorous methodologies
 - Can be very cost-effective and run on a monthly or quarterly basis
- ◆ **Disadvantages:**
 - Success depends on having access comprehensive, detailed high quality data – a big problem in many countries
 - Usually don't emphasize qualitative information which can have a major influence on risk profiles
 - Results are mixed and many models prone to Type I and II errors

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