

Goldman Sachs Bank Europe SE: Best Execution Reports under RTS 28

This report has been prepared by Goldman Sachs Bank Europe SE ("Goldman Sachs") for the period ending 31 December 2018 (the "Reporting Period") for the purposes of meeting Goldman Sachs' regulatory obligations under Article 65(6) of Commission Delegated Regulation 2017/565 and Article 27(6) of Directive 2014/65/EU ("MiFID II") which requires Goldman Sachs to annually publish (i) the top five venues where it executed clients orders; and (ii) the top five firms to whom it transmitted or placed client orders for execution, in respect of each class of financial instruments noted below. This report also provides information on Goldman Sachs' assessment of the quality of execution it obtained from these execution venues and firms (based on its internal monitoring), for each class of financial instruments. Goldman Sachs does not guarantee the correctness or completeness of the information in this report and shall not be responsible for or have any liability whatsoever for any loss or damage caused by errors, inaccuracies or omissions in connection with use or reliance on this information. Goldman Sachs reserve the right to amend, update or re-state the information contained in this report at any time.

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Equities Shares & Depositary Receipts

Reporting Entity: GSBE
 Top Five Venue Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | | Equities - Shares & Depositary Receipts - Tick size liquidity bands 1 and 2 (from 0 to 79 trades per day) | | | |
|---|--|---|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | | N/A | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

Top Five Broker Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | | Equities - Shares & Depositary Receipts - Tick size liquidity bands 1 and 2 (from 0 to 79 trades per day) | | | |
|---|--|---|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | | N | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| S81F8KH474EY7PUW1149 - (GS) GOLDMAN SACHS BANK AG ZURICH | 54.27 | 51.50 | 8.00 | 92.00 | 0.00 |
| FOR8UP27PHHYVLBNG30 - GOLDMAN SACHS & CO. LLC | 41.66 | 41.51 | 8.00 | 92.00 | 0.00 |
| W22LROWP2IHZNBB6K528 - (GS) GOLDMAN SACHS INTERNATIONAL | 4.07 | 6.99 | 8.00 | 92.00 | 0.00 |
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Equities Shares & Depositary Receipts

Reporting Entity: GSBE
 Top Five Venue Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Equities - Shares & Depositary Receipts - Tick size liquidity bands 3 and 4 (from 80 to 1999 trades per day) | | | | | |
|--|--|--|------------------------------|---------------------------------|-------------------------------|
| Class of Instrument | Equities - Shares & Depositary Receipts - Tick size liquidity bands 3 and 4 (from 80 to 1999 trades per day) | | | | |
| Notification if <1 average trade per business day in the previous year | N/A | | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

Top Five Broker Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Equities - Shares & Depositary Receipts - Tick size liquidity bands 3 and 4 (from 80 to 1999 trades per day) | | | | | |
|--|--|--|------------------------------|---------------------------------|-------------------------------|
| Class of Instrument | Equities - Shares & Depositary Receipts - Tick size liquidity bands 3 and 4 (from 80 to 1999 trades per day) | | | | |
| Notification if <1 average trade per business day in the previous year | N | | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| S81F8KH474EY7PUW1149 - (GS) GOLDMAN SACHS BANK AG ZURICH | 64.56 | 48.47 | 8.00 | 92.00 | 0.00 |
| FOR8UP27PHHYVLBNG30 - GOLDMAN SACHS & CO. LLC | 30.74 | 40.49 | 8.00 | 92.00 | 0.00 |
| W22LROWP2IHZNBB6K528 - (GS) GOLDMAN SACHS INTERNATIONAL | 4.70 | 11.04 | 8.00 | 92.00 | 0.00 |
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Equities Shares & Depositary Receipts

Reporting Entity: GSBE

Top Five Venue Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Equities - Shares & Depositary Receipts - Tick size liquidity bands 5 and 6 (from 2000 trades per day) | | | | | |
|--|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | | | | | |
| N/A | | | | | |
| Class of Instrument | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| Top five execution venues ranked in terms of trading volumes (descending order) | | | | | |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

Top Five Broker Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Equities - Shares & Depositary Receipts - Tick size liquidity bands 5 and 6 (from 2000 trades per day) | | | | | |
|--|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | | | | | |
| N | | | | | |
| Class of Instrument | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| Top five execution venues ranked in terms of trading volumes (descending order) | | | | | |
| S81F8KH474EY7PUW1149 - (GS) GOLDMAN SACHS BANK AG ZURICH | 64.71 | 52.78 | 8.00 | 92.00 | 0.00 |
| W22LROWP2IHZNBB6K528 - (GS) GOLDMAN SACHS INTERNATIONAL | 35.29 | 47.22 | 8.00 | 92.00 | 0.00 |
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1. Topic 1: an explanation of the relative importance the firm gave to the execution factors of price, costs, speed, likelihood of execution or any other consideration including qualitative factors when assessing the quality of execution:

This qualitative commentary covers the activity of the Private Wealth Management Division which is the only part of Goldman Sachs Bank Europe SE ("GS") providing execution services to professional clients. For further information on the Private Wealth Management Division's best execution arrangements please refer to the relevant summary which is available at: <http://www.goldmansachs.com/disclosures/mifid/>.

Where GS determined it had a best execution obligation in respect of an order, GS took into account the following criteria for determining the relative importance of the execution factors in the circumstances:

- the characteristics of the client including the regulatory categorisation of the client;
- the characteristics of the relevant order;
- the characteristics of financial instruments that are the subject of the relevant order; and
- the characteristics of the execution venue to which that relevant order can be directed.

Subject to any specific instructions, taking into account the criteria above, GS generally gave the highest priority to net price. The remaining execution factors were generally given equal ranking.

Notwithstanding the above, we prioritised one or more of the other execution factors in certain scenarios: (i) where there was insufficient immediately available liquidity on the relevant execution venues to execute the relevant order in full; or (ii) where a client instructed us to work a relevant order over a period of time or by reference to a benchmark calculated over a period of time (such as VWAP); or (iii) we determined that there were other circumstances such that obtaining the best immediately available price was not be the best possible result for the client. In these cases, we determined the relative priority of each execution factor on an order-by-order basis, where the order was executed manually, and by order type (e.g. iceberg, VWAP), where the order was executed using an algorithm. We have a degree of discretion in how to apply the different execution factors and this may have resulted in a range of different permissible approaches to executing client orders.

GS uses brokers, including affiliate brokers, to access equities markets for which it does not have a direct membership itself.

2. Topic 2: a description of any close links, conflicts of interests, and common ownerships with respect to any execution venues used to execute orders;

Goldman Sachs and persons connected with the Goldman Sachs group of companies provide diversified financial services to a broad range of clients and counterparties and circumstances may arise in which GS may have a conflict of interest.

GS is a member of the Goldman Sachs group of companies. The Securities Division of Goldman Sachs International (GSI) may execute transactions in certain asset classes with or through affiliated entities. Execution quality received from affiliated entities is subject to the same monitoring and assessment applied to third party entities and execution venues utilised for execution of client orders.

GS has close links and/or common ownership with respect to the following entities:

SIGMA X MTF – GSI is under common ownership with Goldman Sachs International Bank which operates SIGMA X MTF, a multilateral trading facility for trading in European equity and equity-like instruments. SIGMA X MTF is operated on an independent and segregated basis to other Goldman Sachs businesses. GSI is itself one of several trading participants on SIGMA X MTF. For further information on SIGMA X MTF please visit the SIGMA X MTF website at <http://gset.gs.com/sigmaxmtf/>.

In addition, Goldman Sachs Group entities may have (i) minor, non-controlling ownership stakes in companies which operate or own execution venues and/or; (ii) be founding consortia members of execution venues for which it has revenue share arrangements, which Goldman Sachs may ultimately use to execute orders on behalf of clients in certain financial instruments, including:

- BIDS Holdings L.P.
- CHX Holdings, Inc.
- Chi-X Global Holdings LLC
- SBI Japannext Co., Ltd.
- National Stock Exchange of India Limited
- Turquoise Global Holdings Limited

Goldman Sachs' decision to route orders to a particular venue for execution is determined by whether execution on such venues allows us to satisfy our best execution obligations and is not influenced by any such ownership or revenue share arrangements.

