

16 July 2013

**Recovery and Resolution Planning for Systemically Important
Financial Institutions:**

**Guidance on Identification of Critical Functions and
Critical Shared Services**

16 July 2013

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Introduction

This Guidance should assist home and host authorities in meeting the recovery and resolution planning requirements under the *FSB Key Attributes of Effective Resolution Regimes for Financial Institutions* ('Key Attributes' or KAs).¹ It complements the Guidance set out in Annex II (*Resolvability Assessments*) and Annex III (*Essential Elements of Recovery and Resolution Plans*) of the *Key Attributes*.

A key component of recovery and resolution planning is a strategic analysis that identifies the firm's essential and systemically important (or "critical") functions (see Section 2.3, Annex III). A strategic analysis of the firm's essential and systemically important functions is necessary for resolution planning and for assessing resolvability. It should help ensure that the resolution strategy and operational plan include appropriate actions that help maintain continuity of these functions while avoiding unnecessary destruction of value and minimising, where possible, the costs of resolution to home and host authorities and losses to creditors.

This guidance should assist authorities and CMGs in their evaluation of the criticality of functions that firms provide to the real economy and financial markets. It aims to promote a common understanding of which functions and shared services are critical by providing shared definitions and evaluation criteria.

The guidance covers the functions and services provided by banks and therefore does not cover functions provided by insurance firms or financial market infrastructures (FMIs), though some elements of this guidance paper may be relevant to other sectors.²

Within banks, the guidance focuses primarily on global systemically important banks (G-SIBs).³ However, many aspects will also be relevant for domestic systemically important banks (D-SIBs).

Criticality

The designation of a function as critical does not imply that the function and all related liabilities will be protected in a resolution. Rather, the designation is meant to assist authorities in developing resolution strategies that minimise systemic disruption and preserve

¹ http://www.financialstabilityboard.org/publications/r_111104cc.pdf

² There is some relationship with the assessment methodology by the Basel Committee on Banking Supervision (BCBS) for global systemically important banks: see BCBS (2011), *Global Systemically Important Banks: Assessment Methodology and the Additional Loss Absorbency Requirement*, <http://www.bis.org/publ/bcbs207.pdf>. However, the BCBS identified proxies to determine systemic relevance and to calculate higher loss absorbency requirements. While those proxies measure some of the activities of a firm, they neither identify specific critical functions directly, nor cover all activities that might be seen as critical from the perspective of recovery and resolution planning, which requires a more granular view.

³ The FSB published [an initial list of G-SIFIs](#) on 4 November 2011 and [an updated list](#) on 1 November 2012 which, in both cases, contained only G-SIBs. The group of G-SIFIs will be updated annually and published by the FSB each November.

value. For example, the designation of a particular function as critical should not lead market participants of that function to rely on it more than before on the assumption that the function will be maintained under all circumstances and that they will be immune from losses if the firm providing the function fails.

Criticality is not a binary concept. There is a spectrum of criticality. A resolution strategy will need to take into account the materiality and the potential impact that the failure to provide a certain function could have on the financial system and the broader economy. A firm may provide certain economic functions that are so elemental that they will need to be preserved in all circumstances. Resolution strategies therefore need to include fall-back options that identify those most elemental functions and the conditions that need to be in place to ensure continuity of those functions in all resolution scenarios.⁴

The Annex to the guidance provides indicative lists of functions that could exhibit some degree of criticality, but is not intended to be exhaustive. Authorities need to undertake their own assessment for each firm that takes into account market- and firm-specific aspects and the characteristics of a country's financial system, its economic and competitive landscape and the range of functions firms provide. As a result, the functions and services suggested in this guidance may be, but are not necessarily, critical for different firms in different markets. Similarly, there are functions not included in this guidance that could be critical in particular markets. The firm-specific lists of critical functions will be one important input into the resolution planning process and the resolvability assessments.

Firms may have a different view of what services or functions they consider "critical", for example, by prioritising a firm's franchise value or profitable business lines. While such considerations can play a role in recovery and may be relevant in more long-term restructuring, they are not the main focus of resolution planning which is focused on promoting financial stability and reducing negative externalities.

⁴ See [FSB Guidance on Developing Effective Resolution Strategies](#).

1. Taxonomy

This Guidance proposes a two-part definition of “critical”, based on a distinction between “critical functions” and “critical shared services”:

- **Critical functions** are activities performed for third parties where failure would lead to the disruption of services that are vital for the functioning of the real economy and for financial stability due to the banking group’s size or market share, external and internal interconnectedness, complexity and cross-border activities. Examples include payments, custody, certain lending and deposit-taking activities in the commercial or retail sector, clearing and settling, limited segments of wholesale markets, market-making in certain securities and highly concentrated specialist lending sectors.
- **Critical shared services** are activities performed within the firm or outsourced to third parties where failure would lead to the inability to perform critical functions and, therefore, to the disruption of functions vital for the functioning of the real economy or for financial stability. Examples include the provision of information technology given the dependency of core banking processes on IT and other services such as facility management and administrative services.

2. Framework for critical functions

2.1 Definition

For the purposes of this Guidance, a critical function has the following two elements:

- (i) it is provided by a firm (G-SIFI) to third parties not affiliated to the firm; and
- (ii) the sudden failure to provide that function would be likely to have a material impact on the third parties, give rise to contagion or undermine the general confidence of market participants due to:
 - the systemic relevance of the function for the third parties; and
 - the systemic relevance of the G-SIFI in providing the function.

The absence of any one of these elements indicates that a function is not critical. For example, the failure of some services provided by a financial firm will not have a substantial impact on customers, counterparties, markets or the economy. Services that do not have a significant impact on economic or financial stability or that can be substituted with a minimum of time and cost should not be considered critical. Similarly, the impact of withdrawal of certain activities might only be felt some time after the withdrawal has occurred. This is particularly true for those activities that are not transaction-intensive, such as long-term lending. The criticality of such functions depends greatly on the ability of the market to substitute the role of the failing banking group within a reasonable timeframe.

