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**GUIDELINES ON MARKET RISK MANAGEMENT**

**FOR ISLAMIC BANKS**

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## 1. DEFINITION AND SOURCES OF MARKET RISK

- 1.1. Market risk is defined as the risk of losses to earnings or capital resulting from adverse movements in market prices, such as **benchmark rates<sup>1</sup>, foreign exchange rates, equity prices and commodity prices**, on the economic value of an asset.
- 1.2. Market risk exposures may occur at certain times or throughout the contract. The following aspects should be considered in capturing portfolio-specific and overall market risk: -
- (a) different types of *Sukuk* (or equivalent *Syariah*-compliant securities), whether issued by public entities (such as government, central bank, etc.) or by multilateral entities or by private entities (such as private companies, Islamic banks, etc.), in a trading book and/or banking book;
  - (b) fluctuations in values in tradable, or marketable, assets (including *Sukuk*);
  - (c) equities (stocks) (including those in liquid and/or non-liquid markets);
  - (d) current and future volatility of market values of specific assets (e.g. the commodity price of *Salam* assets, the market value of *Sukuk*, and the market value of *Murabahah* assets held in inventory to be delivered over a specific period);
  - (e) foreign exchange fluctuations and volatility arising from general foreign exchange spot rate changes in cross-border transactions (i.e. having short and/or long positions in foreign exchange);
  - (f) valuation of assets where no direct market prices are available; and
  - (g) position limits (whether short, long or net), stop-loss provisions (i.e. a predetermined loss exposure market limit) and stressed VaR.
- 1.3. The market risk factors cited above are not exhaustive. Depending on the *Syariah*-compliant instruments traded by an Islamic bank, exposure to other factors may also arise. The Islamic bank's consideration of market risk should capture all risk factors to which it is exposed, and it should manage these risks soundly as market risk is often propagated by other forms of financial risk such as credit and market liquidity risks.
- 1.4. When an Islamic bank is involved in buying assets that are not actively traded with the intention of selling them, it is important to analyse and assess the factors attributable to changes in liquidity of the markets in which the assets are traded and which give rise to greater market risk. Assets traded in illiquid markets may not be realisable at prices quoted in other more active markets.
- 1.5. Islamic banks are also exposed to foreign exchange fluctuations arising from general FX spot rate changes in both cross-border transactions and the resultant foreign currency receivables and payables. These exposures may be hedged using *Syariah* compliant methods.

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<sup>1</sup> Benchmark rates include market-based reference interest rates such as SIBOR (Singapore Interbank Offer Rate), LIBOR (London Interbank Offer Rate), EIBOR (Emirates Interbank Offer Rate), etc.

## 2. RISK MANAGEMENT STRATEGY, POLICIES AND PROCEDURES

### 2.1. Risk Management Strategy

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- 2.1.1. **Islamic banks should develop a sound and well-informed strategy to manage market risk.** The strategy should be approved by the Islamic bank's Board of Directors or by the group/regional or its equivalent oversight function for the operations in Brunei Darussalam ("Board") and the Syariah Advisory Board (SAB). The Board, based on the recommendation of senior management, should first determine the level of market risk the Islamic bank is prepared to assume and the possible losses it is willing to bear. This level should be set with consideration given to, among other factors, the amount of market risk capital set aside by the Islamic bank against unexpected losses.
- 2.1.2. Once its market risk tolerance is determined, the Islamic bank should develop a strategy that balances its business goals with its market risk appetite.
- 2.1.3. In setting its market risk strategy, an Islamic bank should consider the following factors:
- (a) economic, market and liquidity conditions and their impact on market risk;
  - (b) whether it has the expertise to take positions in specific markets and is able to identify, measure, evaluate, monitor, report and control or mitigate the market risk on a timely basis in those markets; and
  - (c) the portfolio mix and how it would be affected if more market risk was assumed.
- 2.1.4. An Islamic bank should be aware that in executing its hedging strategies, offsetting or hedged instruments can still be exposed to market risks when the hedge is not perfect. Islamic banks should use *Syariah*-compliant hedging strategies approved by their SAB. Hedging strategies generally incorporate and relies on certain assumptions about the correlation between two instruments/assets. The effectiveness of these strategies would be affected if these assumptions are proved to be inaccurate or no longer hold. Institutions should evaluate the impact of a breakdown in these assumptions and critically assess the effectiveness of the strategies.
- 2.1.5. **An Islamic bank should put in place a process by which significant changes in the size or scope of its activities would trigger an analysis of the adequacy of capital supporting the activities.** The Islamic bank should have an internal capital allocation system that meaningfully links identification, monitoring and evaluation of market risks to economic capital.
- 2.1.6. **An Islamic bank's market risk strategy should be periodically reviewed by the Board and senior management taking into consideration its financial performance, market risk capital and updated market developments.** The market risk strategy should be effectively communicated to the relevant staff and disclosed to fund providers. There should also be a process to detect and report to the approving authority deviations from the approved market risk strategy, operating bands and target markets.

