

Stand out for the right reasons

Too big to share anymore?

*Shared services in
banks: balancing
efficiency with
resolvability*

February 2015



In response to the 'Too Big to Fail' issue the PRA and Bank of England recently released a discussion paper, 'Ensuring operational continuity in resolution' (DP1/14) that specifically focuses on critical operational services. In addition in the UK, the introduction of Ring Fencing has clear operational impact as clarified in the recent consultation paper (CP19/14). The key challenge for banks is how to deliver operational services balancing the efficiency benefits that shared services offer with the regulator's resolvability and ring fencing concerns.





Contents

<i>Overview</i>	<i>2</i>
<i>Resolution planning considering the options</i>	<i>6</i>
<i>The models to consider</i>	<i>8</i>
<i>Ring fencing considering the options</i>	<i>12</i>
<i>Connecting to market infrastructure</i>	<i>13</i>
<i>Contacts</i>	<i>14</i>



Overview

Being resolvable is a fundamental regulatory requirement

A fundamental rule of the PRA (Fundamental Rule 8) stipulates that *'A firm must prepare for resolution so, if the need arises, it can be resolved in an orderly manner with a minimum of disruption of critical services'*.

In DP1/14 the focus on operational continuity explicitly highlights the need to preserve services such as deposit taking and other functions critical to the economy and for those to operate effectively following bank failure.

Whilst there is heightened regulatory and political sensitivity around any services that impact directly on retail consumers it seems certain that banks will need to consider a wider set of business services. Both the FSB and Bank of England/PRA are also concerned about the wider disruption to the stability of markets caused by failure of firms. As has been demonstrated by the collapse of Lehman Brothers in 2008, failure of a significant Investment Bank causes widespread market disruption. The availability of key operational processes, systems and data is a fundamental building block for resolving any such firm in a controlled and effective manner, even when this takes the form of winding the business down.

For both Retail Banking and Investment Banking, fundamental concepts relating to resolvability are similar. In the case of Retail business the regulatory focus on maintaining service to the wider public also manifests itself in the Ring Fencing proposals for UK banks, which although codified in separate legislation are at their core driven by resolvability concerns.

Is the requirement at odds with shared service models?

The economic imperative to provide operational services in as effective manner as possible has long been a driver of bank's operating models. A variety of measures have been employed to drive efficiency, these include:

- Creation of shared services providing common services to all entities and divisions within a group
- Use of low-cost centres both on-shore and near shore
- Outsourcing of non-differentiating services to third party providers

So how are these well-established strategies in any way a barrier to resolvability? To grossly simplify the issue, resolvability has two key operational aspects:

- **Provision of service between entities.** Where one entity provides others with operational support services or technology, regulators require continuity of the critical services that are required both to run a bank as a going concern and to support the orderly resolution of a bank wind down. The issue that concerns them is that in a resolution scenario different entities within a group may have different management/administrators in different regimes. This may lead to the situation where significant services, technology capability or data become unavailable.

- **Sharing of services between Retail and Wholesale/ Investment Bank divisions.** The regulator's requirement that they can maintain 'economically critical' retail activity (e.g. payments and retail deposits) whilst allowing others to be wound down (e.g. derivatives trading) is seen to be compromised where both businesses share common services within the same entity. In resolution the regulator wants the ability to split away the critical activities and keep them operating (through a bridge bank or similar approach), which requires the ability to move the specific services required at very short notice.

The first of these issues is fundamental to resolution planning of global complex banking groups and the latter is a key point of the ring fencing proposals. In considering how to react, banks need to consider how they can balance regulatory concerns with the economic imperative to deliver services in a cost effective manner. The remainder of this document will consider the requirements in more detail and explores the options that banks should consider.





Understanding the regulatory landscape

Globally there is a raft of regulation that drives both the Recovery and Resolution planning and Structural Reform debate. As indicated in figure 1 below the two elements interact and both need to be considered with respect to developing plans.

