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Organisational structure as a driver of mergers and acquisitions in the European banking sector

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Abstract

This paper studies the bilateral drivers of mergers and acquisitions (M&As) between European banks. Two findings document that banks use M&A as a device to leverage their expertise rather than to diversify. (i) Following the literature on matrimonial matching by using a binary logit model, the paper examines how the structure of acquiring banks in terms of geographical location (headquarters and subsidiaries) influences the choice of targeted banks for an M&A transaction. It finds that banks favour domestic expansion over international diversification. (ii) The paper investigates how the business model of acquiring banks determines their selection of targeted banks. Very often, banks tend to target counterparts with the same business model or, to a lesser extent, those with the same business model as one of their subsidiaries.

Key words: Banks, mergers and acquisitions, internal organisation, domestic footprint, economies of scale

JEL classification: G21, G34, L22

Non-technical summary

"[Consolidation] can be a means of addressing longstanding issues in the European banking sector, such as low profitability and overcapacity."[1] Important financial stability benefits may result from financial integration via mergers and acquisitions (M&As), such as risk diversification and risk sharing. Understanding the drivers of and the obstacles to consolidation is therefore an important topic for the European Central Bank (ECB).

The literature on the drivers of M&As predominantly focuses on the individual characteristics of acquiring and targeted banks. This paper, on the contrary, looks at the bilateral characteristics of the acquiring bank and the targeted bank, and in particular how the characteristics of acquiring banks influence the choice of targeted banks. In other words, while the literature focuses on banks, this paper focuses on nodes. The paper focuses on two types of bilateral links: the similarity or complementarity of business model and the similarity or complementarity of geographical location. This paper uses bank-level data for the period 2014-2020 for all the countries of the European Union plus the United Kingdom.

Following the literature on matrimonial matching by using a logit model, this paper finds that banks tend to target for an M&A transaction those counterparts with the same business model or, if this is not the case, the same business model as one of their subsidiaries. M&As therefore tend to involve banks that are in the same market segment. On average, banks do not perform M&As to diversify their activities (and therefore risk), but to achieve economies of scale.

The paper also shows that M&As tend to expand the domestic footprint of acquiring banks rather than lead to geographical expansion to "unexplored" countries. Indeed, the presence of the targeted bank in the same country is found to greatly increase the chances of an M&A transaction. Furthermore, in the case of cross-border M&As, acquiring banks tend to target countries where they already have subsidiaries, in order to reinforce their presence. The domestic nature of M&As has an impact on the concentration of risks within countries and contributes to the national fragmentation of the European banking sector.

[1] SSM (2020)

1. Introduction

Since the global financial crisis, there has been a significant drop in bank M&As in Europe, both in terms of numbers and deal values. To quote European banking supervision guidance on the supervisory approach to consolidation[2], "[Consolidation] can be a means of addressing longstanding issues in the European banking sector, such as low profitability[3] and overcapacity[4]". Since 2019, several announcements of M&A projects by banks suggest a possible pick-up in M&A activity in the coming years. Important financial stability benefits may result from financial integration via M&As, and especially cross-border M&As, such as risk diversification and risk sharing. Understanding the drivers of and the obstacles to consolidation is therefore an important topic for European banking supervision, and more generally the European Central Bank (ECB).

The literature on the drivers of M&As is much less prolific than that covering the impact on the banks involved[5]. In the literature that does address drivers[6], research predominantly focuses on the individual characteristics of acquiring and targeted banks. However, to the best of my knowledge, there is no paper looking at the bilateral characteristics of the acquiring bank and the targeted bank, and in particular how the characteristics of acquiring banks influence the choice of targeted banks. In other words, while the literature focuses on banks, this paper focuses on nodes. For this reason, this paper follows the literature on matrimonial matching (Hitsch et al., 2010), which typically considers the combination of characteristics of each partner. This paper focuses on two types of bilateral links: the similarity or complementarity of business model and the similarity or complementarity of geographical location.

The paper analyses if M&As lead to economies of scale or diversification in terms of banks' business models[7]. More specifically, using a binary logit model with fixed effects, the paper

[2] SSM (2020)
[3] ECB Financial Stability Review (2019)
[4] Gardó & Klaus (2019)
[5] See DeYoung, Evanoff & Molyneux (2009) for a literature review of the impact of M&As in the US and in Europe. For example, Beccalli and Frantz (2009) look at different indicators of performance post-M&A, Moore (1997) studies the impact on small business lending.
[6] Focarelli, Panetta & Salleo (2002); Hernando, Nieto & Wall (2009); Hannan & Pilloff (2009)
[7] The business models of the banks in the sample are the following: commercial banks, bank holdings, cooperative banks, investment banks, mortgage banks and savings banks. The business model classification comes from BankFocus.

estimates the probability of M&As according to whether the targeted bank has the same business model as the acquiring bank or one of its subsidiaries[8]. Having the same business model is found to increase the chances of M&As by 1.7%. In the case of cross-business M&As[9], having at least one subsidiary with the same business model as the target bank significantly increases the chances of an M&A transaction. M&As therefore tend to involve banks that are in the same market segment. From a business model perspective, M&As are thus not a matter of risk diversification, but of economies of scale.

The paper also investigates if M&As lead to geographical diversification or an expanded domestic footprint. The probability of M&As – whether the targeted bank is in the same country as the acquiring bank or not – is estimated using a binary logit model with fixed effects. In the case of cross-border M&As, the paper explores the motivations of the acquiring bank: does it acquire the target bank because it wants to explore a new market (and therefore benefit from the local expertise of the target bank), or does it want to reinforce its presence based on the fact that its subsidiaries perform well in this market? Presence in the same country is found to increase the probability of M&As by 2.5%. In the case of cross-border M&As, having at least one subsidiary in the country of the targeted bank significantly increases the chances of M&As. In most cases, M&As are domestic and therefore do not contribute to the spreading of risks within the euro area or to making shocks more symmetric across borders.

This paper therefore contributes to the literature in three ways. First, it applies a marriage-matching methodology (looking in a logit setting at couples rather than individuals) to the literature on M&As. Second, it answers questions that have not yet been explored, highlighting the business model dynamics and geographical specialisation associated with M&As. Third, the paper not only takes into account the characteristics of banks, but also the characteristics of their subsidiaries, which have received little attention in the literature so far.

This paper is structured as follows. Section 2 presents a short review of the related literature. Section 3 provides some descriptive statistics. Section 4 focuses on the geographical structure

[8] A subsidiary is defined as a bank being a branch or being owned at least 50% by a bank.
[9] A cross-business M&A is defined as an M&A between banks with different business models.

of banks, and Section 5 focuses on their business model. Section 6 links both dimensions. Section 7 concludes.

2. Literature

The literature on the drivers of M&As is well established, having started with studies of the American market[10] followed by subsequent analysis of the European banking sector[11]. Acquiring and targeted banks' characteristics tend to be studied separately, using independent logit model with bank-level data. Size (in terms of total assets) has a positive and significant effect on the probability of being an acquirer (Molyneux, 2003; Lanine & Vennet, 2007; Pasiouras & Gaganis, 2007; Pasiouras et al., 2011; Bijsterbosch et al., 2019). Acquiring banks tend to be more cost-efficient (Pasiouras & Gaganis, 2007; Pasiouras et al., 2011; Bijsterbosch et al., 2019). Acquirers tend to be more profitable (Lanine & Vennet, 2007; Pasiouras et al., 2011). Finally, Bijsterbosch et al. (2019) find that poor asset quality also increases the probability of being an acquirer.

On the target side, the literature finds that bigger banks are more likely to be a target (Lanine & Vennet, 2007; Pasiouras et al., 2011; Bijsterbosch et al., 2019). A high volume of NPLs (Bijsterbosch et al., 2019), low liquidity (Pasiouras et al., 2011; Bijsterbosch et al., 2019), low cost efficiency (Hernando et al., 2009; Caiazza et al., 2012; Bijsterbosch et al., 2019) and low capital ratio (Hannan & Rhoades, 1987; Wheelock & Wilson, 2000) increase the chances of becoming a target. However, while Hannan & Rhoades (1987) and Lanine & Vennet (2007) find that targeted banks are slightly more profitable, Pasiouras & Gaganis (2007), Goddard et al. (2009) and Pasiouras et al. (2011) find the opposite. Poorly managed banks are more likely to become targets (Hannan & Rhoades, 1987; Wheelock & Wilson, 2000). Finally, Caiazza et al. (2012) do not find significant differences in the characteristics of the targeted banks whether the M&A transaction is cross-border or domestic.

[10] Amel and Rhoades (1989); Moore (1997); Wheelock and Wilson (2000); Akhigbe, Madura, and Whyte (2004); Hannan and Pilloff (2009)
[11] Focarelli, Panetta and Salleo (2002); Molyneux (2003); Lanine and Vennet (2007); Hernando et al. (2009); Pasiouras et al. (2011); Beccalli and Frantz (2013); Bijsterbosch et al. (2019)

This paper contributes to this literature by studying how the similarities and complementarities between the acquirer and the target in terms of business model and geographical localisation affect the probability of an M&A transaction. Very few papers study the relationship between the acquiring and the targeted banks' characteristics, most of the time, only focusing on the common nationality of the banks. Caiazza and Pozzolo (2016) is one of them, studying failed takeovers in the banking sector, comparing domestic and cross-border M&As. Interestingly, they find that cross-border operations have a higher probability of success than domestic ones. This result is not necessary at odd with the finding of this paper of low probability of cross-border M&As: indeed it could be that there is a selection biased, and the cross-border M&As are announced at a latest stage, when they are more probable.

The study of banks' business models is an active branch of the literature. This literature provides different classifications of business models for banks and analyses the evolution of these business models, especially since the crisis. Kok et al. (2016) and Caparusso et al. (2019) find a shift towards universal banking since the global financial crisis, as banks have sought to diversify their revenue sources. These papers observe a change in banks' sources of revenue but do not provide evidence of the mechanisms through which these shifts have taken place. This paper contributes to the literature by showing that the diversification process is on average not achieved through M&As.

Another branch of the literature studies the geographical expansion of banks and shows that, since the financial crisis, banks have tended to be less globalised. Forbes et al. (2016), Cerutti and Claessens (2017), and Cerutti and Zhou (2017), measuring internationalisation by the volume of cross-border lending, find a sharp decline. On the contrary, Caparusso et al. (2019), measuring internationalisation by summing the degree of loans, deposits and revenues, note only a gradual decline. Emter et al. (2018) study the retrenchment in cross-border banking in the EU since 2008, with a drop of 40% in cross-border loans among EU banks. They find that the high volume of non-performing loans (NPLs), the legacy of the crisis and prudential policies are the main drivers of the decline. This paper contributes to the literature by measuring internationalisation according to the number of subsidiaries outside of a bank's home country and showing how it is influenced by M&As.

Furthermore, a branch of the literature combines the study of business models and geographical expansion to measure the organisational complexity of banks. Cetorelli and Goldberg (2014) measure this complexity by the number of affiliates a bank has, their geographical spread (geographical complexity) and their diversity in term of business activities (business complexity). This paper contributes to the literature by showing how the characteristics of acquirers in terms of organisational complexity affect the probability of an M&A transaction.

3. Descriptive statistics

3.1. Database

This paper combines data on M&As from Dealogic, Zephyr and SNL databases, with data on banks' characteristics from BankFocus and data on banks subsidiaries from the Register of Institutions and Affiliates Data (RIAD). The list of variables, their description and their source can be found in Table A1 in the appendix. The database covers the EU-27 countries plus the United Kingdom.

The paper builds on the M&A dataset constructed by Bijsterbosch et al. (2019) for the period 1999-2017 (building on Dealogic and SNL databases for the mentioned period), and follows the same cleaning procedure for the period 2018-2020 (building on Dealogic and Zephyr[12] databases for the mentioned period). Bijsterbosch et al. (2019) define an M&A transaction as a deal that leads to an effective change in the ownership of the financial entity involved. For this reason, they omit the following types of deals from the database: acquisitions of assets, repurchases, privatisations, joint ventures, leverage buyouts and restructurings. Their database includes only certain types of banks: commercial banks, savings banks, cooperative banks, real estate and mortgage banks, investment banks, and bank holding companies. This paper follows the same process to clean the data. Finally, following the literature in order to obtain comparable results, only the more significant deals for which the final stake owned by the acquirer is at least 30%[13] are included.