2.2 Determination of critical functions

Applying the definition given above, the criticality of a function can be assessed in a three-step process:

- (i) analysis of the impact of the sudden discontinuance of the function (“impact assessment”);
- (ii) evaluation of the market for that function (“supply side analysis”);
- (iii) assessment of the impact of a failure of a specific G-SIFI that performs that function (“firm-specific test”).

Certain aspects of the assessment are highly market-specific and require in-depth knowledge of the specific circumstances in which a critical function is provided. In particular, the criticality of a function that a firm provides can vary across countries. Home supervisors should communicate with relevant host authorities so that the assessment considers all relevant jurisdictions and markets where a G-SIFI is active. The assessments should take into account those functions and services deemed to be critical in host jurisdictions.

Step 1: Assessing impact of failure (“Impact assessment”)

The assessment of the criticality of a function is always driven by the impact of a failure on external parties, i.e., the reliance of third parties on the continuing provision of a function. A function is critical if its disruption is likely to have a material negative impact on a significant number of third parties. In addition to the direct impact on third parties that rely on the function, systemic aspects must also be considered, including contagion effects and the loss of general market confidence by market participants. These effects are likely to differ depending on the conditions in the financial system at the time a failure is occurring. Where the disruption of a function does not have systemic effects and where the negative impact – even if significant in scale – is limited to a small number of counterparties, the function should generally not be considered as critical.

The failure of a firm with significant activity in certain asset markets might have an impact on the liquidity of the relevant market segment. A sudden decline in liquidity is expected to have major effects on asset prices, increasing market risk and therefore weakening the solvency of even those market participants that are not directly exposed to the failing firm. A function provided by a firm in a particular market should therefore be regarded as critical when its failure is likely to affect unrelated counterparties that are exposed to the same asset market. Of course, criticality would only apply to markets to which counterparties are highly exposed, so that their liquidity and solvency is expected to significantly deteriorate in the case of market failure.

The following questions suggest factors to consider when assessing the criticality of a function:

- What is the nature and extent of this activity?
 - Products, services, means of delivery, role (for example, in payment and settlement systems)?
 - Global, national, regional?
- What is the nature of the customers and stakeholders:
 - corporate, interbank, retail, non-bank financial services?
 - other sectors of the real economy (e.g., housing)?

- What impact would disruption of the function have on **markets and infrastructure**?
 - Impact on other financial services firms and markets?
 - Speed at which disruption would cause that impact?
- What impact would disruption of service have on **customers** (i.e., how critical is the provision of this service to its end users)?
 - How critical is the regular provision of the function to the health of the customer base?
 - Will customers be able to recognise a firm’s distress and react?
 - What elements of the customers’ operations are affected? Is the disruption likely to be across-the-board or affect only specific parts of the business?
 - Are there knock-on effects of this disruption to other customers, suppliers, counterparties, etc.?
- What impact would disruption have on market participants other than customers, such as service providers, market utilities and public services? (similar questions to the above)
- Is this market crucial to the functioning of any other market(s)? What are the interdependencies?
- Is the product always bundled with or tied to any other products?

Step 2: Evaluating the market for the function (“supply side analysis”)

In general, the market should be able to substitute failing providers quickly. However, the structure of the supplier market and operational factors may make the timely substitution of a failing provider very difficult or impossible without adversely affecting the stability of the financial system. In addition, the costs of preparedness of third parties for a low-probability scenario may be unacceptably high. An assessment of criticality should therefore include a supply side analysis of the number and concentration of providers, availability of potential new market entrants, availability of readily substitutable products, the speed, costs and hurdles of substitution, and the willingness of other firms to provide the activities of a failing firm.

A supply side analysis may also indicate measures that could strengthen the structural resilience of financial markets and thereby reduce criticality of individual firms in providing those services. For example, it may be possible to take measures to modify the criticality of a function that arises from factors of supply by encouraging new providers to enter the market or by diversification by the demand side. Operational improvements such as product standardisation and system inter-operability may also have significant effects on criticality. The assessment should also consider the economic rationale for a function. In some cases, a function can in principle be obtained from several unrelated products and markets, which is relevant to substitutability. However, assessments of substitutability also need to take into account that assumptions about alternative providers and the ease with which they are able to function as a substitute are likely to differ depending on whether the failure is idiosyncratic or occurs in the context of a more widespread crisis.

The following questions are relevant to this analysis.

Concentration:

- How concentrated is the market and what are the related trends (increasing/decreasing)?
 - If highly concentrated, how many players are involved? What are the market shares of the other major firms? Is the market dominated by a particular institution type or entities from a specific jurisdiction or region?
 - Is there a particular reason for the level of concentration?
- How similar are the institutions that dominate market share? If one typical player were under stress, would others also be likely to be under stress?
- To what extent do individual firms with dominant market shares in the market in question also have dominant market shares in other critical markets?
- Would the failure of a large player in this market have an impact on the ability of the market or related infrastructure to function?
- How small a market share would a player need to have to fail without significantly disrupting the activity?

Substitutability:

- Are clear substitutes available?
 - Would one single provider be sufficient to take on all activities or clients?
 - Would other providers wish to take on these activities? And if an alternative provider were willing, what market concentration would result?
 - Are there other products and markets that provide a function broadly equivalent to the activities of a failing firm?
- What are the necessary factors for performing this activity?
 - How extensive are the organisational arrangements or infrastructure needed to provide this service?
 - Does this activity have significant barriers to entry?
 - To what extent do brand, positioning or reputation matter?
- Are there reasons why existing dominant players would find this business attractive while others would not (e.g., economies of scale that relate to the product in question)?
- How do firms compete for this activity?
- Is there evidence that this market is highly substitutable?
 - How frequently do the main players in this market turnover?
 - How many new players are involved in this turnover?

- How quickly would a substitute service provider need to be found to prevent significant disruption?
- Does a transaction involve extended exposure to a client (thus requiring greater due diligence)?
- Are there other barriers to entry for new service providers, and what form do these barriers take?
- To what extent is there interoperability between providers of the function? Are there common standards, procedures and interfaces?
- How quickly can users of the service move to new service providers? What are the steps and costs involved in such a move?
 - Switching costs to the customer?
 - Switching costs to the institution acquiring the customer?
 - How much time is needed for the technical implementation of the new service relationship (by the customer and by the service provider)?
- How extensive is the expertise and training needed for employees to provide this service? How much knowledge about a customer is needed for a particular transaction?
- How tailored or customised is the product?
- Are regulatory approvals necessary?

