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Brexit impact on investment banking in Europe

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Britain's exit from the EU will have significant repercussions for politics, the economy and citizens across Europe. One of the biggest impacts will probably be felt in the financial industry and within that by investment banks as the region's central hub, London, is likely to lose its full access to the single European market.

This could have substantial consequences for Britain: at 6.6% of national gross value added, it has the largest financial sector among major European countries, relative to the size of its economy. Financial services exports play a major role – and 44% of them go to the EU. Without the surplus it generates from providing investment banking services to EU customers, Britain's current account deficit would be 40% higher.

Foreign banks, which account for nearly 50% of the UK banking system, dominate in London's investment banking business. Most of their business is conducted through branches (total assets: EUR 3 tr) which currently use the single European passport to provide services to the entire EU. Following Brexit, particularly non-EU, but also UK banks are likely to lose this opportunity and will have to shift EU business to the continent. They will have to set up or build-out subsidiaries in the EU-27 with own capital, liquidity, corporate governance and fully-fledged operations. This could lead to an additional EUR 35-45 bn of capital being 'ring-fenced'.

Investment banking accounts for nearly three-quarters of the UK's financial services exports. Derivatives play a key role: together with New York, London is the dominant FX and interest rates trading hub and also clears the vast majority of euro-denominated interest rate swaps. If the EU/ECB were to require clearing to move to the continent, significant collateral would have to be shifted (up to GBP 14 bn) and fragmentation could drive additional collateral requirements (at least GBP 6-25 bn) due to loss of netting benefits.

For major investment banks, the challenges come not just from losing the single passport under Brexit but also from EU IPU proposals that require subsidiarisation via Intermediate Parent Undertakings for large non-EU banks. This represents a further leg of balkanisation with trapped capital, liquidity and resources – profitability will be under pressure and not all EU business models will be viable.

One of the industries which will probably be most affected by Britain's exit from the European Union (EU) in less than one year's time is finance. And within that sector, banks' capital markets business will be affected particularly. In this paper, we i) show why this is the case, ii) analyse the likely impact on the structures of investment banking in Europe and the UK and iii) detail the repercussions for the most prominent individual financial institutions which are going to be affected.

A likely Brexit scenario

The formal exit of Britain from the EU will take place on March 29th, 2019, ie less than a year from now. There is an agreement that Britain will remain part of the European single market for a transition period of 21 months until the end of 2020, hence the cross-border access of EU firms to the British market and of UK-based firms to the continental market will remain intact as today. However, this agreement is subject to the EU and the UK adopting a broader exit deal which clarifies the terms and conditions of the "divorce".[1] Without an agreement, a "hard Brexit" with cliff-edge consequences would happen in March 2019.

At this point in time, it is not clear how the future relationship between the UK and the EU will look like. Both parties are in the middle of their negotiations, and it may well take until the literal last minute for an exit deal to be finally adopted by the European Council, the European Parliament and the UK parliament. Nevertheless, a few conclusions form the background for this study:

— A driving force behind the outcome of Britain's EU referendum has been voters' concern about open borders and the free flow of labour within Europe. Another priority for many has been their country's ability to take political decisions independently of the EU legislative process in Brussels (and hence of other countries' demands, in keeping with a desire to "take back control"). This also includes the UK's wish to conclude free trade agreements with other countries on its own, which currently is done centrally by the EU.

— A third priority for supporters of Brexit has been to save on the country's significant net contribution to the EU budget and spend the money domestically instead. While the exact amount is disputed, on a net basis it is about EUR 10-11 bn per year, including customs duties.[2] This is equivalent to roughly 1.1% of the UK government's total annual spending.

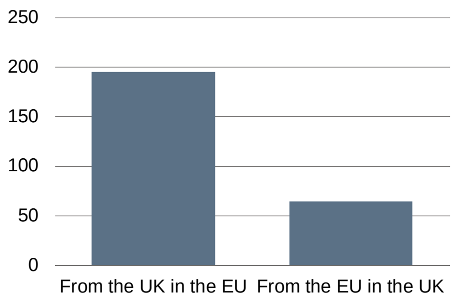
— For the EU and the other member states, it is a priority to keep the single market intact, with its four freedoms of goods, services, labour and capital. For some countries, such as Germany and France, this is important to preserve the logic of the European project; for others, especially in Central and Eastern Europe, it is essential to preserve their citizens' opportunity to move and work freely across Europe. Net recipients also want to ensure continued funding from the EU.

— Meanwhile, the EU as an institution is concerned about the cherry-picking of its rules. It wants to prevent other member countries from potentially following the UK's lead if a deal is agreed which is attractive from a British perspective (i.e. if the UK gets most of its wishes without giving up some of the things it values in return).

[1] This is not to be confused with a new free trade agreement which the two parties will negotiate subsequently, mostly during the transition period, and which will set the frame for how, in future, companies can do business on the other side of the channel. This agreement will most likely have to be approved by parliaments in all individual EU countries.
[2] See Körner (2018).

Foreign direct investment in the financial sector 1

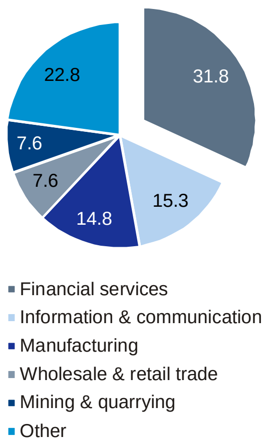
Stock in EUR bn, 2015



Source: Eurostat

UK firms' direct investment in the EU 2

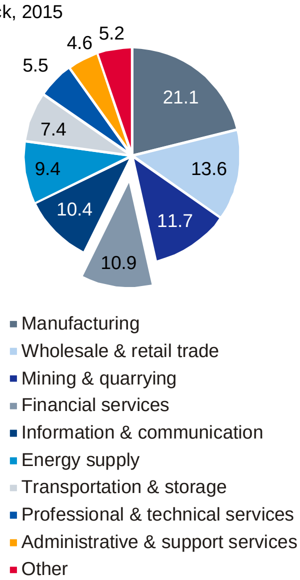
% of stock, 2015



Sources: Eurostat, Deutsche Bank Research

EU firms' direct investment in the UK 3

% of stock, 2015



Sources: Eurostat, Deutsche Bank Research

— As a consequence of the above-mentioned priorities, the British government is seeking to limit the inflow of labour from the EU, to leave the customs union and the jurisdiction of the European Court of Justice at a certain point in time, and to end (or at least minimise) payments into the EU budget.

— For the EU, it stands to reason that a country which backtracks on a number of single market requirements should have to forego some of its benefits as well. As the UK seeks to pull out of crucial parts of the arrangements, the price it will have to pay will be substantial, too. Unless the UK government backs down on its current “red lines”, it will probably result in the end of single market access for important parts of the British economy.

— There are both strong manufacturing linkages between the EU and the UK as well as strong financial-sector linkages. But in the EU, many policymakers see risks from a hard Brexit mainly on the manufacturing side and, by contrast, even upside potential with regard to financial services (from a potential relocation). This is not least due to different weights of the two sectors in the respective economies – manufacturing makes up 17.4% of gross value added in the EU without Britain, but only 10.3% in the UK, whereas financial services account for just 4.5% in the EU yet for 6.5% in the UK (for details, see below). Similarly, with a share of almost a third of the total, foreign direct investment by UK firms in the EU is mainly concentrated on financial services. By contrast, FDI by EU firms in the UK is much more balanced, and financial services account for only about 10% of the total (for details, see box 4 below). In addition, industry associations from the manufacturing sector are much more powerful in the EU than those from the financial sector. The reputation of investment banking and its representatives remains fairly low, both among the public and among politicians. When push comes to shove regarding the sectors in which to end the UK’s free access to the single market, this constellation may easily lead to the manufacturing sector receiving milder treatment than the financial industry. Given all the constraints above, it seems realistic that manufacturing links between the UK and the EU (as well as the provision of certain services) will be maintained relatively unhampered, but that the cross-border business of the financial industry will have to bear the brunt.

These assumptions set the frame for the following impact assessments. However, the final outcome is still highly uncertain, of course, especially given the exceptional complexity of the issue and the unprecedented nature of a country leaving the EU. Predicting the future of the investment banking industry in Europe after Brexit therefore remains a difficult and delicate task.

FDI links in financial services between the UK and the EU 4

British firms’ direct investment in the EU – 43% of their worldwide total – is heavily skewed towards financial services. With a stock of EUR 195 bn, financial services FDI in the EU account for almost one-third of total British FDI in the EU. This is more than investment in the next two largest sectors combined (information and communication, and manufacturing). By contrast, the corresponding figure of EU firms’ direct investment in financial services in the UK is only a third of its counterpart: EUR 64 bn. This equals a share of just about 10% of the EU’s total FDI in the UK, given that total FDI volumes from the UK in the EU and vice versa are roughly the same size.

Also, more than 40% of the UK’s worldwide financial services FDI goes to the EU, making it by far the largest such recipient. British financial services FDI in the US, the next biggest investment destination, is less than half of that figure. However, most of the UK’s inward financial services FDI comes from the US, indicating that many US financial institutions may use the country as an entry point to access the large EU market (quite likely, a substantial chunk of British FDI in the EU is ultimately accounted for by US firms).

Overall, the UK therefore seems particularly vulnerable to a Brexit scenario which would impact upon UK-based firms’ ability to provide financial services to EU customers. The EU, in turn, has much less to lose under those circumstances, but may be keener to maintain an open investment climate in manufacturing, for instance. Outstanding EU manufacturing FDI in Britain amounts to EUR 124 bn, which is about twice the FDI volume in financial services.