Figure 1

Regulatory landscape

Making firms better able to fail safely

- Creation and regular update of recovery plans
- Provision of information to resolution authorities to facilitate orderly ('safe') failure
- Compliance with minimum loss absorbing capacity requirements (i.e. capital and bail-inable debt) to facilitate resolution
- Restructuring of creditor hierarchies to give preference to insured and eligible deposits

**Recovery
and
resolution
planning**

Carving out critical activities, non-critical activities or both

- Vickers (UK): ring-fencing of retail and small corporate deposits and payments activity from global and investment banking
- Volcker (US): prohibition of proprietary trading and significant investments in hedge funds and private equity
- Liikanen (EU): separation of trading from other activities and prohibition of proprietary trading and significant investments in hedge funds and private equity

**Structural
reform**

Key references

- EU Bank Recovery and Resolution Directive (BRRD)
- EBA publications on BRRD Technical Standards (various)
- PRA Supervisory Statements on Recovery Planning (SS18/13) and Resolution Planning (SS19/13)
- The Bank of England approach to resolution (October 2014)
- PRA Discussion Paper on Operational Continuity (DP1/14)
- PRA Consultation Paper on Depositor Protection (CP20/14)

Key references

- UK Banking Reform Act
- UK Ring-fenced Bodies and Core Activities Order and Excluded Activities and Prohibitions Order
- PRA Consultation Paper on Ring-Fencing Implementation (CP19/14)
- Draft EU Regulation on Structural Reform
- Title VII of US Dodd-Frank Act

For the purposes of focus we will use the UK regulations to illustrate requirements, which from a principles perspective provides a good indication of the key concerns of other regulators globally.