[12] Zephyr is also used to complete Bijsterbosch et al. (2019) database for the period 1999-2017.
[13] This threshold is relaxed as a robustness check, the results are stable (see appendix).

BankFocus is used to obtain banks' financial information for the period 2013-2020. The database is also used to assign to each bank a business model, using BankFocus classification[14]. To obtain information on the branches and banks owned by banks (which are collectively referred to as "subsidiaries" in this paper), RIAD is used. This database allows the construction of a network of banks' ownership in Europe. Although RIAD contains information relative to ownership links existing before 2000, it is exhaustive and reliable only since 2014 (year of creation of the European banking supervisor).

Being constrained by bank-level data availability, the study is limited to the period 2014-2020. Furthermore, only the M&A deals that could be matched with BankFocus and RIAD were retained, thus reducing the number of deals studied from 784 to 434.

3.2. Geographic and business activity patterns of banks involved in M&As

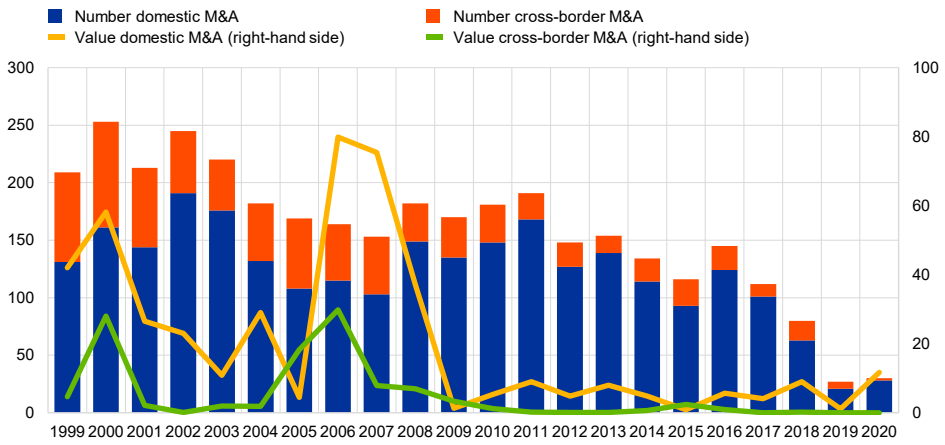
As Chart 1 highlights, M&As are characterized by waves : in the 1990s/early 2000 and during the global financial crisis (this pattern is also observed in the US) and the literature follows the same trend. Chart 1 also shows a declining trend in M&As, both in deal values and numbers, among European banks in the last ten years. BIS (2018) highlights a shrinking of the European banking sector relative to economic activity since the financial crisis. This adjustment has occurred mainly at the intensive margin (reduction in business volumes) rather than at the extensive margin (exit of banks from the market). The M&A activities reflect this trend as well. The declining trend has for consequence a small number of observations in the database for the period studied (2014-2020) and limits the degree of freedom for the econometric analysis.

[14] A caveat of using BankFocus classification is that the results are dependent on the definitions used to classify each business model. This paper could try to create its own classification, but this would require a lot of data on the types of activities each bank performs and their weights. The database only contains around 400 M&As; adding the constraint of having information on every type of activity for every bank (and their subsidiaries) in order to compute the business model would significantly reduce the number of observations.

Chart 1

Number and deal value of European bank M&As over time

(1999-2020; number of M&As and EUR billions)



Sources: Dealogic, SNL and Zephyr, put together by Bijsterbosch et al. (2019) for the period 1999-2017.

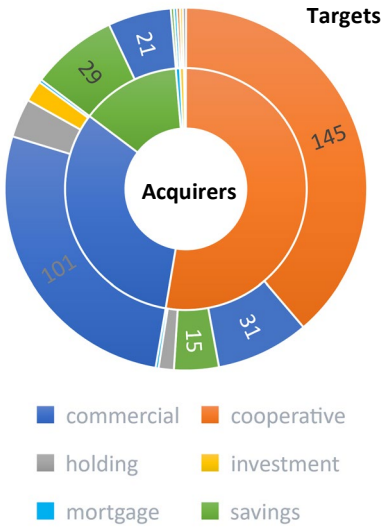
Notes: Sample from 1999-2020 for all EU countries plus the United Kingdom. M&As with a final stake >30%.

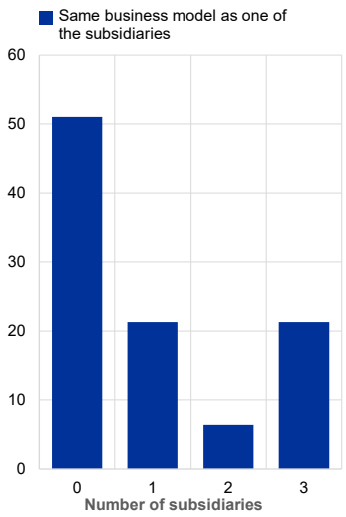
M&As tend to increase the specialisation of banks in terms of business model. Indeed, three-quarters of acquiring banks target counterparts with the same business model as them (see Chart 2, left-hand panel). In this respect, cooperative banks are exclusively targeted by other cooperative banks because of legal and statutory constraints which prevent M&As with banks having a different business model. Furthermore, in around half of M&As involving different business models, the acquiring bank already had at least one subsidiary with the same business model (see Chart 2, middle panel). These two graphs being taken together, it implies that M&As do not necessarily lead to a diversification of risks. The right-hand panel of Chart 2 shows that cross-business model M&As take place mostly among banks that are already diversified, which limits the effects of risk diversification of the banking sector in general.

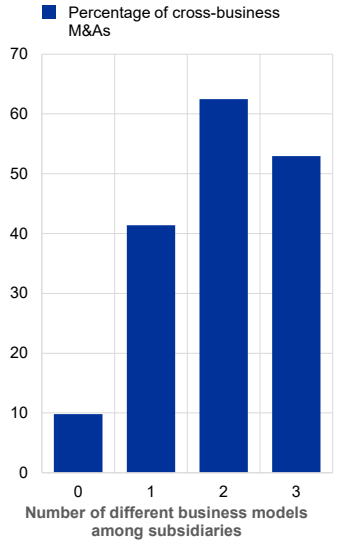
Chart 2

Trends in business model specialisation

M&A business model matching	Distribution of the number of subsidiaries with the same business model as the target bank in cross-business model M&As	Percentage of cross-business M&As among total number of M&As, depending on the number of different business models among subsidiaries
(2014-2020, number of M&As)	(2014-2020, percentage)	(2014-2020, percentage)







Sources: Ibid., Chart 1, BankFocus and Riad.

Notes: M&As with a final stake >30%. Subsidiaries: branches and banks owned directly and indirectly by a bank. Left-hand panel: the inner circle represents the acquiring banks and the outer circle the target banks. The business model classification is the one of BankFocus.

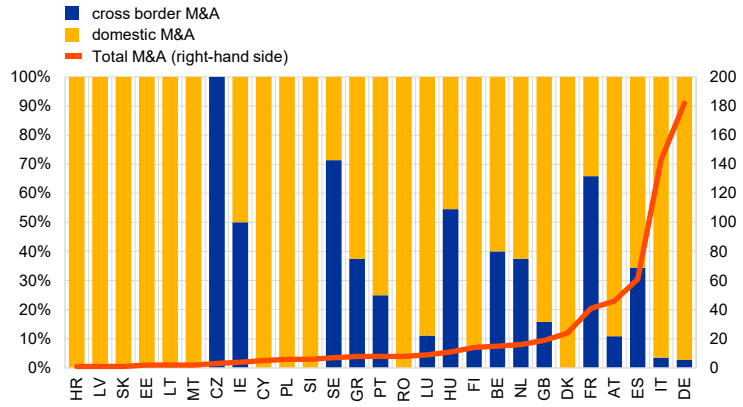
M&As tend to increase the specialisation of banks in terms of geographical reach. Indeed, 84% of M&As are domestic (see Chart 3, left-hand panel). However, the numbers are driven by five countries (Germany, Italy, Spain, Austria and France), which account for three-quarters of M&As in Europe. Generally speaking, the larger the country, the bigger the share of domestic M&As. France is an exception, however, with only 34% of domestic M&As. Furthermore, in 70% of cross-border M&As, the acquiring bank already had at least one subsidiary in the country (see Chart 3, right-hand panel). This implies that M&As tend to reinforce the pre-existing geographical presence of banks. The potential pick-up in M&A activity in the coming years will therefore not lead to a significant increase in cross-country risk sharing in the euro area banking sector if the currently observed domestic M&A trend stays the same.

Chart 3

Trends in geographical specialisation

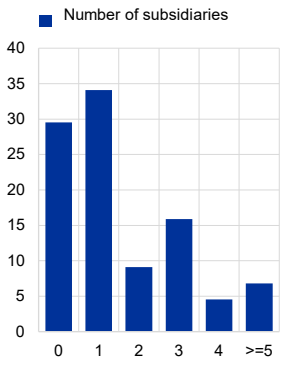
Distribution of cross-border and domestic M&As per country (from the point of view of the acquiring bank)

(2014-2020, percentage)



Distribution of the number of subsidiaries from the same country as the target bank in cross-border M&As

(2014-2020, percentage)



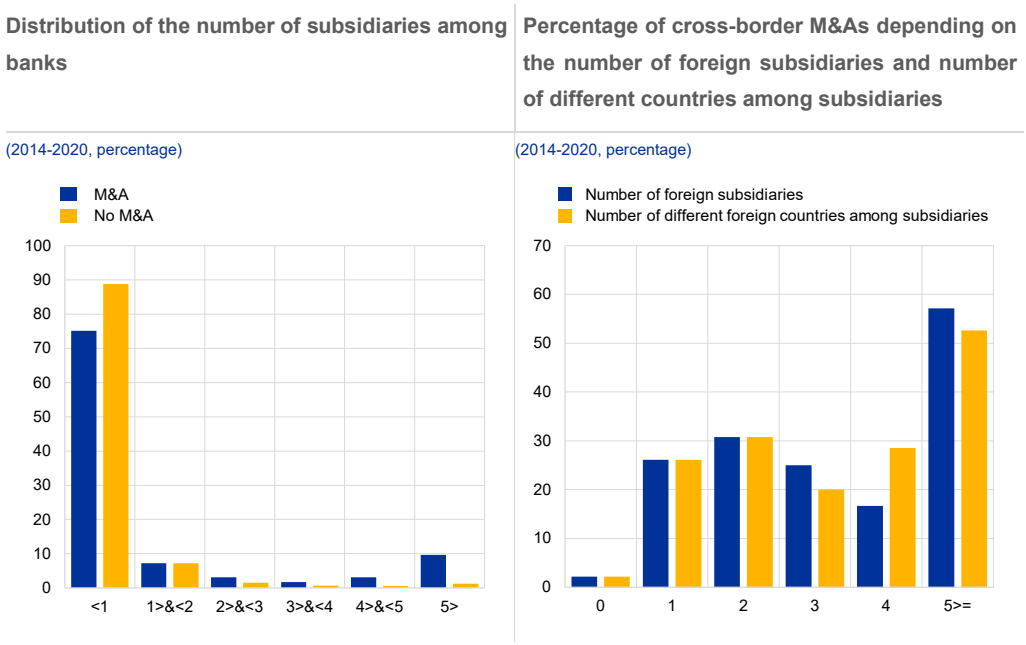
Sources: Dealogic, SNL, Zephyr and RIAD.

Notes: M&As with a final stake >30%. Bulgarian banks were not involved in any M&As (using the restricted definition described previously) in the period 2014-2020, which explains why the country is not represented in the left-hand panel. Subsidiaries: branches and banks owned directly and indirectly by a bank.