Step 3: Assessing the criticality of the function performed by a specific G-SIFI (“firm-specific test”)

A function is generally considered to be critical in relation to a particular firm. Specifically, the analysis must determine if a firm is sufficiently important in providing a function to the market that the firm’s failure would have a material impact on third parties, on the potential for contagion and on the general confidence of market participants. If a function is critical for one firm, it cannot be assumed that the same function is critical for others. The analysis must therefore be carried out on a firm-by-firm basis.

The following questions are relevant to this analysis.

- What is the overall market share of the firm for the specific function, and the share in specific market segments (e.g., counterparties, regions)?
- Could the absolute and relative volume of business hamper the effectiveness of crisis measures?
- How does the function in question relate to other functions of the firm or of the market?
 - Is the provision of a function contingent on the availability of other functions (provided either externally or internally)?

- What chain of events within the troubled firm would most likely cause the service provision to be disrupted (e.g., the firm needs to cut limits to customers, the firm loses its membership in an exchange so customers cannot transact, etc.?)
- Does the failure of the firm to provide a function send out a “systemic signal”?

3. Framework for critical shared services

3.1 Definition

For the purpose of this Guidance, a critical shared service has the following elements:

- (i) an activity, function or service is performed by either an internal unit, a separate legal entity within the group or an external provider;
- (ii) that activity, function or service is performed for one or more business units or legal entities of the group;
- (iii) the sudden and disorderly failure or malfunction would lead to the collapse of or present a serious impediment to the performance of, critical functions.

If one of those elements is absent, this suggests that the shared service is not critical. For example, if an internal activity, function or service, such as facilities management, can easily be substituted from other, external, sources that shared service is not critical, even if it is necessary for maintaining the critical functions of the company.

Similarly, the fact that an activity, function or service is shared does not necessarily mean that it is a critical shared service, as it may support tasks not directly related to maintaining critical functions: for example, a centralised marketing department.

3.2 Determination of critical shared services

Critical shared services are related to the critical functions a firm performs: they provide the internal and essential infrastructure the firm needs to continue operating. Their designation should therefore follow from the identification of the critical functions. Given the variety of shared services and the limited time and resources in resolution, it might be helpful to rank the shared services in order of priority. While some shared services have to be continuously provided, there might be others which might be interrupted for a short period without leading to a collapse of the critical function. In prioritising shared services, the following questions are relevant:

- How severe are the consequences of the failure of a particular service on one or more critical functions?
- How quickly will the failure of a particular shared service lead to a collapse of one or more critical functions?

For the purposes of this analysis, there should be a clear understanding of the following aspects of the shared services at *legal entity level*:

- (i) the provider and the recipient of the services;

- (ii) the nature of the services being provided;
- (iii) the financial terms on which those services are offered;
- (iv) the existence of service level agreements and the validity of such agreements in the event of failure; and
- (v) the impact of default on the ability of the firm to maintain these services.
- (vi) the substitutability of the services being provided (see above).

3.3 Key considerations

Critical shared services should be organised or procured in a way that ensures the continued availability of shared services to all relevant parts of the firm under the chosen resolution strategies. Examples of arrangements that can achieve that objective include, but are not limited to, performing shared services out of separate legal entities or preparing in advance for a carve out in a crisis. If the service arrangement is with an external provider, arrangements should be in place in order to ensure continuation of the services.

Given that the vast majority of firms' business processes are likely to depend on IT systems, it is important that the complexities of dependencies arising from shared IT systems, which may differ from the structure of business processes, are understood.

If cross-border inter-company service agreements cannot be enforced in resolution, this may prevent the continuation of the service. Firm-specific crisis preparation should ensure continuity of these services in resolution.

Determination and management of critical shared services should be linked to the business continuity planning processes of the firms.

Special consideration should be given to services that require a highly specific firm-internal knowledge. In this respect, the retention of key personnel in short and medium term is likely to be important for operational reasons.

Functions and shared services that could be critical

This Annex provides indicative lists of functions and shared services that could potentially exhibit some degree of criticality. It is not intended to be exhaustive. The lists could be a starting point for evaluating and designating critical functions. However, authorities will need to undertake their own assessment for each firm that takes into account market- and firm-specific aspects and the characteristics of a country's financial system, its economic and competitive landscape and the range of functions firms provide. As a result, the functions and services suggested in here may be, but are not necessarily, critical for different firms in different markets. Similarly, there are functions not included in this guidance that could be critical in particular markets. Conversely, certain markets might use different terminology to that used in this document to refer to a comparable function for which this guidance might also be relevant.

1. Functions

Although the structure of financial markets varies from country to country, the economic rationale of banking is more or less similar. The critical functions are therefore assessed as five broad categories with distinct economic objectives and characteristics: deposit taking; lending and loan servicing; payments, clearing, custody and settlement; wholesale funding markets activities; and capital markets and investments activities.

1.1 Deposit taking

a) Scope

Deposit taking refers to the acceptance of deposits from non-financial intermediaries. It does not include borrowing from other financial intermediaries, which is dealt with separately as “Wholesale activities” (see below).

Deposit taking refers to the whole lifecycle of the deposit taking activity. This includes the acceptance of the deposit and the maintenance of deposit accounts and close substitutes (e.g., short-term retail notes). Criticality and substitutability of deposits may vary through the lifecycle.

Deposits can be critical regardless whether they are covered by a deposit guarantee scheme (DGS) or are subject to depositor preference. The concept of criticality extends beyond the exposure to losses from a failing firm. The market reaction to a failing firm and the impact on financial stability may not be completely mitigated by the availability of depositor protection arrangements, but may also depend on their design and on other factors related to the market structure.

The impact of failure of deposit taking activities on other deposit takers. Deposits are “critical” to the firm insofar as they have a significant impact on its funding. However, that impact is not taken into account for the purpose of assessing the criticality of that function.

