International Banking and Cross-Border Effects of Regulation: Lessons from Switzerland*

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As part of the IBRN initiative on prudential spillovers, we study the effects of changes in foreign prudential measures on banks in Switzerland. For the average bank we find no evidence that the foreign prudential measures considered affect domestic lending growth or foreign funding growth. Meanwhile, the effects of foreign prudential measures differ across banks with different balance sheet characteristics. In particular, changes in foreign capital regulations do have significant effects on the domestic lending growth of banks with unfavorable liquidity positions (low core deposit ratios or high illiquid asset ratios). However, these effects remain quantitatively small, relative to the overall variability of lending growth.

JEL Codes: F42, G21, G28.

1. Introduction

The Swiss country study focuses on the "inward transmission" of foreign regulation, i.e., it analyzes the spillovers of foreign regulatory policies into the Swiss banking sector. More specifically, we study the effects of changes in foreign prudential measures on both domestic lending and foreign funding of banks in Switzerland.

The structure of the Swiss banking system makes Switzerland an interesting and special country for studying the cross-border effects of banking regulation on domestic lending and foreign funding of banks. The Swiss banking sector is large compared with the size of

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the economy, and the international activity of banks in Switzerland is significant. At the same time, the business models across banks are heterogeneous. Indeed, with the exception of two big, global systemically important banks, international activities and domestic lending are conducted by largely separate types of banks. This implies that there may be little overlap between those banks that are a priori expected to be exposed to foreign regulation (through their international activity) and banks for which the main variable of interest—domestic lending—is important. Hence, for a large number of banks the potential for spillovers from foreign prudential measures to domestic lending is limited.

The analysis in this paper is based on consolidated banking statistics, covering the period 2002–13. The consolidation is given at the group level and, given the scope of Swiss consolidated banking statistics, is restricted to banks headquartered in Switzerland (henceforth referred to as domestic banks).

Our main results are as follows: Our first main result is there is little evidence that the foreign prudential measures considered affect domestic lending growth of the average Swiss bank, i.e., a Swiss bank with average balance sheet characteristics. In most specifications, the effects of foreign prudential measures on domestic lending growth are not significant. Given the small international exposures of domestic retail banks, which hold a market share of nearly two-thirds in the domestic lending market, our finding of no significant spillovers for the average bank is not surprising. However, the finding of no significant spillovers for the average bank in our sample does not necessarily imply that there is no potential for cross-border spillovers from foreign prudential regulation into the Swiss banking sector. For one, our data only cover domestic banks. We therefore cannot study potential effects on bank lending through affiliates of foreign banks. However, we expect such potential spillover effects to be small, as the market share in domestic lending by these banks is very small. For another, there is a potential for significant spillovers to the two big banks, given their large international exposures. While a separate investigation with these two banks would be interesting, it is unfortunately not possible, given the limited number of observations. Furthermore, prudential measures that are specifically targeted at global systemically important banks (e.g., organizational requirements, specific capital or liquidity

requirements) are not covered in the International Banking Research Network (IBRN) Prudential Instruments Database.

Our second main result is that, while there is little evidence for inward spillovers for the average bank, the effects of foreign prudential policies differ across banks with different balance sheet characteristics and that the variation can be linked to a bank's liquidity position. This heterogeneity is mainly observable in the response to changes in foreign capital requirements. We find robust evidence that banks with a better liquidity position, i.e., with a lower ratio of illiquid assets, decrease their domestic lending growth by less in response to a tightening of foreign capital requirements. Similarly, banks with a higher ratio of core deposits restrain their lending growth by less. These results hold for our baseline specification as well as two alternative specifications that either (i) exclude the two big banks or (ii) exclude wealth-management banks and focus on the growth of loans to non-banks. While these results are robust, such effects remain small when compared with the overall variability of lending growth.

Our third main result is that we also find little empirical evidence for spillovers on the funding side. Theoretically, our finding that the impact of foreign capital requirements on domestic lending growth depends on a bank's liquidity position could point to bank funding being a potential transmission channel. If foreign banks reduce their cross-border bank-to-bank lending as a result of higher capital requirements, domestic banks with a weak liquidity position may be particularly concerned. To investigate this hypothesis further, we analyze whether changes in foreign prudential measures affect foreign funding of domestic banks. A priori cross-border spillovers on foreign funding would seem more likely than on domestic lending, as the link between foreign funding and foreign prudential measures is more direct than the link between domestic lending and foreign prudential measures. Somewhat surprisingly, we find no evidence for such a hypothesis. Foreign prudential measures do not have a statistically significant effect on the foreign funding the average bank in Switzerland receives. The liquidity position of a bank does not seem to play a role either. A potential explanation is that we use data on the overall foreign funding a bank receives, as the split between bank and non-bank funding is not available. Overall foreign funding

is likely to be less sensitive to foreign bank regulation than foreign funding from banks.

Our paper is one of the first that considers the effect of foreign prudential measures on domestic lending in Switzerland. A number of papers have considered other determinants of domestic lending. Beutler et al. (2015) show that a bank's lending response to changes in domestic interest rates depends on their exposure to interest rate risk. Basten and Koch (2015) examine the effect of the countercyclical capital buffer activated in Switzerland on the pricing of mortgages. Among other things, they find that capital-constrained banks and mortgage-specialized banks raise their rates relatively more after an increase in the countercyclical capital buffer. Bichsel and Perrez (2005) show that there is evidence for a bank capital channel for smaller Swiss banks (those belonging to the lower 75 percent of the size distribution), but not for other banks. This suggests that the reaction of these banks' credit supply to a monetary policy shock depends on their capital. Junge and Kugler (2013) investigate the effect of higher capital requirements on the Swiss economy, including their effect on economic growth and lending. Rime (2001) and Bichsel and Blum (2004) investigate how bank capital requirements affect bank risk taking. In a cross-border context, Krogstrup and Tille (2015) investigate the determinants of Swiss franc lending by European banks.

The following section gives a more detailed overview of the Swiss banking sector and the data used in our analysis. Section 3 outlines our specifications and discusses the results. The last section concludes.

2. Stylized Facts and Data for Switzerland

2.1 Stylized Facts

The Swiss banking sector is large, especially when compared with the size of the economy. Based on data for end-2013, the aggregated total assets of all banks constitute around 540 percent of Swiss GDP. The assets of the two big, global systemically important banks (Credit Suisse and UBS) alone already account for around 290 percent of GDP, making the "too-big-to-fail" problem particularly relevant for Switzerland.