The Private Wealth Management Division executes these financial instruments primarily via the Securities Division of Goldman Sachs, including Goldman Sachs Bank AG Zurich and where appropriate, other GS affiliates.

For further details on the execution venues used by the Private Wealth Management Division and its conflicts of interest policy, please refer to the Private Wealth Management Division's best execution summary which is available at: <http://www.goldmansachs.com/disclosures/mifid/>.

3. Topic 3: a description of any specific arrangements with any execution venues regarding payments made or received, discounts, rebates or non-monetary benefits received;

Some execution venues may offer differing fee plans to trading members depending on the volume and nature/type of a trading activity on the venue as well as fee discounts depending on average volume of trading undertaken. Such arrangements apply equally to all trading members who satisfy the relevant criteria under the execution venue's rules. Information on such arrangements is publicly available on the relevant execution venue's website. Goldman Sachs' decision to route orders to a particular venue for execution is determined by whether execution on such venue allows us to satisfy our best execution obligations and is not influenced by any such fee structure or volume discount.

4. Topic 4: an explanation of the factors that led to a change in the list of execution venues listed in the firm's execution policy, if such a change occurred;

Goldman Sachs maintains internal procedures for the selection of Brokers, Trading Venues and other Execution Venues, both at the stage of on-boarding and throughout the relationship, in order to satisfy ourselves that those selections enable us to obtain best execution on a consistent basis. These procedures include undertaking due diligence and periodic assessments of execution quality.

In response to evolving market structure and client demand, Goldman Sachs frequently evaluates existing and new execution venues. Goldman Sachs has added a variety of new execution venues during the reporting period, more specifically systematic internalisers and MTF's offering periodic auction and conditional order type functionality, including:

Systematic Internalisers: Jane St, Sun, Tower, Virtu, XTX, Hudson, Citadel Europe
 MTFs (periodic and conditional order books (as applicable)): Acquis, First North Auction on Demand, Nordic Growth Market, ITG Posit, Liquidnet
 Primary Markets: Tadawul (Saudi Stock Exchange)

As part of our periodic evaluation of execution venues Goldman Sachs reviews a variety of execution performance metrics, including addressable liquidity, fill rate, mark-outs and latency.

5. Topic 5: an explanation of how order execution differs according to client categorisation, where the firm treats categories of clients differently and where it may affect the order execution arrangements;

The Private Wealth Management Division provides order execution for retail and professional clients.

A client's regulatory categorisation is an important factor both in the assessment of whether the client is relying on GS to deliver best execution and in providing best execution. The starting presumption is that retail clients do legitimately rely on GS to protect their interests in relation to pricing and other elements of the transaction that may be affected by the choice made by GS in executing the relevant order (i.e. GS owes a duty of best execution to retail clients) and professional clients do not legitimately rely on GS to protect their interests; however, these presumptions may be revised depending on the application of the four-fold test for determining legitimate reliance to the particular circumstances of GS' interaction with the client and how the market operates for the relevant product.

Subject to any specific instructions, GS will generally give the highest priority to:

- net price for professional clients; and
- total consideration for retail clients,

the remaining execution factors are generally given equal ranking.

6. Topic 6: an explanation of whether other criteria were given precedence over immediate price and cost when executing retail client orders and how these other criteria were instrumental in delivering the best possible result in terms of the total consideration to the client;

Not applicable.

7. Topic 7: an explanation of how the investment firm has used any data or tools relating to the quality of execution, including any data published under RTS 27;

GS has in place post-execution supervisory monitoring procedures which use market data, where it is available, to assess relevant client transactions. Where appropriate market data is not available, other criteria are used to review relevant client transactions for monitoring purposes. This monitoring is undertaken on a systematic basis via best execution monitoring systems or, where required, on a manual basis in accordance with internal monitoring policies and procedures. As part of its overall best execution monitoring framework and on-going assessment of execution venues utilised, GS may also take account of information published under RTS 27 by those execution venues (if applicable) alongside data sources used as part of its systematic best execution monitoring arrangements.

8. Topic 8: where applicable, an explanation of how the investment firm has used output of a consolidated tape provider established under Article 65 of Directive 2014/65/EU.

N/A

Debt instruments: (i) Bonds

Reporting Entity: GSBE
 Top Five Venue Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | | Debt instruments: (i) Bonds | | | |
|---|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | | N/A | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

Top Five Broker Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | | Debt instruments: (i) Bonds | | | |
|---|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | | N | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| S81F8KH474EY7PUW1149 - (GS) GOLDMAN SACHS BANK AG ZURICH | 49.81 | 32.12 | N/A | N/A | N/A |
| W22LR0WP2IHZNBB6K528 - (GS) GOLDMAN SACHS INTERNATIONAL | 28.93 | 56.95 | N/A | N/A | N/A |
| FOR8UP27PHTHYVLBNG30 - GOLDMAN SACHS & CO. LLC | 21.26 | 10.93 | N/A | N/A | N/A |
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1. Topic 1: an explanation of the relative importance the firm gave to the execution factors of price, costs, speed, likelihood of execution or any other consideration including qualitative factors when assessing the quality of execution:

This qualitative commentary covers the activity of the Private Wealth Management Division which is the only part of Goldman Sachs Bank Europe SE ("GS") providing execution services to professional clients. For further information on the Private Wealth Management Division's best execution arrangements please refer to the relevant summary which is available at: <http://www.goldmansachs.com/disclosures/mifid/>.

These instruments are typically traded on a request for quote basis, including where clients approach us for a quote or are responding to our streamed prices/indications of interest through electronic platforms where we predominantly act in a principal capacity and the client ultimately decides whether to proceed with the transaction based upon the price provided by us and those of other liquidity providers from whom it has sourced quotes. Generally we would not expect clients to be legitimately relying on us to provide best execution and therefore our best execution obligations for these instruments are likely to apply in more limited circumstances than for other asset classes.

The Private Wealth Management Division operates an "open architecture" model for executing all fixed income trades where the Securities Division of Goldman Sachs is one of the possible execution venues. Where the open architecture platform does not support a certain product or an order is subject to specific instructions the Private Wealth Management Division can trade through the Securities Division.

To the extent we determined we owed a best execution obligation and subject to any specific instructions, GS generally gave the highest priority total consideration for professional clients.

2. Topic 2: a description of any close links, conflicts of interests, and common ownerships with respect to any execution venues used to execute orders;

Goldman Sachs and persons connected with Goldman Sachs provide diversified financial services to a broad range of clients and counterparties and circumstances may arise in which GS may have a conflict of interest.

Goldman Sachs Group entities may have (i) minor, non-controlling ownership stakes in companies which operate or own execution venues and/or; (ii) be founding consortia members of execution venues for which it has revenue share arrangements, which Goldman Sachs may use to execute orders on behalf of clients or to respond to clients' requests for quotes in certain financial instruments, including

- Tradeweb LLC
- Bloomberg
- MarketAxess

Our decision to route orders to, or respond to clients' request for quotes on, a particular execution venue is determined, as applicable, by whether execution on such venues allows us to satisfy our best execution obligations or as necessary to interact with clients and is not influenced by any such ownership or revenue share arrangements.

The Private Wealth Management Division operates an "open architecture" order execution platform for executing all fixed income trades unless the open architecture platform does not support a certain product or an order is subject to specific instructions. Where this is the case, Private Wealth Management Division can trade through the Securities Division of GSI.

For further details on the execution venues used by the Private Wealth Management Division and its conflicts of interest policy, please refer to Private Wealth Management Division's best execution summary which is available at: <http://www.goldmansachs.com/disclosures/mifid/>.

3. Topic 3: a description of any specific arrangements with any execution venues regarding payments made or received, discounts, rebates or non-monetary benefits received;

This is not applicable to the Private Wealth Management Division's open architecture order execution platform in these financial instruments.