What is relevant for this purpose is the risk that the failure of a deposit taker may cause systemic effects such as more general bank runs affecting other deposit takers.

The impact of failure of a deposit taker on the real economy. Customers of a failed deposit taker lose immediate access to their deposits, and are thus not able to execute payments. In addition, these payment difficulties also affect other private persons or firms not associated with the failed deposit taker. In the event of the failure of a significant deposit taker, the resulting liquidity shortage could have serious adverse effects on activity in the wider economy.

If a general loss of confidence affects deposits with other banks, impact on the macroeconomic credit channel can be expected. A breakdown of depositing activity on systemic scale is likely to have an impact on credit channels, as long as there are no mitigating actions e.g., by monetary policy. These measures are out of scope for the purpose of this guidance. However, firm-specific and market characteristics that facilitate or prevent contagion should be analysed and addressed.

b) Drivers of criticality

Under most circumstances, the activity of taking new deposits shows low criticality as long as depositors are willing to deposit with other banks. The failure of a deposit taking bank prevents it from accepting new deposits. Examples have shown that in many cases, other market participants will be able to accommodate the increased deposit supply. Taking new deposits can therefore be regarded as highly substitutable. However, substitutability can be constrained by market structure and operational issues. In the retail segment, customers may not have easy access to other deposit takers, e.g., because of a lack of bank branches but also based on business considerations. Also, other market participants might face operational challenges in opening new accounts and handling deposit inflows on a large scale. As shifts from troubled, or perceived to be troubled, banks to other providers can also be regarded as time critical, difficulties or delays in transferring deposits to other providers can be a source of further instability.

Deposits with little residual maturity are more critical. Difficulties in paying out deposits due can expose the depositor to liquidity problems and send out strong negative market signals which could lead to runs irrespective of the credit risk the depositors actually face. For longer-term deposits, credit risk is more relevant, whereas liquidity risk is less important. Also, customers with longer-term deposits are less dependent on their immediate availability.

Criticality depends on the type of depositor. Different types of depositors may exhibit different kinds of behaviour. Institutional investors have demonstrated that they act quickly and well in advance of a failure, and generally have greater choice of alternative providers. Also, these depositors tend to be more diversified and derive reduced or minimal benefit from deposit guarantee schemes since the size of the deposits often exceeds the covered amount. Deposit taking for institutional investors is therefore to be seen as less critical. Retail depositors may rely more on existing protection arrangements and are generally less diversified, though the availability of alternatives may be greater. To the extent that the protection arrangements may not be regarded as credible or effective, retail deposits should be considered as critical.

Criticality depends on the type of accounts. Continuous access to deposits in transaction (current) accounts is critical for the smooth settlement of day-to-day financial transactions. The ability to maintain uninterrupted access to funds in support of the daily operations of both financial and corporate firms can be critical to mitigating the impact on financial stability. On the other hand, access to deposits in savings accounts is also essential but not as time sensitive as those in transaction accounts.

Credible depositor protection arrangements can significantly reduce or mitigate criticality. There have been cases where DGS, depositor protection regimes or even credible, blanket government guarantees have failed to safeguard stability. The assessment of criticality should therefore consider the effectiveness and credibility of the protection arrangements. Deposit taking may be critical where the capacity of the scheme is insufficient to cover the failure of systemic players or a significant group of smaller banks with similar risk profiles. Also, the ability of the protection arrangements to accommodate short-term liquidity needs of depositors (e.g., by means of prompt access to their funds through either rapid pay-out or deposit transfer) should be taken into account. The less this is the case, the higher the level of criticality of deposit taking is likely to be.

c) Aspects to consider for the impact assessment

- Are deposits subject to depositor preference and to what extent is any such preference expected to shield depositors from bearing losses?
- To what extent are deposits covered by a DGS -
 - by depositor type?
 - by size of deposits?
 - by maturity?
- What are the maturities of outstanding deposits?
- Do circumstances increase the probability of the withdrawal of deposits on systemic scale, due, for example, to -
 - market share of the failing bank?
 - market share of a group of banks perceived to be similar to the failing one?
- Is the DGS credibly capable of covering the failure of -
 - the failing bank?
 - a group of banks perceived to be similar to the failing one?
- Are depositor protection arrangements in place to cover the immediate liquidity needs of depositors even in stress scenarios?
- What impact is expected on the funding structure of other deposit takers?

d) Aspects to consider for the supply side analysis

- What are the characteristics of the supply side market structure:
 - concerning depositor types (retail, institutional)?

- in a particular region?
- Are alternative providers able to cope with a significant number of new accounts and inflow of new deposits from a financial, operational and technical perspective?

e) *List of deposit-taking functions*

Type of Activity	Deposit-taking products
Deposit-taking	Deposits - by counterparties: retail, commercial, institutional - by protection: insured, privileged, uninsured - by maturity: sight, term Transaction (Current) / Saving deposit accounts Certificates of deposit

1.2 Lending and Loan Servicing

a) *Scope*

Lending refers to the provision of funds to non-financial counterparties, such as corporates or retail customers. Lending to financial counterparties is a distinct activity and assessed as “Wholesale activities” (see below).

Lending can be critical if liquidity and funding strains for the borrowers occur before customers can find alternative sources of credit. The real economy depends on a regular flow of credit. The failure of a lender will expose borrowers to both near- and long-term liquidity constraints. The ability of borrowers to adapt to the failure of a bank will be affected by the terms on which they borrow and the ability to find alternative sources.

Criticality extends to relevant loan servicing functions. In certain markets, loan servicing functions are provided by a firm separate from the loan provider. As continuation of loan servicing has an impact on the value and risk of a loan portfolio, servicing functions might also have to be considered critical.

A particular lending product may be critical in one market or country, but not in others. The criticality of a product within a given country will reflect both the characteristics of the product and the competitive environment. Products and services may differ significantly between markets for both structural and historical reasons. Countries also differ significantly in terms of the number of sizable lending institutions competing in their markets.

b) *Drivers of criticality*

Standardisation increases substitutability and reduces criticality. Standardised products are more easily substituted or transferred to other firms than customised ones. Where lending is based on collateral, greater standardisation of collateral terms and transparency of collateral values also increase substitutability.