The rise of London as a financial centre

The UK emerged (or re-emerged in the eyes of some observers) as an important international financial centre already in the 1960s. The growth of the Euromarket was the main driving force behind this (see box 5 for a short overview). The UK, and specifically London, became the largest depository for USD outside the US and played a key role in Eurodollar trades. For example, estimates point to London having an 80% Euromarket share in the mid-1970s via 243 subsidiaries of foreign banks. Euromarket activity in the UK remained relatively stable over three decades. With the evolvement of modern marketplaces, the Euromarket lost some importance in the 1990s.

Euromarket 5

Demand for USD, the international reserve currency, from outside the US increased steadily from the mid-1950s onwards. On behalf of sovereigns and companies worldwide, banks began trading local currencies against USD and held cash reserves in USD as collateral. As a result, the interbank market emerged. Due to various factors, these deposits and trades were usually held and executed outside the US.

London became a central hub for reserves, especially for time deposits denominated in USD, and for trading of cash-settled futures contracts on USD, namely Eurodollars. The “Euromarket” is a general expression for these types of deposits and trades and generally refers to markets on which banks deal in foreign currencies outside their home country. The “euro” prefix has no connection with the currency or the euro area. It only indicates that these types of trades first appeared in Europe and specifically in London.

Sources: Paris School of Economics, Deutsche Bank Research

The UK’s role as a financial hub benefited significantly from financial market liberalisation in the 1980s, too, particularly the “Big Bang” in 1986. This removed a number of restrictive practices in securities markets. Driven by deregulation, stock trading in the UK shifted from traditional face-to-face trading to an electronic marketplace. Fixed commissions on stock trades were abolished, and the door for more competition was opened. By ending the separation between stock traders and advisors, the Big Bang facilitated mergers and takeovers. By allowing foreign firms to own UK brokers, it opened the UK financial market to international banks. As a result, market liquidity surged. The number of shares traded on the London Stock Exchange (LSE) doubled in just a few years’ time and grew persistently later on. From 1987 to 2000, international equity turnover on the LSE increased 61-fold. Inbound M&A activity (foreign companies acquiring UK companies) grew 11-fold between 1987 and 2000. The Big Bang reforms proved foresighted and reinforced London’s role as a financial centre.

Subsequently, London benefited tremendously from the creation of the single European market in 1993 and the introduction of the euro in several ways. First and foremost, the single market grants full EU market access to foreign banks with a licence in one member state only. Especially non-EU banks set up regulated businesses in the UK to offer services across the whole EU without requiring further authorisations – using their “passporting rights”[3]. Since non-EU banks used the UK, and in particular London, as a doorway to the EU, the network of international banks in a single hub also attracted EU banks which extended their operations in London. In part, they used passporting, too, by establishing dependent branches of their parent company in the UK. In addition to this, introduction of the euro partly reduced the importance of financial centres specialised in the bilateral trading of local European currencies. As the number of international players grew persistently in London, and thanks to its locational advantage with trading hours between Asia and the US, euro transactions have increasingly been settled in London. Finally, London benefited remarkably from the pre-crisis growth in OTC derivatives markets as well. This was probably due to relatively early introduction of electronic marketplaces and the arrival of the euro, which stimulated the issuance of euro-denominated derivatives.

All in all, several factors have contributed over a long time to the leading role of UK and London in financial services. That said, the Euromarket has lost importance, and Big Bang-type reforms nowadays have been implemented by almost all modern economies. Therefore, access to the single market and euro trading are key factors for the UK’s financial sector. For example, the EU makes up one-third of the UK’s total financial, insurance and pensions services exports, according to UK Treasury estimates (for more details, see the section below).[4]

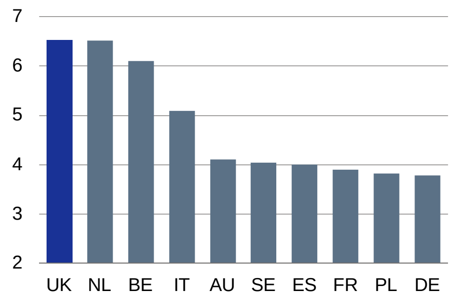
[3] Passporting rights refer to the right of a firm registered in the European Economic Area to do business in any other EEA economy without the need for further authorization in each country.
[4] HM Treasury (2016).

With Brexit, the UK's financial services industry will probably suffer from some loss of passporting rights and thus restricted single market access.

Role of financial services for the UK

Share of gross value added in the financial sector in % of total 6

Ten largest EU economies, 2017



Sources: Eurostat, Deutsche Bank Research

The financial industry is one of the most important sectors for Britain. Including insurance and auxiliary services, it is the second largest segment of the economy, behind real estate activities. Its GBP 115 bn in gross value added account for 6.6% of the total, a figure down from 9% at its peak in 2009.[5] Financial services in the narrowest sense have a share of 4.1%. Even the gross figure does not fully capture the importance of financial services, as activities triggered by the industry – such as accounting, consulting and legal services – are not included.[6] Within Europe, Britain has the largest financial sector in absolute terms. Also relative to the size of its economy, its financial industry (including insurance and auxiliary services) is the strongest among the top 10 EU economies and carries far more weight than its peers in other large countries such as Germany and France.

Financial services play an even greater role as an international "bestseller" of the UK. Even excluding insurance, financial services are the country's second-largest export industry, only behind the aggregate of "other business services". Financial services exports (excluding insurance) amounted to a massive GBP 61 bn, or 25% of total services exports, in 2016. The vast majority of that, 74%, stems from investment banking activity, which accounts for GBP 45 bn, based on some assumptions.[7]

At the same time, 44% of the UK's financial services exports went to the EU, i.e. the services were provided to EU customers. In addition, financial services exports to the EU have risen strongly over time – they have doubled over the past decade, despite the financial crisis – as the EU's share in those exports has remained high and stable. All in all, about a third of the UK's total financial services exports is accounted for by investment banking activity on behalf of EU customers.

Primarily as a result of London's position as a pre-eminent global financial hub, the UK has an enormous trade surplus in financial services. The respective imports are quite small. With the EU alone, the export surplus amounts to GBP 23 bn, of which capital markets services make up about GBP 17 bn.

A lot is therefore at stake with Brexit. Without full and robust access to the EU's single market, this surplus is at risk. Activity may partly move to the continent or, even worse, may partly disappear altogether because services would have to be provided locally, in a decentralised/fragmented way. This will probably lead to higher costs and lower liquidity. Providing capital markets services in Europe would become less efficient. How large could the damage be for the UK? Overall, the country's trade balance is substantially negative, i.e. imported goods and services exceed exported goods and services by GBP 43 bn. Without the positive contribution from investment banking services provided to EU customers, ceteris paribus this deficit would be a whopping 40% larger,

[5] Much of the following section is based on data from the UK's Office of National Statistics and relates to 2016 figures. Eurostat has already published high-level gross value added information for 2017 (which shows no meaningful change from the previous year for Britain). For detailed analysis, however, only ONS data is available.

[6] According to estimates from TheCityUK, an industry association, Britain's financial sector and "related professional services" – accounting, consulting and legal services, but including those dedicated to other sectors of the economy beyond finance – even account for 10.7% of gross value added. Almost half of that, i.e. 46%, is generated in London. For capital markets business alone, London's dominance most likely is greater still. See also CityUK (2017a) and CityUK (2017b).

[7] TheCityUK estimates that financial and "related professional" services exports combined represent 38% of total services exports, reaching GBP 96 bn in 2016. See CityUK (2018).

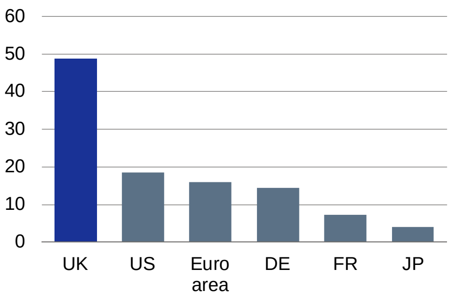
UK investment banking services for the EU: Large and growing – until now 7

	2016	2011	2006	Unit
UK services exports (globally)	245,406	190,691	146,899	GBP m
UK financial services exports, excluding insurance	61,383	50,471	37,472	GBP m
UK investment banking services exports	45,469	37,372	26,349	GBP m
Investment banking share in total UK financial services exports	74.1	74.0	70.3	%
EU share in UK financial services exports	44.0	41.1	40.3	%
Share of investment banking services provided to EU customers in total UK financial services exports	32.6	30.4	28.3	%
UK trade surplus from financial services with the EU (excluding insurance)	22,903	15,580	9,105	GBP m
UK trade surplus from providing investment banking services to the EU	16,965	11,536	6,402	GBP m
Total UK trade balance (all goods and services)	-43,013	-25,171	-35,258	GBP m
How much UK trade deficit would be higher without investment banking export surplus with the EU	39.4	45.8	18.2	%

Sources: ONS, Deutsche Bank Research

UK with highest share of foreign banks among major countries* 8

% of total domestic banking system assets in 2017 (2016 for the US and Japan)

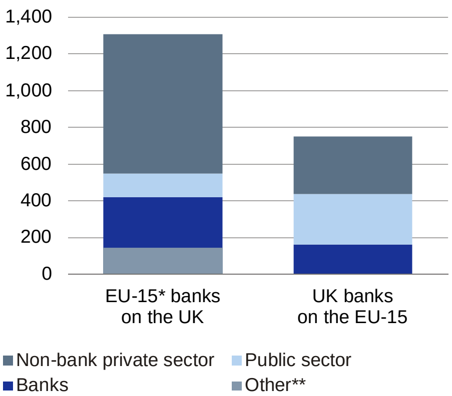


*Foreign banks are those whose controlling parent is located outside the reporting country.

Sources: ECB, BIS, Deutsche Bank Research

Bilateral claims by banks on the total economy 9

USD bn, 2017, ultimate risk basis



* No data for Luxembourg; Denmark on immediate risk basis
** Netherlands and Denmark total; Portugal and Finland public sector

Sources: BIS, Deutsche Bank Research

according to our calculations. Hence, Brexit indeed poses a substantial risk to one of the UK's most important industries and especially to the country's foreign trade and national account.