Table 1. Banking Groups in the Swiss Banking Sector

	No. of Institutions	Aggregate Balance Sheet Total	% of GDP
Domestic Big Banks	2	CHF 1,860 bn.	293
Domestic Retail Banks	103	CHF 970 bn	153
Domestic Wealth-Management Banks	58	CHF 220 bn.	34
Affiliates of Foreign Banks	120	CHF 380 bn	60
Total	283	CHF 3,440 bn.	541

Source: SNB. Consolidated data as of December 31, 2013.

Swiss banks can be divided into four main banking groups (see table 1): the domestic big banks, domestic retail banks, domestic wealth-management banks, and affiliates of foreign banks (subsidiaries and branches of banks with foreign headquarters).

- The *domestic big banks* have a diversified business model, both in terms of asset structure and in terms of geographical diversification. Loans make up around 50 percent of their assets, with 10 percent of their assets being loans to banks (see table 2). These banks have three main business areas: domestic retail banking, investment banking, and wealth management. Nearly 80 percent of their assets are foreign assets. When considering domestic loans, about 97 percent are loans to non-banks (mortgages and other loans) and 3 percent are loans to banks.
- *Domestic retail banks* have a less diversified business model and focus on domestic retail banking. Most of their assets are domestic (90 percent of total assets) and most of these domestic assets are loans (70 percent of total assets). Again, as for the big banks, about 97 percent of domestic loans are loans to non-banks.
- *Domestic wealth-management banks* focus on wealth management. Around 40 percent of their assets are loans. An important share of assets is invested in trading and financial assets. They have a significant international exposure, and foreign assets account for about 50 percent of their balance sheet.

Table 2. Composition of Banks' Balance Sheets

	Domestic Big Banks	**Domestic Retail Banks**	**Domestic Wealth-Management Banks (Including Private Banks)**	**Affiliates of Foreign Banks (Including Branches)**
Balance Sheet Composition (in % of Total Assets)				
Loans	51	74	42	55
Loans to Non-banks	42	69	22	35
Loans to Banks	10	5	21	20
Other	49	26	58	45
Geographical Breakdown (in % of Total Assets)				
Foreign Assets	78	10	54	53
Domestic Assets	22	90	46	47
Domestic Loans	17	70	12	16
Composition of Domestic Loans (in % of Domestic Loans)				
Domestic Loans to Non-banks	97	97	58	72
Domestic Loans to Banks	3	3	42	28

Source: SNB Banking Statistics. Consolidated data as of December 31, 2013.

Regarding the composition of domestic loans, the category of loans to banks is much more important for domestic wealth-management banks than for the big banks and the retail banks, with around 40 percent of all domestic loans going to banks.

- Finally, *affiliates of foreign banks* are also mainly involved in wealth management. Around 55 percent of their assets are loans (20 percent of their assets are loans to banks); the remaining assets mainly consist of liquid assets and financial assets. Their assets are also more or less evenly split between domestic and foreign markets. For domestic loans, loans to banks account for an important share (around 30 percent).

Regarding the market shares of the different groups of banks in the domestic loan market, domestic retail banks hold the biggest market share (63 percent), followed by the big banks (29 percent). Domestic wealth-management and foreign banks only play a minor role (8 percent). Foreign activity, in turn, is dominated by the big banks, which hold almost 80 percent of total foreign assets in the banking system.

Tables 2 and 3 show that among those banks for which domestic lending is an important business activity, only the two big banks also exhibit large international exposures. Domestic retail banks have a large market share in domestic lending, but little international exposures. Domestic wealth-management banks and affiliates of foreign banks have important international exposures but are basically not active in domestic lending.

2.2 Bank-Level Data

We use the following bank-level data for our regression analysis (the specifications are discussed in section 3). All bank-level data are taken from the Swiss National Bank (SNB) Monthly Banking Statistics, the Bank for International Settlements (BIS) consolidated banking statistics, and the supervisory reportings. All data are collected by the SNB. The bank-level data are confidential and can only be accessed at the SNB. A detailed description on the construction of the balance sheet variables is given in table 11 in the appendix.

Table 3. Market Shares by Bank and Asset Categories (in %)

	Domestic Big Banks	Domestic Retail Banks	Domestic Wealth-Management Banks (Including Private Banks)	Affiliates of Foreign Banks (Including Branches)
Foreign Assets	78	5	6	11
Mortgages	66	2	2	29
Other Loans	79	1	5	14
Loans to Banks	58	10	12	20
Domestic Assets	26	56	6	12
Total Domestic Loans	29	63	2	6
Mortages	29	67	1	3
Other Loans	29	51	6	14
Loans to Banks	14	37	19	30

Source: SNB Banking Statistics. Consolidated data as of December 31, 2013.

2.2.1 Dependent Variables

- $\Delta Y_{b,t}$ = change in log total domestic loans (i.e., the sum of mortgage loans, other loans, and loans to banks)

2.2.2 Balance Sheet Characteristics[1]

- Percentage of a bank's portfolio of assets that is illiquid ($IlliquidAssetsRatio_{b,t-1}$)
- Percentage of a bank's balance sheet financed with core deposits ($CoreDeposits_{b,t-1}$)
- Percentage of a bank's balance sheet equity to asset ratio ($BookEquityRatio_{b,t-1}$)[2]

[1]Because of data constraints, we are not able to include the net intragroup funding position used in other country studies as additional control.

[2]We use balance sheet equity net immaterial assets instead of regulatory capital. Because of the transition from Basel II to Basel III, the regulatory definitions of capital are not consistent across time. A bank with an unchanged balance sheet may have changes in its regulatory capital, just because definitions of regulatory capital change. Similarly, definitions of risk-weighted asset have changed, which is why we use total assets in the denominator.

- Log of a bank's total assets $(LogTotalAssets_{b,t-1})$
- Percentage of a bank's foreign assets plus foreign liabilities relative to total assets plus total liabilities $(InternationalRatio_{b,t-1})$

Summary statistics are shown in table 4.

2.2.3 Coverage

The data cover the time period from 2002:Q1 to 2013:Q4 on a quarterly basis. As we mainly use consolidated data, only domestic banks (i.e., banks headquartered in Switzerland) are part of the sample (columns 1–3 in tables 2 and 3).[3] Domestic banks account for about 90 percent of total domestic banking assets and around 95 percent of total domestic loans. Among these banks, the main data constraint is the availability of quarterly foreign exposures, which are collected from the BIS consolidated banking statistics. These data are available for only 18 domestic banks out of 263 reporting banks in 2013. These banks cover, however, a large share of total assets: specifically, they cover about 70 percent of total assets held by domestic banks, 50 percent of total domestic assets, and 90 percent of total foreign assets held by domestic banks.