For business lending, borrower size generally increases substitutability and reduces criticality. Larger firms will typically have access to a wider range of potential lenders and many of the largest firms will have direct access to debt capital markets. Small and medium enterprises, by contrast, will typically only have a single house bank. Financial information about such firms may also be limited, further restricting the ability of other banks to quickly substitute for the failed firm.

For consumer lending, standardisation of underwriting (through such means as broadly available credit scores) increases substitutability and decreases criticality. The substitutability of consumer credit products increases with the level of standardisation. The availability of credit scores that are not proprietary to a specific bank further increases substitutability.

Special issue: Credit card loans

Credit card lending is a significant driver of consumer spending in a number of countries. In some, there are active markets in buying and selling credit card portfolios. In many, underwriting decisions are standardised through credit scores. Secondary markets for card portfolios and credit scores increase substitutability. In addition, in some markets credit card products perform an important payment function to the real economy, which makes them more critical and time-sensitive.

Lending that is shorter term is more likely to be critical than lending that is longer term. Short-term lending often supports the working capital needs of firms. Borrowers often rely on credit lines or overdrafts with their banks to close temporary liquidity gaps. Both products would be likely to have an impact on the economy if disrupted in the short-to-medium term. In contrast, the borrower is not immediately affected by the failure of a firm that has provided it with term credit.

Special issue: Trade finance

Because industrial corporates often rely on trade finance for cross-border business, the unavailability of trade finance may disrupt the international flow of goods. Trade finance products are regularly part of a more encompassing banking relationship and may be difficult to acquire on standalone basis. In addition, in some countries relatively few banks may be able to expand their provision of trade finance products.

Non-bank lenders might increase substitutability, especially when ample liquidity is available. Non-bank lenders, such as money market funds, insurers and finance companies, provide funds to the overall economy in certain jurisdictions. However, this role is limited to specific market segments. Moreover, non-bank lenders may excessively rely on leverage provided by banks, restricting their ability to play this role in a more general systemic crisis. The potential for non-bank lenders to replace the functions of a failed bank therefore needs careful analysis.

c) Aspects to consider for the impact assessment

- Which kind of counterparties are loans extended to?
 - Are the loans extended to a large group of small borrowers (e.g., retail)?

- Is the group of borrowers small, but are the loan sizes considerable on average (e.g., commercial loans)?
- What are the funds used for?
 - Are they for short-term liquidity provision?
 - Are they more for investment-like purposes?
 - Mortgages (Residential / Commercial / Construction Financing)
 - Commercial financing
 - Are they for short-term consumer financing (e.g., credit card loans)?
- What is the average size of a loan?
- What is the average maturity?
 - Is the loan implicitly or explicitly assumed to get rolled over with the same provider when maturing?

d) *Aspects to consider for the supply side analysis*

- What are the characteristics of the supply side market structure in particular lending segment or region?
- Are there alternative providers with sufficient relevant expertise to quickly replace the failed lender?
 - Do other providers have a sufficient track record in providing loans to a particular segment?
 - Do other providers have experience in risk management in regard to the lending segment in question?
 - Do other providers have established operating procedures to take over a significant share of new business?
 - Are other providers able to perform the activities on a sufficient scale?
- How are the loans collateralised?
 - What kind of collateral is pledged?
 - Is there a standardised, independent and transparent valuation process?
 - Are the collateral arrangements easily transferrable? Does the use of collateral for several loans impede transferability?
 - Does the value of the collateral correlate with counterparty risk?
- To what extent is the particular lending segment standardised?
 - How similar are the loan contracts?
 - How similar are credit risk procedures?
 - Are the loans or the portfolio of loans suitable for securitisation or transfer to a special purpose vehicle (SPV)?

- Is credit history based on a formalised and transferrable assessment or does it rely on the existence of a longer-term business relationship?

e) *List of lending functions*

Type of Activity	Lending and loan servicing products
Lending and Loan Servicing	Loans - by counterparty: retail, commercial - by maturity: short-term, long-term, residual maturity - by collateralisation: mortgage, secured, unsecured Credit Card Lending Committed Credit Lines Trade finance Leasing Factoring Project Finance Loan servicing Credit Card Issuance Services Credit Card Acquiring Services

1.3 Payments, Clearing, Custody & Settlement

a) *Scope*

For the purpose of this guidance paper, the payments, clearing and settlement function is limited to those provided by banks to their clients. It does not cover (pure) FMI providers. FMIs are subject to specific recommendations (see CPSS-IOSCO *Principles for Financial Market Infrastructures*, April 2012). However, the scope extends to non-bank entities of a bank, as some of the critical payments, clearing and settlement functions might be provided out of a non-bank entity of the firm, e.g., a broker dealer.

The types and levels of payment, clearing and settlement services provided by a bank to facilitate financial transactions may vary depending on their role in the functioning of the financial markets. A bank may provide payments, clearing and settlement services as an intermediary between its own clients or as an intermediary between a client and relevant FMIs. In some cases, the bank may also be a provider of payment, clearing and settlement services to a FMI or may provide access to FMIs to other banks that are not clearing members.

Several functions in the area of payments, clearing and settlement and related services are performed across borders or implicitly rely on the availability of functions and access to funds and infrastructure in several countries. Depending on the function, the analysis of criticality might have to include both a national and a global perspective. This is the case for FX clearing and for related functions such as global cash management.

b) Drivers of criticality

Market concentration increases criticality. The higher the market share of a provider in a particular market segment, the greater the criticality, as the failure of a large provider affects more counterparties and may also impede the liquidity of certain asset classes and of FMIs active in the relevant market segment.

A greater scope of operation increases criticality. Payment, clearing and settlement services to a larger geographic area, involving high volumes or high values, are deemed to be more critical.

Complex, non-standard interfaces increase criticality. Professional customers need more time to migrate to alternative services if payment, clearing and settlement services are provided through complex, non-standard interfaces.

