Recovery and resolution planning: Financial market utilities playbook
As financial institutions (FIs) continue to evolve their recovery and resolution planning, there is increased focus on addressing the risk of exposures to financial market utilities (FMUs). FMUs play a critical role in the operations of most financial services firms, especially in the areas of trade execution, clearing, payments, and settlement:

• Many FIs that participate directly in the market, including banks and broker-dealers, may have significant exposure and obligations to these FMUs.

• FIs should understand their risks related to FMUs in order to meet regulatory requirements for recovery and resolution planning, as well as internal risk assessments.

• Once the FMU landscape is defined, FIs can examine trigger events that could produce operational degradation or failure to deliver required services to customers or internal entities.

• Proactive monitoring of the FMU landscape enables FIs to mitigate their operational, reputational, business, and financial risk and respond to stress or resolution scenarios in a timely manner.

• Events at the FMU, other member institutions, or internally, such as legal entity downgrades or default, could lead to disruption of critical services, such as execution, payment, clearing, or settlement.

• Deloitte has created an FMU Risk Assessment Framework to help accelerate the analysis of exposure to FMUs and identify strategies to address potential risks that affect the availability of FMUs.

• Key to the framework is the creation of a custom FMU playbook that documents key people, processes, and technology systems as well as detailed contingency planning within the FI.
Introduction

Background
FMUs provide crucial financial market infrastructure for transferring, clearing, and settling payments and securities among or between FIs. Many FIs also have relationships with custodians and data repositories that may be part of other FIs but also provide critical market infrastructure.

While FMUs are critical to the operation of financial markets and help to reduce risks for FIs, they can also help concentrate the remaining risk. FIs should continue to strengthen their understanding of the potential operational, reputational, business, and financial risks of exposures to FMUs and consider alternatives to promote continuity of these operations in the event of service disruption or termination.

Scrutiny on living wills
Scrutiny has increased on resolution plans from regulators, politicians, academics, and the public with focus on whether the plans would truly be effective if put to the test. Many institutions have failed to receive approval from regulators. In 2014, regulators cited 11 of the nation’s biggest financial institutions for material weaknesses in their resolution plans.1

Critical gaps
Resolution planning to date has typically focused on higher capital and liquidity standards, simplification of the legal structure, amendments to financial contracts, and plans to maintain critical operations and access information in the event of bankruptcy. However, critical gaps have been observed in understanding the impact that the adverse actions by FMUs can have on execution, payment, clearing, settlement, and access to other financial institutions.

The gaps include continuity and contingency planning for:
- Restrictions or termination of membership to the FMU due to market events/credit downgrades
- Changes to trading limits or restrictions on trade executions
- Increased funding/margin/collateral/guaranty requirements by FMU
- Disruptions of FMU services due to technological issues or natural disasters
- Financial collapse of the FMU

Accurate operational risk assessments for financial institutions should include active tracking of their exposures and obligations to FMUs. Resolution plans should incorporate identification and effective responses to adverse actions by FMUs.

This document will review the following topics:
- Understanding exposures to FMUs
- Common FMU risk points and triggers
- Deloitte’s FMU Risk Assessment and FMU Playbook
- Addressing critical gaps for payments, clearing, and settlement (PCS)

The bottom line
Thirty-one of the more complex firms are required to file a full resolution plan. These plans must take into account potential obstacles to resolution. The obstacles include global issues, FMU interconnections, and funding and liquidity.2

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Understanding exposures to FMUs

Landscape of FMUs
FMUs provide financial markets with infrastructure to support execution (e.g., exchanges and swap execution facilities), clearing (e.g., CCPs), settlement, and payments. FMUs include for-profit stand-alone entities, industry consortiums, or can be part of other competing financial institutions. Identifying and managing all obligations to FMUs involve a review of all regions, products, and the operating model of each of the FI's legal entities.

An indicative list of FMUs and considerations for product and regional applications is offered in Figure 1.

![Figure 1: Indicative FMU landscape](image_url)

**Financial market utilities**
- **Execution (exchanges and swap execution facility)**
  - E.g., New York Stock Exchange, Nasdaq, and Mercado Espanol de Futuros Financieros

**Clearing (central counterparties)**
- E.g., ICE Clear, National Securities Clearing Corporation, and Fixed Income Clearing Corporation

**Settlement**
- E.g., Depository Trust Company and Clearstream

**Payment**
- E.g., Clearing House Automated Payments Systems and Clearing House Interbank Payments System

**Other financial institutions**
- E.g., ICE Vault, DTCC Global Trade Repository, and SWIFT

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Identifying exposures and obligations to FMUs
Financial institutions need a detailed understanding of obligations and exposures with customers, FMUs, and other financial institutions to effectively mitigate risk.