2.2.4 Preparation and Cleaning of Data

Consolidated balance sheet statistics are only available at an annual frequency (from 2002 to 2005) or semi-annual frequency (from 2006 onward). To obtain a quarterly frequency, these data are linearly interpolated. The dependent variables are available at a quarterly frequency. They are, however, not fully consolidated, as they only cover the parent company, including foreign branches plus domestic subsidiaries but not foreign subsidiaries. Fully consolidated data on loans are only available at an annual frequency. We have compared the quarterly data employed with the fully consolidated annual data. For most banks these fully consolidated lending data give a similar picture as the lending data employed. For the two big banks

[3] Excluding foreign-owned banks means that we potentially miss an indirect spillover channel, as foreign banks have a 30 percent market share in the domestic interbank market.

Table 4. Summary Statistics on Bank Lending and Characteristics

	All Banks (N = 17)			**All Banks without Two Big Banks (N = 15)**			**All Banks without Wealth-Management Banks and the Variable "(Domestic or Foreign) Loans" Does *Not* Include Loans to Banks (N = 8)**		
	Mean	**Median**	**SD**	**Mean**	**Median**	**SD**	**Mean**	**Median**	**SD**
Variable	*Balance Sheet Data (for Each Bank b and Quarter t)*								
Observations									
Dependent Variables:									
Δ Domestic Loans	1.231	0.646	18.223	1.458	0.847	20.350	0.840	0.931	1.871
Δ Foreign Loans	0.552	0.481	20.002	0.706	0.667	21.975	1.926	1.452	17.032
Independent Variables:									
Log Total Assets	17.622	16.891	1.883	16.771	16.701	0.918	18.452	17.482	1.988
Book Equity Ratio (%)	7.643	7.784	3.742	9.008	8.396	2.849	6.331	6.766	3.803
Illiquid Assets Ratio (%)	95.100	98.064	6.990	94.403	97.855	7.575	96.225	98.588	4.827
International Activity (%)	50.749	53.886	29.697	42.702	45.151	27.972	39.564	23.710	32.454
Deposits Ratio (%)	12.650	4.563	14.693	14.435	3.578	15.940	20.835	26.016	13.876

Notes: This table provides summary statistics for bank balance sheet and lending data. Data are observed quarterly from 2002:Q1 to 2013:Q4. Banking data come from the SNB Banking Statistics and are reported at the consolidated level.

(UBS and Credit Suisse) deviations tend to be larger, particularly for interbank loans. There were no significant mergers in the sample considered.

To reduce sensitivity to outliers, we exclude observations where the absolute value of the dependent variable (log change of loans) exceeds 100 percent. This procedure reduces the number of observations by around 1 percent. All of the removed observations concern banks that belong to the group of wealth-management banks.

2.3 Data on Prudential Instruments

The following prudential instruments are considered in the IBRN Prudential Instruments Database described in Cerutti et al. (2017): (i) a prudential index (*PruC*) over the full group of prudential instruments, (ii) general capital requirements, (iii) sector-specific capital buffers,[4] (iv) loan-to-value ratio limits, (v) reserve requirements on foreign-currency deposits, (vi) reserve requirements on local-currency deposits, (vii) interbank exposure limits, and (viii) concentration limits.

We construct an exposure-weighted measure of these prudential instruments, $ExpP_{b,t}$, as described in Buch and Goldberg (2017). In particular, the exposure of a given bank to a given country is the ratio of the sum of assets and liabilities of that bank in that specific country over the sum of *total foreign* assets plus liabilities of that bank. For both the numerator and the denominator we use a rolling average of this ratio over the four preceding quarters. When constructing the weights, we only take into account the exposures to countries that are classified as core countries by the IBRN. If a given country has not yet (or never) introduced a specific prudential instrument, the observation is set equal to zero.

Table 5 shows that the geographical breakdown of foreign claims changed between 2002 and 2013. In fact, Swiss banks' claims to the United States in percentage of total foreign claims have decreased by around 15 percentage points. At the same time, Swiss banks have increased their exposure to Europe and offshore centers. Offshore centers are not covered by the prudential database. For the exposure-weighted measure, the changes in exposures imply that, on

[4]The countercyclical capital buffer is not included in the database.

Table 5. Geographical Breakdown of Foreign Claims (in %)

	2002:Q1	2013:Q4
Europe	33	39
United Kingdom	17	15
Germany	5	6
France	2	5
United States	51	35
Offshore	5	13
Developing Countries	4	8
Other	7	6

Source: BIS consolidated banking statistics.

average, in recent periods prudential measures used by the United States receive relatively less weight than in earlier periods.

The summary statistics of the prudential measures are shown in table 6. We exclude the local reserve requirements from further analysis, as changes in this instrument were to a large extent driven by monetary policy consideration and are also correlated with other monetary policy steps taken. In particular, the large change of the exposure-weighted measure of local reserve requirements in 2012:Q1 is driven by the European Central Bank's decision to cut local reserve requirements. Meanwhile, most reserve requirement changes on foreign-currency deposits occur in emerging markets, where they are used as active prudential policy instrument (Glocker and Towbin 2012).

3. Empirical Method and Regression Results

3.1 Baseline Analysis of Inward Transmission of Prudential Policies

We explore the effect of changes in regulation on banks' domestic loan growth, following the approach described in Buch and Goldberg (2017). We begin with the following regression specification:

IBRN Baseline Specification: *Inward transmission of exposure-weighted foreign regulation with balance sheet interaction terms (cf. table 7).*

Table 6. Summary Statistics on Changes in Prudential Instruments

Instrument	Base Data (Before Aggregating to Exposure-Weighted Measures)					Exposure-Weighted Observations
	No. of Country-Time Changes	No. of Country-Time Changes (Tightening)	No. of Country-Time Changes (Loosening)	No. of Bank-Time Changes	Proportion Base-MPP Non-zero	Proportion $ExpP_t$ Non-zero
Prudential Index	439	303	136	7,688	16.7	100.0
General Capital Requirements	65	65	15	907	2.5	26.6
Sector-Specific Capital Buffer	60	45	21	1,070	2.3	65.5
Loan-to-Value Ratio Limits	83	62	42	1,464	3.2	82.1
Reserve Requirements: Foreign	121	79	112	2,155	4.6	95.3
Reserve Requirements: Local	216	104	1	3,819	8.2	100.0
Interbank Exposure Limit	17	16	2	314	0.6	21.5
Concentration Ratio	28	26	0	512	1.1	44.5