The availability of substitutes reduces criticality. The availability of alternative channels to clients may reduce criticality, although the assessment must take into account timing, efficiency and costs. The existence of high standardisation and common products, rules, operational and technical procedures can enhance substitutability.

The link to related services, e.g., transaction accounts, deposits and custody, might increase criticality. Having access to the funds or securities to be transferred is a prerequisite to use payment, clearing and settlement services. The link to those related services might reduce substitutability and increase criticality.

The reliance of FMI providers on services of the bank increases criticality. In some cases, banks provide payment, clearing and settlement services to FMI providers. Banks might also play a role in the liquidity provision to FMIs. The failure of such banks can have a direct impact on the functioning of the FMI and thereby indirectly affect a large number of counterparties not related to the troubled firm.

Criticality depends on the asset class to be cleared and the ultimate counterparties of the transactions. An interruption of clearing and settlement of high volume and highly liquid asset classes is likely to have more impact than an interruption in less important or isolated ones. Therefore, analysis should be differentiated by asset class and may be dependent on the actual circumstances in the market. The type of ultimate counterparties, e.g., financial intermediaries or non-financial firms, should also be considered.

The assessment of criticality depends on the structure of the markets and their segmentation. Links between market segments increase criticality. Payments, clearing and settlement is normally segmented across asset classes, e.g., cash in various currencies or types of securities are settled through different channels. Also, the channels used for a transaction may depend on size and volume. However, many transactions involve several legs that are settled through different channels. Through these links, the disruption of a service in one segment can affect others.

c) Aspects to consider for the impact assessment

- What kind of counterparties are payment, clearing and settlement services provided to?

- To what extent are the services provided to retail, corporate, financial or institutional counterparties and FMI?
- What is the relationship between the number of counterparties, the volume and value of transactions? Is the number of counterparties limited, but average payment sizes significant (e.g., role of settlement agent for a financial counterparty)?
- What is the impact of a potential interruption on the counterparties?
 - Does an interruption of the service affect the liquidity position of the counterparties? Which payments (if any) can be postponed for a limited period?
 - Do the payments volumes or sizes vary significantly (e.g., end of month payments)?
 - Are the payments subject to unwinding? Is there any automatic termination or unwinding? Is there any regulatory stay in crisis scenarios?
 - Does the mechanism include novation of obligations?
- Are the transactions collateralised?
 - What type of collateral has to be pledged?
 - Is there a standardised, independent and transparent valuation process?
 - Are the collateral arrangements easily transferable?
 - Does the value of the collateral correlate with counterparty risk?

d) *Aspects to consider for the supply side analysis*

- How is the market segmented?
 - by asset classes (cash, securities)?
 - by transaction characteristics (size, volume)?
 - by counterparty type (retail customers, small and medium corporates, large corporates, financial intermediaries, institutional investors)?
 - by region (on a national and an international level)?
- How concentrated is the market?
 - What underlying measures are the market shares based on? For example:
 - payments (average gross volumes and values as per cent of total system volumes and values);
 - clearing and settlement (level of trading activity as a proxy for clearing and settlement activity);
 - custody services (value of assets under custody as a percentage of total market value);
 - the amount of revenues generated from payment, clearing and settlement activities as percentage of total market revenues.

- To what extent do providers settle transactions internally without crossing to external providers (e.g., other banks or FMIs)?
 - To what extent are providers able to net transactions?
- Do other providers have relevant expertise in a particular payment, clearing and settlement segment?
 - Do other providers have a sufficient track record in providing payment, clearing and settlement services to a particular segment? What are their market shares?
 - Do other providers have experience in risk management in the segment in question?
 - Do other providers have established operating procedures to take over a significant share of new business?
 - Are other providers able to perform the relevant servicing activities on a sufficient scale?
- Are there impediments to substitutability?
 - How quickly can clients move to other service providers?
 - How can availability, authenticity, integrity and confidentiality of data be safeguarded during a migration?
 - How costly is it to customers to switch to other service providers in a timely manner? Is it reasonable for customers to establish access to alternative channels in advance?
 - Are there barriers to entry into the market for new service providers?
 - Will new providers be able to gain membership to relevant FMIs sufficiently quickly? Under what conditions are troubled providers able to maintain membership?
- To what extent is the particular payment, clearing and settlement segment standardised across providers?
 - How similar are the underlying products, legal and operational frameworks?
 - How similar are risk evaluation procedures?
- How deeply embedded are payment, clearing and settlement services with other business activities of the bank?
- How are risks and costs associated with storage and delivery of physical instruments and commodities identified, monitored and managed?

e) *List of payments, clearing, custody and settlement functions*

Type of Activity	Payments, clearing, custody and settlement products
Payments, Clearing, Custody and Settlement	Retail Payments Services - Cash Services - Wire Transfers - Merchant / Credit Card Services - Lockbox Services...Checks Wholesale Payments Services - Single currency, FX. Clearing & Settlement Services - Cash - FX - Equities - Debt - Money Market - Derivatives (exchange traded, OTC cleared and uncleared): Interest Rate, FX, Credit, Equities, Commodities, Other. Custody - Primary custody - Delegated / Sub-custody - Omnibus accounts Other Related services - Safekeeping - Corporate Trust Services - Treasury and Cash Management Services - Asset Servicing - FMI access for financial third parties (“bank to bank”) - Collateral management / collateral transformation for third parties - Liquidity lines to FMI providers

1.4 Wholesale Funding Markets

a) *Scope*

Wholesale activities refer to lending and borrowing in wholesale markets to and from financial counterparties. It does not include intra-group flows. The primary reason for considering wholesale functions to be critical is the potential for contagion across the financial system. Disruption of certain wholesale markets may expose counterparties to significant liquidity and solvency strains, which in turn have the potential to prevent counterparties from providing other critical functions. Contagion might also occur through indirect effects; for example, the run on an institution with illiquid assets that were financed by short-term liquid liabilities might spread quickly to other institutions and markets.

Wholesale activities take place on highly segmented markets, not all of them having the potential to cause substantial contagion. Wholesale activities take place on highly

segmented markets, e.g., dollar markets and interbank markets. Criticality of wholesale activities crucially depends on the systemic relevance of that market.