4. Topic 4: an explanation of the factors that led to a change in the list of execution venues listed in the firm's execution policy, if such a change occurred;

There has been no change to the execution venues listed in GS' execution policy for the reporting period.

5. Topic 5: an explanation of how order execution differs according to client categorisation, where the firm treats categories of clients differently and where it may affect the order execution arrangements;

The Private Wealth Management Division generally gives the highest priority to total consideration for professional clients which is consistent with the Private Wealth Management Division's approach to execution with its retail clients.

6. Topic 6: an explanation of whether other criteria were given precedence over immediate price and cost when executing retail client orders and how these other criteria were instrumental in delivering the best possible result in terms of the total consideration to the client;

Not applicable.

7. Topic 7: an explanation of how the investment firm has used any data or tools relating to the quality of execution, including any data published under RTS 27

GS has in place post-execution supervisory monitoring procedures which use market data, where it is available, to assess relevant client transactions. Where appropriate market data is not available other criteria are used to review relevant client transactions for monitoring purposes. This monitoring is undertaken on a systematic basis via best execution monitoring systems or, where required, on a manual basis in accordance with internal monitoring policies and procedures. As part of its overall best execution monitoring framework and on-going assessment of execution venues utilised, GS may also take account of information published under RTS 27 by those execution venues (if applicable) alongside data sources used as part of its systematic best execution monitoring arrangements.

8. Topic 8: where applicable, an explanation of how the investment firm has used output of a consolidated tape provider established under Article 65 of Directive 2014/65/EU.

N/A

Debt instruments: (ii) Money markets instruments

Reporting Entity: GSBE
 Top Five Venue Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | | Debt instruments: (ii) Money markets instruments | | | | |
|---|--|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | | N/A | | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| N/A | | N/A | N/A | N/A | N/A | N/A |
| N/A | | N/A | N/A | N/A | N/A | N/A |
| N/A | | N/A | N/A | N/A | N/A | N/A |
| N/A | | N/A | N/A | N/A | N/A | N/A |
| N/A | | N/A | N/A | N/A | N/A | N/A |

Top Five Broker Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | | Debt instruments: (ii) Money markets instruments | | | | |
|---|--|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | | N | | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| W22LROWP2IHZNBB6K528 - (GS) GOLDMAN SACHS INTERNATIONAL | | 85.45 | 85.45 | N/A | N/A | N/A |
| S81F8KH474EY7PUWI149 - (GS) GOLDMAN SACHS BANK AG ZURICH | | 10.34 | 10.91 | N/A | N/A | N/A |
| FOR8UP27PHTHYVLBNG30 - GOLDMAN SACHS & CO. LLC | | 4.20 | 3.64 | N/A | N/A | N/A |
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1. Topic 1: an explanation of the relative importance the firm gave to the execution factors of price, costs, speed, likelihood of execution or any other consideration including qualitative factors when assessing the quality of execution:

This qualitative commentary covers the activity of the Private Wealth Management Division which is the only part of Goldman Sachs Bank Europe SE ("GS") providing execution services to professional clients. For further information on the Private Wealth Management Division's best execution arrangements please refer to the relevant summary which is available at: <http://www.goldmansachs.com/disclosures/mifid/>.

These instruments are typically traded on a request for quote basis, including where clients approach us for a quote or are responding to our streamed prices/indications of interest through electronic platforms where we predominantly act in a principal capacity and the client ultimately decides whether to proceed with the transaction based upon the price provided by us and those of other liquidity providers from whom it has sourced quotes. Generally we would not expect clients to be legitimately relying on us to provide best execution and therefore our best execution obligations for these instruments are likely to apply in more limited circumstances than for other asset classes.

The Private Wealth Management Division operates an "open architecture" model for executing all fixed income trades where the Securities Division of Goldman Sachs is one of the possible execution venues. Where the open architecture platform does not support a certain product or an order is subject to specific instructions the Private Wealth Management Division can trade through the Securities Division.

To the extent we determined we owed a best execution obligation and subject to any specific instructions, GS generally gave the highest priority total consideration for professional clients.

2. Topic 2: a description of any close links, conflicts of interests, and common ownerships with respect to any execution venues used to execute orders;

Goldman Sachs and persons connected with Goldman Sachs provide diversified financial services to a broad range of clients and counterparties and circumstances may arise in which GS may have a conflict of interest.

Goldman Sachs Group entities may have (i) minor, non-controlling ownership stakes in companies which operate or own execution venues and/or; (ii) be founding consortia members of execution venues for which it has revenue share arrangements, which GS may use to execute orders on behalf of clients or to respond to clients' requests for quotes in certain financial instruments, including

- Tradeweb LLC
- Bloomberg
- MarketAxess

Our decision to route orders to, or respond to clients' request for quotes on, a particular execution venue is determined, as applicable, by whether execution on such venues allows us to satisfy our best execution obligations or as necessary to interact with clients and is not influenced by any such ownership or revenue share arrangements.

The Private Wealth Management Division utilises different execution venues to execute client orders. The Private Wealth Management Division operates an "open architecture" model for executing all fixed income trades unless the open architecture platform does not support a certain product or an order is subject to specific instructions. Where this is the case, Private Wealth Management can trade through the Securities Division.

For further details on the execution venues used by the Private Wealth Management Division and its conflicts of interest policy, please refer to Private Wealth Management Division's best execution summary which is available at: <http://www.goldmansachs.com/disclosures/mifid/>.

3. Topic 3: a description of any specific arrangements with any execution venues regarding payments made or received, discounts, rebates or non-monetary benefits received;

This is not applicable to the Private Wealth Management Division's open architecture order execution platform in these financial instruments.

4. Topic 4: an explanation of the factors that led to a change in the list of execution venues listed in the firm's execution policy, if such a change occurred;

There has been no change to the execution venues listed in GS' execution policy for the reporting period.

5. Topic 5: an explanation of how order execution differs according to client categorisation, where the firm treats categories of clients differently and where it may affect the order execution arrangements;

The Private Wealth Management Division generally gives the highest priority to total consideration for professional clients which is consistent with the Private Wealth Management Division's approach to execution with its retail clients.

6. Topic 6: an explanation of whether other criteria were given precedence over immediate price and cost when executing retail client orders and how these other criteria were instrumental in delivering the best possible result in terms of the total consideration to the client;

Not applicable.

7. Topic 7: an explanation of how the investment firm has used any data or tools relating to the quality of execution, including any data published under RTS 27

GS has in place post execution supervisory monitoring procedures which use market data, where it is available, to assess relevant client transactions. Where appropriate market data is not available other criteria are used to review relevant client transactions for monitoring purposes. This monitoring is undertaken on a systematic basis via best execution monitoring systems or, where required, on a manual basis in accordance with internal monitoring policies and procedures. As part of its overall best execution monitoring framework and on-going assessment of execution venues utilised, GS may also take account of information published under RTS 27 by those execution venues (if applicable) alongside data sources used as part of its systematic best execution monitoring arrangements.

8. Topic 8: where applicable, an explanation of how the investment firm has used output of a consolidated tape provider established under Article 65 of Directive 2014/65/EU.

N/A

Interest rates derivatives: (i) Futures and options admitted to trading on a trading venue

Reporting Entity: GSBE
 Top Five Venue Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | Interest rates derivatives: (i) Futures and options admitted to trading on a trading venue* | | | | |
|---|---|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | N | | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

Top Five Broker Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | Interest rates derivatives: (i) Futures and options admitted to trading on a trading venue | | | | |
|---|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | N/A | | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

GS did not trade these financial instruments with professional clients.