Source: IBRN.
Notes: This table shows summary statistics on changes in prudential instruments for banks located in Switzerland over the period 2002:Q1–2013:Q4. Data on the instruments come from the IBRN Prudential Instruments Database described by Cerutti et al. (2017) and are at quarterly frequency. The number of changes in prudential instruments is reported on several dimensions, i.e., on the country-time level and on the bank-time level. The last column shows the share of prudential changes to total observations (i.e., the share of non-zero observations). The column "Exposure-Weighted Observations" is based on the underlying data on prudential changes in foreign countries (columns under the "Base Data" heading). The reported data are based on the regression sample.

$$\Delta Y_{b,t} = \alpha_0 + (\alpha_1 ExpP_{b,t} + \alpha_2 ExpP_{b,t-1} + \alpha_3 ExpP_{b,t-2}) + \alpha_4 X_{b,t-}1 + (\beta_1 ExpP_{b,t} \cdot X_{b,t-1} + \beta_2 ExpP_{b,t-1} \cdot X_{b,t-1} + \beta_3 ExpP_{b,t-2} \cdot X_{b,t-1}) + f_b + f_t + \epsilon_{b,t}, \quad (1)$$

where $\Delta Y_{b,t}$ is the log change in domestic lending of bank b at time t; $X_{b,t-1}$ is a vector of bank balance sheet characteristics, lagged by one period to avoid endogeneity problems; f_b is a bank fixed effect; and f_t is a time fixed effect. The prudential policy changes are captured by exposure-weighted prudential policy outside the home country ($ExpP_{b,t}$). The foreign-exposure-weighted prudential measure $ExpP_{b,t-1}$ is included contemporaneously and with two lags. We thereby allow for lags in the effect on lending growth for up to two quarters.

The interaction terms of balance sheet characteristics and prudential measures allow banks with different balance sheet characteristics to differ in their response to changes in foreign regulation.

We are mainly interested in two estimates. The first statistic is the response of domestic lending growth to changes in prudential regulation for the average bank. To characterize the average bank, we use the sample averages of bank balance sheet characteristics $\bar{X}$. We consider a horizon of three quarters. The marginal effect of the average bank is then given by

$$\widehat{\gamma} = \widehat{\alpha}_1 + \widehat{\alpha}_2 + \widehat{\alpha}_3 + \bar{X}(\widehat{\beta}_1 + \widehat{\beta}_2 + \widehat{\beta}_3), \quad (2)$$

where the coefficients correspond to the estimated values from equation (1) above. We use an F-test to test for joint significance. The corresponding results are reported in table 7, panel A. Analogously, we also compute marginal effects for banks at specific percentiles of the distribution of balance sheet characteristics by replacing $\bar{X}$ with the specific percentile value.

We also run a restricted regression specification which excludes balance sheet interaction terms (cf. table 7, panel B):

$$\Delta Y_{b,t} = c_0 + (c_1 ExpP_{b,t} + c_2 ExpP_{b,t-1} + c_3 ExpP_{b,t-2}) + c_4 X_{b,t-1} + f_b + f_t + \varepsilon_{b,t}. \quad (3)$$

The estimate of the response $(\widehat{c}_1 + \widehat{c}_2 + \widehat{c}_3)$ from this more parsimonious specification neglects slope heterogeneity across banks.

Table 7. Exposure-Weighted Inward Transmission of Regulation (IBRN baseline specification)

	Prudential IndexC (1)	Capital Requirements (2)	Sector-Specific Capital Buffer (3)	LTV Ratio (4)	Reserve Requirements: Foreign (5)	Interbank Exposure Limits (6)	Concentration Ratios (7)
A. IBRN Baseline Specification with Balance Sheet Interaction Terms: Marginal Effect at Mean of Balance Sheet Variables							
Foreign-Exposure-Weighted Regulation: Sum of Coefficients	−21.769 (20.727)	−85.406 (62.401)	174.959 (164.020)	81.432 (119.939)	213.452 (202.917)	−70.949 (79.550)	57.688 (92.876)
Foreign-Exposure-Weighted Regulation: Cont. Coefficients	−13.654 (10.405)	−24.432 (16.004)	44.964 (46.742)	45.166 (59.671)	−34.766 (164.566)	−2.294 (35.839)	5.176 (35.287)
Foreign-Exposure-Weighted Regulation: Coefficients at t–1	9.238 (12.179)	−4.490 (23.524)	−19.962 (83.511)	13.156 (64.103)	127.768 (90.201)	−2.797 (43.543)	70.615 (47.200)
Foreign-Exposure-Weighted Regulation: Coefficients at t–2	−17.353 (18.373)	−56.484 (56.640)	149.957 (138.005)	23.110 (64.375)	120.450* (70.775)	−65.858 (40.926)	−18.103 (65.175)
B. IBRN Baseline Specification without Balance Sheet Interaction Terms: Sum of Contemporaneous Term and Two Lags							
Foreign-Exposure-Weighted Regulation	−27.229 (24.285)	−60.975* (33.834)	135.473 (133.630)	103.650 (90.310)	−69.560 (114.474)	8.165 (37.552)	38.370 (32.823)
Observations	442	442	442	442	442	442	442
R^2	0.211	0.196	0.205	0.248	0.196	0.189	0.221
Adjusted R^2	0.026	0.007	0.018	0.071	0.007	−0.001	0.038
No. of Banks	16	16	16	16	16	16	16

(*continued*)

Table 7. (Continued)