Wholesale activities are deemed to be critical if liquidity and funding strains occur for the borrower before alternative sources of credit can be found. A wholesale activity might be considered critical if the failing institution had been a major provider of liquidity for wholesale markets and cannot be replaced before liquidity strains emerge.

b) Drivers of criticality

Systemic relevance of the wholesale market increases criticality. Criticality depends primarily on the systemic relevance of the market. While dollar and interbank markets will be critical in most circumstances, wholesale markets for funding in smaller currencies might not be.

A highly interconnected borrower or lender increases criticality. A bank's criticality is likely to be positively correlated with its interconnectedness with other financial institutions. One of the main experiences of the recent crisis was that a market run on an institution with illiquid assets financed by short-term liquid liabilities (i.e., an institution with high wholesale funding ratio) spread quickly and widely to other institutions and markets.

A high market share in wholesale activities increases criticality. A bank's distress or failure is more likely to damage other financial market participants if its activities represent a large share of activity in the wholesale market. The larger the market share of the bank, the more difficult it is for its activities to be quickly replaced by other banks and therefore a greater chance that its distress or failure would cause disruption to the wholesale activities.

Excessive maturity transformation or leverage increases criticality. Short term wholesale funding for large-scale investment in long term, illiquid assets may be critical if the wholesale liabilities cannot be rolled over, and no other funding can be obtained. To the extent this cannot be solved through adequate capital and liquidity regulation, a fire sale of assets by the troubled firm and a consequential depreciation in asset prices might be the result, putting pressure on the balance sheets of institutions with similar assets and triggering a self-enforcing vicious circle.

c) Aspects to consider for the impact assessment

- Which wholesale markets would be affected?
- Are these markets of systemic relevance?
- Which kinds of counterparties provide funding to the bank?
 - Is the funding provided by different lenders (e.g., diversified across countries)?
 - Is the group of lenders small, but are the loan sizes considerable on average?
- Is the funding used for an investment in long term, illiquid assets?
- What is the average size of the wholesale funding?
- What is the average maturity of the wholesale funding?

- Is the loan implicitly or explicitly assumed to get rolled over with the same provider when maturing?
- How quickly can the funding be obtained from another provider?
- How many unencumbered assets are available for pledging as security?

d) Aspects to consider for the supply side analysis

- What are the characteristics of the supply side market structure in a particular product and region?
- Are there alternative providers with sufficient expertise in the particular wholesale segment?
 - Do other providers have experience in risk management of products used for wholesale funding?
 - Are other providers able to invest a significant amount of liquidity?
- What kind of collateral is used?
 - What kind of collateral is pledged?
 - Is there a standardised trade and valuation process?
 - Are the collateral arrangements easily transferrable? Does the use of collateral for several loans impede transferability?
 - Does the value of the collateral correlate to counterparty risk?

e) List of wholesale functions

Type of Activity	Wholesale products
Wholesale Funding Markets	Wholesale lending/borrowing - Central bank / Treasury lending - Inter-bank lending - Commercial Paper - Certificate of Deposits - Money Market Funds - Line of Credit - Asset Backed Commercial paper - Fiduciary Deposits FX Swaps Repo - Bilateral (borrower, lender) - Tri-party (borrower, lender, custodian)

	Securities lending - Direct securities lending (borrower, lender) - Third-party securities lending (borrower, lender, 3 rd party) - Agent lending (borrower, lender, agent) Investment fund risk-transformation services - Swaps - Stable value wraps Structured Credit Products (Own Issuance) - Structured Notes
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1.5 Capital Markets and Investments activities

a) *Scope*

Capital markets activities refer to the issuance and trading of securities, related advisory services, and related services such as prime brokerage. They also include investment of the firm’s own capital in private equity or similar principal investments. Such functions might be critical in countries with a high degree of capital market-based financing and a substantial concentration in capital markets-related functions. This section covers two main business areas. This section focuses, first, on the primary issuance market for securities (including any issuance activities on behalf of sovereigns) and the related advisory services (M&A advisory, debt structure advisory, etc.); and, second, on the activities related to trading securities – both on behalf of clients and on the firm’s own account. This includes acting as a broker or market maker of securities and providing services directly related to this activity such as margin lending and prime brokerage.

The payments, clearing and settlement activities of capital markets businesses and wholesale funding markets are considered elsewhere. Capital markets activities rely heavily on payments infrastructure. The payments, clearing and settlement portion of capital markets businesses is handled in a separate section, given the close relation between payments for capital markets businesses and other payments markets and infrastructure. Repo, securities lending and other funding for the capital markets are included in the wholesale funding section.

b) *Drivers of criticality*

In primary markets, substitutability is influenced primarily by the number of firms with distribution capacity and expertise in the relevant market: capital base may be a secondary factor. Primary markets providers tend to be highly substitutable, as securities are relatively standardised products. Pending deals can be moved to another firm with relative ease provided that the new provider has access to a large investor base, and the delay in a deal does not normally have any systemic impact. In some smaller capital markets, there may be a limited pool of capital markets providers. For very large deals, the substitutability may be constrained by the ability of a firm to hold securities on their balance sheet in an underwriting.

In secondary markets, the timeframe for substitution is driven by the transactional intensity on one side and the procedural steps required to transfer client accounts on the other. The speed at which the failure of a capital markets activity would be transmitted into the financial system will reflect the ease and speed of substitution relative to the speed at which distress would be transmitted to counterparties, clients and markets. The volume and frequency of transactions is a main driver that would determine how quickly stresses at one firm would be passed on to other firms and to markets. Firms are more likely to be critical in markets where a limited number of firms make markets with two-way prices in a given security or derivative exposure. Liquid, more heavily traded products are more easily substituted or transferred to other firms than customised ones and tend to be less critical. Markets in which there are only a limited number of local competitors actively trade will more often have critical players than one in which there is broader competition.

Bundled services, credit or liquidity provision on behalf of customers decreases substitutability and increases criticality. The inclusion of ancillary products and services in the offering to customers will tend to reduce the portability of client accounts. In some markets, such as prime brokerage, multi-broker relationships of clients will reduce the susceptibility of the market to disruption. The new provider, however, may need to provide cash to the failing provider before taking on the client accounts.

