Translation by Danske Bank of a statement dated 22 August 2013 from the Danish Financial Supervisory Authority (*Finanstilsynet*). In case of discrepancies, the Danish version prevails.

Statement on independent investigation of Danske Bank's market risk area

Introduction

In its letter dated 5 December 2012, the Financial Council ordered Danske Bank to have an impartial investigation of its market risk area conducted. The reason was that over a few years, the bank had had very large earnings on market risk activities, also in comparison with peer earnings in the area. The investigation was to determine whether Danske Bank had assumed market risks in excess of those permitted by its market risk policy and the guidelines issued by the board of directors to the executive board. Moreover, the investigation was to test whether Danske Bank's market risk calculations reflected its actual market risks. The investigation was also to show whether, in the market risk area, the bank incurred operational risk not commensurate with the earnings contributed by the area.

The bank chose to appoint the Oliver Wyman consulting firm for the task, and the Council did not have any comments on this decision.

The Danish Financial Supervisory Authority (the FSA) received the final report from Oliver Wyman on 18 June 2013. The report has been submitted to the Financial Council together with the FSA's decision to the bank.

Oliver Wyman's overall assessment of the bank's risk management and control of its market risk area is that they are satisfactory, and Oliver Wyman has not made any material critical comments. The report did, however, point to some areas that could be improved.

The Danish Financial Supervisory Authority (the FSA) subsequently conducted further investigations to elaborate on and supplement the facts on which Oliver Wyman's conclusions are based. Against this background, the FSA found reason to issue orders to the bank. The orders are set out below.

1. Organisation

Market Risk's place in the organisation

When Oliver Wyman investigated Danske Bank's market risk area, the market risk function ("Market Risk") was located under 'Group Finance and Legal' in Danske Bank's organisational setup. Accordingly, Market Risk reported to CFO Henrik Ramlau-Hansen. In its report, Oliver Wyman points out that most of the bank's Nordic and European peers place their corresponding market risk functions as part of their risk management function.

Oliver Wyman is of the opinion that this organisation increases the complexity of risk management across the organisation and the need for coordinating and prioritising risk reporting across the organisation, in particular. Specifically, Oliver Wyman is of the opinion that the bank's organisation results in an increased need for coordination between Group Risk Management and Market Risk.

Oliver Wyman points out that as a result of the bank's organisation, the bank needs to focus on the management of risks across risk areas such as credit spread risk, and to make sure that the other parts of the bank have the knowledge of market risk required to ensure that proposals from Market Risk are challenged to the extent necessary (see below).

> **Order:** The bank must submit documentation to the FSA on the measures it has taken in light of the organisation of Market Risk to ensure that risks are managed adequately across the organisation.

The FSA has noted that the bank has already taken initiatives to change its organisation in the market risk area, so that Market Risk will in future report to CRO Robert Endersby.

Oliver Wyman further points out that there is only limited evidence that the other parts of the organisation (that is, the functions outside Market Risk) are able, to a sufficient extent, to challenge the technical proposals from Market Risk.

> **Order:** The bank must on an ongoing basis consider and document whether the functions outside Market Risk which are to consider changes to the internal models in the market risk area, in particular the Risk Model and Parameter Committee, possess the required knowledge of and competencies in the market risk area.

The FSA has noted the bank's statement confirming that the bank will improve the documentation of the discussions about the internal models in the market risk area, ensuring that it shows that the recommendations from

Market Risk are challenged. The bank has also stated that the validation of internal models will in future take place independently of Market Risk, and that it will be carried out by an external consultant. The Model and Parameter Committee will thus have to ensure only that the independent validation has been carried out in accordance with the method agreed.

Governance in relation to Market Risk

Oliver Wyman has found that an important part of the bank's discussions about market risk take place outside the relevant committees. The conclusions of the discussions are not submitted to the relevant committees. This creates a risk of lower transparency in relation to the decisions in the market risk area and consequently a risk that material decisions are made on a less well-informed basis in the committees mentioned.