	Prudential IndexC (1)	Capital Requirements (2)	Sector-Specific Capital Buffer (3)	LTV Ratio (4)	Reserve Requirements: Foreign (5)	Interbank Exposure Limits (6)	Concentration Ratios (7)
C. IBRN Baseline Specification with Balance Sheet Interaction Terms: Sum of Contemporaneous Term and Two Lags							
Foreign-Exposure-Weighted Regulation (ExpP)	−123.603	103.758	1914.038	944.883	−4312.035	926.969	−973.139
	(444.372)	(460.803)	(3072.680)	(1604.850)	(2689.219)	(1834.397)	(1677.365)
Log Total Assets$_{t-1}$	−12.576	−9.113	−6.732	−7.334	−10.895	−6.071	−7.103
	(8.177)	(7.914)	(7.540)	(8.044)	(7.103)	(7.170)	(6.999)
Book Equity Ratio$_{t-1}$	−1.276	−0.777	−1.094	−0.842	−1.259	−0.942	−1.225
	(1.269)	(1.256)	(1.281)	(1.220)	(1.272)	(1.387)	(1.297)
Illiquid Assets Ratio$_{t-1}$	0.107	0.357	0.103	0.148	0.002	0.142	0.170
	(0.428)	(0.364)	(0.359)	(0.312)	(0.456)	(0.347)	(0.437)
International Ratio$_{t-1}$	−0.393	−0.206	−0.017	−0.128	−0.300	−0.199	−0.244
	(0.369)	(0.406)	(0.330)	(0.403)	(0.311)	(0.359)	(0.395)
Core Deposits Ratio$_{t-1}$	−0.563	−0.521	−0.418	−0.049	−0.571	−0.387	−0.274
	(0.426)	(0.356)	(0.417)	(0.362)	(0.375)	(0.364)	(0.392)
Log Total Assets*ExpP	−0.501	10.225	−27.932	−142.964**	57.358	24.662	91.180
	(13.314)	(23.581)	(136.033)	(68.908)	(98.975)	(27.914)	(57.747)
Book Equity Ratio*ExpP	2.700	11.460	−15.407	−1.453	136.237**	−13.759	7.622
	(7.206)	(8.749)	(89.693)	(27.488)	(61.676)	(23.885)	(22.373)
Illiquid Assets Ratio*ExpP	1.003	−7.362**	−6.202	7.589	11.162	−11.923	−5.827
	(3.446)	(3.287)	(14.569)	(9.139)	(17.846)	(14.309)	(11.281)
International Ratio*ExpP	−0.566	2.578	−6.322	13.293*	16.288	−3.066	−0.361
	(1.499)	(2.572)	(13.089)	(6.829)	(10.949)	(3.787)	(6.023)
Core Deposits Ratio*ExpP	0.734	7.531*	−16.328	13.734	29.886	−0.167	1.293
	(2.390)	(4.220)	(25.603)	(10.493)	(18.911)	(5.164)	(8.998)
Observations	442	442	442	442	442	442	442
R^2	0.211	0.196	0.205	0.248	0.196	0.189	0.221
Adjusted R^2	0.026	0.007	0.018	0.071	0.007	−0.001	0.038
No. of Banks	16	16	16	16	16	16	16

Notes: This table reports the effects of changes in regulation and firm characteristics and their interactions on log changes in total domestic loans. The data are quarterly from 2002:Q1 to 2013:Q4 for a panel of domestic bank holding companies (domestic owned). Foreign-exposure-weighted ExpP is calculated as the weighted average of changes in foreign regulation where the weights are total assets and liabilities of the bank in the respective foreign country. For more details on the variables, see table 11 in the appendix. Each column gives the result for the regulatory measure specified in the column headline. All specifications include time and bank fixed effects.. ***, **, and * indicate significance at the 1 percent, 5 percent, and 10 percent level, respectively.

The second estimate characterizes how the response to prudential measures varies across banks with different balance sheet characteristics. The impact of banks' balance sheet characteristics on the response of lending growth is given by the coefficient vector $(\widehat{\beta}_1 + \widehat{\beta}_2 + \widehat{\beta}_3)$. Joint significance is again assessed with an F-test. The statistics are reported in table 7, panel C.

In our baseline specification we include all banks for which data are available and focus on growth in total domestic lending, i.e., the sum of domestic mortgage loans, other domestic loans, and domestic loans to banks. To assess robustness, we run two alternative specifications. In the first alternative specification, we exclude the two big banks. In the second alternative specification, we focus on lending to non-banks and exclude the wealth-management banks. The two alternative specifications are discussed in section 3.2.

Our baseline specification provides no evidence for spillovers from foreign prudential measures for an average bank (cf. table 7, panel A). For a bank with average balance sheet characteristics, none of the different prudential measures have a statistically significant effect on domestic lending growth.

This finding is broadly confirmed if we run a restricted version of the baseline regression that excludes the interaction terms (cf. table 7, panel B). In this specification, a tightening in one (capital requirements) of the seven prudential indexes has a negative effect on domestic lending growth. In a specification that includes all considered prudential measures jointly, with the exception of the summary measure *PruC*, the effect of capital requirements remains significant. The evidence, however, is weak, as the coefficients in both specifications are only significant at the 10 percent significance level.

To test whether balance sheet characteristics influence the impact of foreign prudential measures on lending growth, we use a second statistic to test whether the cumulative effect of the interaction terms $(\beta_1 + \beta_2 + \beta_3)$ is significantly different from zero.

We find that banks with different balance sheet characteristics react differently to regulatory changes. In particular, the liquidity position of a bank seems to play a role. Table 7, panel C shows that banks with a higher ratio of illiquid assets restrain their lending growth by more than banks with a lower ratio following an

increase in foreign capital requirements. A possible explanation is that as a result of higher capital requirements, foreign banks reduce their interbank lending (also to Swiss banks). It seems reasonable to assume that banks with a large share of illiquid assets are particularly affected by this reduction in interbank lending, as they are considered less resilient. These banks might hence be induced or forced to restrain their lending growth.

Similarly, banks with a higher ratio of core deposits (and therefore more stable funding) restrain their lending growth less than those with a lower ratio when foreign capital requirements are increased. The intuition for this result could be that banks with more stable funding are less susceptible to cross-border funding conditions, i.e., are less affected if foreign banks cut their interbank lending growth following changes in foreign prudential policies.

However, the magnitude of these effects is relatively small. The total effect $\hat{\gamma}$ according to equation (2) is –112 for a bank that has an illiquid assets ratio equal to the 75th percentile (99 percent illiquid assets) and otherwise average balance sheet characteristics. The median absolute change (excluding zero observations) of the exposure-weighted capital requirements measure is 0.013. An increase of that size implies a decrease in domestic lending growth by about 0.5 percent per quarter over three quarters (–112 * 0.013/3). This is relatively small compared with the standard deviation of quarterly growth rates in domestic lending, which amounts to about 20 percent (see table 4).[5] The effect for a bank with a core deposits ratio at the 25th percentile (0.3 percent core deposits) and otherwise average balance sheet characteristics is of similar size and amounts to about 0.6 percent per quarter over three quarters. Both effects are statistically significant.

We also find some role for other bank balance sheet characteristics. These results are, however, not robust across different specifications. Hence, our findings suggest that balance sheet characteristics other than the illiquid assets and core deposits ratio only play a limited role.

[5]In some cases, however, the effect can be sizable: the 90th percentile absolute change is 0.3 (excluding zeros). An increase of that size implies a decrease in domestic lending by 11 percent per quarter over three quarters.

