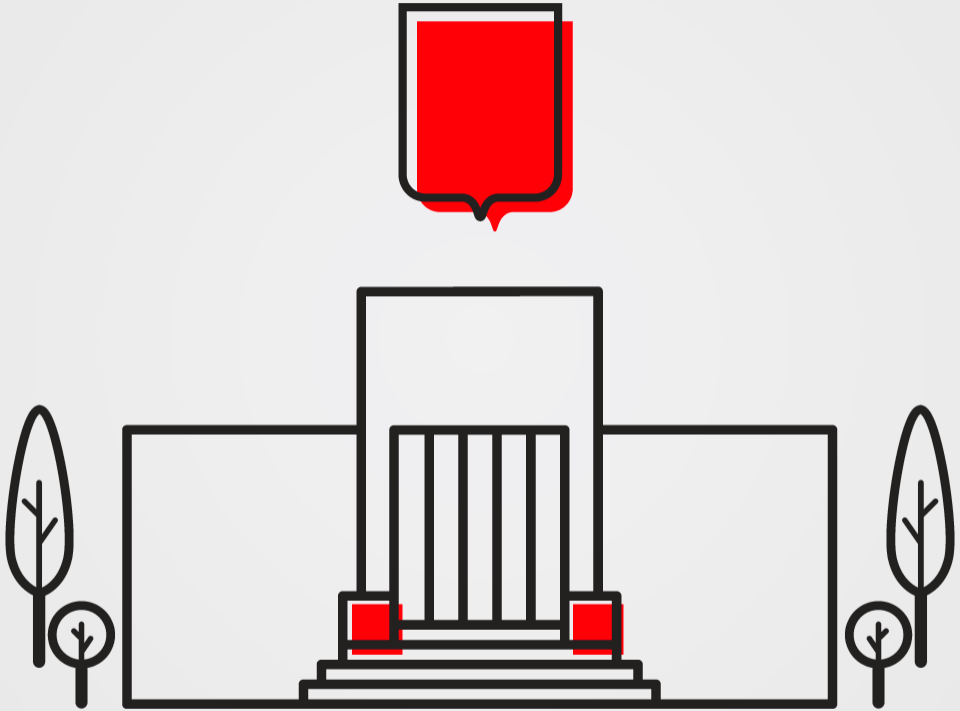


FSA ULaval Notre monde est affaires

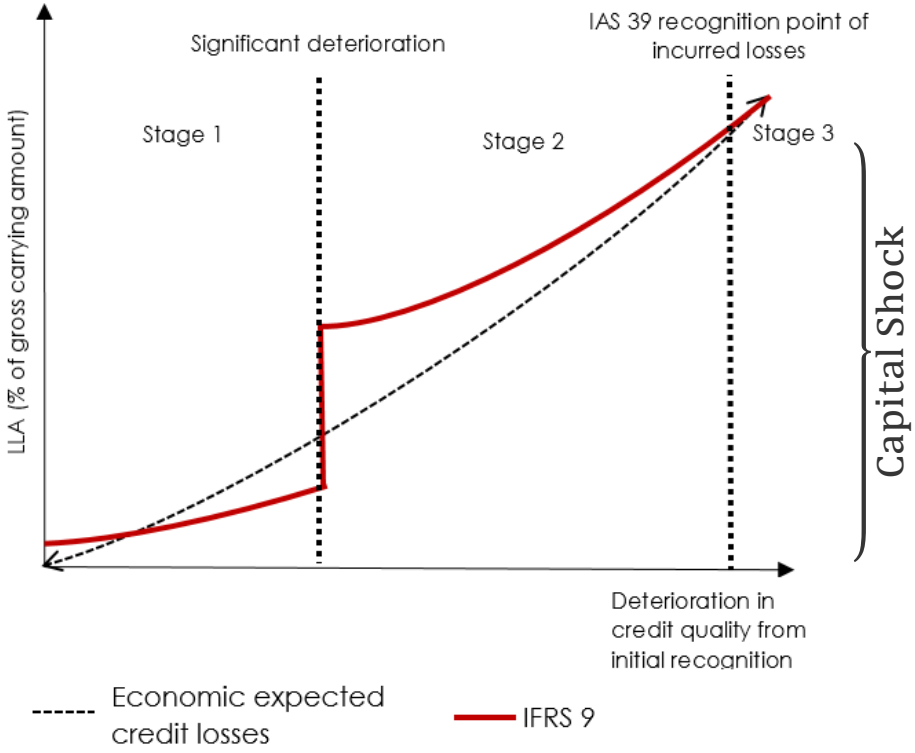
# Moving toward the Expected Credit Loss Model under IFRS 9: Capital Transitional Arrangement and Bank Systematic Risk