The bank has stated that the informal meetings referred to in the Oliver Wyman report are review meetings at Danske Markets. The purpose of these meetings is to ensure good cooperation across the organisation by discussing relevant issues. Subjects such as IT development, administrative matters and presentations on business issues contribute to improving cross-organisational understanding and illuminate the challenges the various areas face. The bank states that it has never been the intention that the meetings should have decision-making authority regarding risks or other issues treated by the committees set up for this purpose.

The bank has also stated that the future agendas of the informal meetings will be sent to the All Risk Committee.

> **Risk information**: If important discussions of the bank's risks take place outside the committees to which the bank's management has given decision-making authority, there is a risk that the decisions are not made on a fully-informed basis.

Oliver Wyman also points out that Market Risk is not represented on the All Risk Committee. The All Risk Committee lays down the general principles for measuring, managing and reporting on the group's risks, including market risk, on the basis of the guidelines and framework that the board of directors has given the All Risk Committee.

The bank has stated that the head of Market Risk has become a member of the All Risk Committee.

Market Risk's resources

Oliver Wyman is of the opinion that Market Risk has a relatively small staff compared with the staffs at the bank's peers. In addition, the coming models for specific risk and counterparty risk are likely to add to the tasks of Market Risk.

Oliver Wyman also points out that Market Risk depends on a number of experienced employees with comprehensive professional knowledge who can also see issues from a broader perspective. These persons are key employees, and there is a risk that Market Risk would not be able to perform its tasks satisfactorily if they were to leave Market Risk.

The FSA has noted that the bank has stated that, in the spring of 2013, five new full-time employees, including several experienced employees, joined Market Risk. Market Risk's staff now consists of 46.4 FTE. The bank also states that the executive board has undertaken to add further resources to the department if the need to do so is documented.

The bank has furthermore stated that it is aware of the issue concerning the department's key employees. To reduce the department's dependency on specific staff members, at least two persons must be able to perform the specific tasks of the department. Regular task rotation is also required.

Model validation

Market Risk develops models for calculating the bank's market and counterparty risks. The development and the responsibility for the validation of the models are located in the same function. Oliver Wyman points out that this organisation does not properly ensure the independence of the validation of internal models for the market risk area. It is pointed out that the non-segregation of duties can compromise the validation and cause doubt about whether the issues raised in connection with model validation are properly addressed.

> **Order**: The bank must ensure that the validation of models for the market risk area is sufficiently independent of the model development.

The FSA has noted that the bank has stated that the development of new models and material changes to existing models used for capital adequacy purposes will in future be validated by an external consulting firm (Oliver Wyman). The bank has stated that this procedure will be followed from the third quarter of 2013, and the bank has entered into a contract including a time schedule and a description of the task.

2. Calculation of risks and earnings

Credit spread risk

The credit spread risk on the bond holdings, which is an important market risk for the bank, is assessed when the bank's ICAAP takes place. According to Oliver Wyman, otherwise only a limited ongoing quantification is made. The risk is quantified on the basis of nominal value and a 1 bp shock. The credit spread risk is not included in the bank's VaR model, but the bank is currently working on an expanded VaR model that will include specific risk. The bank expects to submit an application to the FSA in the third quarter of 2013.

According to Oliver Wyman, the two risk measures mentioned do not constitute a sufficient quantification of the credit spread risk. In addition, the shock selected is somewhat smaller than the shock selected for other risks.

The ongoing reporting on the credit spread risk is limited both as regards the presentation of risk figures and the analysis of scenario effects. The result could be that management does not acquire a clear picture of credit spread developments and the factors that influence the risk on the bond holding.

The reporting to the board of directors and the All Risk Committee concerning the bond holdings includes a list of the positions and the sensitivities of the values of the positions in case of a 1 bp change. According to Oliver Wyman, these two measures do not give a picture of the actual size of the risks on the bank's portfolio, however, nor of how the risks change over time. Since specific risk is not currently covered by the bank's Value-at-Risk model, additional risk measures are required.