Furthermore, M&As are primarily conducted by banks which already have a complex organisational structure in terms of the number of subsidiaries, business models and countries covered. Indeed, acquiring banks have on average 2.3 subsidiaries while non-acquiring banks have 0.3. The left-hand panel of Chart 4 shows that 89% of non-acquiring banks have less than one subsidiary on average over the period 2014-2020, versus 75% for acquiring banks. At the other end of the spectrum, 10% of acquiring banks have more than five subsidiaries (the maximum being 73 for BNP Paribas) versus 1% for non-acquiring banks. In terms of geographical reach, the right-hand panel of Chart 4 shows a notable disparity in cross-border M&As conducted by companies with at least one subsidiary abroad and those with none. This suggests there is a fixed cost for banks to establish operations abroad. For banks with five or more foreign subsidiaries, more than half of their M&As are cross-border, suggesting a complexification of their organisational structure. Furthermore, 90% of the global systemically important banks (G-SIBs) in the sample performed an M&A transaction during the period of study, which indicates that penalties for complexity in the form of additional requirements (known as the G-SIB surcharge) are not an inhibiting factor for M&As.

Chart 4

Trends in business model specialisation



Sources: Dealogic, SNL, Zephyr and RIAD.

Notes: M&As with a final stake >30%. Subsidiaries: branches and banks owned directly and indirectly by a bank. Left hand panel: number of subsidiaries as an average over the period 2014-2020, which explains why the numbers are non-integer.

4. Geographical structure of the banks

4.1. Econometric methodology

The empirical approach aims at identifying the observable bilateral characteristics that are associated with M&A matching on the basis of a logit model. This section estimates the probability of an M&A transaction between two banks, focusing on their geographical structure. While there are many model specifications to estimate the probability of being an acquirer or a target in M&As, there are – to the best of my knowledge – none for matching pairs. This paper therefore follows the literature on matrimonial matching, which typically considers the combination of characteristics of each partner (both being divorced, both having children, age difference, height difference, difference in education level, etc.) to estimate the probability of a match. The literature has evolved a lot recently, with recent and very granular data coming from online dating sites; Hitsch et al. (2010) are some of the pioneers in their utilisation. The similarity between the matrimonial market and the M&A market is

straightforward, and this paper therefore builds on this literature's knowledge. It uses the binary logit model of Hitsch et al. (2010) as a baseline, and follows the literature[15] to select the individual bank characteristics to be controlled for.

$$P(M\&A_{i,j,t}) = \alpha + \beta_1 Number\ of\ subsidiaries\ in\ target\ country_{i,j,t-1} + \beta_2 Dummy\ subsidiaries\ in\ target\ country_{i,j,t-1} + \beta_3 Dummy\ cross\text{-}border_{i,j} + FE_i + FE_j + FE_t + \epsilon_{i,j,t} \quad (1)$$

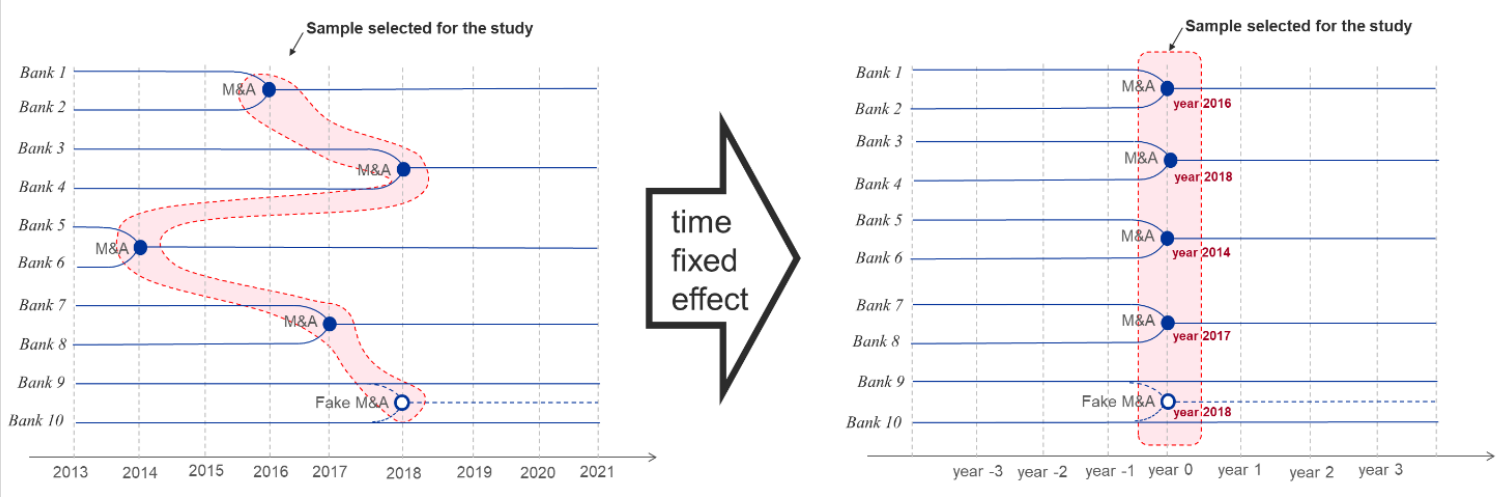
$P(M\&A_{i,j,t})$ is the probability of bank *i* to acquire bank *j* in year *t*. $Number\ of\ subsidiaries\ in\ target\ country_{i,j,t-1}$ is the number of subsidiaries that bank *i* has in the country of bank *j*, one year before the M&A transaction (*t-1*). $Dummy\ subsidiaries\ in\ target\ country_{i,j,t-1}$ is a dummy variable taking the value 1 if bank *i* has at least one subsidiary in the country of bank *j*, one year before the M&A transaction (*t-1*). $Dummy\ cross\text{-}border_{i,j}$ is a dummy variable taking the value 1 if the two banks are not based in the same country. FE_i is the acquiring bank fixed effect, FE_j the target bank fixed effect and FE_t the year fixed effect.

Once a pair of banks have merged, they would be unlikely to split and remerge, especially within a time span of seven years (the length of the study period). For this reason, the study is based on cross-sectional data, selecting the year of the M&A for each pair in the treatment group (the year of the transaction is therefore the year "zero" for the cross-section). Since the M&A transactions do not all take place the same year, year fixed effects are added to control for the economic cycle (see Figure 1 on the data selection process). For the control group, year "zero" is randomly drawn by computer between 2014 and 2020 when both banks in the pair were in existence. Only pairs of banks which have no ownership links (one owns the other) and which do not have the same ultimate owner are selected[16].

[15] The choice of the characteristics studied/controlled for in the literature is globally similar from one paper to the other, e.g. Hannan & Pilloff (2009), Hernando et al. (2009), Pasiouras et al. (2011), Bijsterbosch et al. (2019).
[16] In the sample, 23 banks are at the same time acquirer and target. These banks cannot be paired with themselves under the current methodology, since their ultimate owner is the same.

Figure 1

Diagram explaining the selection of the observations for the study

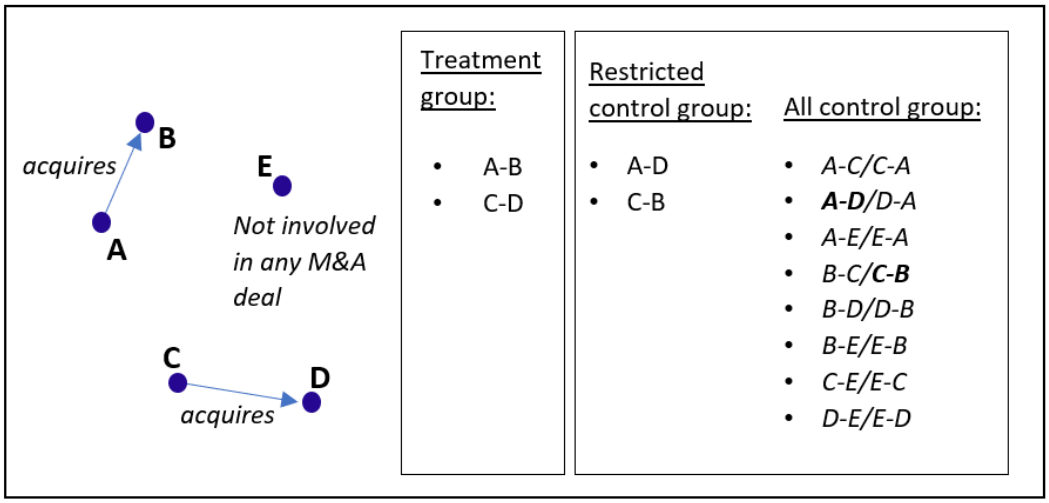


Note: Each blue dot symbolises an actual M&A transaction, while the white dot symbolises a fake M&A transaction (control group). While the database contains data on the banks (and new merged banks) every year, the red area symbolises the sample that is kept for the study. On the left-hand side, the panel is shown with the Common Era time. On the right-hand side, the time series has been transformed and depends on the year of the M&As. The data in the study is therefore a cross-section at year = 0, after time transformation.

There are two potential forms of control group: first, the combination of all pairs of European banks for which information is available (i.e. which are both included in BankFocus and RIAD) or, second, the combination of acquiring banks and targeted banks in observed M&As over the period of study, but with different matching partners (e.g. if bank A acquires bank B and bank C acquires bank D, the restricted control group would be a bank A-bank D pair and a bank C-bank B pair, see Figure 2).

Figure 2

Diagram symbolising M&A deals between banks, the treatment group, and the two possible control groups



Note: Each blue dot symbolises a bank, and each arrow a M&A deal (the arrow points toward the target).

Each choice of control group has advantages and disadvantages. The combination of acquiring banks and targeted banks has the advantage of establishing a control and treatment group with exactly the same individual characteristics. Only the bilateral characteristics, on which this paper focuses, vary. This control group allows for bank fixed effects. However, since the individual characteristics of the treatment and control group are the same, it is not possible to assess the effect of individual characteristics on the probability of M&As (such as the number of foreign subsidiaries). Conversely, including all pairs of banks makes it possible to study individual characteristics but does not allow for bank fixed effects. Indeed, the dummy for banks not involved in M&As would predict failure with a probability equal to one and would therefore be withdrawn from the regression. An alternative is therefore to include several individual characteristics as controls, to compensate for the absence of bank fixed effects. This paper uses both control groups to obtain the cleanest possible estimate of the impact of bilateral variables and also to be able to estimate individual characteristics. Having two different control groups also provides more confidence in the estimates, serving as a robustness check.

4.2. Results

Table 1 displays the results of the equation (1).

Table 1
Logit and geographical location

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All M&As				Cross-business M&As			
Dummy $M\&As_{i,j,t}$	Restricted control		All control		Restricted control		All control	
	Odds ratio	Marginal effect	Odds ratio	Marginal effect	Odds ratio	Marginal effect	Odds ratio	Marginal effect
Dummy subsidiaries in target country$_{i,j,t-1}$	2.078***	0.00988***	2.434***	0.000359***	4.457***	0.161***	4.548*	0.000176
	(0.365)	*(0.00180)*	*(0.500)*	*(8.28e-05)*	*(0.856)*	*(0.0335)*	*(2.481)*	*(0.000112)*
Number of subsidiaries in target country$_{i,j,t-1}$	-0.0666**	-0.000317**	-0.00917	-1.35e-06	0.153	0.00550	-1.878	-7.27e-05
	(0.0310)	*(0.000148)*	*(0.167)*	*(2.47e-05)*	*(0.187)*	*(0.00672)*	*(1.922)*	*(7.86e-05)*
Dummy cross-border$_{i,j}$	-5.319***	-0.0253***	-9.737***	-0.00143***				
	(0.322)	*(0.00200)*	*(2.970)*	*(0.000468)*				
Number of subsidiaries $_{i,t-1}$			0.176	2.59e-05			-0.155	-5.98e-06
			(0.169)	*(2.50e-05)*			*(0.238)*	*(9.26e-06)*
Number of foreign subsidiaries $_{i,t-1}$			0.459**	6.77e-05**			0.672**	2.60e-05*
			(0.189)	*(2.86e-05)*			*(0.342)*	*(1.48e-05)*
Number of foreign countries in which subsidiaries are present $_{i,t-1}$			-0.921***	-0.000136***			-0.842**	-3.26e-05*
			(0.260)	*(4.06e-05)*			*(0.417)*	*(1.84e-05)*
Individual bank characteristics$_{i,t-1/j,t-1}$*			X	X			X	X
			X	*X*			*X*	*X*
Constant	-3.031*		3.390		-4.046**		-41.65***	
	(1.751)		*(3.858)*		*(1.875)*		*(15.42)*	
Observations	52,816	52,816	415,473	415,473	946	946	179,053	179,053
Buyer bank fixed effect	YES	YES	NO	NO	YES	YES	NO	NO
Target bank fixed effect	YES	YES	NO	NO	YES	YES	NO	NO
Buyer country fixed effect	NO	NO	YES	YES	NO	NO	YES	YES
Target country fixed effect	NO	NO	YES	YES	NO	NO	YES	YES
Year fixed effect	YES	YES	YES	YES	YES	YES	YES	YES

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. For readability reasons, the controls for bank characteristics have been removed from the table. Columns 3 and 7 can be found in their entirety in Columns 4 and 8 respectively of Table A4 in the appendix. The definition of the variables can be found in Table A1 of the appendix.