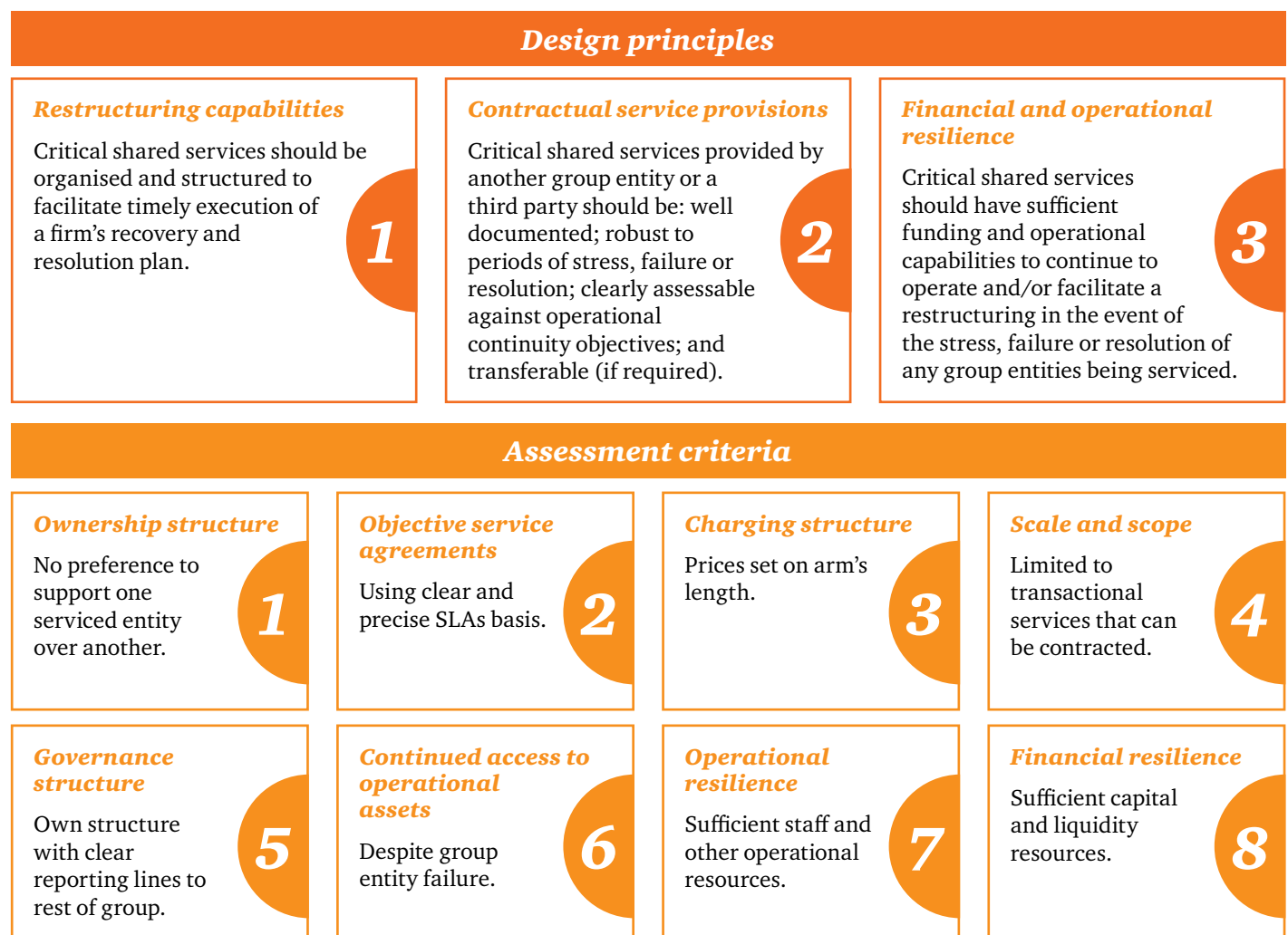


Resolution planning – Operational continuity

The publication of DP1/14 in October 2014 provides high level guidance on which to base Operating Model design with respect to provision of critical operational services. This guidance establishes a basis for considering design without providing a prescriptive structure on banks. There are three design principles and eight assessment criteria defined as illustrated in Figure 2 below.

Figure 2

DP1/14: Operational continuity in resolution design principles and assessment criteria



Applying the principles and assessment criteria described above in different banks is likely to result in different operating model structures being established. At this stage there remains flexibility for banks to find models that achieve the required outcomes rather than being forced into a 'one size fits all' approach. Indeed DP 1/14 explicitly acknowledges that allowing firms to meet the criteria through their preferred structure will help reduce the cost of implementation.



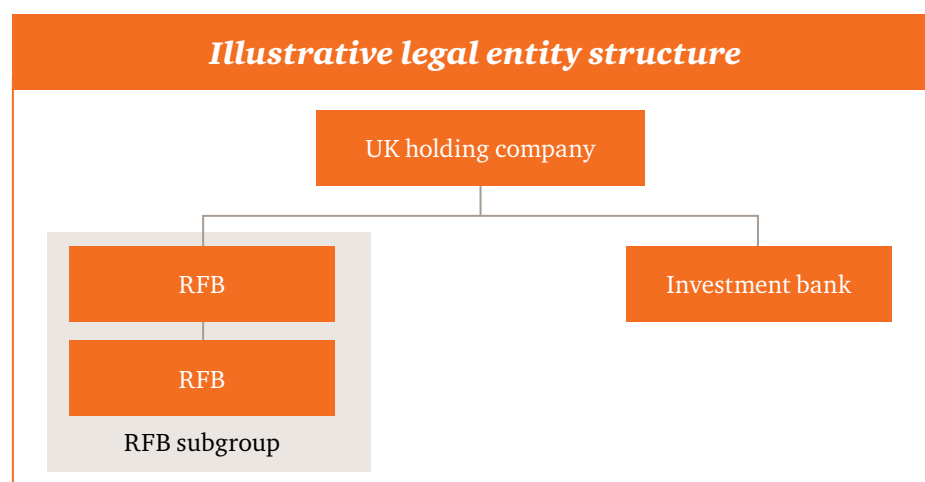
Structural reform – Ring fencing

The publication of the consultation paper CP19/14 in October 2014 provides more detail on how ring-fenced bank (RFB) and non ring-fenced bank (NRFB) activity needs to be separated. This is summarised in Figure 3 below.

CP19/14: Ring-fencing legal entity structure

- Ring-fenced banks (RFBs) are legal entities (individually or collectively within a banking group) that have accepted more than £25bn in (insured) deposits from European retail or small corporate customers.
- RFBs are prohibited from conducting certain activities – largely, international and investment banking activities.
- CP19/14 sets out proposed rules for the ‘height’ of the ring-fence to be erected between RFBs and other parts of banking groups:
 - RFBs cannot own or invest in, or be owned or invested in by, entities that conduct activities which the RFB itself would be prohibited from carrying out. Such structures could jeopardise the economic and operational independence of RFBs and reduce the flexibility of resolution authorities in the event that the RFB or another part of the group fails.
 - Instead, banks are expected to operate a ‘sibling structure’ with sister operating companies controlled by a common parent UK holding company.
 - Banks can apply to create a ‘subgroup’ of entities conducting activities permitted in a RFB – which might be operationally efficient for a banking group incorporating multiple RFBs.