Client account portability may be a major factor in many markets. The available infrastructure for transferring accounts varies greatly across markets, as do the standards for inter-operability across providers' systems. These factors could be a constraint on the number of accounts that could be transferred in a reasonably short period of time, particularly where the systems for accounts transfer require account-by-account verification or manual processing. Portability is also subject to operational risk (e.g., erroneous data transfers). To reduce risks of erroneous data transfers, manual processing should be the exception.

Special issue: Primary dealers in government securities

Financial institutions differ in the role they play in sovereign and sub-sovereign finance across different countries. There may be special limitations placed on the substitutability of providers in a number of primary markets for government securities.

Special issue: Commodities

Commodities trading may also include exposure to physical commodities and highly structured deals involving physical assets. Such deals will differ greatly in their portability relative to more generic commodity exposures.

c) Aspects to consider for the impact assessment

A number of related factors should be considered in the impact assessment for a capital markets business.

- **Transaction speed:** With what frequency do participants in these markets transact? This may be short (e.g., hours or days) for activities such as market making and the execution of standardised trades or long (e.g., months) for activities such as securitisation, which entails a ramp up period, or for complex OTC derivatives trades.

- Type and breadth of customer base: How large and how broad is the customer base? What is the profile of these customers and how does access to the financial services provided impact their business model? Would failure to provide these services result in contagion to other financial firms?
- Leverage of market participants: Markets will be more susceptible to disruption where firms are highly leveraged, as movements in market prices may force other participants to sell positions, further exacerbating the stress on other players.

d) Aspects to consider for the supply side analysis

- Analysis of market supply will consider:
 - Market dominance: a market where activity is highly concentrated in a few firms is more likely to exhibit a lower degree of substitutability. Global capital markets activities in major currencies will tend to have a much larger set of providers than local or niche markets.
 - How large is the share of the principal players?
 - How frequently do players change in terms of their ranking (e.g., league tables for primary markets and volume for secondary markets)?
 - Portability of client business
 - To what degree are services bundled for a given client segment?
 - To what degree are customer transactions highly customised?
 - To what extent is business activity relationship dependent?
 - Capacity constraints of substitute firms
 - Degree to which substitute firms' infrastructure varies;
 - Degree to which provision of financial activity requires highly specialised skills or infrastructure; relative scarcity of specialised resources;
 - Excess capacity of potential substitute firms;
 - Time frame required for substitute firms to deploy excess capacity;
 - Regulatory constraints that may impede entry of substitute firms or expansion of existing activity.

e) *List of capital market and investment functions*

Type of Activity	Capital market and investment products
Capital markets and investments	<p>Secondary markets / Trading (Market making, Proprietary position taking, Brokerage)</p> <ul style="list-style-type: none"> - Equity (Spot, Derivatives) - Government Debt - Credit <ul style="list-style-type: none"> • Government / Sovereign • Corporates • Structured Credit • Structured Notes • Derivatives - FX (Spot, Derivatives) - Interest Rates (ETD, OTC) - Commodities (Spot, Derivatives) <p>Primary markets (Issuance, Underwriting, Primary Dealing)</p> <ul style="list-style-type: none"> - Equity (Spot, Derivatives) - Government Debt - Credit <ul style="list-style-type: none"> • Government / Sovereign • Corporates • Structured Credit • Structured Notes • Derivatives <p>Prime brokerage Asset Management Retail Brokerage Advisory</p>

2. Shared services

2.1 Finance-related shared services

Finance-related shared services involve the management of financial resources of the firm. An indicative list is below.

Table: Finance-related shared services	
a) Treasury/ALM services	<ul style="list-style-type: none"> - Steering function for the treasury activity (management and monitoring risk appetite, operations steering, defining risk monitoring) - Collateral management, entity refinancing - Reporting function, regulatory liquidity ratios - Medium and long term funding programs, and refinancing of group entities - Refinancing, short term issues
b) Trading/Asset Management	<ul style="list-style-type: none"> - Operations processing: trade capture, life cycle management - Confirmation, settlement, payment - Position & counterparty management (data reporting, counterparty relationships) - Position management (risk and reconciliation)
c) Risk management and valuation	<ul style="list-style-type: none"> - Central risk management - Risk management teams, both business line and by risk type - Embedded risk managers - Risk report generation - Risk IT infrastructure and personnel, not covered elsewhere
d) Accounting	<ul style="list-style-type: none"> - Statutory reporting - Regulatory reporting - Valuation activities for market positions - Management reporting
e) Physical operations, such as cash handling	<ul style="list-style-type: none"> - Cash and coin - Paper-based processing

2.2 Operational shared services

Operational shared services do not involve financial resources, but provide the necessary infrastructure to enable the firm or parts of it to function. As such, they are not specific to a bank, but are found in non-financial firms as well. The similarity enables existing frameworks, e.g., those covering enterprise risk management or business continuity planning to be used in order to assess and ensure the availability of these functions in a crisis. However, assessment criteria might need to be extended, e.g., to cover legal or cross-border issues. An indicative list is below.

Table: Operational shared services	
a) Human resources support	<ul style="list-style-type: none"> - Payroll - Staff administration (contracts) - Communication for human resources
b) Information Technology	<ul style="list-style-type: none"> - Data storage and processing - Other IT infrastructure, workstations, telecoms, servers, data centers and related services - Software licenses and application software source code base - Access to external providers (e.g., Bloomberg, stock exchanges) - Application maintenance (software application maintenance and related data flows, to be limited to corrective maintenance during the resolution period) - Report generation - User support - Disaster recovery solutions
c) Transaction processing	<ul style="list-style-type: none"> - Services provided on an intra-group basis, not already covered as a critical function - Legal transactional issues, such as anti-money laundering
d) Real estate provision or management	<ul style="list-style-type: none"> - Internal facilities management - Access control - Security - Real estate portfolio management
e) Legal services/compliance	<ul style="list-style-type: none"> - Corporate legal support - Business / transactional legal services - Compliance support