Interest rates derivatives: (ii) Swaps, forwards, and other interest rates derivatives

Reporting Entity: GSBE
 Top Five Venue Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Interest rates derivatives: (ii) Swaps, forwards, and other Interest rate derivatives | | | | | |
|---|--|--|------------------------------|---------------------------------|-------------------------------|
| Class of Instrument | | | | | |
| Notification if <1 average trade per business day in the previous year | | | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | | | | | |
| | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

Top Five Broker Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Interest rates derivatives: (ii) Swaps, forwards, and other Interest rate derivatives | | | | | |
|---|--|--|------------------------------|---------------------------------|-------------------------------|
| Class of Instrument | | | | | |
| Notification if <1 average trade per business day in the previous year | | | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | | | | | |
| | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

GS did not trade these financial instruments with professional clients.

Credit derivatives (i) Futures and options admitted to trading on a trading venue

Reporting Entity: GSBE
 Top Five Venue Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | | Credit derivatives (i) Futures and options admitted to trading on a trading venue | | | |
|---|--|---|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | | N/A | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

Top Five Broker Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | | Credit derivatives (i) Futures and options admitted to trading on a trading venue | | | |
|---|--|---|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | | N/A | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

GS did not trade these financial instruments with professional clients.

Credit derivatives: (ii) Other credit derivatives

Reporting Entity: GSBE
 Top Five Venue Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | | Credit derivatives: (ii) Other credit derivatives | | | |
|---|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | | N/A | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

Top Five Broker Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | | Credit derivatives: (ii) Other credit derivatives | | | |
|---|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | | N/A | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

GS did not trade these financial instruments with professional clients.

Currency derivatives: (i) Futures and options admitted to trading on a trading venue

Reporting Entity: GSBE
 Top Five Venue Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Currency derivatives: (i) Futures and options admitted to trading on a trading venue | | | | | |
|--|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | | | | | |
| N/A | | | | | |
| Class of Instrument | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| Top five execution venues ranked in terms of trading volumes (descending order) | | | | | |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

Top Five Broker Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Currency derivatives: (i) Futures and options admitted to trading on a trading venue | | | | | |
|--|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | | | | | |
| N/A | | | | | |
| Class of Instrument | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| Top five execution venues ranked in terms of trading volumes (descending order) | | | | | |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

GS did not trade these financial instruments with professional clients.

Currency derivatives: (ii) Swaps, forwards, and other currency derivatives

Reporting Entity: GSBE
 Top Five Venue Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | | Currency derivatives: (ii) Swaps, forwards, and other currency derivatives | | | |
|---|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | | N | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

Top Five Broker Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | | Currency derivatives: (ii) Swaps, forwards, and other currency derivatives | | | |
|---|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | | N/A | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| S81F8KH474EY7PUW149 - (GS) GOLDMAN SACHS BANK AG ZURICH | 91.15 | 76.89 | N/A | N/A | N/A |
| W22LROWP2IHZNBB6K528 - (GS) GOLDMAN SACHS INTERNATIONAL | 8.85 | 23.11 | N/A | N/A | N/A |
| | | | | | |
| | | | | | |

1. Topic 1: an explanation of the relative importance the firm gave to the execution factors of price, costs, speed, likelihood of execution or any other consideration including qualitative factors when assessing the quality of execution:

This qualitative commentary covers the activity of the Private Wealth Management Division which is the only part of Goldman Sachs Bank Europe SE ("GS") providing execution services to professional clients. For further information on the Private Wealth Management Division's best execution arrangements please refer to the relevant summary which is available at: <http://www.goldmansachs.com/disclosures/mifid/>.

These instruments are typically traded on a request for quote basis, including where clients approach us for a quote or are responding to our streamed prices where we predominantly act in a principal capacity and the client ultimately decides whether to proceed with the transaction based upon the price provided by us and those of other liquidity providers from whom it has sourced quotes. Generally we would not expect clients to be legitimately relying on us to provide best execution and therefore our best execution obligations for these instruments are likely to apply in more limited circumstances than for other asset classes.

To the extent we determined we owed best execution and, subject to any specific instructions, GS generally gave the highest priority to net price. Other execution factors, to the extent relevant, were generally given equal ranking.

2. Topic 2: a description of any close links, conflicts of interests, and common ownerships with respect to any execution venues used to execute orders;

Private Wealth Management Division executes currency derivatives via the Securities Division of Goldman Sachs International, and where and if appropriate, other GS affiliates.

Goldman Sachs and persons connected with Goldman Sachs provide diversified financial services to a broad range of clients and counterparties and circumstances may arise in which GS may have a conflict of interest.

For further details on the execution venues used by the Private Wealth Management Division and its conflicts of interest policy, please refer to the Private Wealth Management Division's best execution summary which is available at: <http://www.goldmansachs.com/disclosures/mifid/>.

3. Topic 3: a description of any specific arrangements with any execution venues regarding payments made or received, discounts, rebates or non-monetary benefits received;

Not applicable.

4. Topic 4: an explanation of the factors that led to a change in the list of execution venues listed in the firm's execution policy, if such a change occurred;

There has been no change to the execution venues listed in GS' execution policy for the reporting period.

5. Topic 5: an explanation of how order execution differs according to client categorisation, where the firm treats categories of clients differently and where it may affect the order execution arrangements;

The Private Wealth Management Division provides order execution for retail and professional clients.

A client's regulatory categorisation is an important factor both in the assessment of whether the client is relying on GS to deliver best execution and in providing best execution. The starting presumption is that retail clients do legitimately rely on GS to protect their interests in relation to pricing and other elements of the transaction that may be affected by the choice made by GS in executing the relevant order (i.e. GS owes a duty of best execution to retail clients) and professional clients do not legitimately rely on GS to protect their interests; however, these presumptions may be revised depending on the application of the four-fold test for determining legitimate reliance to the particular circumstances of GS' interaction with the client and how the market operates for the relevant product.

To the extent we determine we do owe best execution and subject to any specific instructions, GS will generally give the highest priority to:

- net price for professional clients; and
- total consideration for retail clients.

Other execution factors, to the extent relevant, are generally given equal ranking.

6. Topic 6: an explanation of whether other criteria were given precedence over immediate price and cost when executing retail client orders and how these other criteria were instrumental in delivering the best possible result in terms of the total consideration to the client;

Not applicable.

7. Topic 7: an explanation of how the investment firm has used any data or tools relating to the quality of execution, including any data published under RTS 27

GS has in place post-execution supervisory monitoring procedures which use market data, where it is available, to assess relevant client transactions. Where appropriate market data is not available other criteria are used to review relevant client transactions for monitoring purposes. This monitoring is undertaken on a systematic basis via best execution monitoring systems or, where required, on a manual basis in accordance with internal monitoring policies and procedures. As part of its overall best execution monitoring framework and on-going assessment of execution venues utilised, GS may also take account of information published under RTS 27 by those execution venues (if applicable) alongside data sources used as part of its systematic best execution monitoring arrangements.

8. Topic 8: where applicable, an explanation of how the investment firm has used output of a consolidated tape provider established under Article 65 of Directive 2014/65/EU.

N/A

Structured finance instruments

Reporting Entity: GSBE
 Top Five Venue Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | Structured finance instruments | | | | |
|---|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | N/A | | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

Top Five Broker Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | Structured finance instruments | | | | |
|---|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | N/A | | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

GS did not trade these financial instruments with professional clients.

Equity Derivatives: (i) Options and Futures admitted to trading on a trading venue

Reporting Entity: GSBE
 Top Five Venue Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Equity Derivatives: (i) Options and Futures admitted to trading on a trading venue | | | | | |
|--|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | | | | | |
| N/A | | | | | |
| Class of Instrument | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| Top five execution venues ranked in terms of trading volumes (descending order) | | | | | |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

Top Five Broker Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Equity Derivatives: (i) Options and Futures admitted to trading on a trading venue | | | | | |
|--|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | | | | | |
| N | | | | | |
| Class of Instrument | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| Top five execution venues ranked in terms of trading volumes (descending order) | | | | | |
| W22LROWP2IHZNBB6K528 - (GS) GOLDMAN SACHS INTERNATIONAL | 86.73 | 84.95 | 5.00 | 95.00 | 0.00 |
| FOR8UP27PHHYVLBNG30 - GOLDMAN SACHS & CO. LLC | 6.67 | 3.81 | 5.00 | 95.00 | 0.00 |
| S81F8KH474EY7PUWI149 - (GS) GOLDMAN SACHS BANK AG ZURICH | 6.60 | 11.24 | 5.00 | 95.00 | 0.00 |
| | | | | | |
| | | | | | |

1. Topic 1: an explanation of the relative importance the firm gave to the execution factors of price, costs, speed, likelihood of execution or any other consideration including qualitative factors when assessing the quality of execution:

This qualitative commentary covers the activity of the Private Wealth Management Division which is the only part of Goldman Sachs Bank Europe SE ("GS") providing execution services to professional clients. For further information on the Private Wealth Management Division's best execution arrangements please refer to the relevant summary which is available at: <http://www.goldmansachs.com/disclosures/mifid/>.