## 2.2. Risk Management Policies

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- 2.2.1. **An Islamic bank should formulate market risk policies which should be approved by the Board.** These policies, which should be reviewed periodically, should reflect the strategy and processes of the Islamic bank, including its approach to controlling and managing market risk. The Board should oversee the Islamic bank's management to ensure that these strategies, policies and processes are implemented effectively and fully integrated into the Islamic bank's overall risk management process. In addition, exceptions to established policies should receive prompt authorisation by the appropriate level of management and the Islamic bank's Board where necessary.
- 2.2.2. Policies should be applied on a consolidated basis and, where appropriate, to specific subsidiaries<sup>2</sup>, affiliates<sup>3</sup> or units within an Islamic bank. **The policies should clearly:**
- (a) **prescribe how market risk is measured and communicated, including communication to the Board;**
  - (b) **spell out the process by which the Board decides on the maximum market risk the Islamic bank is able to take, as well as the frequency of review of risk limits;**
  - (c) **set out the scope of activities of the business units assuming market risk;**
  - (d) **delineate the lines of authority and the responsibilities of the Board, senior management and other personnel responsible for managing market risk;**
  - (e) **establish the processes which the Islamic bank determines the appropriate levels of capital against unexpected losses; and**
  - (f) **identify and set guidelines on the market risk control limit structure, delegation of approving authority for market risk control limit setting and limit excesses, capital requirements, and investigation and resolution of irregular or disputed transactions.**

## 2.3. Risk Management Procedures

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- 2.3.1. **Islamic banks should establish appropriate procedures to implement the market risk policy, strategy and processes.**
- (a) These should be documented in a manual and the staff responsible for carrying out the procedures should be familiar with the content of the manual.
  - (b) The manual should set out the operational steps and processes for executing the relevant market risk controls.

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<sup>2</sup> As defined in the Notice on Islamic Banks' Recovery Plan. (Notice No. BU/N-4/2019/64)

<sup>3</sup> As above.

- (c) The manual should also be periodically reviewed and updated to take into account new activities, changes in systems and structural changes in the market.
- (d) The procedures should cover all activities that are exposed to market risk.

### **3. RISK MEASUREMENT, MONITORING AND CONTROL**

#### **3.1. Framework, Processes and Systems**

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**3.1.1. An Islamic bank should establish a sound and comprehensive risk management framework and processes. This framework should include:**

- (a) a methodology to identify market risks;**
- (b) an appropriately detailed structure of market risk limits that are consistent with the Islamic bank's risk appetite, product lines, risk profile and capital strength, and which are understood by, and regularly communicated to, relevant staff;**
- (c) guidelines and other parameters used to govern market risk-taking;**
- (d) processes for allocation of positions to the trading book;**
- (e) appropriate management information system (MIS) for accurate and timely identification, aggregation, monitoring, controlling, and reporting of market risk, including transactions between the Islamic bank and its affiliates, to the Islamic bank's Board and senior management;**
- (f) exception tracking and reporting processes that ensure prompt action at the Board or appropriate level of the Islamic bank's senior management, where necessary;**
- (g) effective controls around the use of models to identify and measure market risk; and**
- (h) valuation policies, including policies and processes for considering and making appropriate valuation adjustments for uncertainties in determining the fair value of assets and liabilities, such as positions that otherwise cannot be prudently valued, including concentrated and less liquid positions.**