Figure 3



In terms of operational continuity CP19/14 prohibits an RFB from receiving critical services that it relies upon to perform its core activities from the NRFB. The services include:

- IT and Technology Services
- Data Centres
- Facilities (e.g. Property Management)
- Back Office Services.
- An RFB may either provide these services itself (or within the RFB sub-group) or from a dedicated intra-group service company on an ‘arms-length’ basis with robust contractual arrangements in place

Resolution planning considering the options

Assessing the operational impact

Most banks use shared services to a greater or lesser degree. This will vary from utilisation of staff or technology owned by one entity to process the transactions of others through to centralised ‘one bank’ shared services.

Globally regulators remain concerned that in the event of a failure, legal entities in different jurisdictions may no longer be able, or incentivised to, continue delivering services to each other. This may lead to disruption of service for an on-going entity or present a barrier to the orderly wind-down of an entity that has failed.

The potential for this problem to arise is different in the two widely recognised resolution scenarios; Single Point of Entry (SPE) and Multiple Point of Entry (MPE):

- SPE involves the application of resolution powers at the top holding or parent company by the lead global resolution authority. The assets and operations of particular subsidiaries are preserved on a going concern basis, avoiding the need to apply resolution at a lower level within the group. Thus the group is resolved as a whole although it may be restructured with some subsidiaries of businesses sold or wound down.

- MPE involves the application of resolution powers by two or more resolution authorities to multiple parts of the group including strategies in which a group is broken up into two or more separate parts. While the resolution of these parts would be under the direction or control of two or more national authorities, the home authority should play a role in ensuring that the resolution is coordinated, given the complexities and potential interdependencies (e.g., to ensure that all relevant authorities and third parties are informed of proposed actions).

In the two scenarios it should be clear that the problem of operational service dependencies is greater in the MPE scenario. In the SPE scenario the holistic top down approach would provide a high likelihood that service continuity is maintained. In particular where the services are provided from the most significant entity within the group (potentially including its branches) to other entities, then the services will remain available so long as the ‘mother ship’ survives.

The problem with reliance on SPE however is that there are real practical barriers to achieving it given different regulatory regimes globally, national political concerns, different insolvency laws in different countries and the absence of a formally defined cooperation framework amongst resolution authorities.

Given the practical barriers to achieving SPE, there may be the need to fall back on MPE. This therefore continues to drive dialogue around how operational services can be provided and places pressure on shared service models. At the same time the industry highlights that the costs associated with the operational balkanisation of banks comes with a significant price that will act as a drag on the wider economy (IIF Addressing Priority Issues in Cross-Border Resolution (May 2011)).

When considering structural changes of this nature banks are concerned not only with the on-going operational costs of business as usual (BAU) but also with the potential for considerable implementation costs associated with undertaking significant structural change. The profound nature of the changes and the associated cost and disruption to a bank means that these changes will not be undertaken lightly. The following section looks at five high level operational models and discusses some of the key resolution issues to consider for each.



The models to consider

The way in which complex banking groups provide shared operational services has any number of variations. These can be simplified and distilled down to five core models:

1. The Silo Model

Entity 1	Entity 2	Entity 3
Trading	Trading	Trading
Clearing & Settlement	Clearing & Settlement	Clearing & Settlement
Payments	Payments	Payments
Cash Management	Cash Management	Cash Management

- Each entity is self-contained and owns and operates its own processes
- Flexibility is high within each entity
- Cost is high and shared efficiency is sub-optimal

Description

Under the Silo Model, each of the bank's entities is self-sufficient with respect to the services it requires.

This has the disadvantage of increased cost as economies of scale are lost and changes required to a particular function must be implemented in multiple entities.

This model will only be appropriate where each entity has a distinct set of requirements and limited commonality.

2. Informally Evolved

Entity 1	Entity 2	Entity 3
Trading	Trading	Trading
Clearing & Settlement	Clearing & Settlement	
Payments	Payments	
Cash Management		

- Some functions are shared across two or more entities
- Larger entities (or branches) provide support to local entities nationally or regionally
- Have evolved (rather than been designed) through growth, acquisition and business developments

Description

This model generally results from a bank that has grown both organically and through acquisition. Services are shared as the result of ad-hoc initiatives within specific functions or business lines.

There is limited rationale for sharing of services, which have built up over time and a lack of formality around SLAs and charging arrangements.