These instruments are typically traded only on the execution venue of their listing and therefore client orders in the instrument will determine the execution venue. Application of best execution is therefore limited to liquidity available on the relevant execution venue for the instrument.

Where GS determined that it owed a best execution obligation for a relevant order, GS took into account the following criteria for determining the relative importance of the execution factors in the circumstances:

- the characteristics of the client including the regulatory categorisation of the client;
- the characteristics of the relevant order;
- the characteristics of financial instruments that are the subject of the relevant order; and
- the characteristics of the execution venue to which that relevant order can be directed.

Subject to any specific instructions, taking into account the relevant criteria above, the ranking of execution factors was typically as follows:

- price
- speed of execution.

The remaining execution factors, to the extent applicable, were generally given equal ranking.

2. Topic 2: a description of any close links, conflicts of interests, and common ownerships with respect to any execution venues used to execute orders;

Goldman Sachs and persons connected with Goldman Sachs provide diversified financial services to a broad range of clients and counterparties and circumstances may arise in which GS may have a conflict of interest.

The Private Wealth Management Division executes these financial instruments via the Securities Division of Goldman Sachs International, and where appropriate, other GS affiliates.

For further details on the execution venues used by the Private Wealth Management Division and its conflicts of interest policy, please refer to the Private Wealth Management Division's best execution summary which is available at: <http://www.goldmansachs.com/disclosures/mifid/>.

3. Topic 3: a description of any specific arrangements with any execution venues regarding payments made or received, discounts, rebates or non-monetary benefits received;

Some execution venues may offer differing fee plans to trading members depending on the volume and nature/type of a trading activity on the venue as well as fee discounts depending on average volume of trading undertaken. Such arrangements apply equally to all trading members who satisfy the relevant criteria under the execution venue's rules. Information on such arrangements is publically available on the relevant execution venue's website. Our decision to route orders to a particular venue for execution is determined by whether execution on such venue allows us to satisfy our best execution obligations and is not influenced by any such fee structure or volume discount.

4. Topic 4: an explanation of the factors that led to a change in the list of execution venues listed in the firm's execution policy, if such a change occurred;

We have not changed any execution venues for this asset class during the reporting period.

5. Topic 5: an explanation of how order execution differs according to client categorisation, where the firm treats categories of clients differently and where it may affect the order execution arrangements;

The Private Wealth Management Division provides order execution for retail and professional clients.

A client's regulatory categorisation is an important factor both in the assessment of whether the client is relying on GS to deliver best execution and in providing best execution. The starting presumption is that retail clients do legitimately rely on GS to protect their interests in relation to pricing and other elements of the transaction that may be affected by the choice made by GS in executing the relevant order (i.e. GS owes a duty of best execution to retail clients) and professional clients do not legitimately rely on GS to protect their interests; however, these presumptions may be revised depending on the application of the four-fold test for determining legitimate reliance to the particular circumstances of GS' interaction with the client and how the market operates for the relevant product.

Subject to any specific instructions, GS will generally give the highest priority to:

- net price for professional clients; and
- total consideration for retail clients.

Other execution factors, to the extent relevant, are generally given equal ranking.

6. Topic 6: an explanation of whether other criteria were given precedence over immediate price and cost when executing retail client orders and how these other criteria were instrumental in delivering the best possible result in terms of the total consideration to the client;

Not applicable.

7. Topic 7: an explanation of how the investment firm has used any data or tools relating to the quality of execution, including any data published under RTS 27

GS has in place post-execution supervisory monitoring procedures which use market data, where it is available, to assess client transactions against relevant market prices and benchmarks. For products with no observable external market data other criteria are used to benchmark client transactions for monitoring purposes. This monitoring is undertaken on a systematic basis via best execution monitoring systems or, where required, on a manual basis in accordance with internal monitoring policies and procedures. As part of its overall best execution monitoring framework and on-going assessment of execution venues utilised, GS may also take account of information published under RTS 27 by those execution venues (if applicable) alongside data sources used as part of its systematic best execution monitoring arrangements.

8. Topic 8: where applicable, an explanation of how the investment firm has used output of a consolidated tape provider established under Article 65 of Directive 2014/65/EU.

N/A

Equity Derivatives: (ii) Swaps and other equity derivatives

Reporting Entity: GSBE
 Top Five Venue Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | | Equity Derivatives: (ii) Swaps and other equity derivatives | | | |
|---|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | | N/A | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

Top Five Broker Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | | Equity Derivatives: (ii) Swaps and other equity derivatives | | | |
|---|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | | N/A | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

GS did not trade these financial instruments with professional clients.

Securitized Derivatives: (i) Warrants and Certificate Derivatives

Reporting Entity: GSBE
 Top Five Venue Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | | Securitized Derivatives: (i) Warrants and Certificate Derivatives | | | |
|---|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | | Y | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

Top Five Broker Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | | Securitized Derivatives: (i) Warrants and Certificate Derivatives | | | |
|---|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | | Y | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| W22LROWP2IHZNBB6K528 - (GS) GOLDMAN SACHS INTERNATIONAL | 96.07 | 94.44 | N/A | N/A | N/A |
| FOR8UP27PHHYVLBNG30 - GOLDMAN SACHS & CO. LLC | 3.93 | 5.56 | N/A | N/A | N/A |
| | | | | | |
| | | | | | |

1. Topic 1: an explanation of the relative importance the firm gave to the execution factors of price, costs, speed, likelihood of execution or any other consideration including qualitative factors when assessing the quality of execution:

This qualitative commentary covers the activity of the Private Wealth Management Division which is the only part of Goldman Sachs Bank Europe SE ("GS") providing execution services to professional clients. For further information on the Private Wealth Management Division's best execution arrangements please refer to the relevant summary which is available at: <http://www.goldmansachs.com/disclosures/mifid/>.

Where GS determined that it has a best execution obligation in respect of relevant orders, GS took into account the following criteria for determining the relative importance of the execution factors in the circumstances:

- the characteristics of the client including the regulatory categorisation of the client;
- the characteristics of the Relevant order;
- the characteristics of financial instruments that are the subject of the Relevant order; and
- the characteristics of the execution venue to which that Relevant order can be directed.

Subject to any specific instructions, taking into account the criteria above, the ranking of execution factors was typically price and likelihood of execution and settlement for professional clients. The remaining execution factors, to the extent applicable, were generally given equal ranking.

2. Topic 2: a description of any close links, conflicts of interests, and common ownerships with respect to any execution venues used to execute orders;

Goldman Sachs and persons connected with Goldman Sachs provide diversified financial services to a broad range of clients and counterparties and circumstances may arise in which GS may have a conflict of interest.

For further details on the execution venues used by GS and its conflicts of interest policy, please refer to its best execution summary which is available at: <http://www.goldmansachs.com/disclosures/mifid/>.

3. Topic 3: a description of any specific arrangements with any execution venues regarding payments made or received, discounts, rebates or non-monetary benefits received;

Not applicable.

4. Topic 4: an explanation of the factors that led to a change in the list of execution venues listed in the firm's execution policy, if such a change occurred;

The Private Wealth Management Division revised our execution venue list for this asset class to include an additional issuer on the open architecture platform providing further issuer credit diversification and optionality for our clients.