In 2009, the bank determined an add-on to its solvency need of DKK 1 billion to cover the specific risk not covered by the internal model. When the add-on was determined in 2009, the bank thoroughly discussed credit spread risk. Both the executive board and the board of directors were involved in the discussion. According to our information, the bank has not held such discussions since then. One exception is that Market Risk addresses this risk during the annual ICAAP, which is approved by the executive board and the board of directors, on the basis of any change in the holding of mortgage bonds.

The FSA has noted the bank's statement that, following Oliver Wyman's comments, the bank has expanded its quantification of the credit spread risk and implemented a temporary stand-alone VaR model for credit spread risk similar to the model that Oliver Wyman used for its investigation. The temporary model will be used until a new VaR model covering specific risk has been approved. The bank has set a limit of DKK 400 million, and the current utilisation is DKK 300 million.

In addition, the bank has stated that management will receive reporting on an ongoing basis since the limit control is integrated in the existing controls, and reporting to the All Risk Committee and the board of directors will occur with the same frequency as reporting concerning the general VaR model.

Finally, the bank has informed the FSA that it has decided to increase the add-on to the solvency need by DKK 300 million to a total of DKK 1.3 billion from the second quarter of 2013.

Stress testing

Oliver Wyman points out that ongoing reporting includes neither historical nor hypothetical market-risk-specific scenarios. Risk-factor stress testing does not include stress tests of correlations across risk factors.

Oliver Wyman further points out that the internal risk reports in the market risk area do not contain results of market-risk-specific stress scenarios, which would be relevant in relation to the portfolios of Markets and Treasury.

The bank has sent the FSA the risk reporting to the board of directors and the executive board at the end of the second quarter of 2013. As a result of Oliver Wyman's comments, the reporting has been expanded and now includes a scenario-specific market risk stress test covering all primary market risk dimensions of the bank's portfolio, including spread risk. The scenario is based on the agreed market risk appetite, and the stress test measures the consequences of stressing the risk appetite. The calculations and reporting of the results are submitted to the All Risk Committee once a month and to the board of directors quarterly.

Systems

Overall, Oliver Wyman finds that the bank's IT systems in the market risk area are more fully integrated than the systems of many of the bank's peers.

Oliver Wyman points out, however, that the integration between earnings data and risk data is insufficient and finds that the bank should be able to perform a more detailed risk/earnings correlation analysis than what proved possible during the investigation.

The fact that Market Risk and Group Accounts calculate risk and profits or losses across different hierarchies means that the bank cannot analyse the relation between risk and profit or loss at other levels than for Danske Markets and Group Treasury. This results in a material limitation of the possibility for the bank's management to assess whether the relation between risk and return is satisfactory.

Oliver Wyman points out that the bank is also unable to break down profit and loss figures in a way that enables it to identify the reasons for them, for example whether earnings stem from spreads on customer trades or from the bank's own speculative positions. According to Oliver Wyman, the picture is further complicated because the investment of short-term liquidity on behalf of the group, which Markets manages, has a positive effect on the earnings at Markets.

Oliver Wyman points out that the bank's peers are able to perform this analysis. Only the largest banks can do it on an ongoing basis, but a bank of the size of Danske Bank should be able to do it at least on an ad hoc basis.

> **Order**: The bank must regularly and at least once a quarter calculate the relation between risk and return in the risk areas in order to provide management with a sufficiently clear picture of this relation; as part of this reporting, the bank must be able to break down trading data to allow management to clearly identify the source of the earnings in the area, and it must be possible to compare the earnings in the areas with the risk incurred.

The FSA has noted that the bank is working on increasing the degree of detail in the calculation of profits and losses. The bank has launched an IT project with the aim of increasing the degree of detail and thus the explanatory value regarding the elements of profits and losses, including profits and losses on intra-day trades, carry and profits and losses generated by changes in the markets.

The bank indicates that the first IT delivery for a sub-area is being tested, and that it expects two-thirds of the Markets area to be covered by the end of 2013. The remaining part, covering the mortgage bond area principally, is expected to be implemented by the end of the second quarter of 2014.

The bank has also stated that it is working on a breakdown of Markets' profits and losses by risk area. The bank is of the opinion that this will provide the required degree of detail, whereas a breakdown by product would blur reporting and often make no sense.