Minyue Dong, *University of Lausanne*

Romain Oberson, *Laval University*

2020 ABR/IASB Research Forum - November

# Introduction: CTA and IFRS 9 ECL model




**Capital Adequacy Ratio (CAR)**

$$\frac{\text{Equity}^*}{\text{Risk Weighted Assets (RWAs)}} > 8\%$$

**IFRS 9**

LLA = EAD*PD*LGD

The BCBS introduced the **CTA** policy to ensure a **stable transition** from the incurred-based to the expected-based models.

Source: IASB (March 2013) and Novotny-Farkas (2016, AiE)

# Introduction: In a nutshell

- **What:** We evaluate banks' option to adopt the CTA set out by the BCBS in response to the introduction of IFRS 9
- **How:** Focus on two aspects:
  - We examine determinant factors that influence bank CTA adoption choice
  - We analyse the consequences of this choice on bank risk taking
- **Why is it important:** One might fear that banks would opt for the CTA to delay compliance with the minimum regulatory capital requirement
- **Main findings:**
  - We find that regulatory-constrained banks are more likely to opt for the CTA. This choice is independent of the RW reporting approach (SA vs IRB)
  - We report that CTA adopters decreased their exposure to systematic risk following the CTA adoption. The effect is unambiguous for banks operating in countries where the banking authority holds more power.

# Background & motivation

- IAS 39 obliged firms to record impairment of financial assets conditional on the occurrence of an **objective evidence** of impairment
  - This restriction was criticised as being **too little, too late**
- Under IFRS 9, banks stop waiting for a trigger event and **estimate a buffer to cover potential loan losses** upon initial loan recognition
  - At day 1: higher level of LLA – **Capital shock**
  - Higher level on **managerial discretion** to estimate ECLs
- The BCBS introduced **the CTA policy** to address a potential capital shock (BCBS 2017). The primary objective of the CTA is to ensure a **stable transition** from the old incurred-based to the new expected-based models by adding back a transitional adjustment to regulatory capital

**The interplay between bank accounting under IFRS 9 and Basel regulatory policy: Why do banks opt for the CTA and what do banks do during this transitional period?**

# Banks institutional background

- In 1988, the Basel I accords introduced a **capital adequacy ratio** (CAR) based on a framework that required banks to hold regulatory capital in proportion to **risk-weighted assets** (RWAs).
- In 2004, the Basel II framework allowed banks to calculate the RWAs using two different approaches: the advanced approach (e.g., **IRB**) and **the standardised approach** (SA).
- The **IRB** approach allows banks to **define** either one or all three **parameters** for calculating credit risk: the probability of default (PD), the loss given default (LGD) and the exposure at default (EAD)
- The European Central Bank created a common supervisory framework − the **Single Supervisory Mechanism** (SSM) − which has endowed the ECB with direct supervisory authority over European banks deemed 'significant' in 2014
- In 2015, the ECB launched the **Targeted Review of Internal Models** (TRIM) project, which aims to assess whether the internal models currently used by SSM significant institutions comply with regulatory requirements

# Hypotheses

## Determinants of CTA adoption

**H1a**: Banks that apply the IRB approach are not more likely to opt out of the CTA than banks applying the SA

- We might expect an association between the CTA adoption choice and the approach used by banks to estimate the RWAs (SA or IRB)
  - Banks applying the IRB approach are more likely to have **necessary regulatory capital resources**
  - The IFRS 9 ECL model is **more aligned** with prudential expected losses estimated under the IRB approach than the SA approach (Novotny-Farkas 2016, AiE)
  - IRB banks have **incentives** to opt out of the CTA to avoid 'red flags'
- The benefits for IRB banks of opting out of the CTA might be diluted by several aspects
  - ECLs remains rather **challenging** for most banks to estimate
  - **Heterogeneity** in regulatory **scrutiny** over the use of internal models

# Hypotheses

## Determinants of CTA adoption

**H1a**: Banks that apply the IRB approach are not more likely to opt out of the CTA than banks applying the SA

**H1b**: Regulatory-constrained banks are more likely to opt for the CTA

- Empirical evidence highlights that bank managers behave **opportunistically**
  - Bank managers have **exercised discretion over accounting provisions** to manage regulatory capital, both before (e.g. Beatty et al. 1995, JAR, Moyer 1990, JAE) and after the Basel accords (e.g. Ahmed et al. 1999, JAE, Kim and Kross 1998, JAE)
  - Bank managers make **strategic choices** in modelling credit risk under the IRB framework (e.g. Behn et al. 2016, ECB WP, Mariathasan and Merrouche 2014, JFI)