Financial Institutions can have a complex series of obligations and exposures to FMUs—(Figure 2) some of which are mandated by regulation for collateral posting, payments, or reporting purposes. Each legal entity, product type, and region will have a specific set of exposures and obligations.

These obligations can include:
- Default guarantee fund
- Initial margin call
- Variation margin call
- Excess margin
- Collateral to be posted to the FMU
- Pre-funding for settlement FMU
- Payments posting (e.g., cash instruments, alternate currencies)
- Daylight overdraft and line of credit provided by FMU
- Indirect entity exposure: expense allocation charge back from direct entity to indirect entity

The size, priority, and risk of each exposure are determined by the profile of the FI. Factors include products, client base, geographies, and level of diversification in the FI’s business model.

Figure 2: Types of exposures
Common risks of exposures to FMUs
Any interruption or change to terms of service by an FMU can have substantial impact on daily business operations, as well as in scenarios of stress or resolution.

As demonstrated in figure 3, managing the potential risk of exposures to FMUs involves:

1. Monitoring for internal and external events that may impact FMU service
   Events that could cause a service interruption or change the terms of service for an FMU should be monitored. These triggers could arise internally within an FI, or more likely, be triggered as part of a broader market event, such as a credit rating downgrade, single member failure, technology failure, or FMU failure or default.

2. Identifying what actions, processes, or procedures FMUs may initiate to respond to triggers
   FMUs have a series of predefined actions, processes, and procedures that they use to mitigate risk arising from default or failure of their members or the FMU itself. Depending on the origination, scale, and impact of the trigger, a number of actions can be taken by the FMU to help reduce impact to other clients, resolve portfolios, and promote continued operation of core services.

   FIs should have a clear understanding of the different types of actions FMUs can take in order to plan appropriate responses. These actions may restrict trading activity or decrease limits; require additional funding, margin, collateral, or guarantees to retain membership; increase reporting or audit requirements; or cease operations all together.

   In the event of member or FMU default, more drastic actions may be taken by the FMU including portfolio auctions and/or full contract “tear-up.” For example, if a member institution of a clearing FMU went into default, the FMU might transfer and liquidate the portfolio. Depending on the size and complexity of the portfolio, the FMU would initiate hedging, independent sales and auctions, and resolve any remaining positions to liquidate the portfolio in an orderly manner and help minimize impact to adjacent members.

3. Understanding the types of risk that can arise from FMU actions and implementing effective controls against identified risks
   Actions by FMUs can create operational, reputational, business, and financial risks that should be proactively mitigated. Risk is often heightened when an FI’s transactions are concentrated through a single FMU per entity, service, or market.

   Figure 3: Triggers, actions, and potential risks of FMU exposures

   - **Triggers**
     - Credit rating downgrade
     - Single member failure
     - Technology failure
     - FMU failure or default

   - **FMU actions**
     - Limit changes or trading restrictions
     - Delayed or terminated service
     - Request for guarantee or guaranty funds
     - Increased reporting or audit requirements
     - Additional margining and collateral requirements
     - Portfolio auctions/liquidation
     - Contract termination or complete “tear-up”

   - **Potential risks**
     - **Operational risk**
       - Internal process breakdown
       - Delay in transition of service
       - Reduced ability for efficient operations management
       - Additional reporting requirements

     - **Reputational risk**
       - Failed trades having negative signaling effect on the market
       - Communications required around disruptions/restrictions
       - Handling of client/shareholder inquiries

     - **Business risk**
       - Risk of lost client revenue and business
       - Risk of client litigation
       - Suboptimal management of systemic risk

     - **Financial risk**
       - Increased financial risk and capital requirements
       - Financial pressure resulting from higher levels of pre-funding and reduced daylight overdraft lines
FMU risk mitigation, with its many complexities, can be a daunting task. Deloitte’s FMU Risk Assessment Framework provides a four-step process to help determine which exposures to FMUs may present the most risk, track transaction activities of clients, identify key capabilities being provided by the FMU, and identify suitable alternatives and steps for transition. Assessment across these dimensions can create the basis of an FMU Playbook, providing timely, actionable steps to proactively monitor risks, and operationalize alternatives to respond to FMU actions and help minimize impacts to clients.

Deloitte’s FMU Risk Assessment Framework

We have developed an FMU Risk Assessment Framework (figure 4) to provide a step-by-step process to understanding the full scope of exposures to FMUs and developing materials to help mitigate risk.