3.2 Exploration of Alternative Specifications of Inward Transmission of Regulation

To check for robustness, we run two alternative regressions of the baseline specification in this subsection. We find that the main results for the illiquidity ratio and the core deposits ratio are robust across different specifications. That is, there is some evidence that banks with a higher illiquid assets ratio and a lower core deposits ratio restrain their lending growth more than banks with a lower illiquid assets ratio or higher core deposits ratio following a tightening of foreign capital regulation.

Finally, we run a second specification that analyzes prudential spillovers on the funding side of banks' balance sheets. We find no significant effect of foreign prudential regulation on foreign funding of domestic banks. There is therefore no evidence for the hypothesis that the variation in banks' lending response to foreign prudential measures may be related to foreign banks reducing their interbank lending to domestic banks.

Country-Specific Alternative Specification 1.1: *Without big banks.*

In a first alternative specification, we exclude the domestic big banks. This is to check whether the results are driven by the big banks, which have a more diversified business model (in terms of both business activity and geographical exposure) than domestic retail and wealth-management banks. We use the same dependent variable as in the baseline specification.

Our results for the average bank indicate that out of the seven prudential measures, increases in foreign capital requirements have a significant negative effect on domestic lending growth (cf. table 8, panel A). This result holds both when we evaluate the interaction terms of the baseline specification at their mean values of the balance sheet characteristics and when we use the restricted specification without interaction terms. However, the effect of changes in foreign capital requirements is, although statistically significant, typically not very large. It implies a decrease in domestic lending growth by 1 percent per quarter over three quarters for the median absolute change (excluding zero observations) of the exposure-weighted capital requirements measure of the sample (266 * 0.012/3).

Table 8. Exposure-Weighted Inward Transmission of Regulation (country-specific alternative specification 1.1: without big banks)

	Prudential IndexC (1)	Capital Requirements (2)	Sector-Specific Capital Buffer (3)	LTV Ratio (4)	Reserve Requirements: Foreign (5)	Interbank Exposure Limits (6)	Concentration Ratios (7)
A. Country-Specific Alternative Specification 1.1 with Balance Sheet Interaction Terms: Marginal Effect at Mean of Balance Sheet Variables							
Foreign-Exposure-Weighted Regulation	−17.272	−266.683***	205.906	−16.063	209.791	−66.277	78.080
	(29.503)	(96.712)	(175.899)	(150.732)	(263.381)	(91.285)	(105.824)
B. Country-Specific Alternative Specification 1.1 with Balance Sheet Interaction Terms: Sum of Contemporaneous Term and Two Lags (Coefficients on Foreign-Exposure-Weighted Regulation and Balance Sheet Variables as in Table 7, Panel C)							
Log Total Assets*ExpP	1.842	−46.970*	−118.843	−28.085	120.020	28.596	109.235
	(17.244)	(28.041)	(179.152)	(98.536)	(123.392)	(35.343)	(72.198)
Book Equity Ratio*ExpP	3.962	10.085	−22.811	34.278	165.918**	−16.378	12.236
	(7.796)	(11.975)	(101.305)	(38.132)	(65.519)	(24.749)	(24.821)
Illiquid Assets Ratio*ExpP	1.278	−13.115**	−3.080	13.119	18.560	−13.763	−5.759
	(3.900)	(5.940)	(16.052)	(10.381)	(19.059)	(15.520)	(12.431)
International Activity*ExpP	−0.726	2.763	−4.870	18.147**	22.763	−3.778	0.319
	(1.773)	(3.129)	(14.855)	(9.019)	(13.830)	(4.127)	(6.789)
Core Deposits Ratio*ExpP	0.578	12.884*	−16.159	14.838	40.569*	−1.148	2.430
	(2.680)	(6.735)	(27.910)	(13.039)	(21.331)	(5.606)	(9.801)
Observations	350	350	350	350	350	350	350
R^2	0.245	0.262	0.243	0.294	0.237	0.222	0.256
Adjusted R^2	0.013	0.035	0.010	0.078	0.003	−0.017	0.027
No. of Banks	14	14	14	14	14	14	14

Notes: This table reports the effects of changes in regulation and firm characteristics and their interactions on log changes in total loans. The data are quarterly from 2002:Q1 to 2013:Q4 for a panel of domestic bank holding companies (excluding the big banks). Foreign-exposure-weighted ExpP is calculated as the weighted average of changes in foreign regulation where the weights are total assets and liabilities of the bank in the respective foreign country. For more details on the variables, see table 11 in the appendix. Each column gives the result for the regulatory measure specified in the column headline. All specifications include time and bank fixed effects.. ***, **, and * indicate significance at the 1 percent, 5 percent, and 10 percent level, respectively.

Our two main results about the impact of balance sheet characteristics on the transmission of foreign regulatory measures continue to hold (cf. table 8, panel B). First, banks with a high ratio of illiquid assets restrain their lending growth more following an increase in capital regulation. Second, banks with a high ratio of core deposits restrain their lending growth less than banks with a lower ratio after an increase in capital regulation.

Country-Specific Alternative Specification 1.2: *Without loans to banks and without wealth-management banks.*

In the second alternative specification, we exclude loans to banks and focus on growth in loans to non-banks. As domestic wealth-management banks have only a small market share in the segment for loans to non-banks (see table 3), we exclude these banks as well. We thereby constrain our analysis to growth in loans to the non-bank sector and banks which are strongly involved in the credit market.

For the average bank we find no evidence for an effect of foreign regulation on growth of domestic lending to non-banks (cf. table 9, panel A). In particular, we no longer find a significantly negative effect of an increase in foreign capital requirements on domestic lending growth. This result holds both when we evaluate the interaction terms of the baseline specification at their mean values of the balance sheet characteristics and when we use the restricted specification without interaction terms.[6] Overall, this suggests that the results for the average bank from specification 1.1 are not robust across specifications.

As in the two previous specifications, we find evidence that banks with a high ratio of illiquid assets restrain their lending growth by more when foreign capital regulations are increased (cf. table 9, panel B). In this specification, banks with a high ratio of core deposits do not react statistically differently than banks with a lower ratio to changes in foreign capital requirement; they do, however, restrain their lending growth less to increases in concentration limits.

[6]We have found significant effects in specification 1.1. As specification 1.2 excludes loans to banks, a possible explanation is that the result was driven by volatile interbank lending. However, in a separate specification that focuses on bank loans (not reported), we also do not find a significant effect of foreign capital requirements on domestic lending. This suggests that the effect of foreign capital requirements on domestic lending is not robust.