Foreign bank presence in the UK and passporting

As a magnet for foreign banks over the past 50 years, the UK stands out as one of the most international banking hubs globally. In 2017, 49% of bank assets in the UK stemmed from foreign-owned banks. This is a remarkable share of foreign bank activity, compared with less than 20% in the US, 14% in Germany or 4% in Japan.

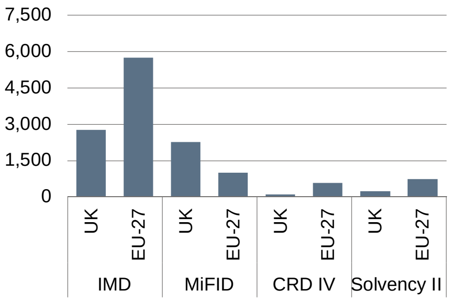
Services for British customers account for a significant part of foreign bank activity in the UK. Banks from the "old" EU-15 countries have a combined USD 760 bn in claims outstanding on the non-bank private sector. Some of these banks conduct traditional commercial banking business with retail and corporate customers.[8] Other exposures stem from holdings of UK gilts or loans to UK banks, for example. Total claims of EU-15 banks on UK borrowers add up to USD 1.3 tr across all sectors of the economy. This equals more than half of the total claims of all foreign banks on the UK economy, underlining the openness of the British financial system and the major presence of European financial institutions. In the other direction, towards the EU, UK banks' claims are somewhat lower but still sizeable, at about USD 750 bn. Of course, the economies and financial systems of the UK and EU are of different sizes, and UK banks only have a 10% share of total foreign bank exposure towards the EU-15. Overall, these figures, despite partial shortcomings in capturing wholesale market activity, highlight the strong bilateral links between UK banks and the continent as well as between continental banks and the UK.

Obviously, foreign banks in the UK operate in various market segments and engage with a diverse range of clients and counterparties simultaneously. As a result, quantifying the share of foreign banks' assets that will leave the UK is not a simple task, especially not at this uncertain stage of the Brexit negotiations. To approach the potential relocation volumes nevertheless, the number of entities that access the single market from the UK and that access the UK from the single market provides first insights. There were 5,476 UK-registered financial entities – banks, insurers, asset managers and payment firms – which used passporting to do business in the EU-27 in 2016, according to the Financial

[8] While there is a large overlap between foreign bank assets in the UK and foreign bank claims on the UK, major conceptual differences exist. Foreign bank assets *in* the UK include securities issued by non-UK residents – such as US Treasuries – which consequently do not fall under (foreign) bank claims *on* the UK. Likewise, if a foreign bank holds UK gilts in a third country, it has a claim *on* the UK, but no asset *in* the UK.

Most financial services passports in insurance in bilateral UK-EU trade 10

Number of firms with passporting rights, by home country and legal basis in 2016



Sources: FCA, Deutsche Bank Research

Conduct Authority (FCA). Meanwhile, 8,008 financial entities were registered in the EU-27 and did business in the UK via their passporting rights. In both cases, entities can engage in different services in the single market and possess more than one passport. This makes specific passports in use particularly relevant.

Among different financial services, the largest number of passports is based on the Insurance Mediation Directive (IMD) (see chart 10). Around 2,750 UK entities possess an IMD passport for the EU-27. At around 5,700, the number of EU-27 entities with an IMD passport for the UK is much larger still. In short, the IMD allows insurance brokers and other insurance intermediaries to register in their home country and to market insurance products across the single market. Insurance firms and policyholders seem to benefit considerably from the IMD: estimates point to 6 m policyholders in the UK who are customers of an EU-27 insurer and almost 30 m policyholders in the EU-27 who are clients of a UK insurer. Therefore, redefining and particularly "relocating" insurance contracts is an important aspect of the Brexit discussion. In case of a hard Brexit, EU-27 insurers that currently use a passport to sell insurance products to UK customers would need to establish subsidiaries in the UK to continue doing so. Similarly, UK insurance firms that today serve EU customers via local branches of their headquarters in London (or directly cross-border) would need to set up legally independent operations in the EU-27. That said, a detailed analysis of this is beyond the scope of this publication which focuses on the investment banking sector.

Cross-border banking services are mostly linked to passporting rights under the Markets in Financial Instruments Directive (MiFID) and also partly to the Capital Requirements Directive (CRD). Around 1,000 EU-27 firms possess a MiFID passport to do business in the UK. At the same time, there are 2,250 UK entities which use a MiFID passport to enter the EU-27. To put the latter number into perspective, 50-60% of the UK's "investment firms" under the MiFID use passporting into the EU-27. With a MiFID passport, banks acquire the right to trade shares, bonds or other financial instruments. Moreover, they have the right to take derivatives positions across the single market via branches or subsidiaries located in London. As the implementation of MiFID passporting is closely linked to the legal structure of banks, this dimension requires a closer look.

Brexit impact on MiFID passporting and legal entity setup of banks

All MiFID entities in the UK and UK banks' operations in continental Europe will be affected by a loss of passporting to different degrees. The degree will depend on their domicile and legal basis. Three cases are particularly relevant in the context of the Brexit discussion:

1) UK banks' business with EU-27 clients

2) EU-27 banks' UK-based business with UK, EU-27 and non-EU clients

3) Non-EU banks' UK-based business with EU-27 clients[9]

For each of these categories, there is an additional dimension to be discussed: whether the entity is a) a subsidiary or b) a branch of the parent bank. The key difference between the two is that subsidiaries hold capital in countries where they do business, whereas branches do not.

1) After Brexit, UK banks will have third country status for EU countries and will be unable to serve EU clients directly from London. To continue their services, they need to relocate to one of the EU-27 countries. This may happen either as

[9] Obviously, there are also other cross-border businesses, such as UK banks' non-EU operations or non-EU banks serving UK clients. But these are less relevant for the Brexit discussion.

a subsidiary or, less likely, as a branch of the parent bank, depending on the outcome of the new trade agreement between the EU-27 and the UK.

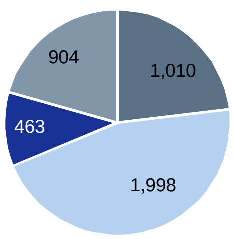
2) Turning to EU-27 banks' business in the UK, the situation is slightly different. They do not necessarily need to relocate. However, their legal structure in London is crucial for their UK, EU-27 and non-EU business. That said, dealing with their EU-27 business is, in principle, less complicated because they already have the parent bank in the EU-27 and "only" need to shift the business back home (under certain circumstances, the business could theoretically also stay in the UK, depending on the new EU-UK deal). If EU-27 banks serve UK or non-EU customers via (London) branches, they may have to subsidiarise these branches. However, the Bank of England (BoE) has already signalled that it might allow smaller EU-27 investment banks' operations to continue to be run as branches, although the details of this commitment have yet to be defined.

3) Finally, non-EU banks' business out of London with EU-27 clients will face both of the problems encountered by UK and EU-27 banks. Non-EU banks will have to relocate this business to the EU-27 and subsidiarise their branches.

The key difference between subsidiaries and branches of banks is that the former already have ring-fenced capital in the regions where they do business. By contrast, foreign branches operate with the equity base of the bank's headquarters. For MiFID-related operations, capital held at the parent company will not suffice for branches after Brexit. Banks will need to subsidiarise their branches and ring-fence capital (in addition to applying for a banking licence and setting up a whole new stand-alone governance structure). This is a very cumbersome and costly process.

Future of foreign bank branches comes under scrutiny 11

Assets of foreign banks in the UK in EUR bn, 2017



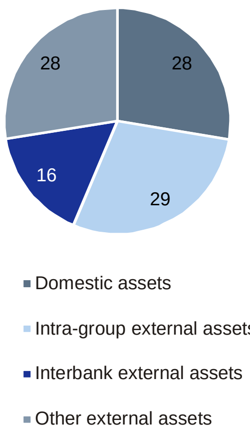
Sources: ECB, Deutsche Bank Research

Let's continue with the size of the business that is under threat under these circumstances. 1) For UK banks' EU business, some data is available as discussed above. UK (domestic) banks have claims on customers in the EU-15 of USD 750 bn in total, of which USD 310 bn is exposure to the non-bank private sector (of which USD 200 bn is with non-financial companies and households). However, it is not clear how much of these activities are already handled by local subsidiaries (and thus would hardly be affected by Brexit) and how much by branches or directly cross-border from the UK (and would suffer from a loss of passporting). Turning to 2) and 3), there are figures on assets of foreign banks located in the UK with respect to domicile and legal basis. Available figures provide a first indication of business size only and not necessarily the business type. For both EU-27 and non-EU banks in London, branches play the key role. EU-27 domiciled banks in London had total assets of almost EUR 0.5 tr in subsidiaries and around EUR 1 tr in branches in 2017. Meanwhile, for non-EU banks, assets in subsidiaries amounted to EUR 0.9 tr and those in branches to a huge EUR 2 tr. Indeed, MiFID passports allowed EU-27 domiciled banks to expand their business via branches in London without locally ring-fencing capital. Some non-EU banks, such as US and Japanese institutions, use bilateral agreements between the UK and their home country to operate branches in London where capital and reserves held at home also suffice. On top of that, these entities use a MiFID passport to do business with EU-27 clients via their London branch. In general, loss of MiFID passporting might result in subsidiarisation of branches. Therefore, branch activities require a closer look for potential cost related to subsidiarisation. That said, the (much smaller) London-based subsidiaries of EU-27 and non-EU banks also will suffer in their business with EU clients from the loss of access to the single market after Brexit, of course.

