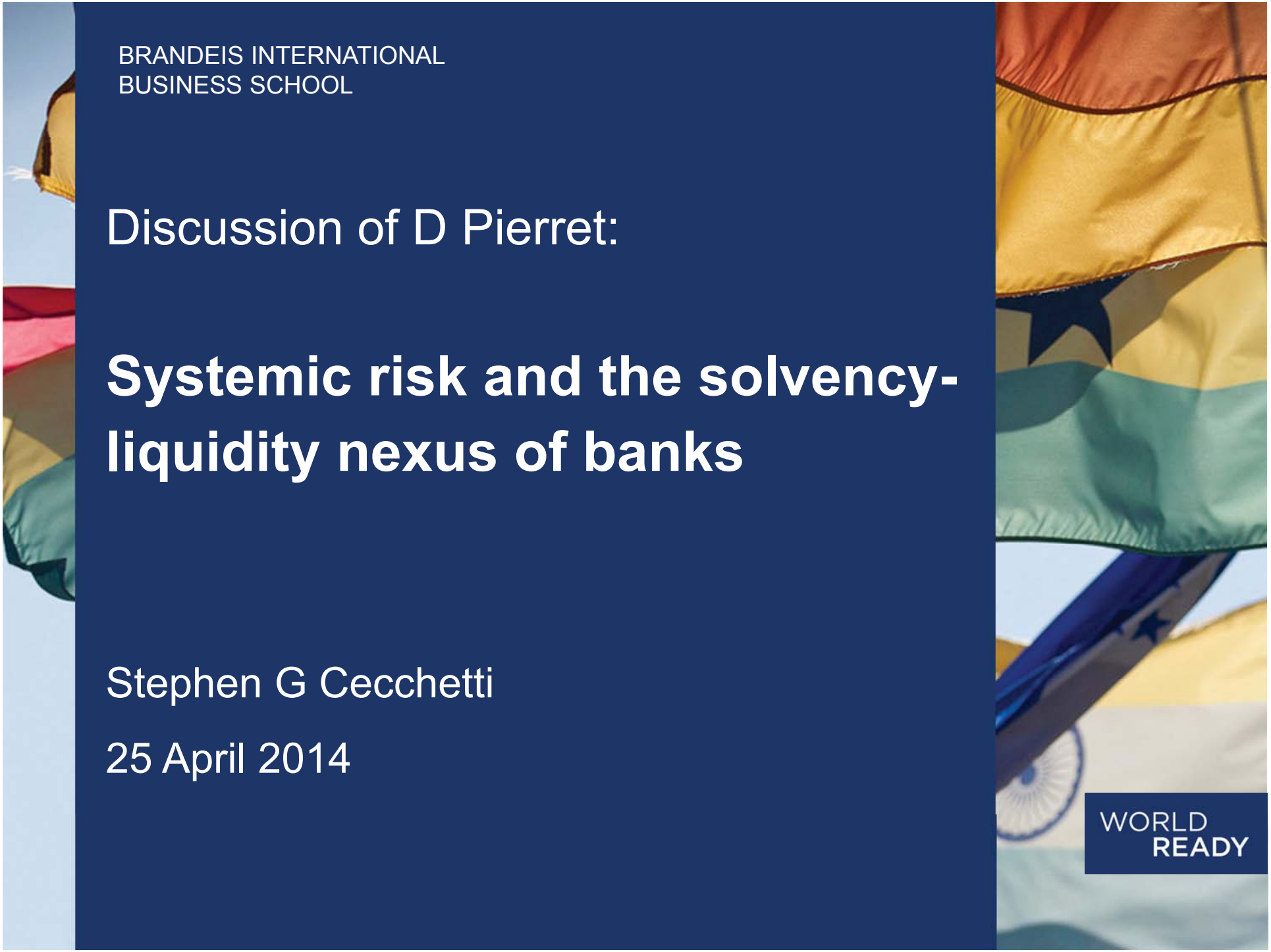

BRANDEIS INTERNATIONAL
BUSINESS SCHOOL

Discussion of D Pierret:

Systemic risk and the solvency-liquidity nexus of banks

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WORLD READY

What banks do

- Credit transformation
- Liquidity transformation
- Maturity transformation

What banks do and their externalities

- Credit transformation: too much risk
- Liquidity transformation: too little liquidity
- Maturity transformation: too big a duration mismatch

What banks do and regulation

- Credit transformation:
  minimum capital requirements
- Liquidity transformation:
  liquidity coverage ratio (LCR)
- Maturity transformation:
  net stable funding ratio (NSFR)

Minimum capital requirements

- Risk-weighted:

$$\frac{\text{Common equity Tier 1}}{\text{Risk-weighted Assets}}$$

- Unweighted Leverage Ratio:

$$\frac{\text{Common equity Tier 1}}{\text{Total Assets}}$$

- Buffers:
  - Conservation
  - Systemic risk
  - Countercyclical

Liquidity Coverage Ratio

The LCR promotes short-term resilience by ensuring that banks have an adequate stock of unencumbered high-quality liquid assets (HQLA) to meet their liquidity needs for a 30 calendar day liquidity stress scenario.

LCR

- Limits liquidity transformation activities
- Compel banks to hold an amount of liquid assets that can be easily sold to meet deposit outflows and the takedown of loan commitments that might occur during a crisis
- Meet obligations without
  - Asset fire sales
  - Reliance on central banks

Net Stable Funding Ratio

The NSFR requires banks to maintain a stable funding profile in relation to the composition of their assets and off-balance sheet activities. The NSFR limits overreliance on short-term wholesale funding, encourages better assessment of funding risk across all on- and off-balance sheet items, and promotes funding stability.