**3.1.2. An Islamic bank should incorporate, to the fullest extent, its market risk management process into its overall risk management system. The Islamic bank can therefore understand and manage its consolidated risk exposure more effectively. Where the Islamic bank is part of a financial services group, the risk management process should also be integrated with that of the group's, where practicable.**

**3.1.3. An independent risk management function should be established. Risk management staff should be separate from and independent of risk-taking staff. The risk management function must:**

- (a) define risk management policies;
- (b) set procedures for market risk identification, measurement and assessment, and monitor the Islamic bank's compliance with established policies and market risk limits;
- (c) capture and report transactions and resulting market risk exposures in a timely manner to the Board and senior management;
- (d) ensure marked-to market positions are revalued frequently;
- (e) ensure that treasury and financial derivative valuation processes are robust and independent of the risk-taking functions;
- (f) ensure that the valuation process use consistent and prudent practices and reliable market data are verified independently. In the valuation of assets where no direct market prices are available, Islamic banks shall incorporate in their own product programme a detailed approach to valuing their market risk positions. Islamic banks may employ appropriate forecasting techniques to assess the potential value of these assets;
- (g) ensure that models and supporting statistical analyses used in valuations are appropriate, consistently applied, and have reasonable assumptions. These should be validated before deployment;
- (h) ensure that staff involved in the validation process should be adequately qualified and independent of the trading and model development functions;
- (i) review models periodically. More frequent reviews may be necessary if there are changes in models or in the assumptions resulting from developments in market conditions; and
- (j) integrate *Syariah* non-compliance risk considerations with enterprise-wide risk management.

**3.1.4. The Board and senior management should establish effective processes to manage market liquidity risk arising from treasury and financial derivative trading activities.**

- (a) The Board and senior management should take note of the size and depth of the markets the Islamic bank is active in and establish the appropriate risk-taking guidelines. These guidelines should take into account the Islamic bank's ability to access alternative markets or credit lines to continue functioning under a broad range of scenarios. They should also consider the risks associated with early termination of treasury and financial derivative contracts.

- 3.1.5. **Risk management systems of Islamic banks with significant assets under management should clearly document the investment decision-making framework, and the risk identification, assessment, measurement, monitoring, control and reporting processes** (e.g. asset allocation, liability portfolio matching criteria, limit structures and dealing authority, and performance analysis). Such documentation is necessary even if the asset management function is outsourced to third party fund managers.

## **3.2. Risk Measurement**

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- 3.2.1. **Islamic banks should implement suitable measures for all market risks assumed. The monitoring of these measures should be integrated into daily risk management process.** The broad risk types to be measured are outlined below.

### **3.2.2. Profit Rate Risk**

- (a) An Islamic bank should incorporate re-pricing risk (arising from differences between the timing of rate changes and the timing of cash flows), yield curve risk (arising from changing rate relationships across the spectrum of maturities), basis risk (arising from changing rate relationships among yield curves that affect the Islamic bank's activities) and optionality risks (arising from profit rate related options embedded in the Islamic bank's products). The Islamic bank should also consider fee income that is sensitive to changes in profit rates.
- (b) Profit rate risk in each currency should be calculated separately. Yield curves should be divided into various maturity segments to capture variation in the volatility of rates along the yield curves. For each currency, the number of yield curves should reflect the risk factors that the Islamic bank is exposed to. There should be additional risk measures to capture credit spread and swap spread risks. For bonds and similar instruments, specific risk must also be measured.