Branches of foreign banks (both EU-27 and non-EU) in the UK offer a large spectrum of services. Obviously not all of these services will require subsidiarisation. Somewhat dated figures from the BoE provide an interesting breakdown (see chart 12). First, 28% of total assets of foreign bank branches

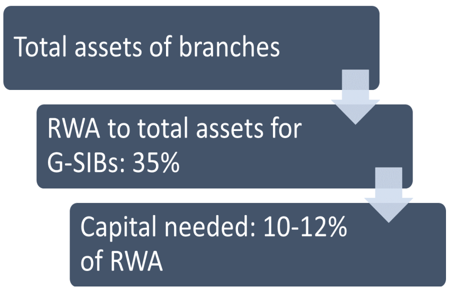
Asset composition of foreign bank branches in the UK 12

% of total, 2011



Source: BoE (2013)

Capital of 3.5-4% of total assets (4-5% incl. buffer) needed for subsidiarisation 13



Sources: EP (2016), Deutsche Bank Research

are domestic assets, i.e. assets related to lending to UK non-financial customers or the UK financial sector, for example. For these services, in line with the BoE's statement, it is possible that not much will have to change and that foreign banks will be allowed to continue these services without ring-fencing capital. On the other hand, more than 70% of foreign bank branch assets are external assets, i.e. assets for doing business outside the UK. 29% of the total is intra-group related. This share is again not necessarily relevant in the context of subsidiarisation. The remaining 44% is related to interbank and other activities such as trading operations, short-term liquidity, cross shareholdings, guarantees or collateral. This part of foreign banks' UK-based business with non-UK clients will most likely be subject to

— some form of subsidiarisation in the UK if it is an EU-based bank and the customer is outside the EU (not much will change for non-EU banks with non-EU customers, but this is probably only a relatively small volume because most of this business may be done through a subsidiary rather than a branch) or

— relocation to the continent if the client is based in the EU, for both EU-27 and non-EU banks (the latter case also requiring subsidiarisation).

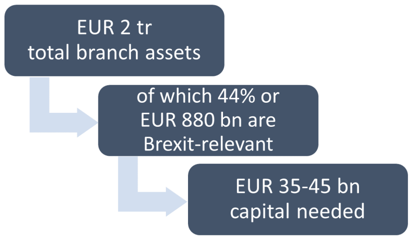
Cost of subsidiarisation

Subsidiarisation is a costly task due to a lot of organisational and operational requirements and the need to ring-fence capital. A simple top-down approach may give first indications of the potential capital which has to be locked up. In doing so, an approximation of the ratio of risk-weighted assets (RWA) to total assets is necessary, given that capital requirements are based on RWA. RWA depend on a bank's size and business model. They tend to increase for smaller institutions and for banks with a traditional commercial bank business model.[10] Because the majority of the foreign banks which operate in the UK are probably fairly large institutions, we take the ratio of RWA to total assets of global systemically important banks (G-SIBs). For European banks, this stands at around 35% (compared with around 60% for medium-sized and small banks). At the same time, banks' minimum core (CET1) capital as required by investors and supervisors is about 10-12% of RWA (see chart). This would imply that capital of around 3.5-4% of total assets needs to be ring-fenced after Brexit if foreign banks subsidiarise their branches. In addition, banks have to fulfil the leverage ratio requirement, i.e. the ratio of core capital to total (not risk-weighted) assets must exceed 3-4% – a very similar result. Given investors and regulators demand some buffers, banks effectively have to ring-fence capital amounting to 4-5% of total assets. So what is the absolute volume of affected capital?

Of the three cases discussed above, there is not enough public data available on UK banks' business with EU customers. Thus, we focus only on the second and third cases, acknowledging that this will result in a conservative, probably too low estimate for the actual ring-fencing need. For branches of EU-27 banks in the UK, capital requirements after Brexit might be relatively soft as the BoE has already signalled, at least for smaller institutions. They will probably be able to operate much like their US or Japanese counterparts. For our back-of-the-envelope calculation, we ignore the potential need for larger investment banks to ring-fence capital (and liquidity) for their branch business in the UK with UK or non-EU customers. Foreign banks' subsidiaries in London can already use their own capital base; hence, they are also not primarily affected in that respect.

[10] See also European Parliament (2016).

Non-EU banks will have to set aside EUR 35-45 bn of capital after Brexit 14



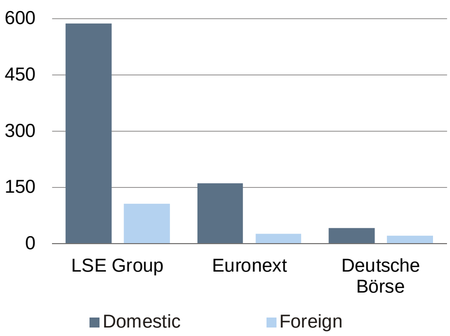
Source: Deutsche Bank Research

The main focus is on the London branches of non-EU banks which serve EU-27 customers. They will need to ring-fence capital on the continent in order to relocate and do business in the EU-27.[11] This means a loss of passporting will particularly hit non-EU institutions (such as US and Japanese banks) which currently use London as a gateway to the EU-27. We assume that, for these branches, the composition of the business is the same as in chart 12 (particularly that activities with foreign/non-UK clients account for a share of 44%) and that all of these customers are EU-based, which may only be a slight exaggeration. Of the EUR 2 tr in total assets of branches of non-EU banks, around EUR 880 bn could thus be hit by Brexit. If non-EU banks subsidiarise this part of their business, they might need to ring-fence EUR 35-45 bn in capital (see chart 14). Even this conservative rough estimate is a substantial volume which banks will have to set aside in addition to an own pot of liquidity, legally independent governance structures and the full cost and lower efficiency associated with obtaining a licence in the EU and relocating this entire business from London to the continent.

Brexit and capital markets

London is the European capital of IPOs 15

Number of companies newly listed through an IPO between 2012-2017

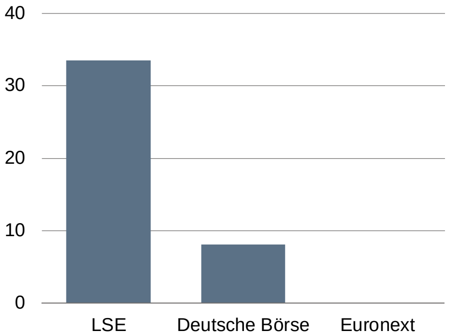


Sources: WFE, Deutsche Bank Research

In addition to the capital that needs to be ring-fenced after Brexit, a loss of passporting will severely affect banks' capital market business. The Association for Financial Markets in Europe (AFME) estimates that securities and derivatives trades with EU-27 clients which are booked in the UK amounted to a huge EUR 1.1 tr in 2017. Similarly, banks located in the UK underwrite around half of the debt and equity issued by all EU companies, according to the BoE. Let's look at the equity market first to assess the cross-border capital market relevance of London. Between 2012 and 2017, a staggering 587 initial public offerings (IPOs) of domestic companies took place at the LSE Group (mainly the UK, but also including Italy), the most of any European exchange. More importantly, however, there were another 105 IPOs of foreign companies, far more than the 25 at Euronext or 21 at Deutsche Börse, its main continental rivals. In total, 430 foreign stocks are currently listed at the LSE Group compared with only 160 at Euronext and some 50 at Deutsche Börse. This shows the importance of London for raising equity capital not only on a domestic but also on an international scale.

Large share of foreign stock trades at LSE 16

Turnover in foreign stocks as % of total equity trading in 2017*



*Both electronic and negotiated deals

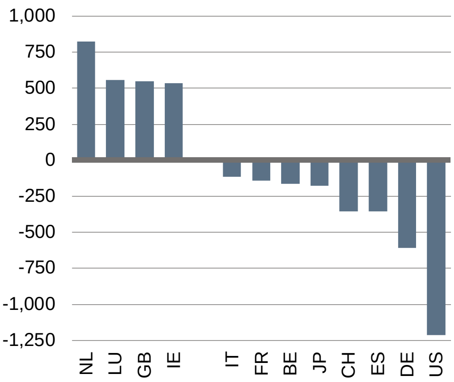
Sources: WFE, Deutsche Bank Research

What's more, stock markets are more liquid in London than anywhere else in Europe. Average daily share turnover at the LSE amounted to USD 17 bn in 2017 (both electronic and negotiated deals) and was much larger than at Euronext (USD 7.8 bn) or Deutsche Börse (USD 5.8 bn). Foreign stocks account for a remarkable one-third of this turnover at the LSE, whereas they play a much smaller role at Deutsche Börse or Euronext. In addition, most of the foreign share trading at the LSE takes place in the form of negotiated deals rather than electronic orders, which may make this a more profitable business for investment banks. Even though the immediate impact may be limited, different rules for capital markets and investors will probably emerge and the free flow of capital between the EU and the UK will probably be hampered in the longer term as a result of Brexit. This is highly likely to make foreign stock listings at the LSE less attractive and to reduce UK-based banks' revenue pool from both underwriting and trading.

[11] The ring-fenced capital does not have to be "additional" because branches also operate with capital, of course. It is just held and managed centrally at group level, by the parent company. But under subsidiarisation, equity capital has to be transferred from the home country to the foreign country and will be locked up there.