3. Centre of Excellence (CoE)

Entity 1	Entity 2	Entity 3
Trading	Trading	Trading
Clearing & Settlement	Clearing & Settlement	Clearing & Settlement
Payments		
Cash Management		

- One business aligned entity is the centre of excellence for specific services and provides these services to all other entities in the group
- Formal role with more formal arrangements
- CoE will generally have been the most significant (i.e. highest volume) entity

Description

This model tends to arise where one business unit has sufficient volume and expertise that they can formally provide services to the rest of the group.

An example seen in some groups is where payment services embedded within the retail bank are provided as a service to the other business lines (who potentially add a thin layer of functionality for the specifics of their own business).

The impact of resolution on the service model

The desire for self-sufficiency could be interpreted as requiring all services to be provided within each entity in geographic or business division led silos. The operational balkanisation of globally complex banks is, however not sustainable.

DP1/14 goes to some lengths to describe the circumstances under which shared

services can continue to be provided and it is extremely unlikely that any banks that already have shared service efficiencies would move to this model.

Where companies are already vertically aligned by entity (through reasons of geographic alignment or non-organic growth) there may be less perceived pressure for change posed by resolution. Where each entity owns the critical services it consumes the majority of the DP1/14 criteria do not directly apply, as

the model seems to fully fulfil Assessment Criteria 6 regarding ownership and continued access to services.

In this case resolution becomes more of a consideration when reviewing potential options to change, which is likely to happen to address inherent cost inefficiency of the model in a world where margins are reduced and capital more expensive.

The impact of resolution on the service model

Service models that have grown up and evolved over time tend to create an organisational structure with a variety of formal and informal arrangements. These models would pose the greatest challenge to resolution, as evidence from the crisis indicates, where in some instances:

- Shared service units lost staff and capability without the role that they played supporting other entities being understood.
- Confusion existed between individual entities as to ownership of applications, rights to use applications and obligations to support applications.
- Confusion and delay related to rights to obtain data and restrictions over sharing data.

DP1/14 Assessment criterion 2 – objective service agreements and criterion 3 – charging structure clearly highlight that this model is not acceptable. There is also the risk that this model does not meet current PRA regulations as the existing SYSC8 outsourcing rules should already be applied to intragroup arrangements.

The impact of resolution on the service model

CoE structures occur where one client-facing entity or business division takes responsibility for providing services to the rest of the group. Usually these are relatively formal arrangements.

Resolution considerations include:

- Level of detail, granularity and robustness of the SLA. Assessment Criterion 2 in DP1/14 highlights the additional requirement that 'to the extent possible' arrangements should remain in force and enforceable even in the event of a resolution event in one or more jurisdiction. Additionally Criterion 4 defines the services that can be shared in this way as needing to be transactional and able to be represented in contractual terms.

- The basis under which services are charged. Criterion 3 defines an 'arms length' commercial basis. Whilst this concept is not further defined in DP1/14 the principle is that it could provide the basis for a future external charging arrangement if the current arrangements need to be modified. It should be noted that 'arms length' is a well-established concept in the world of transfer pricing.
- A key issue for the CoE approach could be Criterion 1 which highlights potential conflicts in the ownership structure, whereby one entity within a group may be favoured (with respect to service provision) over others. A question that remains to be clarified is whether commercial logic can be used to support the resilience of the CoE model. This considers whether an

entity that can continue to pay (based on liquidity and pricing arrangements) a fair commercial price (based on arms-length agreements) to the CoE would expect that service continuity through it being commercially beneficial to the CoE entity (or its administrator). A complicating factor for this may be any services provided to other group firms that the CoE does not need for its own core business, or would not be required to maintain in a resolution scenario.

- Operational resilience also needs to be considered (Criterion 7). Firms need to look at what changes may be required in a resolution scenario and may for instance look at such aspects as barriers that arise once entities are not part of the same group such as data secrecy or privacy considerations.

4. Service Company

Entity 1	Entity 2	Entity 3
Trading	Trading	Trading
Clearing & Settlement	Clearing & Settlement	Clearing & Settlement
Entity 4		
Payments		
Cash Management		

- Service Company is a separate legal entity structure providing services to the other entities within the group
- Requires formal SLA and arm's length charging arrangements

Description

The Service Company differs from the Centre of Excellence in that the service centre is not embedded within a client facing business but provides an operational service to multiple different business entities from a separate legal entity.