5. Topic 5: an explanation of how order execution differs according to client categorisation, where the firm treats categories of clients differently and where it may affect the order execution arrangements;

The Private Wealth Management Division provides order execution for retail and professional clients.

A client's regulatory categorisation is an important factor both in the assessment of whether the client is relying on GS to deliver best execution and in providing best execution. The starting presumption is that retail clients do legitimately rely on GS to protect their interests in relation to pricing and other elements of the transaction that may be affected by the choice made by GS in executing the relevant order (i.e. GS owes a duty of best execution to retail clients) and professional clients do not legitimately rely on GS to protect their interests; however, these presumptions may be revised depending on the application of the four-fold test for determining legitimate reliance to the particular circumstances of GS' interaction with the client and how the market operates for the relevant product.

Subject to any specific instructions, GS will generally give the highest priority to:

- net price for professional clients. The remaining execution factors, to the extent applicable, are generally given equal ranking; and
- total consideration for retail clients.

6. Topic 6: an explanation of whether other criteria were given precedence over immediate price and cost when executing retail client orders and how these other criteria were instrumental in delivering the best possible result in terms of the total consideration to the client;

Not applicable.

7. Topic 7: an explanation of how the investment firm has used any data or tools relating to the quality of execution, including any data published under RTS 27

GS has in place post-execution supervisory monitoring procedures which use market data, where it is available, to assess client transactions against relevant market prices and benchmarks. For products with no observable external market data other criteria are used to benchmark client transactions for monitoring purposes. This monitoring is undertaken on a systematic basis via best execution monitoring systems or, where required, on a manual basis in accordance with internal monitoring policies and procedures. As part of its overall best execution monitoring framework and on-going assessment of execution venues utilised, GS may also take account of information published under RTS 27 by those execution venues (if applicable) alongside data sources used as part of its systematic best execution monitoring arrangements.

8. Topic 8: where applicable, an explanation of how the investment firm has used output of a consolidated tape provider established under Article 65 of Directive 2014/65/EU.

N/A

Securitized Derivatives: (ii) Other securitized derivatives

Reporting Entity: GSBE
 Top Five Venue Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | | Securitized Derivatives: (ii) Other securitized derivatives | | | |
|---|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | | N/A | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

Top Five Broker Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | | Securitized Derivatives: (ii) Other securitized derivatives | | | |
|---|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | | N/A | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

GS did not trade these financial instruments with professional clients.

Commodities derivatives and emission allowances Derivatives: (i) Options and Futures admitted to trading on a trading venue

Reporting Entity: GSBE
 Top Five Venue Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| | | | | | | | | | | | |
|---|--|--|--|--|--|---|--|------------------------------|---------------------------------|-------------------------------|--|
| Class of Instrument | | | | | | Commodities derivatives and emission allowances Derivatives: (i) Options and Futures admitted to trading on a trading venue | | | | | |
| Notification if <1 average trade per business day in the previous year | | | | | | N/A | | | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | | | | | | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders | |
| N/A | | | | | | N/A | N/A | N/A | N/A | N/A | |
| N/A | | | | | | N/A | N/A | N/A | N/A | N/A | |
| N/A | | | | | | N/A | N/A | N/A | N/A | N/A | |
| N/A | | | | | | N/A | N/A | N/A | N/A | N/A | |
| N/A | | | | | | N/A | N/A | N/A | N/A | N/A | |

Top Five Broker Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| | | | | | | | | | | | |
|---|--|--|--|--|--|---|--|------------------------------|---------------------------------|-------------------------------|--|
| Class of Instrument | | | | | | Commodities derivatives and emission allowances Derivatives: (i) Options and Futures admitted to trading on a trading venue | | | | | |
| Notification if <1 average trade per business day in the previous year | | | | | | N/A | | | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | | | | | | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders | |
| N/A | | | | | | N/A | N/A | N/A | N/A | N/A | |
| N/A | | | | | | N/A | N/A | N/A | N/A | N/A | |
| N/A | | | | | | N/A | N/A | N/A | N/A | N/A | |
| N/A | | | | | | N/A | N/A | N/A | N/A | N/A | |
| N/A | | | | | | N/A | N/A | N/A | N/A | N/A | |

GS did not trade these financial instruments with professional clients.

Commodities derivatives and emission allowances Derivatives: (ii) Other commodities derivatives and emission allowances derivatives

Reporting Entity: GSBE
 Top Five Venue Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Commodities derivatives and emission allowances Derivatives: (ii) Other commodities derivatives and emission allowances derivatives | | | | | |
|---|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | | | | | |
| N/A | | | | | |
| Class of Instrument | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| Top five execution venues ranked in terms of trading volumes (descending order) | | | | | |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

Top Five Broker Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Commodities derivatives and emission allowances Derivatives: (ii) Other commodities derivatives and emission allowances derivatives | | | | | |
|---|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | | | | | |
| N | | | | | |
| Class of Instrument | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| Top five execution venues ranked in terms of trading volumes (descending order) | | | | | |
| W22LROWP2IHZNBB6K528 - (GS) GOLDMAN SACHS INTERNATIONAL | 100.00 | 100.00 | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

1. Topic 1: an explanation of the relative importance the firm gave to the execution factors of price, costs, speed, likelihood of execution or any other consideration including qualitative factors when assessing the quality of execution:

This qualitative commentary covers the activity of the Private Wealth Management Division which is the only part of Goldman Sachs Bank Europe SE ("GS") providing execution services to professional clients. For further information on the Private Wealth Management Division's best execution arrangements please refer to the relevant summary which is available at: <http://www.goldmansachs.com/disclosures/mifid/>.

These instruments are typically traded on a request for quote basis, including where clients approach us for a quote or are responding to our streamed prices where we predominantly act in a principal capacity and the client ultimately decides whether to proceed with the transaction based upon the price provided by us and those of other liquidity providers from whom it has sourced quotes. Generally we would not expect clients to be legitimately relying on us to provide best execution and therefore our best execution obligations for these instruments are likely to apply in more limited circumstances than for other asset classes.

To the extent we determined we owed best execution and, subject to any specific instructions, GS generally gave the highest priority to net price. Other execution factors, to the extent relevant, were generally given equal ranking.

2. Topic 2: a description of any close links, conflicts of interests, and common ownerships with respect to any execution venues used to execute orders;

Private Wealth Management Division executes these financial instruments via the Securities Division of Goldman Sachs International, and where and if appropriate, other GS affiliates.

Goldman Sachs and persons connected with Goldman Sachs provide diversified financial services to a broad range of clients and counterparties and circumstances may arise in which Goldman Sachs may have a conflict of interest.

For further details on the execution venues used by the Private Wealth Management Division and its conflicts of interest policy, please refer to the Private Wealth Management Division's best execution summary which is available at: <http://www.goldmansachs.com/disclosures/mifid/>

3. Topic 3: a description of any specific arrangements with any execution venues regarding payments made or received, discounts, rebates or non-monetary benefits received;

Not applicable, as Goldman Sachs is only execution venue(s) for this class of financial instrument.

4. Topic 4: an explanation of the factors that led to a change in the list of execution venues listed in the firm's execution policy, if such a change occurred;

Not applicable, as Goldman Sachs International is the only execution venue for this class of financial instrument.

5. Topic 5: an explanation of how order execution differs according to client categorisation, where the firm treats categories of clients differently and where it may affect the order execution arrangements;

The Private Wealth Management Division provides order execution for retail and professional clients.

A client's regulatory categorisation is an important factor both in the assessment of whether the client is relying on GS to deliver best execution and in providing best execution. The starting presumption is that retail clients do legitimately rely on GS to protect their interests in relation to pricing and other elements of the transaction that may be affected by the choice made by GS in executing the relevant order (i.e. GS owes a duty of best execution to retail clients) and professional clients do not legitimately rely on GS to protect their interests; however, these presumptions may be revised depending on the application of the four-fold test for determining legitimate reliance to the particular circumstances of GS' interaction with the client and how the market operates for the relevant product.