Column 1 displays the results for the combination of acquiring banks and targeted banks as a control group (with bank fixed effects therefore added). Having at least one subsidiary in the country of the target bank has a significant impact. The number of subsidiaries in the target country seems to have a negative effect, but this effect is not robust as the coefficient is not significant in Column 3. This suggests that settlement abroad has a non-linear effect on a bank's decision to perform an M&A transaction – an effect that is visible in Chart 3 (right-hand panel). Conversely, the target bank being in a different country than the buyer bank significantly

reduces the probability of an M&A transaction. Column 3 displays the same results, but with all pairs of banks making up the control group. Since the regression cannot contain bank fixed effects with this control group, buyer country and target country fixed effects are included, as well as the individual characteristics of the banks (see Table A4 in the appendix), i.e. branch dummy, quoted dummy, G-SIB dummy, log total assets, equity assets ratio, liquid assets ratio, return on assets (ROA), cost/income ratio, log number of employees, log loan loss provisions and NPL ratio. Having at least one subsidiary in the country of the target bank and having foreign subsidiaries in general significantly increase the probability of an M&A transaction. The cross-border dummy is still negative and significant. The coefficient for the cross-border dummy varies considerably between Columns 1 and 3, and I would tend to trust the one of Column 1 since the bank fixed effects make the regression cleaner. As such, the target bank being in a different country than the buyer bank decreases by 2.5% the probability of an M&A transaction, while having at least one subsidiary in the country of the target bank increases it by 1%.

Columns 5 and 7 are the same as Columns 1 and 3, but for cross-border pairs only (both in the treatment and control group). Having at least one subsidiary in the country of the target bank is more important for cross-border M&As, which is in line with what is observed in the descriptive statistics. The inclusion of the variable "dummy subsidiaries in target country$_{i,j,t-1}$" modifies the interpretation of the coefficient of the variable "number of subsidiaries in target country$_{i,j,t-1}$". The latter should be interpreted as the average effect of having one more subsidiary in country j, conditioning on having already one subsidiary there (instead of the average effect in general). The average effect of the variable can be found in Table A5 in the appendix, it is still on average non-significant.

As a robustness check, this paper uses different controls for the characteristics of the banks (Columns 3 and 7), which do not significantly affect the magnitude of the coefficients of the variables of interest (see Table A4 in the appendix). M&A following a resolution case have different drivers, which could affect the choice of the target/acquirer's characteristics. A further robustness check omits M&As involving banks which experienced a resolution case in the last

three years.[17] The results are robust and can be found in the appendix (Table A6). The robustness to changing the threshold for the final stake involved in the M&As is also tested, varying between zero (every M&A is retained) and 50 (the buyer bank has full control of the target bank). The results are robust and are displayed in Table A7 in the appendix.

5. Business model structure of the banks

Following Cetorelli and Goldberg (2014), after looking at the geographical dimension of the organisational complexity of banks, the paper studies the second dimension of complexity: the business complexity, i.e. the diversity in term of business activities. For this, the paper looks at the business model of the acquirers and their subsidiaries pre-M&A. It then studies how M&A affect the business complexity of the acquirers by estimating if the target's business model increases the diversity of activities. To do this, the regression (1) is used but analyses business models rather than countries.

[17] The following M&As are omitted: Novo Banco (PT) buying Banco Espirito Santo (PT) in 2014; Piraeus Bank (GR) buying Panellinia Bank (GR) in 2015; Banco Santander (ES) buying Banif Banco Internacional Do Funchal (PT) in 2015; Intesa Sanpaolo (IT) buying Banca Popolare Di Vicenza (IT) in 2017; Intesa Sanpaolo (IT) buying Veneto Banca (IT) in 2017; Banco Santander (PT) buying Banco Popular Portugal (PT) in 2017; Bper Banca (IT) buying Nuova Cassa Di Risparmio Di Ferrara Spa (IT) in 2017; Unione Di Banche Italiane Spa (IT) buying Nuova Banca Dell Etruria E Del Lazio in 2017; Unione Di Banche Italiane (IT) buying Nuova Cassa Di Risparmio Di Chieti (IT) in 2017; Unione Di Banche Italiane (IT) buying Nuova Banca Delle Marche (IT) in 2017.

Table 2
Logit and business model

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All M&As				Cross-business M&As			
Dummy $M\&As_{i,j,t}$	Restricted control		All control		Restricted control		All control	
	Odds ratio	Marginal effect	Odds ratio	Marginal effect	Odds ratio	Marginal effect	Odds ratio	Marginal effect
Dummy subsidiaries with same business model as $target_{i,j,t-1}$	2.799*** *(0.482)*	0.0186*** *(0.00343)*	1.652*** *(0.452)*	0.000195*** *(5.76e-05)*	2.568*** *(0.812)*	0.0969*** *(0.0323)*	4.934*** *(1.538)*	0.000203*** *(7.15e-05)*
Number of subsidiaries with same business model as $target_{i,j,t-1}$	0.0961 *(0.0838)*	0.000639 *(0.000559)*	0.586*** *(0.122)*	6.92e-05*** *(1.60e-05)*	-0.0553 *(0.136)*	-0.00209 *(0.00512)*	-0.215 *(0.304)*	-8.84e-06 *(1.25e-05)*
Dummy $cross\text{-}business_{i,j}$	-2.510*** *(0.241)*	-0.0167*** *(0.00194)*	-2.281*** *(0.389)*	-0.000269*** *(5.47e-05)*				
Number of $subsidiaries_{i,t-1}$			-0.0530 *(0.0648)*	-6.26e-06 *(7.70e-06)*			0.146 *(0.137)*	6.01e-06 *(5.75e-06)*
Number of subsidiaries with different business $models_{i,t-1}$			0.0574 *(0.196)*	6.78e-06 *(2.32e-05)*			0.788* *(0.439)*	3.24e-05* *(1.88e-05)*
Number of different business $models\ covered_{i,t-1}$			1.750*** *(0.406)*	0.000207*** *(5.28e-05)*			0.324 *(1.317)*	1.33e-05 *(5.42e-05)*
Individual bank $characteristics_{i,t-1/j,t-1}$*			X *X*	X *X*			X *X*	X *X*
Constant	-4.441*** *(1.432)*		1.341 *(2.800)*		-4.452*** *(1.478)*		5.404 *(7.097)*	
Observations	29,976	29,976	613,538	613,538	1,043	1,043	458,222	458,222
Buyer bank fixed effect	YES	YES	NO	NO	YES	YES	NO	NO
Target bank fixed effect	YES	YES	NO	NO	YES	YES	NO	NO
Buyer business fixed effect	NO	NO	YES	YES	NO	NO	YES	YES
Target business fixed effect	NO	NO	YES	YES	NO	NO	YES	YES
Year fixed effect	YES	YES	YES	YES	YES	YES	YES	YES

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. *For readability reasons, the controls for the characteristics of the banks have been removed from the table. Columns 3 and 7 can be found in their entirety in Columns 4 and 8 respectively of Table A8 the appendix. The definition of the variables can be found in Table A1 of the appendix.

Column 2 shows that having at least one subsidiary with the same business model as the target bank significantly increases the probability of an M&A transaction (by 1.9%), the result being robust in Column 4, unlike the number of subsidiaries with the same business model as the target bank. Having a different business model to the target bank decreases the probability of an M&A transaction by 1.7%. This result is robust, being also significant in Column 4.

Column 5 shows that having at least one subsidiary with the same business model as the target bank significantly increases the probability of a cross-business M&A transaction. The general effect of the variable "Number of subsidiaries with same business model as $target_{i,j,t-1}$", i.e., not conditioning on having already a subsidiary with same business model, can be found in Table A9 in the appendix, it is significant only for M&As in general, and not cross-business M&As.

The same robustness checks as for the geographical location are implemented (different combinations of controls, omission of resolution cases and different thresholds for the final stake), and lead to robust results (see Tables A8, A10 and A11 in the appendix). As a further robustness check, cooperative and holding banks are also removed from the sample, as one could argue that these are not business models. Furthermore, in some countries (e.g., Spain and Germany[18]), cooperative banks and savings banks have restrictions in the choice of business models they can merge with. For this reason, savings banks are also dropped from the sample for robustness checks. The results are stable.

6. Comparison of geographical and business-model M&As strategies

Finally, regressors from Tables 1 and 2 Column 1 to 4 are combined, Table 3 displays the results. Only 13 M&A transactions in the database are both cross-border and cross-business, which prevent the study of the intersection of the two dimensions (Column 5 to 8 of Tables 1 and 2).

[18] Anguren Martín & Marqués Sevillano (2011)

Table 3
Logit, geographical location and business model regressors pooled

Dummy $M\&As_{i,j,t}$	(1)	(2)	(3)	(4)
	All M&As			
	Restricted control		All control	
	Odds ratio	Marginal effect	Odds ratio	Marginal effect
Dummy subsidiaries with same business model as $target_{i,j,t-1}$	3.219***	0.0189***	0.334	4.78e-05
	(0.605)	*(0.00369)*	*(0.669)*	*(9.61e-05)*
Number of subsidiaries with same business model as $target_{i,j,t-1}$	0.0699	0.000410	0.505*	7.24e-05*
	(0.102)	*(0.000598)*	*(0.292)*	*(4.24e-05)*
Dummy $cross\text{-}business_{i,j}$	-2.375***	-0.0139***	-2.325***	-0.000333***
	(0.311)	*(0.00197)*	*(0.496)*	*(8.05e-05)*
Number of subsidiaries with different business $models_{i,t-1}$			-0.448	-6.42e-05
			(0.336)	*(4.84e-05)*
Number of different business $models\ covered_{i,t-1}$			-0.104	-1.48e-05
			(0.874)	*(0.000125)*
Dummy subsidiaries in target $country_{i,j,t-1}$	2.351***	0.0138***	1.475**	0.000211**
	(0.545)	*(0.00327)*	*(0.689)*	*(0.000101)*
Number of subsidiaries in target $country_{i,j,t-1}$	-0.0867**	-0.000509**	-0.0830	-1.19e-05
	(0.0412)	*(0.000244)*	*(0.172)*	*(2.47e-05)*
Dummy $cross\text{-}border_{i,j}$	-5.665***	-0.0333***	-9.564***	-0.00137***
	(0.473)	*(0.00326)*	*(3.179)*	*(0.000483)*
Number of foreign $subsidiaries_{i,t-1}$			0.195	2.79e-05
			(0.261)	*(3.75e-05)*
Number of foreign countries in which subsidiaries are $present_{i,t-1}$			-1.006***	-0.000144***
			(0.361)	*(5.38e-05)*
Number of $subsidiaries_{i,t-1}$			0.440**	6.30e-05**
			(0.180)	*(2.66e-05)*
Individual bank $characteristics_{i,t-1/j,t-1}$*			X	X
			X	*X*
Constant	-0.786		1.417	
	(2.116)		*(5.043)*	
Observations	29,976	29,976	394,730	394,730
Buyer bank fixed effect	YES	YES	NO	NO
Target bank fixed effect	YES	YES	NO	NO
Buyer business fixed effect	NO	NO	YES	YES
Target business fixed effect	NO	NO	YES	YES
Year fixed effect	YES	YES	YES	YES

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. *For readability reasons, the controls for the characteristics of the banks have been removed from the table. Columns 3 and 4 can be found in their entirety in Columns 1 and 2 respectively of Table A12 the appendix. The definition of the variables can be found in Table A1 of the appendix.

The coefficients magnitude, signs and significancy are broadly the same when the business and geographical regressors are estimated together (Table 3) and separately (Tables 1 and 2). This suggests that the two dimensions are independent from each other's, although they follow similar dynamics, with the same two variables playing a role.