#### **3.2.2.1. Structural Profit Rate Risk**

- (a) An Islamic bank's profit rate risk also arises from its structural positions (e.g. non-trading/banking book positions) in financial flows, assets and liabilities. An Islamic bank with such positions should note the points raised in paragraph 3.2.2 above, as well as the points considered below.
- (b) An Islamic bank can alter its structural profit rate risk exposure by changing investment, lending, funding, and pricing strategies and by managing the maturities and repricing of these portfolios to achieve a desired risk profile. The Islamic bank should establish an appropriate profit rate risk strategy for management of its structural profit rate risk and establishment of its desired risk profile. The strategy should be reviewed on a regular basis, including a further review by the Islamic bank's Board. Where derivatives instruments, such as profit rate swaps, are used to adjust an Islamic bank's profit rate risk



profile, the Islamic bank should fully understand the cash flow characteristics of the instruments.

- (c) An Islamic bank should establish appropriate profit rate risk measurement systems and adequate MIS to identify, measure, monitor and report on a comprehensive basis its exposure to structural profit rate risks. In particular, the relevance of optionality risk to structural profit rate risk, whereby behavioral maturity differs from contractual maturity. This could occur where an option is granted to an Islamic bank's customers to withdraw deposits or prepay loans at a time of their choosing and where changes in profit rates may influence their choice. Measurement techniques for such options can range from simple maturity and re-pricing schedule analysis or static simulation to more sophisticated dynamic simulations, which can better capture profit rate risk in complex instruments and those with options attached. The Islamic bank should ensure that the assumptions and models used for measuring and reporting of structural profit rate risks are independently validated and reviewed regularly.
- (d) Profit rate changes have an impact on an Islamic bank's income, financial obligations (such as policy liabilities in the case of insurers) and capital positions. The effect of profit rate risk on net income and net profit income should be considered. In particular, an Islamic bank with a significant fee income should assess the extent to which that fee income is sensitive to rate changes. From a capital perspective, an Islamic bank should consider how intermediate (two years to five years) and long-term (more than five years) positions might affect the Islamic bank's future financial performance. Since the value of instruments with intermediate and long maturities can be especially sensitive to profit rate changes, it is important for an Islamic bank to monitor and control the level of these exposures. The Islamic bank should determine the potential decline in the net present value of its future cash flows as if its balance sheet is subjected to a stressful and uncommon profit rate shock. (This includes the standardised interest rate shocks outlined in the BCBS guidance paper issued in July 2004.)
- (e) An Islamic bank should consider the fit of its profit rate risk profile with its strategic business plans. An Islamic bank that has significant long-term profit rate exposures (e.g. long-term fixed rate assets funded by short-term liabilities) may have difficulty responding to new business opportunities because of depreciation in its asset base.
- (f) An Islamic bank should set aside capital that is commensurate with the level of structural profit rate risk it is taking.

### 3.2.3. **Equity Risk**

There should be separate risk factors corresponding to each of the equity markets in which an Islamic bank has positions. The measurement of equity risk should capture both general risk (the risk exposure to price movements in the overall equity market

(e.g. a market index)), specific sectors of the equity market (e.g. industry sectors or cyclical and non-cyclical sectors), and specific risk (i.e. individual equity issues).

#### 3.2.4. **Foreign Exchange Risk**

Foreign exchange (FX) risk in each currency must be calculated separately. FX risk should include asset-liability mismatch of foreign currencies to the domestic currency. An Islamic bank trading in non-deliverable foreign currencies should set limits reflecting the unique risk characteristics of these currencies. These characteristics include market liquidity, event and settlement date mismatch risks.

#### 3.2.5. **Commodity Risk**

In addition to directional risk arising from changes in their spot prices, commodities also pose other risks such as basis risk (the risk that the relationship between prices of similar commodities alters through time), profit rate risk (the risk of a change in the cost of carry for forward positions and options) and forward gap risk (the risk that the forward price may change for reasons other than a change in profit rates). An Islamic bank that is active in commodities trading should also account for variations in the "convenience yield" between derivatives positions, such as forwards and swaps, and cash positions in the commodity. All significant levels of commodity exposures should be properly managed.