# Hypotheses

## CTA adoption choice and bank risk taking

**H2a**: The choice of opting for CTA has no impact on banks' risk taking.

- If regulation on credit risk assessment **fails to capture bank risk** taking, banks have incentives to take risks that they would not take with tighter and more efficient regulation (Iannotta et al. 2019, RFS)
  - **Opportunistic view**: banks that select the CTA might take advantage of the transitional period to take more risks than would be possible under a fully applied IFRS 9 framework
    - Particularly applied to regulatory constrained banks (e.g. Ahmed et al. 1999, JAE, Efing 2019, RF, Iannotta et al. 2019, RFS, Mariathasan and Merrouche 2014, JFI)
  - **Non-opportunistic view**: banks that select the CTA might take advantage of the transitional period to decrease their risk taking
    - Voluntary choice over advanced credit risk modeling does not necessarily lead banks to engage in opportunistic behaviors (e.g. Cucinelli et al. 2018, JBF)

# Hypotheses

## CTA adoption choice and bank risk taking

**H2b**: The power of the banking authority affects CTA adopters' risk taking

- Hoque et al. (2015, JBF) argue that the banking authority forms its assessments on bank risk on the basis of proprietary information and might ultimately use its power to affect bank risk taking. Ultimately supervisors might lead to **socially suboptimal arrangements** because of their wish to generate private or political benefits
  - Greater official supervisory power **leads to higher systematic risk** in the banking industry (Hoque et al., 2015, JBF)
- Stringent supervisory control can potentially **prevent** managers from engaging in excessive risk-taking behavior
  - Fernández and González (2005, JFS) show that in the absence of strict accounting and auditing requirements, powerful supervisory authorities may **reduce bank risk taking**
  - Mariathasan and Merrouche (2014, JFS) report that a powerful banking authority **reduces bank incentives**, or ability, **to opportunistically** underreport RWAs
  - García Osma et al. (2019, JBF) show that more politically **independent** supervisors moderate earnings smoothing in European banks

# Research design

- **Time frame:**
  - Yearly data from 2016 – 2019
  - CTA policy and IFRS 9 effective from 2018
- **Sample:**
  - Initial full sample covers all European publicly listed banks.
  - 383 bank-year observations for 101 individual banks from 19 European countries.
    - 37.6% of CTA adopters
    - 56.4% of the sample have experience in advanced credit risk modelling (IRB banks)
    - 42.6% of the banks are under the umbrella of the SSM classified as a "significant institution"
    - Banks' average total assets is €39.34 billion
- **Databases:**
  - S&P Global Market Intelligence, World Bank and V-Lab
- **Methodologies**
  - Probit regressions (H1)
  - Difference-in-difference (H2)

# Research design

## The models:

- $CTA\ ADOPTION_{it} = \beta_0 + \beta_1 IRB_{it} + \beta_2 COST\ TO\ INCOME_{it} + \beta_3 ROA\%_{it} + \beta_4 LOANS_{it} + \beta_5 CAPITAL\ RATIO_{it} + \beta_6 SIZE_{it} + \beta_7 GDP\%_{it} + \beta_8 SSM_{it} + \beta_9 SP_{it} + \beta_{10} ROL_{it} + \varepsilon_{it}$
- $RISK_{it} = \beta_0 + \beta_1 POST_{it} + \beta_2 CTA\ BANK_{it} + \beta_3 POST_{it} * CTA\ BANK_{it} + \beta_4 CHARTER\ VALUE_{it} + \beta_5 MB_{it} + \beta_6 ROA\%_{it} + \beta_7 ROA\ SD_{it} + \beta_8 CAPITAL\ RATIO_{it} + \beta_9 SIZE_{it} + \beta_{10} RISK\ FREE\ RATE_{it} + \beta_{11} GDP\%_{it} + \beta_{12} SSM_{it} + \beta Fixed\ Effects + \varepsilon_{it}$

## Proxies:

- $STD\ RISK = \sqrt{\frac{1}{n}\sum_{t=1}^{N}\left(R_{i,t} - \bar{R}_i\right)^2}$; **Total risk** is the annualised standard deviation of bank stock returns
- $R_{i,t} = \alpha_0 + \beta_{i,t} R\_MSCI_t + \varepsilon_{i,t}$; $\beta_{i,t}$, is used as a proxy for **systematic risk** and the variance of $\varepsilon_{i,t}$ is used as a proxy for **idiosyncratic risk**

# Results - Determinants of CTA choice

H1a: ✓
IRB banks **are not** more likely to opt for the CTA

We find that **IRB** banks under the umbrella of the **SSM** are more likely **to opt out** the CTA.