To the extent we determine we do owe best execution and subject to any specific instructions, GS will generally give the highest priority to:

- net price for professional clients; and
- total consideration for retail clients.

Other execution factors, to the extent relevant, are generally given equal ranking.

6. Topic 6: an explanation of whether other criteria were given precedence over immediate price and cost when executing retail client orders and how these other criteria were instrumental in delivering the best possible result in terms of the total consideration to the client;

Not applicable.

7. Topic 7: an explanation of how the investment firm has used any data or tools relating to the quality of execution, including any data published under RTS 27

GS has in place post execution supervisory monitoring procedures which use market data, where it is available, to assess relevant client transactions. Where appropriate market data is not available other criteria are used to review relevant client transactions for monitoring purposes. This monitoring is undertaken on a systematic basis via best execution monitoring systems or, where required, on a manual basis in accordance with internal monitoring policies and procedures. As part of its overall best execution monitoring framework and on-going assessment of execution venues utilised, GS may also take account of information published under RTS 27 by those execution venues (if applicable) alongside data sources used as part of its systematic best execution monitoring arrangements.

8. Topic 8: where applicable, an explanation of how the investment firm has used output of a consolidated tape provider established under Article 65 of Directive 2014/65/EU.

N/A

Contracts for difference

Reporting Entity: GSBE
 Top Five Venue Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | Contracts for difference | | | | |
|---|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | N/A | | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

Reporting Entity: GSI
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | Contracts for difference | | | | |
|---|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | N/A | | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

GS did not trade these financial instruments with professional clients.

Exchange traded products (Exchange traded funds, exchange traded notes and exchange traded commodities)

Reporting Entity: GSBE
 Top Five Venue Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | | Exchange traded products (Exchange traded funds, exchange traded notes and exchange traded commodities) | | | | |
|---|--|---|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | | N | | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| N/A | | N/A | N/A | N/A | N/A | N/A |
| N/A | | N/A | N/A | N/A | N/A | N/A |
| N/A | | N/A | N/A | N/A | N/A | N/A |
| N/A | | N/A | N/A | N/A | N/A | N/A |
| N/A | | N/A | N/A | N/A | N/A | N/A |

Top Five Broker Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | | Exchange traded products (Exchange traded funds, exchange traded notes and exchange traded commodities) | | | | |
|---|--|---|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | | N | | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| W22LROWP2IHZNBB6K528 - (GS) GOLDMAN SACHS INTERNATIONAL | | 79.62 | 71.15 | 5.60 | 94.40 | 0.00 |
| S81F8KH474EY7PUWI149 - (GS) GOLDMAN SACHS BANK AG ZURICH | | 12.35 | 20.77 | 5.60 | 94.40 | 0.00 |
| FOR8UP27PHTHYVLBNG30 - GOLDMAN SACHS & CO. LLC | | 8.03 | 8.08 | 5.60 | 94.40 | 0.00 |
| | | | | | | |
| | | | | | | |

1. Topic 1: an explanation of the relative importance the firm gave to the execution factors of price, costs, speed, likelihood of execution or any other consideration including qualitative factors when assessing the quality of execution:
 This qualitative commentary covers the activity of the Private Wealth Management Division which is the only part of Goldman Sachs Bank Europe SE ("GS") providing execution services to professional clients. For further information on the Private Wealth Management Division's best execution arrangements please refer to the relevant summary which is available at: <http://www.goldmansachs.com/disclosures/mifid/>

Where GS determined that it had a best execution obligation in respect of relevant orders, GS took into account the following criteria for determining the relative importance of the execution factors in the circumstances:

- the characteristics of the client including the regulatory categorisation of the client;
- the characteristics of the relevant order;
- the characteristics of financial instruments that are the subject of the relevant order; and
- the characteristics of the execution venue to which that relevant order can be directed.

Subject to any specific instructions, taking into account the criteria above, GS generally gave the highest priority to net price. The remaining execution factors were generally given equal ranking.

Notwithstanding the above, we prioritised one or more of the other execution factors in certain scenarios: (i) where there was insufficient immediately available liquidity on the relevant execution venues to execute the relevant order in full; or (ii) where a client instructed us to work a relevant order over a period of time or by reference to a benchmark calculated over a period of time (such as VWAP); or (iii) we determined that there were other circumstances such that obtaining the best immediately available price may not be the best possible result for the client. In these cases, we determined the relative priority of each execution factor on an order-by-order basis, where the order was executed manually, and by order type (e.g. iceberg, VWAP), where the order was executed using an algorithm.

2. Topic 2: a description of any close links, conflicts of interests, and common ownerships with respect to any execution venues used to execute orders;
 Goldman Sachs and persons connected with Goldman Sachs provide diversified financial services to a broad range of clients and counterparties and circumstances may arise in which GS may have a conflict of interest.

GS has close links and/or common ownership with respect to the following entities:

SIGMA X MTF – Goldman Sachs International (GSI) is under common ownership with Goldman Sachs International Bank which operates SIGMA X MTF, a multilateral trading facility for trading in European equity and equity-like instruments. SIGMA X MTF is operated on an independent and segregated basis to other Goldman Sachs businesses. GSI is itself one of several trading participants on SIGMA X MTF. For further information on SIGMA X MTF please visit the SIGMA X MTF website at <http://gset.gs.com/sigmaxmtf/>.

In addition, Goldman Sachs Group entities may have (i) minor, non-controlling ownership stakes in companies which operate or own execution venues and/or; (ii) be founding consortia members of execution venues for which it has revenue share arrangements, which Goldman Sachs may use to execute orders on behalf of clients in certain financial instruments, including

- BIDS Holdings L.P.
- CHX Holdings, Inc.
- Chi-X Global Holdings LLC
- Turquoise Global Holdings Limited
- Tradeweb LLC

Goldman Sachs' decision to route orders to a particular venue for execution is determined by whether execution on such venues allows us to satisfy our best execution obligations and is not influenced by any such ownership or revenue share arrangements.

3. Topic 3: a description of any specific arrangements with any execution venues regarding payments made or received, discounts, rebates or non-monetary benefits received;
 Some execution venues may offer differing fee plans to trading members depending on the volume and nature/type of a trading activity on the venue as well as fee discounts depending on average volume of trading undertaken. Such arrangements apply equally to all trading members who satisfy the relevant criteria under the execution venue's rules. Information on such arrangements is publicly available on the relevant execution venue's website. Our decision to route orders to a particular venue for execution is determined by whether execution on such venue allows us to satisfy our best execution obligations and is not influenced by any such fee structure or volume discount.

4. Topic 4: an explanation of the factors that led to a change in the list of execution venues listed in the firm's execution policy, if such a change occurred;
 Goldman Sachs maintains internal procedures for the selection of Brokers, Trading Venues and other Execution Venues, both at the stage of on-boarding and throughout the relationship, in order to satisfy ourselves that those selections enable us to obtain best execution on a consistent basis. These procedures include undertaking due diligence and regular assessments of execution quality.

In response to evolving market structure and client demand Goldman Sachs frequently evaluates existing and new execution venues. As a result of the latest market structure changes, GS has added a variety of new execution venues, more specifically systematic internalisers and periodic auctions. As part of our regular evaluation of execution venues Goldman Sachs reviews a variety of execution performance metrics, including addressable liquidity, fill rate, mark-outs and latency.

5. Topic 5: an explanation of how order execution differs according to client categorisation, where the firm treats categories of clients differently and where it may affect the order execution arrangements;
 The Private Wealth Management Division provides order execution for retail and professional clients.

A client's regulatory categorisation is an important factor both in the assessment of whether the client is relying on GS to deliver best execution and in providing best execution. The starting presumption is that retail clients do legitimately rely on GS to protect their interests in relation to pricing and other elements of the transaction that may be affected by the choice made by GS in executing the relevant order (i.e. GS owes a duty of best execution to retail clients) and professional clients do not legitimately rely on GS to protect their interests; however, these presumptions may be revised depending on the application of the four-fold test for determining legitimate reliance to the particular circumstances of GS' interaction with the client and how the market operates for the relevant product.