Table 9. Exposure-Weighted Inward Transmission of Regulation (country-specific alternative specification 1.2: without loans to banks, without wealth-management banks)

	Prudential IndexC (1)	Capital Requirements (2)	Sector-Specific Capital Buffer (3)	LTV Ratio (4)	Reserve Requirements: Foreign (5)	Interbank Exposure Limits (6)	Concentration Ratios (7)
A. Country-Specific Alternative Specification 1.2 with Balance Sheet Interaction Terms: Marginal Effect at Mean of Balance Sheet Variables							
Foreign-Exposure-Weighted Regulation	2.514	1.258	−36.523	−31.568	123.018*	−9.264	−30.622*
	(5.715)	(6.023)	(91.098)	(25.910)	(71.148)	(15.989)	(17.364)
B. Country-Specific Alternative Specification 1.2 with Balance Sheet Interaction Terms: Sum of Contemporaneous Term and Two Lags (Coefficients on Foreign-Exposure-Weighted Regulation and Balance Sheet Variables as in Table 7, Panel C)							
Log Total Assets*ExpP	−2.449	−6.396**	−7.514	10.434	−51.078*	2.845	14.702
	(2.512)	(3.033)	(32.817)	(19.785)	(29.889)	(7.013)	(11.898)
Book Equity Ratio*ExpP	−0.547	−2.483*	−20.311	18.776	−2.756	1.700	5.110
	(1.001)	(1.445)	(21.075)	(13.922)	(13.776)	(3.088)	(5.203)
Illiquid Assets Ratio*ExpP	−0.768	−1.594**	2.887	−2.119	2.955	1.127	−3.590
	(0.670)	(0.759)	(4.899)	(2.804)	(6.276)	(1.769)	(2.384)
International Activity*ExpP	0.277	0.280	−0.901	2.725	2.881	0.314	0.869
	(0.221)	(0.275)	(2.391)	(1.676)	(1.881)	(0.434)	(0.744)
Core Deposits Ratio*ExpP	0.606	0.194	−3.587	7.303	−0.044	0.747	4.413***
	(0.399)	(0.499)	(2.759)	(4.603)	(3.882)	(0.675)	(1.685)
Observations	259	259	259	259	259	259	259
R^2	0.253	0.260	0.242	0.248	0.233	0.238	0.308
Adjusted R^2	−0.053	−0.044	−0.068	−0.060	−0.081	−0.074	0.025
No. of Banks	7	7	7	7	7	7	7

Notes: This table reports the effects of changes in regulation and firm characteristics and their interactions on log changes in non-bank loans. The data are quarterly from 2002:Q1 to 2013:Q4 for a panel of domestic bank holding companies (excluding wealth-management banks). Foreign-exposure-weighted ExpP is calculated as the weighted average of changes in foreign regulation where the weights are total assets and liabilities of the bank in the respective foreign country. For more details on the variables, see table 11 in the appendix. Each column gives the result for the regulatory measure specified in the column headline. All specifications include time and bank fixed effects.. ***, **, and * indicate significance at the 1 percent, 5 percent, and 10 percent level, respectively.

Country-Specific Specification 2: *Inward transmission of regulation on domestic banks' foreign funding with balance sheet interaction terms (cf. table 10).*

In a second specification, we shift the focus from growth in domestic lending to growth in foreign funding. The funding of banks may be directly affected by foreign prudential measures, e.g., by interbank exposure limits or concentration limits. But it could also be affected indirectly. Foreign capital requirements, for example, may induce foreign banks to reduce their balance sheets, which may include interbank positions.

Our dependent variable is the log change in total liabilities of bank b in country j at time t. Thus, in contrast to the baseline specification above, the regression equation is now defined on a bilateral instead of a foreign-exposure-weighted basis. This significantly increases the number of observations. In this specification we explore the effect of changes in regulation in a foreign country on domestic banks' funding growth. Again, we look at three different sub-specifications. The first specification involves all banks, the second specification excludes the big banks, and the third specification excludes the wealth-management banks.[7]

The regression specification is as follows:

$$\begin{aligned}\Delta Z_{b,j,t} = \alpha_0 &+ (\alpha_1 FundP_{b,j,t} + \alpha_2 FundP_{b,j,t-1} + \alpha_3 FundP_{b,j,t-2}) \\ &+ \alpha_4 X_{b,t-1} + (\beta_1 FundP_{b,j,t} \cdot X_{b,t-1} + \beta_2 FundP_{b,j,t-1} \cdot X_{b,t-1} \\ &+ \beta_3 FundP_{b,j,t-2} \cdot X_{b,t-1}) + f_b + f_t + \epsilon_{b,t}, \qquad (4)\end{aligned}$$

where $\Delta Z_{b,j,t}$ is the log change in funding received by bank b from country j at time t; $X_{b,t-1}$ is a vector of bank balance sheet characteristics, lagged by one period to avoid endogeneity problems; f_b is a bank fixed effect; and f_t is a time fixed effect. The prudential policy changes in a given country j are captured by $FundP_{b,j,t}$. This bilateral foreign prudential measure $FundP_{b,j,t-1}$ is included contemporaneously and with two lags. We thereby allow for lags in the effect on funding for up to two quarters.

[7] Note that because foreign interbank liabilities are only available for the most recent period, we are unable to run this regression without interbank liabilities, i.e., we are unable to run this alternative specification analogous to the ones including domestic lending growth as the dependent variable.

Table 10. Inward Transmission of Regulation on Domestic Banks' Foreign Funding—Bank Variables Interactions (country-specific alternative specification 2: all banks)

	Prudential IndexC (1)	Capital Requirements (2)	Sector-Specific Capital Buffer (3)	LTV Ratio (4)	Reserve Requirements: Foreign (5)	Interbank Exposure Limits (6)	Concentration Ratios (7)
A. Country-Specific Alternative Specification 2 with Balance Sheet Interaction Terms: Marginal Effect at Mean of Balance Sheet Variables							
Funding-Country Regulation (FundP)	−0.004	0.163	0.016	0.002	−0.037	−0.017	0.002
	(0.024)	(0.101)	(0.047)	(0.064)	(0.034)	(0.086)	(0.072)
B. Country-Specific Alternative Specification 2 with Balance Sheet Interaction Terms: Sum of Contemporaneous Term and Two Lags							
Funding-Country Regulation (FundP)	0.500	0.257	−1.078	0.796	0.442	2.468	1.707
	(0.412)	(1.169)	(0.732)	(1.074)	(0.779)	(1.802)	(1.526)
Log Total Assets$_{t-1}$	−0.072*	−0.091**	−0.079**	−0.077*	−0.076*	−0.078**	−0.078**
	(0.039)	(0.040)	(0.039)	(0.039)	(0.039)	(0.039)	(0.039)
Book Equity Ratio$_{t-1}$	0.009	0.007	0.007	0.008	0.008	0.008	0.008
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Illiquid Assets Ratio$_{t-1}$	−0.004***	−0.003***	−0.003***	−0.003***	−0.003***	−0.003***	−0.003***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
International Activity$_{t-1}$	0.004**	0.004**	0.004**	0.004**	0.004**	0.004**	0.004**
	(0.002)	(0.002)	(0.002)	().002)	(0.002)	(0.002)	(0.002)
Core Deposits Ratio$_{t-1}$	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)