The first driver is economies of scale rather than diversification both in terms of geographical location and business model. Cross-border and cross-business M&As are rare and unlikely. It also seems that there is more resistance to cross-border M&As than cross-business M&As, which indicates that barriers are more difficult to circumvent in the case of transnational transactions. Geographical barriers could come from distance, languages differences, culture differences or legislations differences (di Giovanni, 2005; Gulamhussen et al., 2016).

The second driver is the existence of at least one subsidiary in the same country or with the same business model as the target bank. However, the number of subsidiaries with this characteristic does not matter, suggesting a non-linearity. In other words, one subsidiary is enough for a bank to proceed with an M&A transaction, and more information through more subsidiaries has no impact.

Surprisingly, the number of subsidiaries of the acquiring bank in general does not seem to play a role. In the descriptive statistics (Table A3), it appears that acquiring banks have on average ten times more subsidiaries than non-acquiring banks. My results suggest that the effect is driven by the subsidiaries in the same country or with the same business model as the target bank (i.e. there is a very high correlation between having a lot of subsidiaries in general and having subsidiaries in the same country or with the same business model as the target bank).

7. Conclusion

M&As tend to increase the specialisation of banks, geographically and in terms of business model. Furthermore, pre-existing subsidiaries play an important role in the decision process of diversification versus specialisation through M&A. Indeed, if a bank is already diversified (in the geographic or business model dimension) via its subsidiaries, it will significantly increase the chances of an M&A transaction with banks having the same characteristics than the

subsidiary. This highlights the importance of the knowledge, either of the country, or of the business model, in the choice of the targeted bank: the banks are more reluctant to merge with a bank with characteristics they have not experiences internally. It is quite remarkable that the mechanisms are so similar for the geographic and business model dimension. This also explains the very few simultaneous cross-border and cross-business model M&A transactions : it is probably seen as too challenging to undertake a diversification process in the two dimensions at the same time. Knowing this, it seems unlikely that the forecast rise in M&As in the coming years will lead to any significant increase in cross-border risk sharing in the euro area.

This paper also presents some weaknesses. The definition of business model used does not allow for a precise consideration of the consequences of M&As in terms of diversification and specialisation or the related economy-of-scale mechanisms, for example. Further information would be required about the types of activities and their weights in each bank's portfolio. This could be the subject of future research.

Moreover, for comparison purposes, future research could reproduce this study for the United States. On account of the different legislation there, this would help to better understand the mechanisms involved. Another idea could be to reproduce this study for other types of M&As, such as those involving non-bank financial institutions. Finally, it would be interesting to reproduce this study in ten years, when more data are available, so that it is possible to include additional fixed effects and produce the cleanest possible specifications. Furthermore, the period of study (2014-2020) is rather special owing to the retrenchment in cross-border banking (few cross-border M&As and a decline in cross-border lending). It would be interesting to see if the results of the paper hold when the situation normalises.

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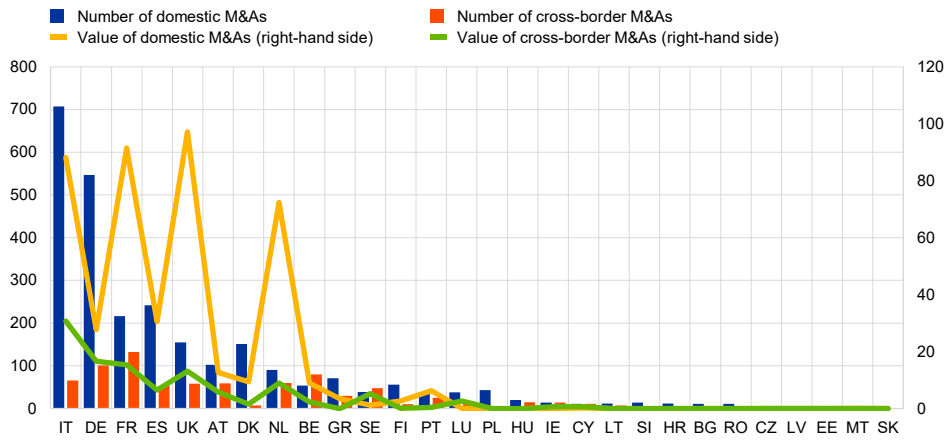
Appendix

Chart A1

Number and deal value of M&As per acquiring bank nationality

(1999-2020, number of M&As and EUR billions)

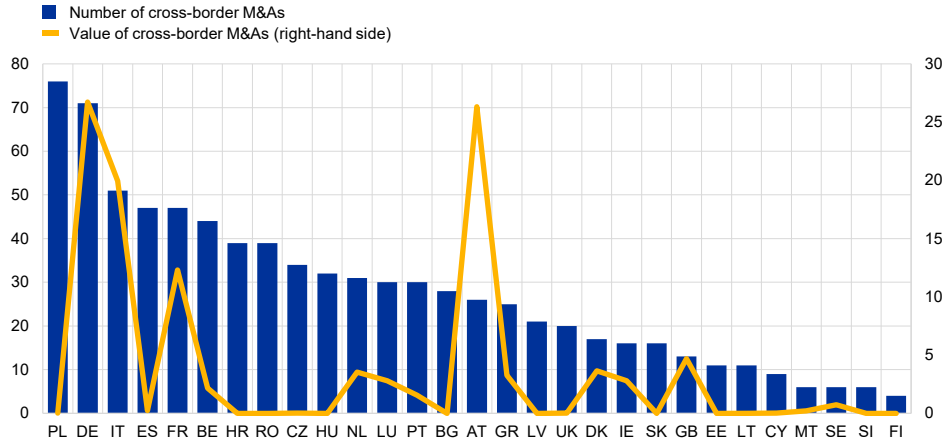


Sources: Dealogic, SNL and Zephyr.
Notes: Sample from 1999-2020 for all EU countries plus the United Kingdom. M&As with a final stake >30%.

Chart A2

Number and deal value of cross-border M&As per target bank nationality

(1999-2020, number of M&As and EUR billions)



Sources: Dealogic, SNL and Zephyr.
Notes: Sample from 1999-2020 for all EU countries plus the United Kingdom. M&As with a final stake >30%.

Table A1
Definition and source of each variable

Level	Name of the variable	Description	Source
Bilateral country level	Common language	Dummy variable equal to one 1 if countries where the banks are located share common official or primary language	Gravity database produced by CEPII
	Common legal system	Dummy variable equal to one 1 if countries where the banks are located share common legal origins	
	Common religion	Religious proximity index	
	Common border	Dummy variable equal to 1 if countries where the banks are located are contiguous	
	Distance	Distance between most populated city of each country where the banks are located (km)	
	Migrants	Number of people born in the country where the acquiror bank is located that live in the country where the target bank is located	Migration and Remittances database produced by the World Bank
	Trade	Value of the trade flow from the country where the acquiring bank is located to the country where the targeted bank is located (in thousands current USD)	BACI database produced by CEPII
One-sided country level	GDP	GDP (current thousands USD)	Gravity database produced by CEPII
	GDP per capita	GDP per capita (current thousands USD)	
	Population	Population (in thousands)	
	Ease of doing business score	Index, simple average of the scores for each of the 10 Doing Business topics	Doing Business database produced by the World Bank
	Enforcing contracts	Index, simple average of the 3 scores for each of the component indicators	
	Starting a business	Index, simple average of the 4 scores for each of the component indicators	
	Trading across borders	Index of the time and cost associated with 3 sets of procedures of exporting and importing goods (documentary compliance, border compliance and domestic transport)	
	Entry restrictions	Index based on the answer to the question "Are foreign banks prohibited from entering through the following? (Acquisition, subsidiary, branch, joint venture)"	Bank Regulation and Supervision Survey produced by the World Bank
	Strictness employment protection	Index of protection against individual and collective dismissals (regular contracts)	Strictness of employment protection database produced by the OECD
	Bank asset concentration	Assets of five largest banks as a share of total commercial banking assets	Global Financial Development Database produced by the World Bank
	Bank concentration	Assets of three largest commercial banks as a share of total commercial banking assets	
	Deposit to GDP ratio	Demand, time and saving deposits in deposit money banks and other financial institutions as a share of GDP	
	Stock market capitalization	Total value of all listed shares in a stock market as a percentage of GDP	
	Unexplored market	Difference between the financial depth of the country where the bank is located and that of the U.S.	
	Financial openness	Index measuring a country's degree of capital account openness	Chinn and Ito (2006)

	Economic freedom	Average score based on 12 measures of economic openness, regulatory efficiency and rule of law	The Heritage Foundation
	Herfindahl index	Herfindhal–Hirschman index of concentration, computed as the sum of the squared market shares of the country where the bank is located (a value of one denotes monopoly)	Financial Structure Database by World Bank
Bilateral bank level	Dummy cross-business	Dummy variable equal to one if banks do not have the same business model	BankFocus
	Dummy cross-border	Dummy variable equal to one if banks are not located in the same country	Dealogic
	Dummy subsidiaries in target country	Dummy variable equal to one if the acquiring bank has a least one subsidiary in the country where the targeted bank is located	RIAD
	Number of subsidiaries in target country	Number of subsidiaries owned by the acquiring bank in the country where the targeted bank is located	
	Dummy subsidiaries with same business model as target	Dummy variable equal to one if the acquiring bank has a least one subsidiary with the same business model than the targeted bank	RIAD combined with BankFocus
	Number of subsidiaries with same business model as target	Number of subsidiaries owned by the acquiring bank with the same business model than the targeted bank	
One-sided bank level	Number of subsidiaries	Number of subsidiaries owned by the acquiring bank	RIAD
	Number of foreign subsidiaries	Number of subsidiaries owned by the acquiring bank outside of the country where the acquiring bank is located	
	Number of foreign countries in which subsidiaries are present	Number of countries in which the acquiring has subsidiaries (excluding the country where the acquiring bank is located)	
	Number of different business models covered	Number of business models among the subsidiaries of the acquirer (excluding the business model of the acquiring bank)	RIAD combined with BankFocus
	Number of subsidiaries with different business models	Number of subsidiaries owned by the acquiring bank with a different business model than the acquiring bank	
	Number of employees	Number of employees (equivalent full time)	BankFocus
	Branch	Dummy variable equal to one if the bank is a branch	
	G-SIB	Dummy variable equal to one if the bank is a G-SIB	
	Quoted	Dummy variable equal to one if the bank is listed in a stock market	
	Cost-to-income ratio	Cost-to-income ratio	
	Equity assets ratio	Total equity to total assets ratio	
	Liquid assets ratio	Liquid assets to total assets ratio	
	Loan loss provisions	Loan loss provisions	
	NPLs	Volume of NPLs (in thousands EUR)	
	NPL ratio	NPL to total loans ratio	
	Return on assets	Return on assets	
	Total assets	Total assets (in thousands EUR)	

Table A2
Descriptive statistics for bilateral variables

Variables	Mean sample of bank pairs involved in M&As	All bank pairs as control		Only banks involved in another M&A transaction as control	
		Mean sample of bank pairs not involved in M&As	p-value on t-test	Mean sample of bank pairs not involved in M&As	p-value on t-test
Bank-level					
Dummy subsidiaries with same business model as target	0.19	0.01	0***	0.08	0***
Dummy subsidiaries in target country	0.35	0.03	0***	0.09	0***
Dummy cross-business	0.44	0.77	0***	0.74	0***
Dummy cross-border	0.17	0.91	0***	0.82	0***
Number of subsidiaries with same business model as target	0.96	0.02	0***	0.26	0***
Number of subsidiaries in target country	1.47	0.03	0***	0.20	0***
Country-level					
Common language	0.85	0.24	0***	0.27	0***
Common legal system	0.93	0.37	0***	0.43	0***
Common religion	0.90	0.45	0***	0.48	0***
Common border	0.92	0.40	0***	0.43	0***
Distance	297	1,061	0***	982	0***
Migrants	12,001	101,813	0***	107,324	0***
Trade	25,531,234	26,916,272	0.710	33,015,102	0.06*

Notes: The definition of the variables can be found in Table A1 of the appendix. Figure 2 explains how the two control groups ("all bank pairs" and "only banks involved in another M&A transaction") are built. The table can be read as follow: in 19% of the cases, pairs of banks involved in M&As have the same business model, against 1% in the control group "all bank pairs" and 8% of the cases in the control group "only banks involved in another M&A transaction". The numbers between the treatment and control groups are statistically different according to the t-test. Pairs of banks involved in M&As are located in countries distant by 297km, against 1,061km for the pairs in the control group "all bank pairs" and 982 km for the pairs in the control group "only banks involved in another M&A transaction". The numbers between the treatment and control groups are statistically different according to the t-test.