Subject to any specific instructions, GS will generally give the highest priority to:

- net price for professional clients. The remaining execution factors, to the extent applicable, are generally given equal ranking; and
- total consideration for retail clients.

Other execution factors, to the extent relevant, are generally given equal ranking.

6. Topic 6: an explanation of whether other criteria were given precedence over immediate price and cost when executing retail client orders and how these other criteria were instrumental in delivering the best possible result in terms of the total consideration to the client;
 Not applicable.

7. Topic 7: an explanation of how the investment firm has used any data or tools relating to the quality of execution, including any data published under RTS 27
 GS has in place post-execution supervisory monitoring procedures which use market data, where it is available, to assess relevant client transactions. Where appropriate market data is not available other criteria are used to review relevant client transactions for monitoring purposes. This monitoring is undertaken on a systematic basis via best execution monitoring systems or, where required, on a manual basis in accordance with internal monitoring policies and procedures. As part of its overall best execution monitoring framework and on-going assessment of execution venues utilised, GS may also take account of information published under RTS 27 by those execution venues (if applicable) alongside data sources used as part of its systematic best execution monitoring arrangements.

8. Topic 8: where applicable, an explanation of how the investment firm has used output of a consolidated tape provider established under Article 65 of Directive 2014/65/EU.
 N/A

Emission Allowances

Reporting Entity: GSBE
 Top Five Venue Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | Emission Allowances | | | | |
|---|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | N/A | | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

Reporting Entity: GSI
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | Emission Allowances | | | | |
|---|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | N/A | | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

GS did not trade these financial instruments with professional clients.

Other instruments

Reporting Entity: GSBE
 Top Five Venue Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | Other instruments | | | | |
|---|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | N/A | | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A | N/A |

Top Five Broker Report
 Type of Client: Professional Client
 Reporting Entity: GSBE

| Class of Instrument | Other instruments | | | | |
|---|--|--|------------------------------|---------------------------------|-------------------------------|
| Notification if <1 average trade per business day in the previous year | N | | | | |
| Top five execution venues ranked in terms of trading volumes (descending order) | Proportion of volume traded as a percentage of total in that class | Proportion of orders executed as percentage of total in that class | Percentage of passive orders | Percentage of aggressive orders | Percentage of directed orders |
| FOR8UP27PHTHYVLBNG30 - GOLDMAN SACHS & CO. LLC | 93.09 | 92.10 | N/A | N/A | N/A |
| S81F8KH474EY7PUWI149 - (GS) GOLDMAN SACHS BANK AG ZURICH | 6.91 | 7.90 | N/A | N/A | N/A |
| | | | | | |
| | | | | | |

(US listed options admitted to trade on a trading venue)

1. Topic 1: an explanation of the relative importance the firm gave to the execution factors of price, costs, speed, likelihood of execution or any other consideration including qualitative factors when assessing the quality of execution:

This qualitative commentary covers the activity of the Private Wealth Management Division which is the only part of Goldman Sachs Bank Europe SE ("GS") providing execution services to retail clients. For further information on the Private Wealth Management Division's best execution arrangements please refer to the relevant summary which is available at: <http://www.goldmansachs.com/disclosures/mifid/>.

These instruments are typically traded only on the execution venue of their listing and therefore client orders in the instrument will determine the execution venue. Application of best execution is therefore limited to liquidity available on the relevant execution venue for the instrument.

Where GS determined it had a best execution obligation in respect of an order, GS took into account the following criteria for determining the relative importance of the execution factors in the circumstances:

- the characteristics of the client including the regulatory categorisation of the client;
- the characteristics of the relevant order;
- the characteristics of financial instruments that are the subject of the relevant order; and
- the characteristics of the execution venue to which that relevant order can be directed.

Subject to any specific instructions, taking into account the criteria above, GS generally gave the highest priority to total consideration for professional clients. The remaining factors, to the extent applicable, were generally given equal ranking.

2. Topic 2: a description of any close links, conflicts of interests, and common ownerships with respect to any execution venues used to execute orders;

Private Wealth Management Division executes exchange traded equity options via the Securities Division of Goldman Sachs & Co, and where appropriate, other GS affiliates.

Goldman Sachs and persons connected with Goldman Sachs provide diversified financial services to a broad range of clients and counterparties and circumstances may arise in which Goldman Sachs may have a conflict of interest.

For further details on the execution venues used by the Private Wealth Management Division and its conflicts of interest policy, please refer to the Private Wealth Management Division's best execution summary which is available at: <http://www.goldmansachs.com/disclosures/mifid/>.

3. Topic 3: a description of any specific arrangements with any execution venues regarding payments made or received, discounts, rebates or non-monetary benefits received;

Some execution venues may offer differing fee plans to trading members depending on the volume and nature/type of a trading activity on the venue as well as fee discounts depending on average volume of trading undertaken. Such arrangements apply equally to all trading members who satisfy the relevant criteria under the execution venue's rules. Information on such arrangements is publically available on the relevant execution venue's website. Goldman Sachs' decision to route orders to a particular venue for execution for this asset class is typically driven by the listing of the product the client wishes to trade, and is not influenced by any such fee structure or volume discount.

4. Topic 4: an explanation of the factors that led to a change in the list of execution venues listed in the firm's execution policy, if such a change occurred;

There has been no change to the execution venues listed in GS' execution policy for the reporting period.

5. Topic 5: an explanation of how order execution differs according to client categorisation, where the firm treats categories of clients differently and where it may affect the order execution arrangements;

The Private Wealth Management Division provides order execution for retail and professional clients.

A client's regulatory categorisation is an important factor both in the assessment of whether the client is relying on GS to deliver best execution and in providing best execution. The starting presumption is that retail clients do legitimately rely on GS to protect their interests in relation to pricing and other elements of the transaction that may be affected by the choice made by GS in executing the relevant order (i.e. GS owes a duty of best execution to retail clients) and professional clients do not legitimately rely on GS to protect their interests; however, these presumptions may be revised depending on the application of the four-fold test for determining legitimate reliance to the particular circumstances of GS' interaction with the client and how the market operates for the relevant product.

Subject to any specific instructions, GS will generally give the highest priority to:

- net price for professional clients; and
- total consideration for retail clients.

The remaining execution factors are generally given equal ranking.

6. Topic 6: an explanation of whether other criteria were given precedence over immediate price and cost when executing retail client orders and how these other criteria were instrumental in delivering the best possible result in terms of the total consideration to the client;

Subject to any specific instructions, GS will generally not give precedence over immediate price and cost when executing retail client orders.

If GS receives an order from a retail client that includes a specific instruction or specific instructions in relation to the handling and execution of the entire order or a particular aspect or aspects of an order (including selecting a particular execution venue, executing at a particular price or time or through the use of a particular strategy) then, subject to GS' legal and regulatory obligations, GS will execute the retail client's order in accordance with that specific instruction. Where the specific instruction covers only a portion of an order (for example, as to the choice of execution venue), and GS has discretion over the execution of other elements of the order, then GS will continue to be subject to the best execution obligation in respect of the elements of the order that are not covered by the client's specific instruction.

7. Topic 7: an explanation of how the investment firm has used any data or tools relating to the quality of execution, including any data published under RTS 27;

GS has in place post execution supervisory monitoring procedures which use market data, where it is available, to assess client transactions against relevant market prices and benchmarks. For products with no observable external market data other criteria are used to benchmark client transactions for monitoring purposes. This monitoring is undertaken on a manual basis in accordance with internal monitoring policies and procedures. As part of its overall best execution monitoring framework and on-going assessment of execution venues utilised, GS may also take account of information published under RTS 27 by those execution venues (if applicable) alongside data sources used as part of its systematic best execution monitoring arrangements.

8. Topic 8: where applicable, an explanation of how the investment firm has used output of a consolidated tape provider established under Article 65 of Directive 2014/65/EU.

Not applicable.