#### 3.2.6. **Credit Trading Risk**

An Islamic bank that takes positions in credit instruments, such as bonds and credit derivatives, is exposed to the risks of changes in the credit spreads of the underlying issuers. Credit spread is premium above government or risk-free risk, required by the market for taking on credit exposures. Credit instruments are susceptible to default risk as well as credit migration risk. Default risk is the risk of direct losses from an obligor's default and of indirect losses that could arise from a default event. Credit migration risk is the risk of direct losses from rating downgrades or upgrades and of indirect losses that could arise from a credit migration event. Islamic banks should identify, measure, monitor, control and report such risks.

#### 3.2.7. **Market Liquidity Risk**

Market liquidity risk is the risk that an Islamic bank is unable to easily liquidate or offset a particular position at or near the last traded market price due to inadequate market depth or market disruptions. Market liquidity conditions can change rapidly. Disruptions in financial markets, as well as entry and exit of major market makers or large institutional investors can affect market liquidity. Available liquidity at any point is also a function of the size of trades that an Islamic bank transacts at relative to the market. The Islamic bank should continually evaluate trading liquidity risk and its ability to hedge its positions. The risk of tighter liquidity in certain less developed and emerging markets also calls for additional safeguards. Therefore, the Islamic banks should have a good understanding of these markets and be able to measure and

manage risk exposures to them. All significant market risks, as determined by the Islamic bank's definition of material risk, should be measured and aggregated on a bank-wide basis to the fullest extent possible. Where it is not possible to quantify the risk, the Islamic bank should seek to understand and report the risk qualitatively.

### **3.3. Risk Monitoring and Management System**

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- 3.3.1. The risk management system should commensurate with the scope, size and complexity of an Islamic bank's trading, other financial activities and the market risks assumed.
- 3.3.2. The system should be able to measure current exposures, through marked-to-market or marked-to-model pricing, as well as potential market risks. It should be able to accommodate volume increases, new valuation methodologies and new products. Where available valuation methodologies are deficient, Islamic banks should assess the need as follows:-
- (a) to allocate funds to cover risks resulting from illiquidity, new assets and uncertainty in assumptions underlying valuation and realisation; and
  - (b) to establish a contractual agreement with the counterparty specifying the methods to be used in valuing the assets.
- 3.3.3. All significant risks should be measured and aggregated on a bank-wide basis. **Limits for market risks that are consistent with the maximum exposures authorised by the Board and senior management should be set.**
- 3.3.4. An Islamic bank's risk management system should be able to **quantify market risk exposures** and assess exposures to the probability of future losses in their net open positions. The risk exposures in the investment securities are similar to the risks faced by conventional banks namely market price, liquidity and foreign exchange rates. In this regard, Islamic banks shall ensure that their strategy includes the definition of **their risk appetite for these tradable assets and that this risk appetite is adequately supported by capital held for that purpose.**
- 3.3.5. An Islamic bank whose risk levels fluctuate significantly within a trading day should monitor its risk profile on an intra-day basis. The system should also enable an Islamic bank to identify risks promptly and take quick remedial action in response to adverse and sudden changes in market factors.
- 3.3.6. **The risk management system should provide information on the outstanding positions and unrealised profit or loss as well as, to the extent practicable, the accrued profit or loss on a daily basis.**
- a) This information should be retained for audit and investigation purposes.
  - b) The system should also cover information on the positions of customers.

