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Banking regulation and the changing geography of off-balance sheet activities

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HIGHLIGHTS

- Arbitrage due to the extraterritoriality of OTC swaps regulation is investigated.
- IRS exposure of branches of US banks shifted away from traditional locations.
- IRS exposure increased in countries where US banks can adopt local regulation.

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ABSTRACT

This paper investigates whether the substitute compliance framework under the new US regime for over-the-counter derivatives has stimulated regulatory arbitrage. Results point to increased post-regulatory concentration in exposure in those countries in which US banks comply with local derivative regulation.

1. Introduction

In the light of the global nature of derivative markets, the regulatory framework for Over-The-Counter (OTC) swaps, contained in the Dodd–Frank Act (DFA), sets forth an extraterritorial applicability to foreign transactions involving US financial institutions. Enacted by the Commodity Futures Trading Commission (CFTC) in 2013, the *Interpretive Guidance* on cross-border swaps regulations allows foreign branches of US banks to comply with local regulation via a substitute compliance framework in a number of jurisdictions with broadly comparable provisions.[1]

This paper, focusing on the largest segment of swaps markets, that is, Interest Rate Swaps (IRS), investigates whether substitute compliance has resulted in regulatory arbitrage by foreign branches of US banks tilting the playing field in favour of those countries in which the framework is available. Lagged implementation timing and/or marginally less stringent regulation in those jurisdictions where substitute compliance is available may indeed cause an increase in geographical concentration of swaps trading in favour of these latter (Artamonov, 2015).[2]

Evidence on the implications of the DFA on swap markets is limited in the literature and focuses mainly on market liquidity (Benos et al., 2016; Loon and Zhong, 2016). This research is a first attempt to explore whether the DFA has stimulated cross-border regulatory arbitrage by US banks.[3]

The investigation is based on a novel dataset encompassing IRS positions of foreign branches of US banks aggregated over by host-country, contained in the Foreign Branch Report of Condition available from the Federal Financial Institutions Examination Council (FFIEC030). Data is available quarterly for 23 countries over the period 2001q1–2015q3. Geographical shifts in favour of locations

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[1] Applicable from December-end 2013, the interpretative guidance is a not-binding policy statement indicating intentions of forthcoming legislation. The CFTC establishes regulatory comparability of foreign jurisdictions.

[2] See FSB (2014) for cross-country progress in OTC reforms.

[3] Research on cross-border regulatory arbitrage by banks is well-documented (Acharya et al., 2009; Carbo-Valverde et al., 2012; Huston et al., 2012).

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Table 1
IRS exposure by host country, % 2014–2015.
Source: FFIEC030.

	%	Substitute Compliance/Equivalence?
Australia	12	US,EU
Canada	42	US,EU
England	-19	US
Hong Kong	36	US,EU
Japan	-25	US,EU
Singapore	32	EU
South Korea	18	EU
South Africa	6	EU
Switzerland	63	US,EU
Taiwan	-37	
Bahamas	-48	
Thailand	-3	
China	-20	
Philippines	-16	

in which regulatory *equivalence* is available to EU banks featuring an analogous extraterritorial reach are also accounted for.[4] The IRS exposure of US banks may indeed increase in countries susceptible to witness a surge in the presence of their main competitors and counterparties, that is, EU banks, resulting from a parallel attempt to circumvent domestic regulation.

Table 1 reports post-guidance growth rates of IRS exposure of branches of US banks in selected countries. Exposure in jurisdictions with substitute compliance/equivalence for either/both US or/and EU banks have increased with notable exception of Japan featuring fully-implemented and stricter regulation (FSB, 2014).

2. Empirical analysis

The baseline model is:

$$IRS_{i,t} = \theta_s(D_s^{SC} * TR_c) + \sum_{k=1}^{K} X_{k,i,t} + \gamma_i + \varepsilon_{i,t}. \quad (1)$$

$IRS_{i,t}$ is the ratio of IRS (notional amounts) to assets of branches located in host-country i, $i = 1, \ldots, 23$. D_s^{SC} accounts for host country groupings, captured by s dummies, $s = 1, \ldots, S$ allowing to assess geographical shifts either away from those locations with tighter regulations, such as European countries and Japan, or towards those jurisdictions in which substitute compliance/equivalence is available. European countries are captured by the dummy *Europe*; a dummy is also used for *England*. *DUSnoEU* contains countries, other than European, in which substitute compliance is available to branches of US banks. *DEU* identifies those locations, other than the US, in which regulatory equivalence is available to EU banks.[5] Country dummies are also considered without Japan in the following identifiers: *DUSnoJP* and *DEUnoJP*. See Table 2 for details

TR_c, c = US,EU are time dummy variables, capturing the timing of the extraterritorial applicability of derivative regulation in the US (2014q1–2015q3) and in the EU (2014q4–2015q3). γ_i is a fixed-effect that captures unobserved host-country specific variables, such as differences in regulatory environment Fixed-time period dummies are also included in the regression (unreported) to account for common time-varying effects on IRS exposures across the panel.

$X_{i,t}$ contains $k = 1, \ldots, K$ control variables. The choice of the location of IRS trading of branches may not be necessarily driven by local economic conditions as counterparties are often located in third countries. Albeit a given jurisdiction's macroeconomic stability and favourable regulation can stimulate local off-balance sheet activities, financial markets depth, sophistication and openness can also explain the locational choice of IRS trading. Financial openness ($Openness_{it}$) is proxied by host location i's cross-border assets plus liabilities vis-à-vis reporting banks as a share of host county's GDP. Outstanding derivative positions on resident counterparties as a share of GDP ($derivatives_{it}$) proxy for local financial development and sophistication. Inflation rates proxy for macroeconomic stability in i ($inflation_{it}$) and the log of assets of branches in i ($size_{it}$) controls for the relative importance of on-balance sheet activities. IRS exposure of banks arises primarily from market-making/dealing and interest rate risk management. Interest rate risk at the host-country level capturing the latter is proxied by the absolute value of one minus the loans-to-deposit ratio ($IRrisk_{it}$).

3. Results

Table 3 presents the regression estimates of (1) for different specifications. The coefficient of *Europe*TrUS* in column (1) shows that in the US post-regulation era the IRS exposure of foreign branches of US banks in Europe has declined 6.5% more than in other locations. This fall is particularly important for branches located in England whose IRS exposure was 22% lower than elsewhere over the same period, as reported in column (2).

Specifications in columns (3)–(8) capture those locations in which a framework of substitute compliance/equivalence is available to either US and/or EU banks. Column (4) considers exclusively the pre-guidance period (i.e. $TrUS = 0$) in order to test whether IRS exposure of US banks had not been growing at a faster rate before 2014 in those countries in which substitute compliance was available. Column (8) considers the marginal effects on IRS exposure in the subgroup of countries, other than Japan, in which both US and European banks can rely on local derivative regulations, i.e. in Australia, Hong Kong and Canada.

The estimated coefficients of the different country interaction dummies in specifications (3)–(8) are all positive and strongly significant. However, when comparing pre- and post-guidance increase in IRS exposure in those countries with substitute compliance in relation to other foreign locations (*DUSnoEU* definition,

[4] See the European Market Infrastructure Regulation.

[5] Including those countries granted equivalence by the European Commission in both 2014 and 2015.