Service Company models are receiving a good deal of attention and have for some been grasped as the 'silver bullet' solution to resolution and sharing.

5. Outsourced

Entity 1	Entity 2	Entity 3
Trading	Trading	Trading
Clearing & Settlement	Clearing & Settlement	Clearing & Settlement
Third Party		
Payments		
Cash Management		

- Service is outsourced to a third party firm
- Requires formal contracts and governance
- Already subjected to specific rules (SYSC 8) that govern outsourcing arrangements

Description

In the Outsourced model, the shared service is provided by a third party outsource service provider.

Cost pressures on banks as they consider how to react to structuring concerns will drive many to consider outsourcing.

There is an opportunity for banks that have significant capability to consider providing services and for infrastructure providers to consider moving upstream.

The impact of resolution on the service model

Service Companies provide services across multiple divisions and entities. The legal entity that provides the services is independently governed and capitalised. As the service company is a separate entity, it can continue to provide services to different parts of the group as long as it has customers to pay it and sufficient capital and liquidity to fund it.

One attraction of the Service Company model is that as a separate entity the formality of arrangements will provide greater clarity on services that it provides. However, the bank failures that followed the financial crisis highlight that the model is not without challenges in areas such as working capital requirements and funding.

In some instances, service companies failed where staff could not be paid and had left before administrators were able to secure the services that their banks had relied upon.

As well as many of the same issues as for CoE other key questions to address for a service company include:

- Financial Resilience (Criterion 8). The funding of the service company is key both from a capital and liquidity perspective. The PRA have laid out guidelines in DP1/14 that the company would require capital of 25% of annual fixed overheads and liquidity of 50% of annual fixed overheads. The resources are intended to cover the stress of: loss of revenue from one or more entity in the group during resolution;

reduction of service demand in wind-down; employee retention or redundancy payments; Wind-down costs; Write down of assets.

- Ownership Structure (Criterion 6): Essentially the shared service needs to be able to retain access to shared assets, without concerns that resolution actions or disputes between entities arising from resolution will restrict access or cause conflict of interest.
- Governance Structure (Criterion 5): This topic covers the need for the service entity to have its own governance structure with clearly defined reporting-lines that avoid reliance on senior staff who may be wound down or may not be part of the same group post resolution.

The impact of resolution on the service model

Shared services may be provided by third party outsource providers.

The formality of these arrangements is expected to be higher. However, recently many banks have identified the need to make outsourcing governance more robust and to enhance their contractual and service arrangements.

A number of further considerations do exist:

- How robust is the Outsource provider and would it survive the loss of a major revenue provider in the event of failure. Depending upon the criticality and replicability of a service, regulators may look to understand the capital and liquidity position of the outsource provider.

- SYSC 4 Organisation and SYSC 8 Outsourcing rules already apply (DP1/14 refers to this). This presents the opportunity for synergies between RRP projects and any SYSC8 work being undertaken around internal and external outsourcing arrangements.
- Banks should expect that outsourcing of critical services to third-parties will be held to the same standards as those for the internal service company. Regulators will be concerned and may request stress scenario planning if critical functions are provided by third party firms that cannot easily be replaced in the event of financial difficulties at the outsource provider. They will also require robust legal

arrangements that contain continuity of service clauses; potential step in rights and other legal reinforcements to the continuation of provision.

Ring fencing considering the options

Assessing the operational impact

For major UK banks, the impact of the ring fencing proposals laid out in CP19/14 is more pressing and potentially of higher impact than resolution planning.

In summary the proposals for operational services are clear in that the Ring Fenced Bank (RFB) cannot receive critical operational services from the Non Ring Fenced Bank (NRFB) or the holding company. It may only receive those services that it relies upon to perform its core activities from:

- Self-provision
- Another entity within the RFB subgroup
- A dedicated intra group service entity

What are the options?