Difference between outstanding debt securities by residence & nationality, end-2017 17

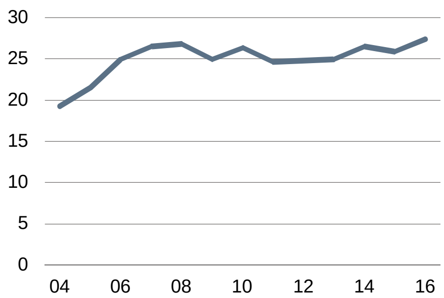
Debt issued abroad in USD bn, advanced economies where foreign finance vehicles are most/least active



Sources: BIS, Deutsche Bank Research

UK banks' fees and commissions from investment banking* 18

% of total fee and commission income



*Fee income from investment banking, advisory, brokerage and underwriting

Sources: BoE, Deutsche Bank Research

With regard to the issuance of debt securities, there are important conclusions to be drawn as well, despite somewhat sketchy data. For "international debt securities", i.e. for bonds that are issued outside the issuer's home market, data from the Bank for International Settlements (BIS) differentiates between residence and nationality. The former looks at the country where the issuer is legally incorporated, the latter at the country where the ultimate (controlling) parent of this entity is located. These volumes can differ a lot, and the UK is a prominent case in point: UK residents have total outstanding international debt securities of USD 3.2 tr, yet UK nationals have only USD 2.6 tr. The difference of about USD 550 bn at the end of 2017 is accounted for by UK residents, which are mostly financing companies of foreign parents that issue a bond to international investors. The presence of such foreign financing arms is a typical characteristic of an international financial centre. In Europe, a few of these centres host entities which raise funds abroad (outside the respective financial centre) and probably channel a substantial proportion of the funds back to their parent: the Netherlands, Luxembourg, the UK and Ireland. Other major EU economies such as Germany, Spain, France and Italy essentially have higher foreign debt than is visible in the residence-based statistics.[12] In addition, there are most likely also "domestic" bond sales by foreign-controlled UK residents to UK investors, which would increase the amount of debt funding that is raised by foreigners in the UK. No such data is publicly available though. Nevertheless, alongside the above-mentioned smaller European countries and some offshore centres (most importantly one of its own overseas territories, the Cayman Islands), the UK clearly ranks as a leading global hub for foreign bond issuance.

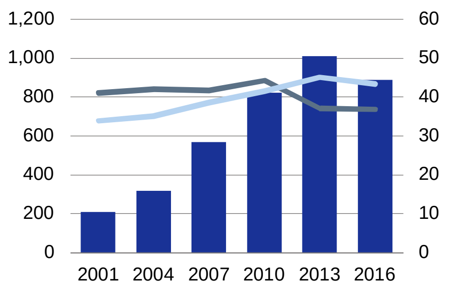
After Brexit, cross-country capital market activity and transfers vis-à-vis the EU will have a third country status. They will be much more complicated and costly for investment banks, corporate customers and other financial institutions. Indeed, the downside potential is substantial, as UK banks benefit significantly from the UK's dynamic capital market activity. In 2017, fee and commission income at UK banks (excluding branches of foreign banks) totalled GBP 30 bn, of which around GBP 8 bn, or 27%, came from investment banking, advisory, brokerage and underwriting activities. Since the financial crisis, this share has been relatively stable. Data on how much of this is accounted for by services for EU customers is not available. Yet BoE figures indicate that around one-third of UK banks' total fees and commissions come from non-residents. This ratio is probably higher for investment banking revenues. On the other hand, non-residents include both EU-27 and non-EU clients. Overall, a considerable share of UK-based banks' fee and commission income may be at risk in the aftermath of Brexit.

UK has benefited particularly from growth in derivatives markets

International banks have large exposures to interest rate, commodity price and currency risks of different countries. Because they hedge them, derivatives markets are usually large where international banking activity is high. In the UK, the creation and marketing of new derivatives products became easier after the Big Bang reforms. Meanwhile, the world's oldest derivatives exchange was founded in the US in the 19th century – and it is still operating. As a consequence, the US and the UK have been the chief locations of derivatives trading for decades. Remarkably, despite the enormous growth of emerging

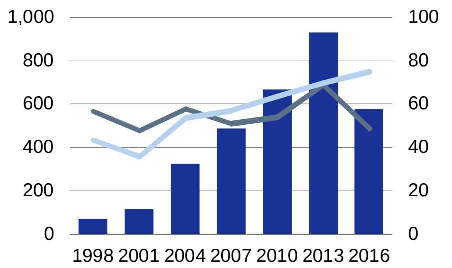
[12] The US is an exception. Despite being a major financial centre, a US-registered entity probably seldom sells a bond outside the US. As the US has the largest pool of capital globally, the entity will raise most of its funds from within the country, from domestic investors, and hence such a transaction will not count towards "international debt securities". Revealingly, while 54% of total debt securities issued by UK residents are international debt securities, this share is a meagre 6% in the US. Although US issuers do take advantage of international capital markets, they do so mainly by setting up financing vehicles abroad.

OTC FX instruments trading in the UK 19



Sources: BIS, Deutsche Bank Research

OTC interest rate derivatives trading in the UK 20

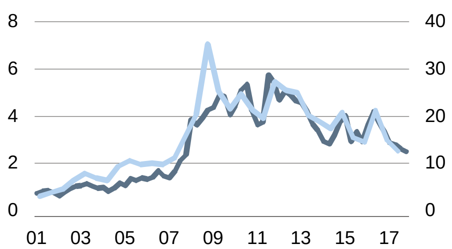


* 1998: currencies which later merged into EUR

Sources: BIS, Deutsche Bank Research

UK banks' derivatives assets grew in parallel to global derivatives markets 21

GBP/USD tr



Due to outliers as a result of reclassifications, we imputed Q4-2008 and Q1-2009 values.

Sources: BoE, BIS, Deutsche Bank Research

markets in recent years, their financial centres have only moderately gained market share. The overall dominance of the old UK-US duopoly has not changed.

Let's start with foreign exchange (FX) markets. Detailed over-the-counter (OTC) turnover data here combines both spot and derivatives transactions, which account roughly for one-third and two-thirds. The UK is the global hub for FX trades, accounting for 37% of the market as of April 2016 (latest date available). This is almost twice the share of number 2, the US. A large part of the UK-hosted business, 37%, has the euro as one leg of the currency pair, which is equivalent to 43% of all EUR transactions worldwide. This creates a significant risk for the UK's main hub, London, if the EU/ECB were to require this segment of the market to move inside the EU to allow for direct oversight and the ability to provide market participants with EUR liquidity in times of crisis.

Second, the UK-US duopoly is even more unrivalled with regard to interest rate derivatives (IRDs). Although the UK has lost its market-leading position to the US in recent years due to a decline in transactions and a surge in volumes in the US, particularly in swaps, the UK holds a worldwide market share of 39%. Almost half of this business is denominated in EUR, and the UK accounts for a massive three-quarters of global trading in EUR-denominated IRDs. Arguably, it has benefited from the introduction of the euro and the concentration on a new, single currency for most of Europe, which subsequently lacked a clear home market. Over time, Britain, as a "neutral third party", was able to establish an absolutely dominant position with its share in turnover of EUR-denominated IRDs rising from 36% in 2001 to 75% most recently. Hence, similar to FX instruments, there is a significant risk for London if the EU/ECB were to require this business to move inside the EU. What's more, 98% of IRD activity in the UK takes place between financial institutions, whereas the share of non-financial customers is negligible. Arguably though, intra-financial sector business may be easier to shift to another location than transactions triggered by "real economy" customers. Finally, swaps and forwards make up the vast majority of IRD deals. In fact, 57% of intra-financial sector swap and forward turnover in the UK stems from cross-border transactions, i.e. they involve a non-UK based counterparty. For transactions in EUR, this may well mean that a large portion of these derivatives could be moved to the euro area after Brexit.

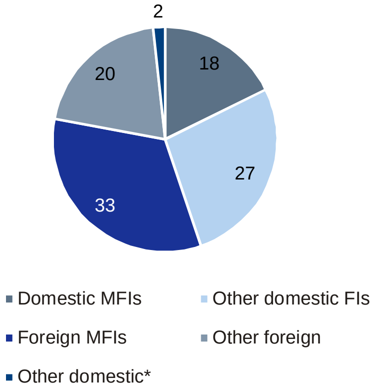
How important is the derivatives business for the UK banking system (including resident banks' domestic business as well as UK-based branches of foreign banks)? Globally, the gross market value of OTC derivatives grew sevenfold between 2001 and 2008. UK resident banks have benefited significantly from this growth: their derivatives assets rose from GBP 0.8 tr to some GBP 4 tr over the same period of time. In recent years, and in line with the general decline in derivatives trading[13], UK banks' derivatives volumes came down to around GBP 2.5 tr in 2017. This corresponds to around one-third of the UK banking system's total assets of GBP 7.3 tr. This compares to a share of only 9% and 6% for French and German banks, respectively, and underlines the importance of derivatives markets for UK resident banks.

The question therefore is what will happen to derivatives trading in the UK after Brexit – and what will the impact on banks be? Chart 22 presents the breakdown of UK resident banks' outstanding derivatives positions (both exchange-traded and OTC) by counterparty. As before, "UK resident banks" includes subsidiaries and branches of foreign banks in London, but excludes subsidiaries and branches of UK banks abroad.[14] In line with the turnover data above, which showed that the majority of IRD deals are cross-border, more than

[13] This setback was partly due to the introduction of new rules on derivatives trading such as central clearing. As a result of this, some positions are netted and volumes came down significantly.
[14] See Bank of England (https://www.bankofengland.co.uk/statistics/details/further-details-about-financial-derivative-positions-of-banks-at-market-values-data) for more information.

More than half of UK resident banks' derivatives counterparties are foreign 22

Derivatives positions by counterparty in % of total

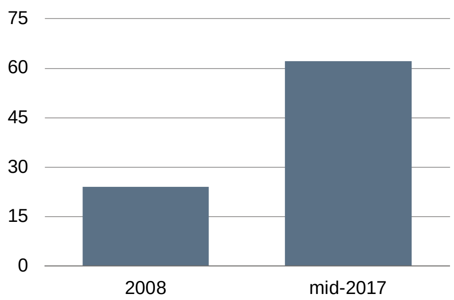


* Public sector, non-financial corporations and households

Sources: BoE, Deutsche Bank Research

Surge in central clearing of OTC interest rate derivatives 23

% of outstanding volumes in the UK that is centrally cleared



Sources: BoE, Deutsche Bank Research

half of the counterparties of UK-based banks' total outstanding derivatives positions are either foreign MFIs or other foreign firms. With a loss of MiFID passporting, it will become more complicated for UK resident banks to sign new derivatives contracts with EU counterparties. Furthermore, the status of existing contracts will come under scrutiny. Without a grandfathering agreement, there will be a need for large-scale "novation" to ensure contractual continuity. A bulk transfer of existing contracts to the EU-27 is unlikely, as this would involve significant market, operational and liquidity risks for both the UK and EU counterparty. However, the future of new contracts and where they could potentially be cleared remain critical open issues.