Figure 4: Assessment framework

1. FMU materiality and obligations/exposures
   - Informs short-listing of FMUs and a deep understanding of FMU membership obligations, exposures, and challenges to inform current-state assessment and options formulation

2. Client transactions and lines of credit
   - Tracks activities of clients including volumes and values of various transaction types to assess impact of adverse actions by FMUs

3. Capability framework
   - Drives analysis of potential FMU alternatives against FI’s specific capabilities and requirements

4. Potential FMU alternatives and client impact
   - Establishes a list of potential FMU alternatives and their productarea/region applicability to accelerate formulation of options

5. FI’s FMU playbook
   - A rapidly actionable playbook to proactively monitor risks and operationalize alternatives to respond to FMU events like termination, restriction, or interruption, and identification of impacts to clients

What are the potential impacts to clients and transactional activities to be considered?

“How and when should the options be operationalized and implemented?”
Addressing critical gaps for PCS

The assessment provides:
• Criteria to assess materiality of FMUs
• A structure to identify client transaction volume and the potential value of key transaction types
• Capability models to isolate specific functions utilized from FMUs
• A short list of alternatives based on each capability

The FMU Playbook resulting from the assessment formalizes:
• Operational risk management monitoring processes to identify and respond to triggers
• Onboarding process for identified alternatives when triggers are identified
• Transition process to move towards alternatives

Using the Deloitte FMU Risk Assessment Framework for PCS
Deloitte’s FMU Risk Assessment Framework can address critical gaps within the PCS settlement functions.

1. Identify material FMUs
   The Deloitte FMU Risk Assessment provides criteria that can be used to identify critical payment, clearing, and settlement FMUs. These material FMUs can have a significant impact on financial institutions in the event of adverse actions.
   
   Our experience with major financial institutions has helped develop the following criteria key to identifying material FMUs. Use of the assessment framework produces a tailored result for each FI.
   
   Indicative FMU assessment criteria for PCS:
   • Average daily settlements should be greater than $15 billion in value or 5 million in volume
   • Average daily clearance value should be greater than $3 billion or 1 million in volume
   • Average month-end collateral value (initial margin + variation margin + default guarantee fund) should be greater than $2 billion
   • Average daily gross payments should be greater than $15 billion, or average daily payment transaction volume should be greater than 3 million

   Deloitte’s FMU Risk Assessment Framework can be used to address critical gaps within the PCS functions.

2. Profile transaction volume and value
   After the material FMUs and FIs are identified, the assessment framework provides tools to analyze transaction volumes and value. This analysis supports the understanding of how actions by FMUs can affect client activities and establishes specific monitoring based on potential impact of adverse actions.
   
   To determine the transaction profile and potential impact to clients and counterparties, FIs should:
   • Track volumes and values of transactions
   • Understand client tiers and identify the FIs’ top clients
   • Identify used and unused capacity for all lines of credit
   • Determine potential impact of changes to margin and capital requirements
   • Identify and track services used by clients
   • Understand termination or suspension of services by FMUs
   • Deloitte’s FMU Risk Assessment Framework can be used to address critical gaps within the payment, clearing, and settlement functions
3. Analyze capabilities

Following the identification of material FMUs and profiling of PCS transaction flows, the next step is to isolate capabilities FI’s clients should maintain in the event of adverse action.

The Deloitte PCS capability model (Figure 5) can be used to identify FMU capabilities based on specific FI requirements. The framework helps to accelerate identification of PCS capabilities and identification of alternatives to retain these capabilities in the event of adverse action.

**Figure 5: Deloitte’s PCS capability model**

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<tr>
<th>Onboarding and ongoing maintenance</th>
<th>Client onboarding and monitoring</th>
<th>FMU onboarding and monitoring</th>
<th>Legal</th>
<th>Document management</th>
<th>Client offboarding</th>
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</thead>
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<td></td>
<td>FMU offboarding</td>
<td>FMU pipeline management</td>
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<tr>
<td>Trade executive and life cycle management</td>
<td>Trade execution</td>
<td>Trade clearing</td>
<td>Client porting</td>
<td>Back loading</td>
<td>Client trade compression</td>
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<td></td>
<td>Trade allocation</td>
<td>Trade settlement</td>
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<td>FMU limit management</td>
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<td>Capital charges for house</td>
<td>Capital charges for guarantee fund</td>
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<td>Collateral and margin management</td>
<td>Client collateral management</td>
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<td>House collateral reporting</td>
<td>Client margin calculation</td>
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<td></td>
<td>House margin calculation</td>
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<tr>
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<td>Regulatory and FMU engagement</td>
<td>Regulatory planning</td>
<td>FMU engagement</td>
<td>Industry engagement</td>
<td>FMU strategy and capability development</td>
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</tbody>
</table>
4. Identify alternatives

Once key capabilities from each FMU are isolated, alternatives should be identified. Broadly, contingency alternatives could involve identifying secondary FMUs to provide service, recontracting or accessing FMUs via an alternate direct member.