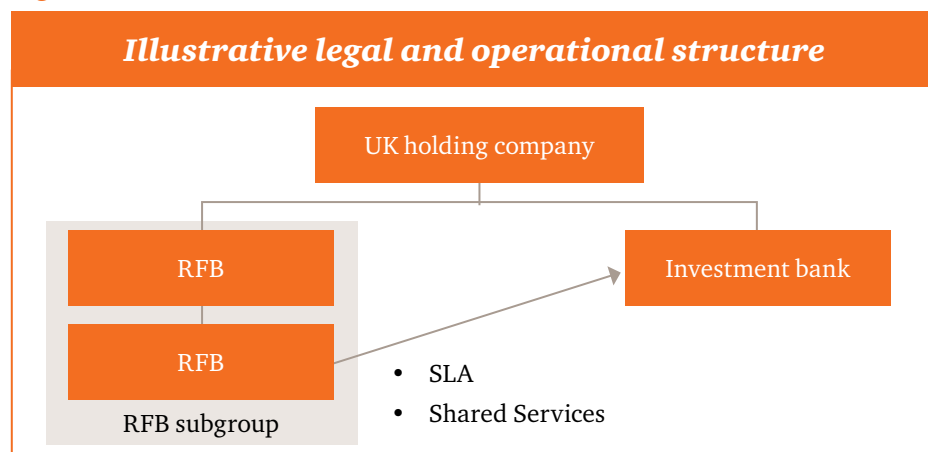
The options to consider are relatively limited and simplistically can be defined as follows:

Option 1 – The fat ring fence

As illustrated in figure 4 one option would be to place the (majority of) operational services in the RFB. This would include all of the services on which the RFB relies. Additionally it could contain services on which the NRFB relies and these would be provided by the RFB, controlled by SLAs and paid for on an arm's length basis.

The fat ring fence structure would make most sense in any banking group where the material majority of the business was in the RFB, with a relatively light NRFB. Typically services such as data centres, support services such as HR and procurement and facilities can readily be shared. The Investment Bank (IB) specialist services can be provided within the IB.

Figure 4

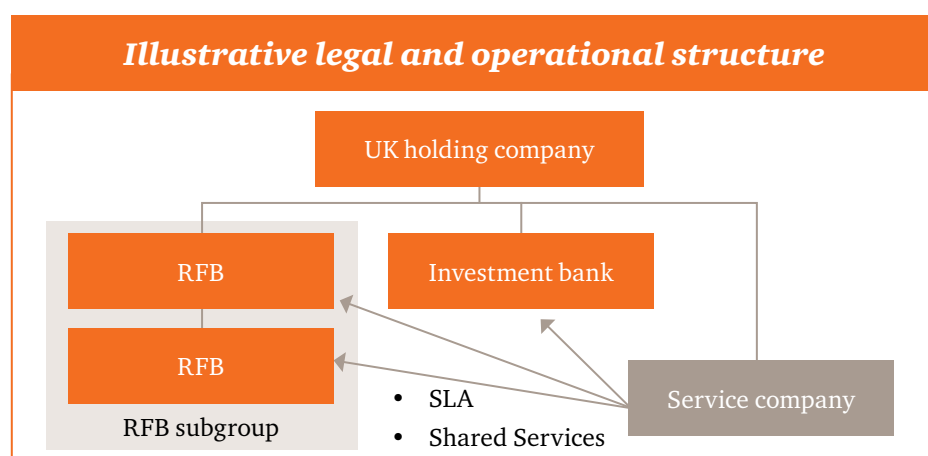


Option 2 – The Service Company

As illustrated in figure 5 the alternative option is to create a separate and robust service company that is independent of both RFB and NRFB and which provides services to both. As noted throughout this document SLAs will need to be robust, must withstand failures within the group structure and must be paid-for on an arm's length basis.

The holding company structure makes most sense where a more balanced business model exists with a substantial and complex NRFB alongside a comparable scale RFB. The Service Company model would now allow more complex sharing arrangements – for example load balancing server capacity between firms to accommodate anti-cyclical demand.

Figure 5



In both these cases the 'right' answer will not be based solely on the requirements of ring fencing. RRP considerations will also be taken into account, not just for the UK but also to address global resolvability concerns. Both resolution and ring fencing requirements thus become constraints around which the optimal operating model that will meet the bank's strategy needs to evolve.

Connecting to market infrastructure

Services that need to be inside a bank

Connecting to Financial Markets Infrastructure provides a specific challenge to how shared service models can operate. Connecting to services such as payments systems and clearing houses (CCPs) is generally restricted to financial institutions. It would therefore not be possible for a non-bank service company to provide this activity as a service to the group.