NSFR

- Limits maturity transformation
- Requiring banks with long-term assets to have long-term liabilities
- Allow only those with short-term assets to issue short-term liabilities

Capital & Liquidity Requirements

- Given liability structure, shift to ST assets:
  - RWA ⇓, easier to meet
  - TA =: Leverage ratio more likely to bind
  - LCR: available high-quality liquid assets likely rises
  - NSFR: required stable funding falls

- For given asset structure, shift to LT liabilities:
  - RWA and TA =: capital requirement unchanged
  - LCR: required high-quality liquid assets falls
  - NSFR: available stable funding rises

Official community response

- Capital & liquidity are substitutes
  - More capital makes deposits less likely to run
  - More liquid banks are more able withstand a run
  - But the tradeoff depends on things like
    - Depositor risk aversion
    - Extent of different externalities created by failure
- Calibration should be joint
  - NSFR $\Rightarrow$ capital requirement lower

Understanding SRISK

Expected capital shortfall in a crisis defined at a 40% drop in the global equity market over 6 months.

$$SRISK = SRISK_i = E[k(D_i + MV_i) - MV_i \mid R_M = -40\%]$$
$$= E[kD_i - MV_i(1 - k - 40\% x \beta_i]$$

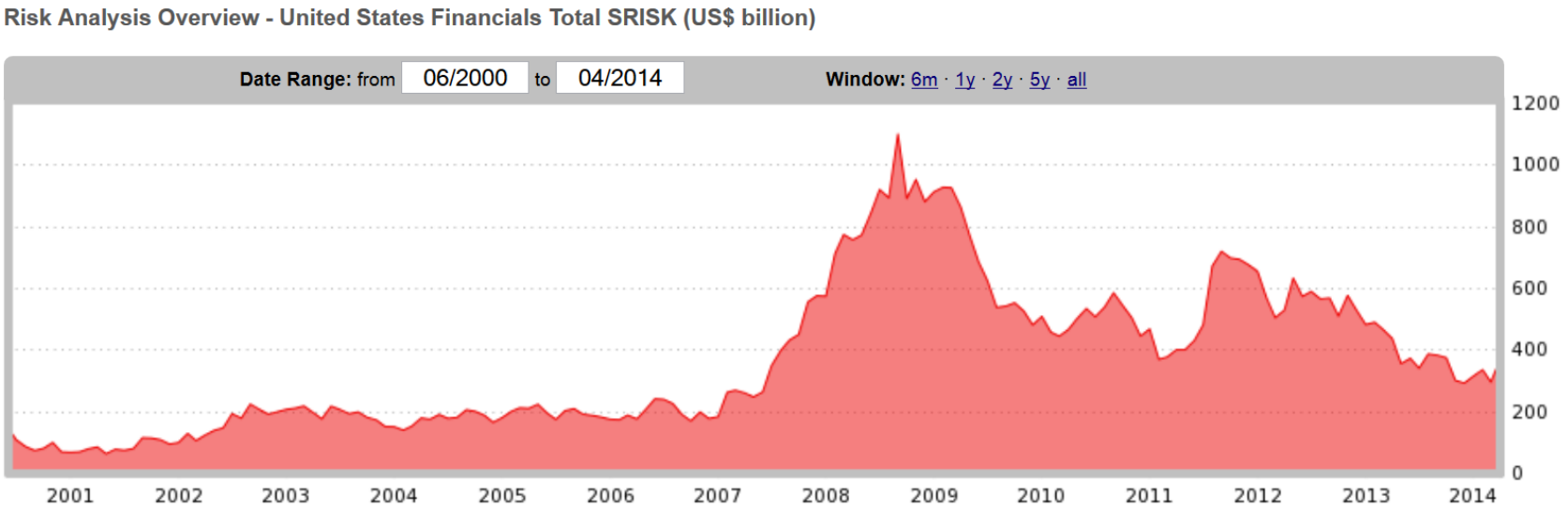
k = the unweight leverage ratio requirement (8% for US banks)

MV = market capitalization of the bank

D = debt liabilities of the bank

β_i = market beta of the bank (varies over time)

[*SRISK* can also be written in terms of price-to-book and book leverage.]



Note:

SRISK is a measure unweighted leverage, ignoring off-balance sheet positions, which k to 8% for US banks. As a result, my preference is to focus on the changes, not the level itself.

Understanding SRISK

- Assuming β changes slowly, we can write

$$SRISK_i = a_i - b_i MV_i$$

- Diane scales $SRISK$ by total assets:

$$MV/TA = 1/L^M .$$

So

$$SRISK/TA \sim - 1/L^M$$

Results

1. $\ln(\text{STDebt}) = 1.120 \times (\text{MV/TA})_{-1} + 0.074 \ln(\text{STAssets})_{-1}$

If MV/TA rises, leverage falls:

- ST liabilities rise for fixed short-term asset
- What about LT liabilities and LT assets?
- Impact on RWA, LCR & NSFR depends on this

[Since SRISK~–1/L, I change the sign relative to Table 1.]

Results

2. $MV/TA = -0.009 \ln(STDebt)_{-1} + 0003 \ln(STAssets)_{-1}$

If short term liabilities fall:

- MV/TA rises, so leverage falls
- ST assets unchanged
- What about LT assets and liabilities?

[Since SRISK~–1/L, I change the sign relative to Table 1.]

Capital & liquidity requirements?

- Capital requirements are about (*Book Equity)/RWA*.
  - Is this related to *SRISK/TA* in equilibrium?
- LCR is about the **ratio** of *STAssets* to *STDebt*
  - Is this related to the levels of each in equilibrium?
- NFSR is about the **ratio** of *LTAssets* to *LTDebt*
  - Is this related to the levels of each in equilibrium?