- c) The system should be able to monitor trading positions, market movements and credit exposures daily and preferably on a real-time basis.
  - d) The risk management system must consider correlations between markets and between categories of risk when evaluating risk positions. These correlations could result in the transmission of shocks from stressed conditions in one market to other markets or may significantly increase the aggregate overall risk to the Islamic bank, although individual risks, such as market and credit risks, may appear manageable when viewed independently. Due to such correlated risks, an Islamic bank's risk tolerance could be exceeded and so an Islamic bank should incorporate risk correlations in its risk assessments and stress testing. An Islamic bank whose trading and other financial activity are limited in volume, scope and complexity, may use less sophisticated methodologies.
- 3.3.7. Correlation between various market risk types in different countries for distinct product tenures should be recognised in risk aggregation. In such exercises, the correlation computation method should be empirically sound and periodically validated. Where correlation cannot be accurately determined, an Islamic bank should not assume zero correlation. Market risk measurement systems should also allow market risk to be broken down by factors such as risk type, customer, instrument or business unit.
- 3.3.8. Risk measurement systems should accurately capture market risks associated with options. Explicit options face non-linearity in prices while embedded options, such as instruments with prepayment rights, create uncertainty in cash flow timing.
- 3.3.9. The risk management framework should regularly evaluate market risk measurement models and assumptions to ensure that they provide reasonable estimates of market risk. In these reviews, the models should be independently validated, back-tested and re-calibrated when necessary.
- a) Validation should include verifying the consistency, timeliness, reliability, independence and completeness of data sources; the accuracy and appropriateness of volatility and correlation assumptions; and the accuracy of valuation and risk factor calculations.
  - b) A back-testing programme should also be conducted regularly to verify that the models are reliable in measuring potential losses over time. The verification should be done at both individual and consolidated levels to ensure that exceptional losses are not concealed in the aggregation. Exceptional back-testing may be warranted when there are significant market developments or when there are changes in the model or its major assumptions.
- 3.3.10. The Board and senior management should be cognizant of the strengths and limitations of the Islamic bank's market risk measurement systems, in order to determine the appropriate risk limits. They should also ensure that the material limitations of the models are well understood and provided for.

- 3.3.11. A screening process should be in place to ensure the integrity of data fed into the risk management system.
- a) Data used should be appropriate (e.g. marked-to-market data for trading activities), accurate, complete (e.g. both on- and off-balance sheet positions), timely, frequently updated and sourced independently of the position-taking units.
  - b) While the Islamic bank may use market data from reputable sources, it may process and integrate the data to better meet its needs. For instance, when calculating correlations and other parameters, an Islamic bank could use an observation period that would be relevant for all the financial instruments it trades in. However, the weighting and processing of data should be justified.
  - c) As a counter check, a separate data source could also be used to calculate parameters. Missing data should be addressed by appropriate methods, such as bootstrapping or interpolation techniques, and the integrity of “outliers” should be verified.
  - d) An Islamic bank should automate the data feed to its market risk management system to reduce incidence of manual error. There should be sufficient documentation of data sources used. Management should be alert to common data problems (e.g. incomplete data, lack of information on off-balance sheet positions, optionality embedded in loans and deposits). Data adjustments (e.g. to account for one-off events) should be documented, and the nature and reasons should be understood.

### **3.4. Risk Limits**

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- 3.4.1. **Risk limits for business units should be established, where appropriate, and approved and periodically reviewed by the Board and senior management respectively.** Changes in market conditions or the resources of the Islamic bank should prompt a re-assessment of limits.
- 3.4.2. Limits should preferably be integrated, where applicable, with group-wide limits for each major type of risk assumed. The Islamic bank should ensure consistency between the different types of limits.
- 3.4.3. The Islamic bank should also set limits that are sufficiently granular for effective risk control. For instance, limits for trading desks, portfolios, and dealers by markets, products, instruments and tenors, should be set, where appropriate.
- 3.4.4. Limits should be clearly understood by, and changes clearly communicated to, all relevant parties.

- 3.4.5. **Compliance with limits should be monitored by a unit independent of the risk-taking activities.** An Islamic bank should have procedures prescribing the course of action for limit excesses. These actions should include investigating the reasons for the excesses, reporting the incidents to management and seeking approval from the Board or senior management. These procedures should also prescribe the actions required for the approval of temporary excesses and limit increases.