From the third quarter of 2013, the bank expects to prepare a report comparing profits and losses with risk, broken down by risk area.[1] It appears that for the two first quarters, it will be necessary to incorporate a number of assumptions in the calculations until the breakdown mentioned is in place.

Oliver Wyman also points out that the product classifications used by Market Risk, Accounting and Markets differ. This approach makes it difficult to analyse products across the various departments, given the differences in products and degrees of detail. Oliver Wyman furthermore points out that there is no up-to-date reference showing the relation between the different product definitions.

This can lead to inefficiency and errors if risk management relies on ad hoc documentation when analysing the significance of risks at the product level.

The FSA has noted that the bank has stated that an IT project to address this issue has been established. Mapping to other systems will be part of this project.

Funding

In connection with Oliver Wyman's analysis of the bank's income, Oliver Wyman examined the sensitivity of income at Markets and Treasury to changes in funding costs. The report states that the internal funds transfer pricing used by the bank to calculate income in Markets and Treasury is significantly lower than the price at which the bank obtains funding in the market.

> **Order**: By 1 October, the bank must submit a statement to the FSA showing how it has determined funds transfer pricing for Markets, Treasury and the other income areas, and the extent to which such pricing conforms to the price at which the bank obtains funding in the market.

The bank has informed the FSA that it is currently working on defining a new FTP settlement method that will fix a new settlement price for activities in Danske Markets and the other business units. The current FTP method consists of several elements – internal interest rate, investment bank fee, etc. – which together constitute settlement of the balance at Danske Markets. Before a new model can be implemented, the bank will seek to separate the statutory liquidity requirement from the day-to-day operating liquidity requirement that Danske Markets is charged with managing. This separa-

[1] These risk areas are defined as complex risk, management, repo, rates, mortgages, DCM, equities, FX and money market. This method is similar to the method Oliver Wyman used for the investigation.

tion will also affect a new FTP model for Danske Markets. More precisely, it will take into account Danske Markets' use of liquidity to fund its own customers' trade in capital markets products, including liquidity for derivatives collateral and repo haircuts.

3. Risk management and controls

Oliver Wyman points out that the bank does not systematically document and store the analyses underlying the periodical assessment of whether the risk factors used for calculating limits adequately reflect the risks attached to the bank's portfolio. This is also the case for the bank's procedure for assessment of whether its VaR model incorporates the relevant risk factors/variables.

According to Oliver Wyman, a procedure is needed to identify potential risk factors and assess the qualitative and quantitative materiality of the risk factors in relation to incorporation in the internal VaR model. Such procedure should include an annual assessment based on the existing portfolio with a view to assessing the risks to which the bank is exposed as a result of its current portfolio. According to Oliver Wyman, this analysis should result in a watch list for risks to be considered.

Oliver Wyman also points out that if new and relevant risk factors are detected as a result of backtesting, product approval procedures or changes in market conditions, these risk factors must be added to the watch list.

Finally, Oliver Wyman believes that the bank should monitor the risk factors included on the watch list on an ongoing basis. In this connection, the bank must assess the materiality of the risk factors in order to decide when to incorporate them in the VaR model and when explicit limits should be set on these variables.

> **Order**: The bank must establish procedures to identify relevant risk factors to be incorporated in the VaR model and for which limits must be fixed. The bank must ensure that this work is documented.

The FSA has noted that the assessment of the bank's internal VaR model, which must be conducted at least once a year, in future will include improved documentation of specific areas of assessment and a consideration of a broader range of potential risk factors. At the same time, the bank will introduce a quarterly risk factor review.

In addition, the bank has informed the FSA that it will conduct a quarterly risk factor review that will consider backtesting of the VaR model, assessment of the model, developments in Markets' positions and any new products that have been approved and implemented. These quarterly reports will be submitted to the management team at Market Risk for approval and for use in planning. The first report will be prepared at the end of July and will cover the second quarter of 2013.

Intra-day limit monitoring

Oliver Wyman has examined the bank's intra-day limit monitoring and states that, in their opinion, it is inadequate. The control is made only once during the day, and there are too few controls in view of the number of limits fixed. In addition, there are certain variables that the intra-day control cannot cover because of IT system limitations.