Euro clearing becomes a political battle field

Post-crisis efforts to regulate derivatives markets have reinforced the UK's role in this market segment. The most important international reform in this context is the introduction of a clearing requirement for standardised OTC derivatives. To incentivise standardisation, policymakers increased capital requirements for non-standard uncleared derivatives positions, too. As a result of these efforts, the central clearing of OTC derivatives has grown significantly in recent years (see chart 23 for the UK market). For example, only 24% of IRDs booked in the UK were centrally cleared in 2008. This increased to more than 60% in mid-2017. CDS clearing also went up significantly from 10% in 2010 to some 50% in mid-2017. In IRDs especially, central clearing counterparties (CCPs) located in the UK have taken a central stage. In 2016, 90% of all centrally cleared IRDs globally were cleared in London.[15] Estimates point to a 20-25% market share in CDS clearing of UK CCPs as well. By and large, the UK benefited remarkably from the growth in derivatives clearing.

Following Brexit, UK CCPs will have a third country status. As a result, unless the respective UK rules are recognised as "equivalent" to EU standards, the CCPs might lose their eligibility as a counterparty to clear certain products such as euro-denominated derivatives. The ECB already argued in 2011 that CCPs which clear and settle large amounts of euro-denominated transactions should be located in the euro area with full managerial and operational control. In response, the UK government filed a law suit to challenge the ECB's location requirement, arguing that under the Treaty on the Functioning of the European Union (TFEU), the ECB is not allowed to impose such requirements on the clearing houses. In March 2015, the UK government won the legal battle against the ECB. However, following Brexit, TFEU will not apply to the UK anymore and UK CCPs' euro-clearing operations will again come under scrutiny.

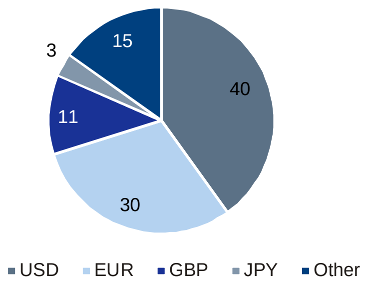
There are three options on the table for euro clearing after Brexit: 1) moving euro clearing to the euro area; 2) EU institutions supervising UK CCPs; 3) granting the UK regulatory equivalence. Before discussing some of these options in greater detail, a quick look at the CCP business itself is appropriate. In short, CCPs are risk management institutions that stand between trading counterparties. In case a counterparty fails, they guarantee that its obligations versus the remaining counterparty will be met. To do so, CCPs collect collateral in the form of initial and variation margins as well as other fees such as contributions to CCPs' default funds. Since CCPs are counterparties for different derivatives positions of the same clearing clients, they are able to simplify the exposures and offer netting benefits. In other words, they reduce aggregate counterparty credit risk and thereby the collateral which is needed for derivatives transactions.

The currency breakdown of derivatives positions cleared by the largest clearing house in the UK, LCH Clearnet, sheds light on the business that is at risk after

[15] See Bank of England (2017).

LCH Clearnet: USD- and EUR-denominated derivatives dominate central clearing 24

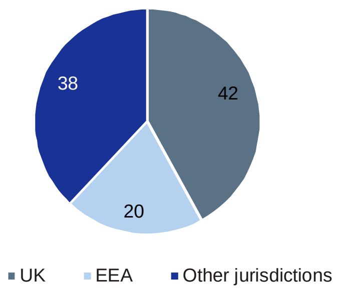
%, as of March 2018



Sources: LCH Clearnet, Deutsche Bank Research

Initial margin posted at UK CCPs by location of clearing counterparty 25

% of total in 2017



Sources: BoE, Deutsche Bank Research

Brexit. Of the cleared positions, USD-linked derivatives are the largest segment, accounting for 40% of the total volume outstanding. This is followed by euro-denominated derivatives, which also have a considerable share (30%), and GBP-denominated derivatives (11%). At the same time, ECB estimates reveal a dominant, near-monopoly role for the UK in euro clearing: CCPs located in the country clear approximately 90% of all euro-denominated interest rate swaps that are centrally cleared.

After Brexit, the most likely among the options on the table is the relocation of euro clearing to the euro area. Relocation will lead to collateral moving to the euro area, but not necessarily the clearing jobs (CCPs have a low number of employees anyway). Potentially, there could be some employee relocation if banks (both EU and non-EU) were to move their derivatives trading desks to those euro-area countries where the CCPs are located. Nevertheless, the most important impact of relocation is the collateral that banks need to put up in the euro area for risk management of CCPs. In 2017, UK CCPs collected around GBP 98 bn in initial margin and GBP 7 bn in default fund contributions for clearing of OTC derivatives. Of this amount, 20% came from EEA counterparties. This implies that EEA counterparties posted some GBP 21 bn in collateral.

How much collateral might be shifted inside the EU if EEA counterparties were to move their euro clearing to the EU (non-EEA financial institutions will probably not be affected by such a requirement)? Outstanding volumes by currency may provide a lower bound. Assuming that – similar to the market as a whole – 30% of the EEA business is euro-denominated, GBP 6 bn of collateral will need to move. More realistic is a substantially higher share of euro transactions, with an upper bound possibly at about two-thirds of the EEA business. This would imply that GBP 14 bn of collateral will need to be transferred from the UK to the EU (where it may be ring-fenced and thus locked). So far, moving clearing of euro trades within the euro area only involves a one-off "collateral relocation" cost. More importantly, however, collateralisation amounts as a whole will be higher for market participants with the reduction in netting benefits. Academic literature estimates that loss of netting benefits may lead to 6-24% higher collateral needs for all counterparties.[16] This would imply additional, substantial costs of relocating euro clearing to the euro area of GBP 6-25 bn across the European market due to the loss of netting benefits. This may even be a conservative figure – higher-end estimates from industry associations point towards an increase in initial margin requirements of approximately EUR 30-40 bn, or 40-50%.

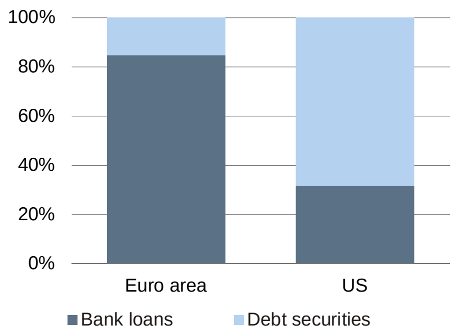
Capital Markets Union even more important after Brexit

Structural trends in European capital markets will largely be determined by the outcome of negotiations between the UK and the EU-27 on several fronts. In any case though, the withdrawal of the UK from the EU will challenge the strength and global competitiveness of European capital markets severely. Indeed, the fact that the most important European financial hub is leaving the single market is a setback for integration and will limit the capacity of European capital markets. As a result, integrated and well-functioning capital markets among the remaining EU members are becoming particularly relevant. The Capital Markets Union (CMU) is the flagship project of the European Commission to achieve this objective.[17]

In short, the CMU aims to 1) provide businesses with a greater choice of funding at lower costs, 2) offer a larger spectrum of alternatives for savers and investors

[16] See Duffie, Scheicher, Vuillemey (2015).
[17] See Kaya (2015) for a detailed analysis.

Bank versus capital markets funding of non-financial firms* 26



*2016 for euro area, 2017 for the US

Sources: Fed, Eurostat, Deutsche Bank Research

and 3) make the financial system more resilient to shocks in the banking sector. It is indeed the case that the funding of the real economy in the euro area is much more bank loan-reliant compared with economies of a similar scale (see chart 26). For example, funding through bond issuance is more than twice as important as bank loans for US non-financial corporations. By contrast, corporate loans are five and a half times the volume of corporate bonds outstanding in the euro area. Turning to equity markets, a similar picture is observable. Market capitalisation of listed companies, a commonly used proxy for stock market size, stood at around 160% of GDP in the US in 2017. Compared with this, stock markets in Germany (less than 60% of GDP) or the euro area (65%) have a small size as well. The securitisation market, which improves the efficiency of resource allocation by transforming illiquid loans into more liquid securities, is stunted in Europe, too. In 2017, outstanding securitisation amount was EUR 8 tr in the US – almost 7 times the EUR 1.2 tr in the EU. Alternative forms of funding also lag behind in Europe.[18] In 2016, alternative finance via crowdfunding or P2P lending platforms stood at around EUR 30 bn in the US and EUR 8 bn in Europe. The UK alone makes up about 70% of alternative finance volumes in Europe. All things considered, the depth and scale of EU capital markets are small even today relative to the size of the EU economy. Looking ahead, the picture is even bleaker. London plays an important role in this context. It is widely accepted that capital markets benefit from concentration and strong financial hubs. With Brexit, financial centres such as Frankfurt, Paris, Amsterdam, Luxembourg or Dublin will compete with each other (and with London) to take over some of London's capital markets business. Yet there is no clear "natural alternative". Therefore, there will not be a single winner, and Brexit will lead to fragmentation of (the already small) European capital markets.

The CMU will become even more important after Brexit and still has enormous potential. To date though, it has been disappointing by failing to deliver on its ambitious goals. For example, there has been no progress in harmonising corporate taxation or insolvency laws. The only real achievements are a revamped prospectus regulation and rules to support the securitisation market. The European Commission recently unveiled an action plan on financial technology, with a single set of rules for crowdfunding on EU level being one of the key steps. Similarly, the Commission proposed i) common definitions and standards for covered bonds, ii) a regulation and a directive to facilitate cross-border distribution of investment funds and iii) an EU-wide law on the cross-border assignment of claims. The outcome and actual impact of this ongoing work is yet to be seen. At the current slow pace, and with Brexit approaching, the CMU's ability to offer a timely solution is increasingly questionable.