Deloitte can support timely identification of alternatives by short-listing potential FMU alternatives, wherever applicable, from an established list, based on product area, region, and other specific requirements.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Considerations</th>
</tr>
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</table>
| FMU attributes and capabilities | • What are the required geographic locations and jurisdictions?  
• What are the clearing, settlement, or payment activities supported by the FMU based on asset class or product type?  
• Are there any specific value-added services supported by the FMU?  
• How financially stable is the FMU?  
• How robust is the infrastructure of the FMU?  
• Is the FMU a sole provider of a specific service within the market? |
| FI’s FMU interfacing capabilities | • How stable are the technological interfaces of the FI’s systems with the FMU?  
• Is there scalability to support volume growth of specific product types due to market drivers?  
• What is the stability of supporting processes/procedures?  
• What is the transaction rate of processes interfacing with the FMU?  
• What could be the effect of FMU termination, restriction, or interruption on current service level agreements with FI affiliates and external clients? |
| Potential FMU adverse actions | • How could termination or restriction of membership by the FMU affect transactions?  
• What funding sources could be used to respond to increased funding/margin/collateral requirements posed by FMU?  
• What are some alternatives if an FMU was unavailable due to technological issues, natural disasters, or FMU default? |

Constructing the FMU playbook

Once the execution of the assessment framework is complete, FIs have a catalog of their material FMUs including transaction volumes and values. This will enable the mapping of capabilities to FMU and inform selection of appropriate FMU alternatives, which can be operationalized based on an actionable playbook.
Based on the PCS risk assessment, the FMU playbook can provide for ongoing tracking of material exposures to FMUs, monitoring for identified triggers, and actionable plans in the event of adverse actions. The playbook helps formalize:

**Monitoring for events and FMU actions**
- Identify event trigger thresholds for FMU actions
- Set parameters and attributes to monitor client transactions for assessing potential impact of FMU events
- Determine a decision matrix of alternatives based on FMU actions (i.e., termination, restriction, interruption)

**Processes to respond to specific actions**
- Describe FMU actions and proposed response
- Determine applicability of adverse action in business as usual, stress, and/or resolution scenarios
- Map processes and actors for proposed response
- Identify existing or new business procedures to respond to actions

**Onboarding process for identified FMU alternatives**
- Establish agreements with FMU and clients based on FMU alternatives
- Set up client and house accounts for alternatives
- Establish funding arrangements
- Agree on internal process, technology, and operations involved in transition
- Complete testing, training, and go-live

**FMU transition process**
- Confirm funding arrangements and provision funding
- Migrate client accounts and/or house accounts
- Migrate relevant processes
- Reconfigure integration touch-points
- Analyze potential impact to client flow
- Communicate to internal and external clients/stakeholders

**Other challenges**
A number of challenges can occur when establishing and maintaining an FMU playbook. These include assessing the complex FMU environment, reviewing client transactions, maintaining accurate reporting, and monitoring the FMU and market environment for signs of destabilizing triggers.

Financial institutions may need to make substantial changes to support tracking of PCS activities, client activities, and exposures, as well as identify any material changes to these profiles so resolution plans can be adjusted.

Remediation projects may be needed to provide required data, implement targeted market monitoring of FMUs, or improve the state of reporting and governance structures to adequately mitigate the risk.

For example, in order to fulfill the obligations and exposures to FMU and regulators, financial institutions will likely need to overcome a number of reporting challenges through remediation projects related to PCS activities, including:
- Aggregating data across multiple product area, regions, and legal entities
- Tracking obligations and exposures by indirect and direct legal entities
- Aggregating data at legal entity/jurisdiction level on an intraday/end-of-day basis
- Identifying internal data sources for tracking obligations and exposures to help reduce reliance on external data feed from FMU

Liquidity and funding requirements may also present particular challenges to enabling continued commitment to top-priority obligations.
One of the primary reasons to utilize FMUs is to help reduce risk across financial markets. However, the complexity of relationships between legal entities and FMUs and the increased concentration and centrality of these institutions bring their own potential risks. Financial institutions should continue to strengthen their mitigation of potential operational, reputational, business, and financial risk due to exposures to FMUs. FIs should monitor triggers that could result in action being taken by key FMUs, such as service interruption, delay, termination, or increased funding/margin/collateral requirements posed by FMUs.

Financial institutions can use the Deloitte FMU Risk Assessment Framework to take a structured approach to identifying material FMUs, profiling client and counterparty transactions, assessing capabilities required, and determining possible alternatives. Formalizing an FMU playbook can help place financial institutions in a strong position to respond to FMU actions with minimal impact to the business or its clients.
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