The service company could provide technology and operational support and process transactions on behalf of the bank entity that is a member. However banks will also need to work-out how to optimise memberships and avoid duplication where possible. Duplicating cost of membership will not be significant for a major institution. The key issues are funding the intra-day liquidity and providing the ongoing operational support.

The ability to share services that only a regulated bank can provide is an additional layer of complexity to consider when settling on the operating model design.

In conclusion

What are the next steps?

The PRA sought responses to the discussion paper by 6 January 2015. Depending on the outcome of the consultation and the ongoing work of the FSB, the PRA may publish a consultation paper with draft rules in 2015.

What should banks do now?

The operating model choices that are facing banks have the potential to result in multi-year programs of change costing hundreds of millions and causing significant disruption for staff. These are not decisions that can be taken lightly, or where material doubts exist that the change is the right one. At this point most global banks lack the certainty that regulatory clarity exists.

At the same time, given the scale of change involved, banks are under pressure to act and the luxury of a 'wait and see' approach does not exist.

For UK banks the countdown to ring fencing is underway and banks need to make the decisions now. As discussed the ring fencing options need to be

aligned to resolution strategy so that the change delivered satisfies the demands of both elements as far as possible.

Banks need to:

- Understand their options and consider the benefits and weaknesses of each
- Develop a vision of the preferred strategies and work proactively with regulators to determine how these will meet requirements
- Gain real transparency on services provided and put in place a program to develop really robust SLA and service management
- Link to SYSC8 requirements to ensure consistency and synergy
- Review existing plans for changes to Operating Model (driven by efficiency or other reasons) and determine how the resolvability agenda impacts these
- Factor resolvability considerations into all future Operating Model design and change

'Wait and see' is no longer an option. Despite lack of certainty banks need to find a path, engage with regulators and move forward. With the right preparation banks may get to the point where they are **not** 'Too big to share anymore'.

Stand out for the right reasons



Alert



Protect



Adapt



Repair

Financial services risk and regulation is an opportunity.

At PwC we work with you to embrace change in a way that delivers value to your customers, and long-term growth and profits for your business. With our help, you won't just avoid potential problems, you'll also get ahead.

We support you in four key areas.

- By alerting you to financial and regulatory risks we help you to understand the position you're in and how to comply with regulations. You can then turn risk and regulation to your advantage.
- We help you to prepare for issues such as technical difficulties, operational failure or cyber attacks. By working with you to develop the systems and processes that protect your business you can become more resilient, reliable and effective.

- Adapting your business to achieve cultural change is right for your customers and your people. By equipping you with the insights and tools you need, we will help transform your business and turn uncertainty into opportunity.
- Even the best processes or products sometimes fail. We help repair any damage swiftly to build even greater levels of trust and confidence.

Working with PwC brings a clearer understanding of where you are and where you want to be. Together, we can develop transparent and compelling business strategies for customers, regulators, employees and stakeholders. By adding our skills, experience and expertise to yours, your business can stand out for the right reasons.

Contacts



Steve Webb

Partner

T: +44 (0)7889 645316

E: steve.webb@uk.pwc.com



Duncan McNab

Partner

T: +44 (0)7710 058280

E: duncan.mcnab@uk.pwc.com



Roger Braybrooks

Director

T: +44 (0)7740 241086

E: roger.braybrooks@uk.pwc.com



James Chrispin

Director

T: +44 (0)7711 109942

E: james.chrispin@uk.pwc.com



Michael Snapes

Senior Manager

T: +44 (0)20 7212 3166

E: michael.j.snapes@uk.pwc.com



Hortense Huez

Senior Manager

T: +44 (0)7738 844840

E: hortense.huez@uk.pwc.com

www.pwc.co.uk/fsrr

This publication has been prepared for general guidance on matters of interest only, and does not constitute professional advice. You should not act upon the information contained in this publication without obtaining specific professional advice. No representation or warranty (express or implied) is given as to the accuracy or completeness of the information contained in this publication, and, to the extent permitted by law, PricewaterhouseCoopers LLP, its members, employees and agents do not accept or assume any liability, responsibility or duty of care for any consequences of you or anyone else acting, or refraining to act, in reliance on the information contained in this publication or for any decision based on it.

© 2015 PricewaterhouseCoopers LLP. All rights reserved. In this document, "PwC" refers to the UK member firm, and may sometimes refer to the PwC network. Each member firm is a separate legal entity. Please see www.pwc.com/structure for further details.

150203-095104-LK-OS