Table A3
Separate descriptive statistics for acquirer and target

	Acquirer			Target		
	Mean involved in M&As	Mean not involved in M&As	p-value on t-test	Mean involved in M&As	Mean not involved in M&As	p-value on t-test
Bank-level						
Number of subsidiaries	5.56	0.49	0***			
Number of foreign subsidiaries	5.50	0.48	0***			
Number of foreign countries in which subsidiaries are present	2.47	0.35	0***			
Number of different business models covered	0.53	0.02	0***			
Number of subsidiaries with different business models	1.06	0.04	0***			
Number of employees	6,652	868	0***	1,585	868	0***
Branch	–	0.01	0.06*	0.01	0.01	0.70
G-SIB	0.07	0.00	0***	0.01	0.00	0***
Quoted	0.33	0.02	0***	0.03	0.02	0.39
Cost to income ratio	68	209	0.80	-78	202	0.65
Equity assets ratio	9.65	11.54	0.02**	9.57	11.54	0.03**
Liquid assets ratio	27.86	33.95	0***	23.50	33.94	0***
Loan loss provisions	277,963	21,745	0***	140,592	21,688	0***
NPLs	3,945,247	294,095	0***	1,181,098	294,281	0***
NPL ratio	0.06	0.06	0.93	0.08	0.06	0.01**
Return on assets	0.31	0.23	0.71	-0.11	0.23	0.16
Total assets	102,758,832	10,583,965	0***	15,359,756	10,584,491	0.07*
Country-level						
GDP	1,978,027,008	1,341,382,656	0***	1,931,572,608	1,341,309,696	0***
GDP per capita	39.73	40.13	0.71	39.16	40.14	0.37
Population	50,132	35,517	0***	48,849	35,509	0***
Ease of doing business score	77.12	76.25	0***	77.13	76.25	0***
Enforcing contracts	67.00	69.41	0***	66.83	69.41	0***
Starting a business	86.28	87.73	0***	86.01	87.73	0***
Trading across borders	96.79	98.39	0***	96.62	98.39	0***
Entry restrictions	0.08	0.05	0.04**	0.09	0.05	0***
Strictness employment protection	2.69	2.64	0***	2.69	2.64	0***
Bank asset concentration	80.26	76.84	0***	80.29	76.84	0***
Bank concentration	68.42	63.72	0***	68.61	63.73	0***

Financial openness	2.29	2.24	0***	2.26	2.24	0.29
Deposit to GDP ratio	81.47	99.98	0***	80.56	99.94	0***
Economic freedom	69.39	68.45	0***	69.72	68.45	0***
Herfindahl index	0.07	0.07	0.69	0.07	0.07	0.70
Stock market capitalization	51.01	53.65	0.12	49.44	53.63	0.02**
Unexplored market	93.69	91.19	0.15	95.31	91.22	0.02**

Notes: The definition of the variables can be found in Table A1 of the appendix. The table only reports the average of the bank-specific variables for the control group "all bank pairs" since by construction, the average of the bank-specific variables of the control group "only banks involved in another M&A transaction" is the same as the treatment group. Figure 2 explains how the two control groups ("all bank pairs" and "only banks involved in another M&A transaction") are built. The averages for acquiring banks not involved in M&A is slightly different than for target banks not involved in M&A because more variables are needed on the acquirer side, leading to a sample of banks slightly smaller (due to missing observations for a few banks). The table can be read as follow: on average, the acquiring banks have 6,652 employees, against 868 in the banks in the control group "all bank pairs"; the target banks have on average 1,585 employees. The numbers between the treatment and control groups are statistically different according to the t-test.

Table A4

Logit and geographical location with other combinations of characteristics

Dummy M&As$_{i,j,t}$	(1) All M&As	(2) All M&As	(3) All M&As	(4) All M&As	(5) Cross-border M&As	(6) Cross-border M&As	(7) Cross-border M&As	(8) Cross-border M&As
Number of subsidiaries$_{i,t-1}$	0.0826	0.0810	0.0728	0.176	-0.128	0.0102	0.0201	-0.155
	(0.0726)	*(0.0814)*	*(0.139)*	*(0.169)*	*(0.126)*	*(0.118)*	*(0.186)*	*(0.238)*
Number of subsidiaries in target country$_{i,j,t-1}$	-0.0778**	-0.0450	-0.0500	-0.00917	0.149	-1.389	-1.626	-1.878
	(0.0380)	*(0.0500)*	*(0.118)*	*(0.167)*	*(0.905)*	*(1.589)*	*(1.730)*	*(1.922)*
Dummy subsidiaries in target country$_{i,j,t-1}$	2.362***	2.313***	2.212***	2.434***	3.733***	4.448**	4.691**	4.548*
	(0.214)	*(0.263)*	*(0.363)*	*(0.500)*	*(1.362)*	*(2.184)*	*(2.350)*	*(2.481)*
Number of foreign subsidiaries$_{i,t-1}$	0.118	0.0855	0.454***	0.459**	0.428***	0.502***	0.448**	0.672**
	(0.0774)	*(0.0829)*	*(0.172)*	*(0.189)*	*(0.157)*	*(0.164)*	*(0.210)*	*(0.342)*
Number of foreign countries in which subsidiaries are present$_{i,t-1}$	-0.143	-0.103	-0.907***	-0.921***	-0.409**	-0.647**	-0.701**	-0.842**
	(0.0922)	*(0.107)*	*(0.280)*	*(0.260)*	*(0.200)*	*(0.254)*	*(0.316)*	*(0.417)*
Dummy cross-border$_{i,j}$	-5.820***	-5.403***	-4.961***	-9.737***				
	(0.569)	*(0.588)*	*(0.689)*	*(2.970)*				
Branch (target)$_{j,t-1}$	1.308	1.013	1.106	0.696				
	(0.846)	*(1.211)*	*(1.311)*	*(1.630)*				
Quoted (acquirer)$_{i,t-1}$	3.179***	2.972***	3.339***	3.895***				3.573**
	(0.260)	*(0.299)*	*(0.363)*	*(0.474)*				*(1.719)*
Quoted (target)$_{j,t-1}$	-0.486	-0.549	-0.332	-0.455				0.165
	(0.579)	*(0.591)*	*(0.662)*	*(0.799)*				*(1.440)*
G-SIB (acquirer)$_{i,t-1}$	0.499	2.087						-3.085
	(1.006)	*(1.694)*						*(4.755)*
G-SIB (target)$_{j,t-1}$	0.643	0.483	0.428	2.033				
	(1.296)	*(1.303)*	*(1.475)*	*(1.769)*				
Total assets (acquirer)$_{i,t-1}$	0.00455	-0.228*	-0.0111	-1.200***	0.307	0.0503	1.075	0.741
	(0.0535)	*(0.128)*	*(0.164)*	*(0.289)*	*(0.249)*	*(0.367)*	*(0.669)*	*(0.605)*
Total assets (target)$_{j,t-1}$	0.103**	-0.0210	-0.145	-0.617*	0.501***	0.639**	0.650**	0.600*
	(0.0503)	*(0.156)*	*(0.214)*	*(0.334)*	*(0.169)*	*(0.281)*	*(0.321)*	*(0.360)*
Equity assets ratio (acquirer)$_{i,t-1}$	-0.0137	-0.0237	0.0119	-0.0396			0.151***	0.129***
	(0.0127)	*(0.0206)*	*(0.0181)*	*(0.0313)*			*(0.0447)*	*(0.0419)*
Equity assets ratio (target)$_{j,t-1}$	-0.00758	-0.0112	-0.0187	-0.0177			0.00288	0.00715
	(0.00807)	*(0.0164)*	*(0.0238)*	*(0.0187)*			*(0.0506)*	*(0.0464)*
Liquid assets ratio (acquirer)$_{i,t-1}$	-0.0297***	-0.0231***	-0.0195**	-0.0277**		0.00898	-0.00930	-0.0166
	(0.00565)	*(0.00650)*	*(0.00855)*	*(0.0113)*		*(0.0257)*	*(0.0318)*	*(0.0335)*
Liquid assets ratio (target)$_{j,t-1}$	-0.000148	0.000951	0.00394	0.00670		0.0242	0.0271	0.0318
	(0.00556)	*(0.00643)*	*(0.00871)*	*(0.0114)*		*(0.0196)*	*(0.0200)*	*(0.0210)*
Return on assets (acquirer)$_{i,t-1}$	0.0217	-0.00992	-0.0263	-0.0289	0.408*	0.484	0.0299	0.000194

	(0.0292)	*(0.0558)*	*(0.0639)*	*(0.0850)*	*(0.233)*	*(0.323)*	*(0.252)*	*(0.285)*
Return on assets (target)$_{j,t-1}$	0.0172	0.0254	0.0437	0.0498	0.0660	0.00212	-0.00407	-0.0145
	(0.0189)	*(0.0375)*	*(0.0544)*	*(0.0450)*	*(0.249)*	*(0.0270)*	*(0.119)*	*(0.109)*
Cost-to-income ratio (acquirer)$_{i,t-1}$	-8.16e-05	-9.06e-05	-4.62e-06	-8.10e-05	7.37e-07	5.53e-06	-6.42e-07	-8.80e-07
	(0.000121)	*(0.000142)*	*(2.61e-05)*	*(0.000213)*	*(0.000296)*	*(0.000129)*	*(9.17e-05)*	*(0.000110)*
Cost-to-income ratio (target)$_{j,t-1}$	-0.000111*	-0.000128*	-0.000161*	-0.000169**	-9.46e-07	8.51e-07	6.39e-07	7.28e-07
	(6.20e-05)	*(7.07e-05)*	*(9.11e-05)*	*(8.61e-05)*	*(0.000397)*	*(0.000233)*	*(0.000198)*	*(0.000168)*
Number of employees (acquirer)$_{i,t-1}$		0.336**	0.185	1.025***				
		(0.142)	*(0.185)*	*(0.299)*				
Number of employees (target)$_{j,t-1}$		0.237	0.103	0.712**				
		(0.173)	*(0.216)*	*(0.333)*				
Loan loss provisions (acquirer)$_{i,t-1}$			-0.0673	0.223		0.194	0.259	0.264
			(0.0830)	*(0.153)*		*(0.214)*	*(0.288)*	*(0.339)*
Loan loss provisions (target)$_{j,t-1}$			0.333***	0.272*		-0.0594	-0.0151	0.0552
			(0.115)	*(0.148)*		*(0.241)*	*(0.265)*	*(0.288)*
NPL ratio (acquirer)$_{i,t-1}$				-7.248**				
				(3.162)				
NPL ratio (target)$_{j,t-1}$				2.112				
				(2.222)				
Constant	-10.42***	-7.253***	-10.51***	3.390	-26.33***	-25.44***	-46.05***	-41.65***
	(1.180)	*(2.177)*	*(2.891)*	*(3.858)*	*(5.699)*	*(7.583)*	*(14.48)*	*(15.42)*
Observations	2,036,224	1,354,640	606,367	415,473	471,416	183,475	183,475	179,053
Buyer bank fixed effect	NO	NO	NO	NO	NO	NO	NO	NO
Target bank fixed effect	NO	NO	NO	NO	NO	NO	NO	NO
Buyer country fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Target country fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Year fixed effect	YES	YES	YES	YES	YES	YES	YES	YES

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. The definition of the variables can be found in Table A1 of the appendix. Column 4 and 8 are the same than Column 3 and 7 respectively of Table 1. The other columns are different combinations of the same control variables.