The bank has informed the FSA that at the time of the investigation, the bank was working to implement a new IT solution for its limit system. The new intra-day monitoring system is now implemented. It covers all limits and ensures that at least two intra-day runs are made every day.

Moreover, the bank has informed the FSA that a beta version of the future system that monitors limits in real time will be delivered mid-July 2013, which is according to schedule.

Limit excesses

In connection with the investigation, Oliver Wyman also examined the limit structure and reporting of limit excesses. Oliver Wyman's report finds that limit excesses are reported to the relevant parties in accordance with the limit structure. Moreover, the board of directors, the All Risk Committee and Market Risk also receive a quarterly overview of any limit excesses. Oliver Wyman does point out, however, that management would benefit from receiving similar reporting of excesses further down the instruction hierarchy. According to Oliver Wyman, such information would provide useful insight into the operational environment and the risk culture at the bank.

As a result of Oliver Wyman's comments, the bank has introduced a new quarterly report that is submitted to the All Risk Committee. The report is divided into two sections. The first section is quantitative and shows statistics on limit excesses in the preceding quarter below the All Risk level of the limit hierarchy. The second section is qualitative and provides a review of limit excesses if such excesses should occur repeatedly below the All Risk level of the limit hierarchy.

4. Reporting to the board of directors

Reporting from Market Risk provides information on limits, portfolio concentrations and relevant risk targets. Oliver Wyman points out that an easily accessible summary of quantified risk targets, an indication of the relative importance of the risk targets and highlighting of any events that have led to changes to the risk targets since the preceding report would also be desirable.

The board of directors receives comprehensive material in connection with board meetings, and the FSA finds it important that the material and the information sent to the board of directors are prioritised. It is also important that the information is easily accessible and put into a relevant context.

> **Order:** Reporting to the board of directors must be sufficiently clear so that the relative importance of risk targets is evident and that the emphasis is on events that may have resulted in material changes to risks since the preceding report. Reporting must cover all material risks, not only those than are quantifiable.

The bank has provided the FSA with documentation that shows that from the board meeting in August 2013, reports to the board of directors will include a summary of the most important quantified risk targets, an indication of the relative importance of the risk targets and changes in the bank's positions and the market situation.

5. Other matters

Documentation of estimates

Danske Bank uses a model to calculate counterparty risk for the majority of its trades. The model is not used for complex products, however, as it is not considered suited for this purpose. A proxy is used for these products. One of the elements of the proxy is an add-on that depends, among other factors, on the type of asset, maturity, collateral, complexity and currency of the product. The bank currently operates with more than 12,000 different add-ons.

Oliver Wyman has noted that certain parts of the add-ons are based on estimates. These add-ons do not, however, relate to products that constitute a material part of the portfolio. Oliver Wyman finds that the determination of these add-ons is not documented.

The bank has informed the FSA that Market Risk will in future perform an annual validation of the add-ons in question. The validation will include backtesting and will be documented. In this connection, the bank has stated that in its opinion, it is a number of instruments in the *structured products* product group, which are traded back-to-back, that have an add-on that involves an estimate. The volume in question is small, both in terms of number and risk.

Pre-trading controls

Oliver Wyman points out that for the more complex products, no pre-trading controls have been established to prevent the bank from executing trades with specific wrong-way risk or trades that require pre-approval.

Oliver Wyman has stated that this concerns a very limited area. The lack of control means that any excess will be detected only in connection with the end-of-day control.

The bank has informed the FSA that in relation to trade in complex products, the individual dealers at Danske Markets have been instructed to check that the product has been approved prior to entering into a trade with a customer. Danske Markets has a website that lists approved products and may also state the number of trades that have been approved, etc. In addition, Middle Office monitors these non-standard transactions on an ongoing basis.

In relation to specific wrong-way risk, the bank treats this type of risk in, for example, its credit policy and during the approval phase, and the bank has procedures to identify these transactions. The bank has informed the FSA that its procedures in this area are adequate and that in practice, it is not considered a problem.