We find that banks with a **higher proportion of loans**, a **lower capital ratio** are more likely to adopt the CTA. Moreover, we report that **larger** banks are more likely to opt for the CTA.

| | Base Model | IRB | IRB & SSM |
|---|---|---|---|
| | (1) | (2) | (3) |
| Dependent Variable: *CTA ADOPTION* | | | |
| *IRB* | | −0.04 | 0.85 |
| | | (−0.09) | (1.51) |
| *IRB*SSM* | | | −2.24*** |
| | | | (−3.02) |
| *COST TO INCOME* | 1.68 | 1.69 | 2.08 |
| | (1.26) | (1.25) | (1.44) |
| *ROA%* | −0.07 | −0.07 | 0.20 |
| | (−0.28) | (−0.28) | (0.75) |
| *LOANS* | 2.81*** | 2.84*** | 3.23*** |
| | (2.69) | (2.63) | (2.91) |
| *CAPITAL RATIO* | −12.04** | −11.97** | −16.14*** |
| | (−2.09) | (−2.05) | (−2.82) |
| *SIZE* | 0.39*** | 0.39*** | 0.43*** |
| | (3.44) | (2.81) | (3.07) |
| *GDP%* | 0.20** | 0.21** | 0.23** |
| | (2.05) | (2.05) | (2.17) |
| *SSM* | −1.77*** | −1.76*** | −0.38 |
| | (−3.51) | (−3.51) | (−0.56) |
| *SP* | −0.13 | −0.13 | −0.09 |
| | (−1.16) | (−1.16) | (−0.86) |
| *ROL* | −1.42*** | −1.41*** | −1.46*** |
| | (−4.23) | (−4.25) | (−4.43) |
| *Constant* | −1.88 | −1.98 | −3.02 |
| | (−0.86) | (−0.81) | (−1.18) |
| Pseudo-R2 | 0.32 | 0.32 | 0.38 |
| N | 153 | 153 | 153 |

# Results - Determinants of CTA choice

H1b: ✓

Banks characterised by **tighter regulatory constraints** under IFRS 9 are **more likely** to opt for the CTA

We find that regulatory-constrained banks select CTA, **regardless** of the approach used to measure the RWAs

| | DIFF | NPL | DIFF & IRB | NPL & IRB |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Dependent Variable: *CTA ADOPTION* | | | | |
| *DIFF* | −10.13* | | −13.13** | |
| | (−1.87) | | (−2.28) | |
| *NPL* | | 8.98*** | | 9.25*** |
| | | (3.69) | | (3.32) |
| *IRB* | | | −0.64 | 0.13 |
| | | | (−0.71) | (0.23) |
| *DIFF*IRB* | | | 8.71 | |
| | | | (1.07) | |
| *NPL*IRB* | | | | −0.51 |
| | | | | (−0.16) |
| Control variables | yes | yes | yes | yes |
| Pseudo-R2 | 0.35 | 0.40 | 0.35 | 0.40 |
| N | 153 | 153 | 153 | 153 |

# Results – CTA & Bank risk taking

H2a: ✓

CTA adopters **decreased** their **exposure to systematic risk** during the transitional period