Table A5

Logit and geographical location, including either dummy or number of subsidiaries in target country$_{i,j,t-1}$

Dummy M&As$_{i,j,t}$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All M&As				Cross-border M&As			
	Restricted control		All control		Restricted control		All control	
Dummy subsidiaries in target country$_{i,j,t-1}$	2.204***		2.427***		4.846***		2.616*	
	(0.361)		*(0.485)*		*(0.800)*		*(1.559)*	
Number of subsidiaries in target country$_{i,j,t-1}$		-0.0460		0.225		0.745***		0.374
		(0.0289)		*(0.167)*		*(0.164)*		*(0.787)*
Dummy cross-border$_{i,j}$	-5.028***	-5.568***	-9.684***	-10.18***				
	(0.297)	*(0.318)*	*(2.773)*	*(3.255)*				
Number of subsidiaries $_{i,t-1}$			0.170	0.171			-0.208	-0.214
			(0.133)	*(0.162)*			*(0.239)*	*(0.242)*
Number of foreign subsidiaries $_{i,t-1}$			0.460**	0.531**			0.637*	0.617*
			(0.189)	*(0.221)*			*(0.356)*	*(0.369)*
Number of foreign countries in which subsidiaries are present $_{i,t-1}$			-0.916***	-0.961***			-0.773*	-0.620
			(0.238)	*(0.286)*			*(0.436)*	*(0.421)*
Individual bank characteristics$_{i,t-1/j,t-1}$*			X	X			X	X
			X	*X*			*X*	*X*
Constant	-2.873*	-3.144*	3.395	3.445	-3.889**	-3.962**	-42.88***	-44.23***
	(1.718)	*(1.747)*	*(3.856)*	*(3.872)*	*(1.891)*	*(1.711)*	*(15.02)*	*(14.21)*
Observations	54,563	52,816	415,473	415,473	1,026	946	179,053	179,053
Buyer bank fixed effect	YES	YES	NO	NO	YES	YES	NO	NO
Target bank fixed effect	YES	YES	NO	NO	YES	YES	NO	NO
Buyer country fixed effect	NO	NO	YES	YES	NO	NO	YES	YES
Target country fixed effect	NO	NO	YES	YES	NO	NO	YES	YES
Year fixed effect	YES	YES	YES	YES	YES	YES	YES	YES

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. For readability reasons, the controls for the characteristics of the banks have been removed from the table. The full table is available upon request. The definition of the variables can be found in Table A1 of the appendix. Table A5 is similar to Table 1 (odd ratio columns only), keeping either the dummy subsidiaries in target country, or the number of subsidiaries in target country in the regression, instead of both at the same time.

Table A6

Logit and geographical location with omission of resolution cases

Dummy $M\&As_{i,j,t}$	(1) restricted control all M&As	(2) all control all M&As	(3) restricted control cross-border M&As	(4) all control cross-border M&As
Dummy subsidiaries in target $country_{i,j,t-1}$	2.038***	2.663***	4.510***	4.548*
	(0.366)	*(0.510)*	*(0.853)*	*(2.481)*
Number of subsidiaries in target $country_{i,j,t-1}$	-0.0677**	-0.0563	0.110	-1.878
	(0.0312)	*(0.181)*	*(0.190)*	*(1.922)*
Dummy $cross\text{-}border_{i,j}$	-5.344***	-10.03***		
	(0.329)	*(3.167)*		
Number of $subsidiaries_{i,t-1}$		0.186		-0.155
		(0.181)		*(0.238)*
Number of foreign $subsidiaries_{i,t-1}$		0.482**		0.672**
		(0.195)		*(0.342)*
Number of foreign countries in which subsidiaries are $present_{i,t-1}$		-0.968***		-0.842**
		(0.266)		*(0.417)*
Individual bank $characteristics_{i,t-1/j,t-1}$*		X		X
		X		*X*
Constant	-2.992*	4.489	-3.938**	-41.65***
	(1.752)	*(3.937)*	*(1.863)*	*(15.42)*
Observations	51,347	354,333	922	179,053
Buyer bank fixed effect	YES	NO	YES	NO
Target bank fixed effect	YES	NO	YES	NO
Buyer country fixed effect	NO	YES	NO	YES
Target country fixed effect	NO	YES	NO	YES
Year fixed effect	YES	YES	YES	YES

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. For readability reasons, the controls for the characteristics of the banks have been removed from the table. The full table is available upon request. The definition of the variables can be found in Table A1 of the appendix. Table A6 is similar to Table 1 (only odd ratio columns shown), except that the banks involved in resolution cases have been dropped from the sample.

Table A7

Logit and geographical location with modified minimum thresholds for final stake

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All M&As – thresholds				Cross-border M&As – thresholds			
Dummy $M\&As_{i,j,t}$	0	10	20	50	0	10	20	50
Dummy subsidiaries in target $country_{i,j,t-1}$	-0.0623**	-0.0565*	-0.0627**	-0.0628**	0.223	0.207	0.308	0.215
	(0.0243)	*(0.0309)*	*(0.0307)*	*(0.0311)*	*(0.177)*	*(0.198)*	*(0.219)*	*(0.205)*
Number of subsidiaries in target $country_{i,j,t-1}$	1.452***	1.973***	1.894***	1.928***	3.309***	4.245***	4.249***	4.333***
	(0.277)	*(0.349)*	*(0.344)*	*(0.348)*	*(0.601)*	*(0.813)*	*(0.826)*	*(0.838)*
Dummy $cross\text{-}border_{i,j}$	-6.019***	-5.414***	-5.347***	-5.370***				
	(0.279)	*(0.322)*	*(0.321)*	*(0.322)*				
Constant	-4.156***	-2.681	-3.163*	-3.212*	-4.227**	-3.816**	-3.276*	-4.084**
	(1.437)	*(1.849)*	*(1.748)*	*(1.755)*	*(1.694)*	*(1.852)*	*(1.842)*	*(1.882)*
Observations	201,338	54,206	53,560	52,855	1,206	944	949	951
Buyer bank fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Target bank fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Buyer country fixed effect	YES	YES	YES	YES	YES	YES	YES	YES

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. The definition of the variables can be found in Table A1 of the appendix. Table A7 is similar to Table 1 Column 1 and 5, with a different threshold for the definition of M&As for each column (reminder: final stake >30% in Table 1).

Table A8

Logit and business model with other combinations of characteristics

Dummy $M\&As_{i,j,t}$	(1) All M&As	(2) All M&As	(3) All M&As	(4) All M&As	(5) Cross-business M&As	(6) Cross-business M&As	(7) Cross-business M&As	(8) Cross-business M&As
Number of $subsidiaries_{i,t-1}$	0.0541**	0.0918***	0.0616	-0.0530	-0.0505	-0.0728	-0.0589	0.146
	(0.0222)	*(0.0215)*	*(0.0425)*	*(0.0648)*	*(0.0465)*	*(0.0583)*	*(0.117)*	*(0.137)*
Number of subsidiaries with same business model as $target_{i,j,t-1}$	0.155***	0.0537	0.389***	0.586***	-0.0351	-0.0343	-0.119	-0.215
	(0.0594)	*(0.0544)*	*(0.0984)*	*(0.122)*	*(0.187)*	*(0.203)*	*(0.249)*	*(0.304)*
Dummy subsidiaries with same business model as $target_{i,j,t-1}$	1.452***	1.672***	1.377***	1.652***	4.871***	3.729***	3.235***	4.934***
	(0.272)	*(0.302)*	*(0.425)*	*(0.452)*	*(0.980)*	*(0.985)*	*(1.097)*	*(1.538)*
Number of subsidiaries with different business $models_{i,t-1}$	-0.0158	0.0132	0.0880	0.0574	0.271	0.476	0.973**	0.788*
	(0.0956)	*(0.0951)*	*(0.147)*	*(0.196)*	*(0.228)*	*(0.307)*	*(0.435)*	*(0.439)*
Number of different business models $covered_{i,t-1}$	0.812***	1.022***	1.250***	1.750***	0.750	1.508*	2.213***	0.324
	(0.266)	*(0.277)*	*(0.386)*	*(0.406)*	*(0.767)*	*(0.789)*	*(0.806)*	*(1.317)*
Dummy $cross\text{-}business_{i,j}$	-2.500***	-2.504***	-2.126***	-2.281***				
	(0.270)	*(0.311)*	*(0.372)*	*(0.389)*				
Branch $(target)_{j,t-1}$				2.068*	1.406			
				(1.122)	*(1.112)*			
Quoted $(acquirer)_{i,t-1}$				2.809***	4.370***	4.499***	6.338***	5.350***
				(0.341)	*(0.540)*	*(0.666)*	*(0.928)*	*(0.909)*
Quoted $(target)_{j,t-1}$				-0.259	-1.154	-1.168	-1.671	-0.514
				(0.534)	*(1.078)*	*(1.094)*	*(1.283)*	*(1.100)*
G-SIB $(target)_{j,t-1}$				-4.394				
				(12.02)				
Total assets $(acquirer)_{i,t-1}$	0.120***	-0.669***	-1.053***	-1.165***	-0.0393	-0.661**	-1.768***	-2.976***
	(0.0440)	*(0.135)*	*(0.225)*	*(0.255)*	*(0.144)*	*(0.325)*	*(0.427)*	*(0.675)*

Total assets (target)$_{j,t-1}$	0.103**	-0.117	-0.480**	-0.473**	0.258**	0.0681	0.0406	-0.125
	(0.0444)	*(0.109)*	*(0.201)*	*(0.203)*	*(0.107)*	*(0.198)*	*(0.243)*	*(0.382)*
Equity assets ratio (acquirer)$_{i,t-1}$	0.0103	-0.0266	-0.0398	-0.0381	0.00511	-0.00363	0.0695**	-0.0361
	(0.0107)	*(0.0195)*	*(0.0303)*	*(0.0307)*	*(0.0215)*	*(0.0257)*	*(0.0279)*	*(0.0573)*
Equity assets ratio (target)$_{j,t-1}$	-0.000690	-0.0121	-0.0295**	-0.0306**	0.0142	-0.00461	0.000968	-0.0167
	(0.00945)	*(0.0126)*	*(0.0129)*	*(0.0137)*	*(0.0111)*	*(0.0186)*	*(0.0230)*	*(0.0385)*
Liquid assets ratio (acquirer)$_{i,t-1}$	-0.0456***	-0.0304***	-0.0173*	-0.0177*	-0.0568***	-0.0482***	-0.0561**	-0.0222
	(0.00614)	*(0.00665)*	*(0.00912)*	*(0.00943)*	*(0.0140)*	*(0.0177)*	*(0.0258)*	*(0.0251)*
Liquid assets ratio (target)$_{j,t-1}$	-0.00918**	-0.00139	-0.000803	-0.00100	-0.00662	-0.00885	0.000356	-0.00539
	(0.00447)	*(0.00509)*	*(0.00780)*	*(0.00796)*	*(0.00923)*	*(0.0103)*	*(0.0132)*	*(0.0168)*
Return on assets (acquirer)$_{i,t-1}$	-0.0274	-0.00665	0.0651*	0.0650	-0.0195	-0.126***	-0.174**	0.0744
	(0.0249)	*(0.0515)*	*(0.0395)*	*(0.0447)*	*(0.0497)*	*(0.0462)*	*(0.0715)*	*(0.0872)*
Return on assets (target)$_{j,t-1}$	0.00172	0.0278	0.0776***	0.0802**	-0.0327	0.0105	-0.000525	0.0610
	(0.0217)	*(0.0288)*	*(0.0294)*	*(0.0315)*	*(0.0257)*	*(0.0427)*	*(0.0526)*	*(0.0583)*
Cost-to-income ratio (acquirer)$_{i,t-1}$		-0.000144	-0.000179	-0.000157		-8.85e-05	-9.72e-06	-0.000191
		(0.000176)	*(0.000172)*	*(0.000188)*		*(0.000284)*	*(2.61e-05)*	*(0.000230)*
Cost-to-income ratio (target)$_{j,t-1}$		-0.000205***	-0.000348**	-0.000324**		-0.000327	-0.000318	-0.000363
		(5.17e-05)	*(0.000136)*	*(0.000147)*		*(0.000478)*	*(0.000369)*	*(0.000251)*
Number of employees (acquirer)$_{i,t-1}$		0.877***	0.997***	0.811***		0.637*	1.663***	2.593***
		(0.150)	*(0.231)*	*(0.267)*		*(0.381)*	*(0.475)*	*(0.645)*
Number of employees (target) $_{j,t-1}$		0.248**	0.176	0.159		0.126	-0.196	-0.226
		(0.121)	*(0.198)*	*(0.197)*		*(0.220)*	*(0.258)*	*(0.358)*
Loan loss provisions (acquirer) $_{i,t-1}$			0.265**	0.374***			0.430**	0.512
			(0.122)	*(0.137)*			*(0.213)*	*(0.329)*
Loan loss provisions (target) $_{j,t-1}$			0.510***	0.521***			0.479***	0.699***
			(0.116)	*(0.118)*			*(0.179)*	*(0.243)*
NPL ratio (acquirer) $_{i,t-1}$			-0.891	0.171				1.583
			(2.020)	*(2.020)*				*(5.086)*
NPL ratio (target) $_{i,t-1}$			2.076	2.082				2.870
			(1.301)	*(1.338)*				*(2.572)*
Constant	-10.73***	-2.383	0.416	1.341	-14.04***	-6.059*	-5.974	5.404
	(1.057)	*(1.698)*	*(2.637)*	*(2.800)*	*(2.866)*	*(3.551)*	*(4.482)*	*(7.097)*
Observations	2,547,585	1,795,856	616,751	613,538	1,940,789	1,388,253	621,969	458,222
Buyer bank fixed effect	NO	NO	NO	NO	NO	NO	NO	NO
Target bank fixed effect	NO	NO	NO	NO	NO	NO	NO	NO
Buyer business fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Target business fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Year fixed effect	YES	YES	YES	YES	YES	YES	YES	YES

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Definition of the variables in Table A1 in the appendix. Column 4 and 8 are the same than Column 3 and 7 respectively of Table 2. The other columns are different combinations of the same control variables.