Driven by Brexit, the review of the European Supervisory Agencies' powers has become one of the primary measures being discussed under the CMU. Indeed, strengthening supervision in the EU-27 is critical for a successful CMU after Brexit. With the loss of London, financial services in the EU will be provided by a network of smaller hubs instead of one single centre. Efficient supervision of this network is necessary to dampen the negative spillover effects of Brexit. Only this way can the EU-27 ensure that its financial markets remain open and competitive at a global level.

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[18] See Ziegler et al. (2017) for a detailed analysis.

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Brexit to drive further balkanisation

"Global banks are international in life, but national in death."

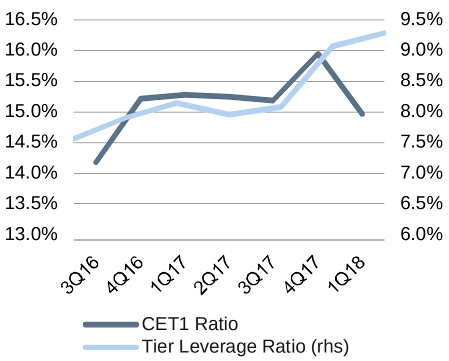
Sir Mervyn King, the former Governor of the Bank of England

Global cross-border banking 'balkanisation'

Since the Global Financial Crisis, there has been an increasing regulatory shift towards balkanisation of cross-border banking. This shift from an integrated to a subsidiarised model is clearly less efficient given fragmentation into multiple legal entities, trapping capital, funding and resources. There is also significant operational complexity in redesigning legal structures within banks.

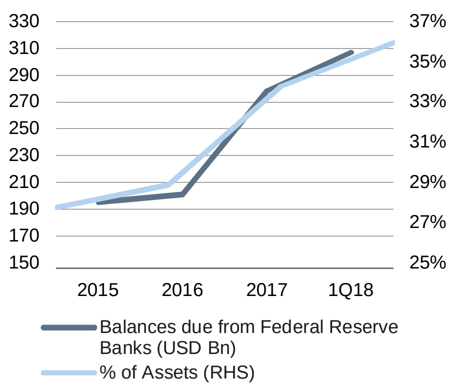
US FBO: From home to host regulation

Major FBOs CET1 ratio and Tier 1 leverage ratio progression, 3Q16-1Q18 27



Sources: Deutsche Bank, US FED

Major FBOs balances due from Federal Reserve Banks 28



Sources: Deutsche Bank, US FED

The post-crisis Dodd-Frank regulations required the Federal Reserve to impose enhanced prudential standards (EPS) on foreign banks, notably via the requirement for large US FBO or foreign bank organisations to create IHCs, or intermediate holding companies. This reflected growing concerns that foreign banks posed increasing systemic risks to the US – following the global financial crisis – but also to level the playing field between major foreign and US banks. These institutions are subject to enhanced risk management, liquidity, capital, stress-testing and resolution planning standards. This, in our view, drives significant 'trapped' capital and liquidity in their US operations. In 2017, major FBOs had c. 17% of Group capital invested in the US (ex-branches). Into the 2018 US CCAR, or stress-test, a number of FBOs have materially increased capitalisation or Tier 1 leverage ratios. At end-1Q18, FBOs had an average Tier 1 leverage ratio of 9.3% and a CET1 ratio of 15.0%. This represents a form of 'ring-fencing', which also extends to liquidity. Given foreign banks' often sub-scale US operations, returns remain sub-par with a 2017 adjusted RoTE of c. 5%. By way of example, HSBC noted a c. 1% underlying return in 2017, with a target >6% by 2020.

Europe's answer: Intermediate Parent Undertakings

On 23 November 2016, the European Commission released a proposal with a requirement for large non-EU banks (also known as 'third country' banks) to establish an intermediate parent undertaking in the EU, also referred to as an EU intermediate holding company (EU IHC). The rationale of the proposal was to improve supervision, resolution and financial stability. In practice, this was seen as a response to the US' IHC rules as there was already existing discretion for a member state's competent authority to deem that prudential supervision in a third country is not equivalent and to take necessary action, including the establishment of an EU holding company. Thus, it points towards further fragmentation and 'ring-fencing' of capital and liquidity.

Third country banking groups with two or more institutions in the EU will be within scope if they fall into one of 2 categories:

— G-SIBs are automatically in-scope of the EU IHC regime; and

— Other third country banking groups (i.e. non-G-SIB) are covered if the total value of their EU assets are > EUR 30 bn, whether from branches or subsidiaries

Furthermore, there are challenges in relation to structural separation requirements in countries like Japan, the US (between banks and brokerdealers) and, should the UK become a 'third country' post-Brexit (UK ring-fencing) as these would, in theory, require a twin-IPU structure. In practice, the latest proposal appears to offer a compromise where such a requirement would conflict with third country structural separation requirements.

Brexit – losing the 'passport'

Independently from IPU requirements, Brexit is likely to have a significant impact on the way the Europe cross-border wholesale banking business has operated thus far, with its centre of excellence in London. The historic strength of this business model has been predicated on the concept of a powerful, single-market EU 'passport'. The passport allows banks and investment firms authorised in one member state to provide cross-border services on a non-discriminatory basis in other member states, without the need for additional local authorisation. Around 1,000 EU-27 firms use a MiFID passport to do business in the UK while 2,250 UK entities use a MiFID passport to do business in EU-27 markets.

The alternative of regulatory equivalence has shortfalls

In theory, a new type of third country entity passport – based on the concept of regulatory equivalence and reciprocity – could partly mitigate the impact. In practice, there are a number of drawbacks:

— This and other similar regimes are conditioned on effective reciprocity and equivalence i.e. the UK will have to follow EU standards not just at the outset but also on an ongoing basis. The EU regulators would, at any time, be able to unilaterally amend or withdraw these regimes i.e. this may not provide a stable mechanism if UK and EU-27 take divergent approaches.

— There are limitations in scope e.g. deposit-taking, lending, credit and guarantee business, leasing, payment services, custody services and FX (where not connected to investment services).

— These third party regimes are, as yet, untested and there is likely to be significant uncertainty especially in the context that the UK is likely to be seen as a direct competitor. In other words, non-discrimination which is a key part of the EU passport cannot be assured under a third country regime.

— There may be a long period of uncertainty before the availability and scope of such regimes is confirmed, implying that banks may need to plan and invest ahead, in any case.

Thus, Brexit clearly adds another layer of uncertainty for third country banking groups as they assess the scope of their activities and EU business booked in the UK. Such a group will have to establish an EU subsidiary in one of the EU-27 member states, as will any UK-headquartered G-SIB or material banking group with two or more subsidiaries in the EU-27.

Of course, a transition period until end-2020 would afford more time for banks to prepare for Brexit although there are significant political hurdles to this and, unless legally binding, make it difficult for the banking industry to rely upon. The most significant issue remains contractual continuity namely that existing derivatives contracts and central counterparty (CCP) arrangements do not fall-off a cliff edge in March 2019, by allowing such contracts to be grandfathered, even if temporarily.

Alternatives for UK financial industry

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	Description of approach	Scope of approach i.e. which financial services it covers	Advantages of approach	Drawbacks of approach
EEA (European Economic Area) membership	UK seeks membership of EEA by acceding to EFTA Convention (agreement with its members Iceland, Liechtenstein, Norway and Switzerland) and the EEA (agreement with EU and its member states and EFTA countries, ex-Switzerland)	EU single market legislation for financial services applies across EEA	a) Applies for almost all financial services b) Passports continue to operate across single market	UK would need to implement new EU regulations albeit with no direct influence over EU law-making. Moreover, process of applying new regulation in EEA-EFTA states likely to be slow, at best.
ATA (Alternative Trade Agreements)	a) Become member of WTO GATS (General Agreement on Trade in Services) b) Enter into bilateral agreement like EU-Switzerland c) Enter into EU PTAs (Preferential Trade Agreements) like with Korea and Singapore	Depends on the individual agreement	In theory, can allow for cross-border access for financial services.	In practice, confers limited rights significantly short of an EU passport. Licensing requirements are likely to come with restrictions, whether regulatory or 'trapping' capital and liquidity.
'Third country' regimes	Based on regulatory equivalence and reciprocity	There regimes have narrow scope and do not cover all services e.g. access to market infra-structure, lending, deposit-taking, FX, payments, retail investment services	Provides access to EU market for investment services	The more limited scope is likely to fall short of the range of CIB services being provided by global banks. Like the EEA approach, UK would need to implement new EU regulations to maintain regulatory 'equivalence'. Ultimately, the EU would have the right to amend/withdraw this regime.

Source: Deutsche Bank

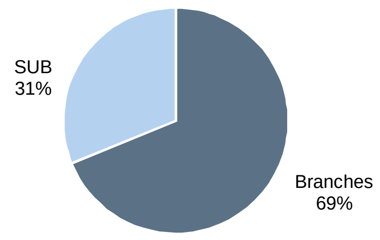
Branches vs. subsidiaries

While the creation of EU IPUs does not necessarily increase capital or liquidity requirements, in practice US IHC requirements have put upward pressure on overall Group funding and liquidity needs. In this respect, it is important to note that the ECB has gone one step further and asked for branches to also be included within IPUs to avoid regulatory arbitrage between subsidiaries and branches.[19] This would be consistent with the CUSO concept for FBOs which reflects the capital structure, risk profile, complexity, activities and size of the combined US operations.