| | Total risk | Idiosyncratic risk | Systematic risk |
|---|---|---|---|
| | (1) | (2) | (3) |
| Dependent Variable: | *TOTAL RISK* | *IDIOSYNCRATIC RISK* | *SYSTEMATIC RISK* |
| *POST*CTA BANK* | −0.03 | −0.01 | −0.25*** |
| | (−1.43) | (−0.60) | (−2.64) |
| *CHARTER VALUE* | 0.15 | 0.13 | 0.65 |
| | (0.18) | (0.29) | (0.28) |
| *MB* | −0.14** | −0.06* | 0.03 |
| | (−2.11) | (−1.87) | (0.20) |
| *ROA%* | −0.06** | −0.03* | −0.13 |
| | (−1.99) | (−1.69) | (−1.55) |
| *ROA SD* | 0.03 | 0.00 | 0.28* |
| | (1.51) | (0.11) | (1.87) |
| *CAPITAL RATIO* | 0.56 | 0.32 | 2.00* |
| | (1.50) | (1.63) | (1.72) |
| *SIZE* | 0.09 | 0.04 | 0.76*** |
| | (1.08) | (0.92) | (2.76) |
| *RISK FREE RATE* | 0.03 | 0.03** | 0.26** |
| | (0.95) | (2.07) | (2.50) |
| *GDP%* | 0.00 | −0.00 | 0.05 |
| | (0.31) | (−0.41) | (1.24) |
| *SSM* | −0.06*** | −0.02 | 0.02 |
| | (−2.68) | (−1.50) | (0.07) |
| *Constant* | −0.70 | −0.43 | −8.21** |
| | (−0.57) | (−0.66) | (−2.09) |
| Time FE | yes | yes | yes |
| Bank FE | yes | yes | yes |
| Adj-R2 | 0.72 | 0.58 | 0.74 |
| N | 383 | 383 | 383 |

# Results – CTA & Bank risk taking

H2b: ✓

CTA adopters particularly commit to **decreasing** their **systematic risk** taking in countries with a **powerful banking authority**

| **Panel A: Official Supervisory Power** | | |
|---|---|---|
| | Systematic risk | |
| Supervisory power | Strong | Weak |
| | (5) | (6) |
| *POST*CTA BANK* | −0.22** | −0.00 |
| | (−2.00) | (−0.02) |
| | (−0.43) | (−1.24) |
| Control variables | yes | yes |
| Time FE | yes | yes |
| Bank FE | yes | yes |
| Adj-R2 | 0.73 | 0.78 |
| N | 246 | 137 |
| **Panel B: Significant Institutions under the SSM** | | |
| | Systematic risk | |
| SSM | SI-SSM banks | Other banks |
| | (5) | (6) |
| *POST*CTA BANK* | −0.30** | −0.14 |
| | (−2.20) | (−1.23) |
| Control variables | yes | yes |
| Time FE | yes | yes |
| Bank FE | yes | yes |
| Adj-R2 | 0.74 | 0.72 |
| N | 163 | 220 |

# Other tests

- **Alternative risk proxies**
  - The dynamic conditional beta (Engle 2016, JFEC) & the long-run marginal expected shortfall (Brownlees and Engle 2017, RFS)
- **Robustness checks**
  - Measurement error
    - Alternative market portfolios & estimation procedure of the risk measures
  - Differences in bank characteristics between CTA adopters and non adopters contributes to our results
    - Entropy balancing
  - Assumption underlying the DiD design
    - Parallel trend assumption
  - To ensure that our results do not capture strategic shifts in business models across CTA adopters and non-adopters unrelated to the CTA policy
    - Alternative control group
  - Pure chance?
    - Permutation test

# Conclusion

- Banks choice under **multiple regulatory authorities**: We contribute to the banking literature by providing consistent evidence that IRB banks under the SSM are more likely to opt out of the CTA.
- We address an interesting **interplay** between mandatory application of IFRS 9 and voluntary CTA choice.
- Our study contributes to the banking literature by investigating the impact of the **institutional context** on bank opportunistic choices and risk taking.

## Limits and caveats

i. We only focus on the IASB and the BCBS perspectives while ignoring the role and function of other regional (e.g. European Banking Authority) and national regulators (e.g. FINMA)

ii. We only consider CTA as a dummy variable without examining other CTA data, such as the magnitude of the actual transitional adjustment, as mandatorily disclosed under the Pillar 3 framework

# Policy implication

- Non-IRB-SSM European banks have signaled their **inability** to absorb a 'capital shock' upon the application of ECL under IFRS 9. This finding is supportive of the need for the transitional policy set out by the BCBS (i.e. the CTA).
- Our results on the consequences of the CTA adoption on bank risk taking provide **two main messages** to policy makers.
  I. The CTA policy in conjunction with IFRS 9 has significantly incentivised banks to decrease their exposure to systematic risk.
  II. More scrutiny over bank activities should be prioritised for CTA adopters operating in a weak supervisory environment.

**Our thoughts:**

- In general, our results support the view that special policies issued by bank regulators may help banks to adapt to **significant accounting regulatory reforms**. However, the outcome is likely to be conditional on specificities of banks supervision.
- Regulators could temporarily allow noncompliance with accounting rules to prevent instability in the banking sector: thus effectively applying regulatory **forbearance** without concomitant risks for tax payers(e.g., Covid-19 special policies).

# Thank you!