Table A9

Logit and business model, including either dummy or number of with same business model as target$_{i,j,t-1}$

Dummy M&As$_{i,j,t}$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All M&As				Cross-business M&As			
	Restricted control		All control		Restricted control		All control	
Dummy subsidiaries with same business model as target$_{i,j,t-1}$	3.315***		2.192***		2.392***		4.934***	
	(0.465)		*(0.414)*		*(0.679)*		*(1.538)*	
Number of subsidiaries with same business model as target$_{i,j,t-1}$		0.236***		0.745***		0.184*	-0.215	0.320
		(0.0649)		*(0.128)*		*(0.111)*	*(0.304)*	*(0.279)*
Dummy cross-business$_{i,j}$	-2.562***	-2.330***	-1.998***	-2.165***				
	(0.243)	*(0.219)*	*(0.366)*	*(0.372)*				
Number of subsidiaries$_{i,t-1}$			0.0540	-0.0313			0.146	0.0228
			(0.0598)	*(0.0659)*			*(0.137)*	*(0.109)*
Number of subsidiaries with different business models$_{i,t-1}$			0.249	-0.149			0.788*	0.574
			(0.194)	*(0.191)*			*(0.439)*	*(0.478)*
Number of different business models covered$_{i,t-1}$			1.239***	2.202***			0.324	2.934***
			(0.397)	*(0.391)*			*(1.317)*	*(0.886)*
Individual bank characteristics$_{i,t-1/j,t-1}$*			X	X			X	X
			X	*X*			*X*	*X*
Constant	-4.404***	-4.372***	4.376	0.289	-4.569***	-3.138**	5.404	4.812
	(1.432)	*(1.431)*	*(2.677)*	*(2.777)*	*(1.452)*	*(1.407)*	*(7.097)*	*(6.926)*
Observations	30,579	29,976	613,538	613,538	1,043	1,043	458,222	458,222
Buyer bank fixed effect	YES	YES	NO	NO	YES	YES	NO	NO
Target bank fixed effect	YES	YES	NO	NO	YES	YES	NO	NO
Buyer business fixed effect	NO	NO	YES	YES	NO	NO	YES	YES
Target business fixed effect	NO	NO	YES	YES	NO	NO	YES	YES
Year fixed effect	YES	YES	YES	YES	YES	YES	YES	YES

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. For readability reasons, the controls for the characteristics of the banks have been removed from the table. The full table is available upon request. The definition of the variables can be found in Table A1 of the appendix. Table A9 is similar to Table 2 (only odd ratio columns shown), keeping either the dummy subsidiaries with same business model as target, or the number of subsidiaries with same business model as target in the regression, instead of both at the same time.

Table A10
Logit and business model with omission of resolution cases

Dummy $M\&As_{i,j,t}$	(1) All M&As Restricted control	(2) All M&As All control	(3) Cross-business M&As Restricted control	(4) Cross-business M&As All control
Dummy subsidiaries with same business model as $target_{i,j,t-1}$	2.946***	1.678***	2.653***	5.892***
	(0.493)	*(0.464)*	*(0.842)*	*(1.733)*
Number of subsidiaries with same business model as $target_{i,j,t-1}$	0.0522	0.561***	-0.0913	-0.361
	(0.0902)	*(0.124)*	*(0.139)*	*(0.348)*
Dummy cross-$business_{i,j}$	-2.557***	-2.234***		
	(0.246)	*(0.386)*		
Number of $subsidiaries_{i,t-1}$		-0.0266		0.252*
		(0.0658)		*(0.131)*
Number of subsidiaries with different $business\ models_{i,t-1}$		-0.0423		0.546
		(0.199)		*(0.515)*
Number of different business $models\ covered_{i,t-1}$		1.897***		0.474
		(0.404)		*(1.433)*
Individual bank $characteristics_{i,t-1/j,t-1}$*		X		X
		X		*X*
Constant	-4.414***	2.173	-4.244***	11.57
	(1.433)	*(2.885)*	*(1.485)*	*(7.977)*
Observations	29,321	560,679	956	407,144
Buyer bank fixed effect	YES	NO	YES	NO
Target bank fixed effect	YES	NO	YES	NO
Buyer business fixed effect	NO	YES	NO	YES
Target business fixed effect	NO	YES	NO	YES
Year fixed effect	YES	YES	YES	YES

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. For readability reasons, the controls for the characteristics of the banks have been removed from the table. The full table is available upon request. The definition of the variables can be found in Table A1 of the appendix. Table A10 is similar to Table 2 (odd ratio columns only), except that the banks involved in resolution cases have been dropped from the sample.

Table A11

Logit and business model with modified minimum thresholds for the final stake

Dummy $M\&As_{i,j,t}$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All M&As – thresholds				Cross-business M&As - thresholds			
	0	10	20	50	0	10	20	50
Dummy subsidiaries with same business model as $target_{i,j,t-1}$	2.313***	2.639***	2.631***	2.703***	1.977***	2.631***	2.337***	2.589***
	(0.352)	*(0.468)*	*(0.463)*	*(0.468)*	*(0.553)*	*(0.817)*	*(0.790)*	*(0.799)*
Number of subsidiaries with same business model as $target_{i,j,t-1}$	0.127*	0.101	0.0956	0.135	0.0595	-0.104	-0.00594	-0.0441
	(0.0658)	*(0.0875)*	*(0.0807)*	*(0.0874)*	*(0.0915)*	*(0.140)*	*(0.140)*	*(0.137)*
Dummy $cross\text{-}business_{i,j}$	-2.445***	-2.528***	-2.491***	-2.536***				
	(0.185)	*(0.239)*	*(0.238)*	*(0.241)*				
Constant	-5.094***	-4.371***	-4.428***	-4.685***	-5.319***	-3.951***	-4.598***	-4.899***
	(1.431)	*(1.429)*	*(1.431)*	*(1.433)*	*(1.554)*	*(1.483)*	*(1.501)*	*(1.591)*
Observations	64,657	30,699	30,726	30,842	2,711	1,113	1,178	1,111
Buyer bank fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Target bank fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Year fixed effect	YES	YES	YES	YES	YES	YES	YES	YES

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. The definition of the variables can be found in Table A1 of the appendix. Table A11 is similar to Table 2 Column 1 and 5, with a different threshold for the definition of M&As for each column (reminder: final stake >30% in Table 2).

Table A12

Logit, geographical location and business model regressors pooled (Table 3, Column 3 and 4 complete)

Dummy $M\&As_{i,j,t}$	(1)	(2)
	All M&As All control	
	Odds ratio	Marginal effect
Dummy subsidiaries with same business model as $target_{i,j,t-1}$	0.334	4.78e-05
	(0.669)	*(9.61e-05)*
Number of subsidiaries with same business model as $target_{i,j,t-1}$	0.505*	7.24e-05*
	(0.292)	*(4.24e-05)*
Dummy $cross\text{-}business_{i,j}$	-2.325***	-0.000333***
	(0.496)	*(8.05e-05)*
Number of subsidiaries with different business $models_{i,t-1}$	-0.448	-6.42e-05
	(0.336)	*(4.84e-05)*
Number of different business models $covered_{i,t-1}$	-0.104	-1.48e-05
	(0.874)	*(0.000125)*
Dummy subsidiaries in target $country_{i,j,t-1}$	1.475**	0.000211**
	(0.689)	*(0.000101)*
Number of subsidiaries in target $country_{i,j,t-1}$	-0.0830	-1.19e-05
	(0.172)	*(2.47e-05)*
Dummy $cross\text{-}border_{i,j}$	-9.564***	-0.00137***

	(3.179)	*(0.000483)*
Number of foreign subsidiaries $_{i,t-1}$	0.195	2.79e-05
	(0.261)	*(3.75e-05)*
Number of foreign countries in which subsidiaries are present $_{i,t-1}$	-1.006***	-0.000144***
	(0.361)	*(5.38e-05)*
Number of subsidiaries$_{i,t-1}$	0.440**	6.30e-05**
	(0.180)	*(2.66e-05)*
Branch (target)$_{j,t-1}$	-0.0367	-5.26e-06
	(3.037)	*(0.000435)*
Quoted (acquirer)$_{i,t-1}$	5.254***	0.000753***
	(0.696)	*(0.000124)*
Quoted (target)$_{j,t-1}$	-0.343	-4.92e-05
	(0.925)	*(0.000133)*
G-SIB (target)$_{j,t-1}$	3.125	0.000448
	(1.918)	*(0.000278)*
Total assets (acquirer)$_{i,t-1}$	-1.317***	-0.000189***
	(0.463)	*(6.89e-05)*
Total assets (target)$_{j,t-1}$	-0.850**	-0.000122**
	(0.367)	*(5.44e-05)*
Equity assets ratio (acquirer)$_{i,t-1}$	0.0141	2.02e-06
	(0.0392)	*(5.61e-06)*
Equity assets ratio (target)$_{j,t-1}$	-0.0318*	-4.56e-06
	(0.0190)	*(2.78e-06)*
Liquid assets ratio (acquirer)$_{i,t-1}$	-0.00955	-1.37e-06
	(0.0139)	*(1.99e-06)*
Liquid assets ratio (target)$_{j,t-1}$	0.000248	3.55e-08
	(0.0124)	*(1.78e-06)*
Return on assets (acquirer)$_{i,t-1}$	0.0212	3.03e-06
	(0.0570)	*(8.17e-06)*
Return on assets (target)$_{j,t-1}$	0.0740*	1.06e-05*
	(0.0439)	*(6.40e-06)*
Cost-to-income ratio (acquirer)$_{i,t-1}$	-5.06e-05	-7.25e-09
	(0.000185)	*(2.66e-08)*
Cost-to-income ratio (target)$_{j,t-1}$	-0.000649	-9.30e-08
	(0.00102)	*(1.46e-07)*
Number of employees (acquirer)$_{i,t-1}$	1.735***	0.000249***
	(0.512)	*(7.81e-05)*
Number of employees (target)$_{j,t-1}$	0.523	7.49e-05
	(0.362)	*(5.24e-05)*
Loan loss provisions (acquirer)$_{i,t-1}$	0.128	1.83e-05
	(0.169)	*(2.43e-05)*
Loan loss provisions (target)$_{j,t-1}$	0.572***	8.19e-05***
	(0.181)	*(2.75e-05)*
NPL ratio (acquirer)$_{i,t-1}$	-2.894	-0.000415
	(3.625)	*(0.000520)*

NPL ratio (target)$_{i,t-1}$	-0.162	-2.33e-05
	(2.516)	*(0.000361)*
Constant	1.417	
	(5.043)	
Observations	394,730	394,730
Buyer bank fixed effect	NO	NO
Target bank fixed effect	NO	NO
Buyer business fixed effect	YES	YES
Target business fixed effect	YES	YES
Year fixed effect	YES	YES

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. The definition of the variables can be found in Table A1 of the appendix. Column 1 and 2 are the same than Column 3 and 4 respectively of Table 3, but not truncated

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