### 3.5. Scenario Analysis and Stress Testing

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- 3.5.1. Stress testing should form an integral part of an Islamic bank’s overall market risk management process. An Islamic bank may choose scenarios based on analysing historical data of changes in market risk factors or creating forward-looking scenarios. The objective should allow the Islamic bank to assess the effects of changes in market risk factors on its holdings and financial condition. Hence, scenarios chosen could include low probability adverse scenarios that could result in extraordinary losses. Scenario analysis and stress tests should be both quantitative and qualitative.
- 3.5.2. **Scenario analysis and stress testing should, as far as possible, be conducted on a bank-wide basis, taking into account the effects of unusual changes in market and non-market risk factors.** Such factors include prices, benchmark rates, volatilities, market liquidity, historical correlations and assumptions in stressed market conditions, the Islamic bank’s vulnerability to worst case scenarios or the default of a large counterparty and maximum cash inflow and outflow assumptions.
- 3.5.3. With respect to stress testing, it is important for Islamic banks to understand and take account of the implications for risk management arising from the differences between their operations and balance sheet structures and those of their conventional counterparts. Likewise, a unique feature in the case of Islamic banks is the fact that market risk arises together with credit risk in the context of *Syariah*-compliant financing operations, giving rise to what may be termed “market risk in the banking book”<sup>4</sup>.
- 3.5.4. **Islamic banks should take into account various positions in the *Syariah*-compliant financial instruments in trading portfolios considering a range of exceptional but plausible market shocks as part of their bank-wide stress testing. Dependencies among different markets and sectors, and consequentially increasing correlations, should be factored into stress testing. Stress testing for holders of *Syariah*-compliant securities should consider, inter alia, exposure to market risk of the underlying assets, including their exposures to systematic market factors, market liquidity factors, as well as legal risk and relevant contractual arrangements and embedded triggers in *Syariah*-compliant securitization structures.**

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<sup>4</sup> For instance, in a Murabahah transaction, the market risk “transforms” into credit risk, in the sense that the market risk exposure to the subject matter of the contract which is applicable when the latter is held by the Islamic bank prior to the sale is replaced after the sale by the credit risk exposure to the counterparty if the payment is on deferred terms.

- 3.5.5. Scenario analysis and stress testing would enable the Board and senior management to better assess the potential impact of various market related changes on the Islamic bank's earnings and capital position and business strategies.
- 3.5.6. The Board and senior management should regularly review the results of scenario analyses and stress testing, including the major assumptions that underpin them. The results should be considered during the establishment and review of policies and limits. Depending on the potential losses projected by the scenario analysis and stress tests and the likelihood of such losses occurring, the Board and senior management may consider additional measures to manage the risks or introduce contingency plans.

### **3.6. Use of Investment Managers**

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- 3.6.1. Where an Islamic bank engages the services of investment managers, they should be monitored to ensure that the Islamic bank's strategy is adhered to. There should be a formal written agreement between the Islamic bank and the investment manager.
- 3.6.2. **An Islamic bank's investment strategy and accompanying risk identification, assessment, measurement, monitoring, control and reporting processes** (e.g. asset allocation, liability portfolio matching criteria, limit structures and dealing authority, and performance analysis) must be documented and signed off by the Board and senior management.
- 3.6.3. The reports made by investment managers should be sufficient to enable an Islamic bank to assess whether their operations are in line with the Islamic bank's strategy and, in particular, meet the Islamic bank's risk-reward criteria. The reporting should also allow the Islamic bank to ascertain if it is in compliance with relevant regulatory requirements.
- 3.6.4. There should be a clear investment mandate setting out the parameters within which the investment manager may operate. It should be tailored to take into consideration legislative constraints, investment limits set by the Islamic bank and, more generally, the Islamic bank's specific circumstances.
- 3.6.5. Apart from any specific limits, the parameters need to strike an appropriate balance between risk and reward, taking into account the nature of the Islamic bank's liabilities and, where appropriate, the interests and reasonable expectations of its stakeholders.
- 3.6.6. If an investment manager holds funds on behalf of the Islamic bank, or is a counterparty to certain investment transactions, the capitalisation and financial standing of the manager should be regularly assessed.

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