(*continued*)

Table 10. (Continued)

	Prudential IndexC (1)	Capital Requirements (2)	Sector-Specific Capital Buffer (3)	LTV Ratio (4)	Reserve Requirements: Foreign (5)	Interbank Exposure Limits (6)	Concentration Ratios (7)
Log Total Assets*FundP	−0.018	−0.069	0.029	−0.032	−0.005	−0.098	−0.078
	(0.019)	(0.063)	(0.034)	(0.046)	(0.034)	(0.080)	(0.073)
Book Equity Ratio*FundP	−0.014	0.037	0.022	−0.018	−0.023	−0.060	−0.040
	(0.010)	(0.026)	(0.018)	(0.027)	(0.021)	(0.046)	(0.037)
Illiquid Assets Ratio*FundP	0.003	0.001	0.002	0.003	0.001	0.007	0.010*
	(0.002)	(0.007)	(0.004)	(0.005)	(0.003)	(0.012)	(0.006)
International Activity*FundP	0.000	0.010	0.005*	0.000	−0.002	−0.002	0.000
	(0.002)	(0.007)	(0.003)	(0.005)	(0.003)	(0.008)	(0.004)
Core Deposits Ratio*FundP	−0.003	0.016	0.011*	−0.005	−0.006	−0.009	0.000
	(0.003)	(0.013)	(0.006)	(0.009)	(0.005)	(0.015)	(0.008)
Observations	30,417	30,417	30,417	30,417	30,417	30,417	30,417
Adjusted R^2	0.007	0.006	0.006	0.006	0.006	0.005	0.005
No. of Banks	16	16	16	16	16	16	16

Notes: This table reports the effects of changes in regulation and firm characteristics and their interactions on log changes in total liabilities in funding countries. The data are quarterly from 2002:Q1 to 2013:Q4 for a panel of domestic bank holding companies. FundP refers to the changes in regulation in the funding country of the domestic bank (i.e., the country where the bank holds liabilities). For FundP and its interaction effects, the reported coefficient is the sum of the contemporaneous term and two lags, with the corresponding F-statistics for joint significance in parentheses. For more details on the variables, see table 11 in the appendix. Each column gives the result for the regulatory measure specified in the column headline. All specifications include time and bank fixed effects.. ***, **, and * indicate significance at the 1 percent, 5 percent, and 10 percent level, respectively.

We are again interested in two main estimates. The first estimate is the response of foreign funding growth to changes in prudential regulation for an average bank. The second estimate describes how this response varies across banks with different balance sheet characteristics.

Looking at the response of the average bank, the baseline specification shows no evidence for spillovers from prudential measures (cf. table 10, panel A). None of the prudential measures have a statistically significant effect. Moreover, we find no evidence that balance sheet characteristics have an impact on the results. In particular, the liquidity position of a bank does not seem to play a role. The finding of no spillovers is somewhat surprising, given that the link between foreign funding growth and foreign prudential measures is more direct than the link between domestic lending growth and foreign prudential measures. A potential explanation is that we use data on the overall foreign funding a bank receives, as the split between bank and non-bank funding is not available. Total foreign funding is likely to be less sensitive to foreign bank regulation than foreign funding from banks.

4. Concluding Remarks

Overall, we find that there are no strong spillovers from foreign prudential regulation on domestic banks, both on the lending side and on the funding side. For the average bank we find no evidence that the foreign prudential measures considered affect domestic lending growth or foreign funding growth. Meanwhile, the effects of foreign prudential measures differ across banks with different balance sheet characteristics. In particular, changes in foreign capital regulations do have significant effects on the domestic lending growth of banks with unfavorable liquidity positions (low core deposit ratios or high illiquid asset ratios). However, these effects remain quantitatively small relative to the overall variability of lending growth.

The results suggest that the foreign prudential measures considered do not compromise Switzerland's own prudential policies regarding domestic lending growth. A potential explanation is that although Switzerland has a large and internationally active banking sector, international and domestic activity are conducted by largely separate types of banks, with the important exception of the two

big banks. While there is a potential for spillovers for the two big banks, the limited number of observations does not allow for a study focusing on such a restricted sample. Furthermore, prudential measures targeted at global systemically important banks (e.g., organizational requirements, specific capital or liquidity requirements) are not covered in the IBRN Prudential Instruments Database.

Appendix

Table 11. Construction of Balance Sheet Variables

Variable Name	Report Form Description	Source	Notes
Dependent Variables:			
Δ Log Domestic Loans$_t$	Δ Log of Sum of Domestic Amounts Due from Banks, Domestic Amounts Due from Customers, and Domestic Mortgage Loans	SNB Montly Banking Statistics, Form MONA-M011	Loans from Foreign Subsidiaries Excluded
Δ Log Domestic Loans Non-Banks$_t$	Δ Log of Sum of Domestic Amounts Due from Customers and Domestic Mortgage Loans	SNB Monthly Banking Statistics, Form MONA-M011	Loans from Foreign Subsidiaries Excluded
Independent Variables:			
Illiquid Assets Ratio$_t$	One minus (Liquid Assets/Total Assets)	Supervisory Reporting, Forms AU1xx, AUH1xx	
Log Total Assets$_t$	Log Total Assets	Supervisory Reporting, Forms AU1xx, AUH1xx	
Core Deposits Ratio$_t$	Amounts Due to Customers in Savings or Deposit Accounts/Total Assets	Supervisory Reporting, Forms AU1xx, AUH1xx	
Book Equity Ratio$_t$	Book Equity Net of Immaterial Assets/Total Assets	Supervisory Reporting, Forms AU1xx, AUH1xx	
International Ratio$_t$	(Total Foreign Assets + Total Foreign Liabilities)/(Total Assets + Foreign Liabilities)	SNB Consolidated Banking Statistics, Forms KONZ-A31x	
Exposure-Weighted Prudential Policy Measure	See Main Text	IBRN Prudential Instruments Database SNB Consolidated Banking Statistics (ASTA), Immediat Risk, Forms ASTA-B1xx.	

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