At this point, it is worth noting that the European Parliament position provides the EBA a mandate to review the practices and treatment of branches and come up with recommendations to the European Commission. It is worth noting that the European Council did not share this position.

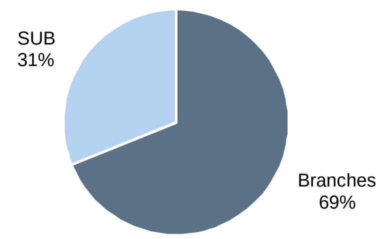
[19] See ECB (https://www.ecb.europa.eu/ecb/legal/pdf/en_con_2017_46_f_sign.pdf).

Non-EU banks exposure to the UK - c. EUR 2.9 tr in 2017 30



Sources: Deutsche Bank, ECB

EU banks exposure to the UK - c. EUR 1.5 tr in 2017 31



Sources: Deutsche Bank, ECB

Broadly-speaking, there are 3 groups of banks that could be impacted by the 'twin' headwinds of Brexit and EU IPU rules:

— Non-EU banks: At the end of 2017, non-EU banks had EUR 2 tr assets in UK branches versus 'only' EUR 0.9 tr assets in subsidiaries. By contrast, non-EU banks had EUR 0.4 tr assets in non-UK EU branches and less than EUR 0.6 tr booked in subsidiaries.

— EU banks had EUR 1 tr of assets in branches in the UK versus less than EUR 0.5 tr in subsidiaries. The question remains to what extent these need to be subsidiarised with the Bank of England (BoE) having signalled that it may allow smaller EU-27 IB operations to continue to run as branches.

— UK banks will have a 'third country' status and will be unable to serve EU markets from the UK. Based on BIS data, UK banks had USD 750 bn claims on EU-15 customers, including USD 310 bn to the non-bank private sector. However, it remains unclear how much of this business is conducted by local branches or subsidiaries and how much is cross-border from the UK which would be impacted by the loss of passporting rights.

Thus, some three-quarters of non-EU assets in the EU (EUR 3.9 tr in aggregate) are currently booked in the UK (EUR 2.9 tr) – namely the UK has been a 'hub' for EU and international operations – of which over two-thirds via branches (EUR 2 tr). Given a significant level of non-EU banks' exposures in the EU that are booked in UK branches, as opposed to subsidiaries, this could lead to additional capital requirements. We discuss this next.

Non-EU banks: EUR 35-45 bn capital needs

Based on a somewhat outdated BoE report (2011 data), 28% of foreign bank branch assets in the UK were domestic, while another 28% related to intra-group external assets. From this, the balance, or 44%, related to external or non-domestic assets; we assume that non-EU client business is mostly booked in the UK subsidiary. Based on EUR 2 tr of non-EU banks' UK branch assets, this represents c. EUR 880 bn of branch assets. Assuming an equity-to-assets requirement of c. 4-5% implies c. EUR 35-45 bn capital requirements. Given that subsidiaries are already capitalised, we do not assume additional capital needs although larger EU branches operating in the UK could potentially face some capital needs, depending on BoE requirements.

Of course, other important considerations include the credit rating of client-facing IPUs as well as large exposure limits.

Which non-EU banks could be impacted?

According to a Reuters article[20], a European Commission discussion paper from 1 September had made a preliminary estimate that 19 foreign banks[21] in the EU will need to set up EU IHCs. This group of banks operated 53 subsidiaries and 53 branches, with 35, or more than a third of the total were based in the UK. As the UK exits the EU, the UK will become a third country (yet to be defined) as far as the EU IHC requirement is concerned, even if the EU finds the UK regulatory regime to be equivalent to that of the EU.

[20] https://www.reuters.com/article/eu-banks-regulations/foreign-banks-face-new-eu-set-up-to-allow-more-scrutiny-idUSL8N1LL1RO

[21] The 19 banks mentioned were Bank of America, Citi, Credit Suisse, Goldman Sachs, JP Morgan, Morgan Stanley, Mitsubishi UFJ Financial Group, UBS, Bank of New York Mellon, Industrial and Commercial Bank of China, State Street, Sumitomo Mitsui Financial Group, Mizuho Financial Group, Wells Fargo, Bank of China Ltd, Agricultural Bank of China Ltd, China Construction Bank Corp, Nomura Holdings, and Royal Bank of Canada.

To date, banks have provided limited disclosure on their Brexit plans as follows (based on company statements):

— Barclays: The Board debated potential EU hubs for Barclays' European operations and decided to pursue expansion in Ireland where we have been operating for over 40 years and have an existing banking licence held by Barclays Bank Ireland. Specific matters considered by the Board included debating the feasibility of a significant expansion of Barclays Bank Ireland's operations, the transfer of capital and resources to Barclays Bank Ireland and assessing the progress being made with applications for the necessary regulatory licensing requirements with the relevant authorities.

— HSBC: Our objective in all scenarios is to continue to meet customers' needs and minimise disruption. This is likely to require adjustments to our cross-border banking model, with impacted business transferring from the UK to our existing subsidiary in France or other European subsidiaries, as appropriate. Given the tight time frame and the complexity of the negotiations, we have put in place a robust contingency plan. It is based on a scenario whereby the UK exits the EU in March 2019, without access to the single market or customs union, and without a transitional arrangement. When negotiation positions and timelines become clearer, we will update our contingency plan.

— JP Morgan: So far, it has turned out pretty much like we expected: It's complex and hard to figure out, and the long-term impact to the United Kingdom is still uncertain. Last year, we spoke about whether Brexit would cause the European Union to unravel or pull together – and it appears, particularly with the new leadership in France and the steady hand in Germany, that the countries might pull together. As for JPMorgan Chase, fortunately, we have the resources to be prepared for a hard Brexit, as we must be. It essentially means moving 300-400 jobs around Europe in the short term and modifying some of our legal entities to be able to conduct business the day after Brexit. What we do not know – and will not know until the negotiations are complete – is what the end state will look like. Although unlikely, there is the possibility that we could stay exactly as we are today. Unfortunately, the worst outcome would be much of London's financial center moving to the continent over time. We hope for all involved that this outcome will not be the case.

— UBS: In the absence of adequate transition relief being agreed and passed into law by the United Kingdom and the European Union, we currently expect to merge UBS Limited into UBS Europe SE, our German headquartered European bank, prior to the United Kingdom leaving the European Union on 29 March 2019. Clients and other counterparties of UBS Limited would become counterparties of UBS Europe SE through the planned merger of the two entities. However, we anticipate that clients of UBS Limited who can be serviced by UBS AG, London Branch would generally be migrated to UBS AG, London Branch prior to this merger. We further anticipate that some staff would be relocated as a result; the exact number of staff and roles would be determined in due course. The timing and extent of the actions we take may vary considerably depending on regulatory requirements and the nature of any transition or successor agreements with the EU.

Internal TLAC requirements will be an additional burden

In implementing the US TLAC standards, the Federal Reserve calibrated the internal TLAC requirement for IHCs of foreign-owned G-SIBs at the high end of the 75-90% FSB range. At the same time, it is worth noting that the BEAT provisions within US tax reform have also penalised foreign banks by 'catching-out' inter-affiliate interest payments. As such, some foreign banks have started to shift to a local funding model. In common with the final US TLAC rules, IPUs would also have 90% internal TLAC requirements. These requirements would be incremental to the 'going concern' capital requirements identified above.

Having said that, in a rather pragmatic recent speech[22], Fed Vice-Chair of Banking Supervision Randy Quarles appeared to offer a compromise highlighting the balance between flexibility for the home regulator in resolution (so that resources can be freed when and where they are needed) versus certainty for the host regulator (to satisfy local needs in stressful situations). He concluded by suggesting:

— We should consider whether the internal TLAC calibration for IHCs – at the top-end of the 75-90% scale of Group requirements – could be adjusted to reflect the practice of other regulators without adversely affecting resolvability and US financial stability.

— Alternatively, streamline the different elements of the current resolution regime, namely TLAC and long-term debt requirements.

— Thirdly, look to improve host supervisors' transparency into the global liquidity and capital positions of a G-SIB on both a consolidated and deconsolidated basis.

Brexit and capital markets

As well as the twin headwinds of Brexit and loss of passporting rights as well as EU IPU requirements, there are significant challenges for European banks' capital markets businesses. The most significant issue remains contractual continuity namely that existing derivatives contracts and central counterparty (CCP) arrangements do not fall-off a cliff edge in March 2019, by allowing such contracts to be grandfathered, even if temporarily.

— Derivatives: According to AFME, a quarter of uncleared OTC derivative contracts entered into by parties in both the United Kingdom and European Union could be affected. The gross notional amount outstanding of these affected contracts is around GPB 26 tr, of which GBP 12 tr matures after Q1 2019. Impairment to the ongoing servicing of these contracts – including lifecycle events such as novations and trade compressions – could disrupt efficient market functioning.

— Central clearing: Despite starting from the same point, it is unclear whether the EU would be willing to deem regulatory equivalence for UK CCPs. Without equivalence there would be a substantial increase in capital requirements for EU banks when facing UK CCPs based on higher risk-weighted assets. Moreover, it is also estimated that a significant amount of additional initial margin would need to be posted by banks. Conservative academic calculations point towards an increase of GBP 6-25 bn, higher-end estimates from industry associations towards approximately EUR 30-40 bn, an increase of 40-50%.

[22] "Trust Everyone, But Brand Your Cattle" (16 May, 2018), see https://www.federalreserve.gov/newsevents/speech/quarles20180516a.htm

The preferred option for industry participants is for existing cross-border contracts to be grandfathered and allowed to be serviced until maturity. Additionally, the industry would also look to forbearance on back-to-back booking although this does not seem to be a realistic longer-term outcome. In the event that contracts are not grandfathered, the industry would need to execute an unprecedented level of large scale novations with the approval of both individual counterparties and regulators. Such novations could also have material tax, accountancy, regulatory and other consequences for both banks and their counterparties.

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