
Deutsche Bank
Dear Valued Client,
Consistent with our best practices, and in connection with various rules and regulations applicable to Deutsche Bank
Securities Inc. ("OBSl" and, together with its affiliates, "Deutsche Bank" or the "Bank"), we provide this letter to
highlight the breadth of our activity and certain potential conflicts of interest arising from such activities. This letter
also provides certain notifications mandated by regulation.
Deutsche Bank values you as a client of our Global Markets Equities division. As you know, the Bank provides a
variety of products and services to a broad range of clients. We seek to add unique value with insightful and useful
market information and views, excellence in execution, and innovative client solutions. Deutsche Bank provides to
its client base a variety of sales, research, structuring, execution, trading, and financing services, including, without
limitation, the following:
• We provide full sales coverage across asset classes, sectors and security products.
• We provide fundamental, macroeconomic, quantitative and derivatives research, trading and similar ideas
addressing a variety of markets.
• We help to structure financial solutions responsive to individual client needs, including providing over-the-
counter derivative products as well as making available tailored investment products such as Bank-issued
notes.
• We provide liquidity to our customers by committing capital to facilitate their trading where requested and
appropriate. We also execute trades for customers on an agency basis.
• We make available electronic trading solutions, such as DMA and algorithmic trading products, to clients.
• We provide prime brokerage, stock loan and similar financing products and services through our global
markets prime finance businesses.
Information
In providing you with information about securities markets and transactions, please note the following. Any
information we provide is, to the best of our knowledge, accurate and not misleading. We seek to rely on reasonable
sources of information in passing along information to you, in developing derived and related information for you,
and in certain instances as a basis for our own views. Our research product, marketing material, and
communications contain a variety of disclosures including those regarding actual and potential conflicts of interest

that the Bank may have.
The Bank has in place significant controls with regard to information about your specific order and execution activity. Your specific information is used for your benefit. As more fully described below, while there are instances in which the Bank necessarily must provide information to others in order to consummate a transaction to benefit you, the Bank strives to provide only the information necessary to accomplish your goals.

• When seeking liquidity for a transaction on an agency or riskless principal basis, particularly orders involving large block sizes or other illiquid positions, DBSl may need to solicit indications of interest from potential counterparties. To solicit such interest, DBSI will need to disclose some parameters about the order. We seek to disclose only that information necessary to achieve an execution consistent with the terms of a customer's order, and consistent with our best execution obligations.
• When facilitating a customer trade on a principal basis (i.e., by providing liquidity through the commitment of capital), DBSl may seek liquidity internally from Bank trading desks. This liquidity is sourced in a similar manner to how it is solicited externally for agency or riskless principal transactions, sharing appropriate information only.

The Bank understands that all customers regard their execution and portfolio information as confidential. The Bank fiuther understands that those customers that provide, or cause to be provided, execution information to the Bank's
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prime finance unit do so with a particular regard for the confidentiality of that information. As such, the Bank's prime finance unit is independent from other business units and is serviced by a group with distinct reporting lines to the most senior management levels. In the course of managing DBSI's overall inventory and liquidity needs, non-trading desk senior managers may liaise with managers in the prime finance unit.
With regard to executed transactions, the Bank reviews this information on an individual and aggregate basis to assess its market and other impact. We use the individual information to tailor our provision of products and services to you as a client, based on the type and volume of business that you conduct with us as well as on your credit and market risk profile. In addition, the aggregate information that the Bank has about its customers is used so the Bank can better understand the markets and its client base's interest in those markets. The Bank may charge different commissions and financing rates, and provide different levels of sales and related coverage, to different

customers based on these and other factors.
In addition, please note that the Bank has regulatory and other obligations to supervise and otherwise oversee its business, and shares information as necessary to maintain its control environment and respond to general and specific regulatory requests and requirements. Further, Deutsche Bank has in place policies and practices reasonably designed to identify and address potential conflicts of interest. The Bank maintains a global conflicts of interest policy that is intended to identify and manage such potential conflicts of interest that the Bank may have.
Other Bank marketing materials and communications may also contain disclosures.
Trading
Subject to our best execution obligations and rules relating to customer priority, parity and precedence, your open orders may not receive priority over principal orders handled by DBSI. For instance, where we have committed capital in connection with market making activities and we have taken on as principal the risk of such position, we may trade entirely or partially out of our risk at prices which could satisfy your orders. Or, we may engage in bona-fide hedging activities at prices that may satisfy your orders. In the case of blind bid principal baskets, for example, where DBSI is asked to bid for an order as principal at a guaranteed price at a time that the basket's components are not disclosed, DBSI may manage its expected market risk by executing hedging Uansactions in assets that it anticipates may be components of the basket. This activity, which is sometimes referred to as pre-hedging, allows us to better manage the expected market risk inherent in the basket, and to therefore provide pricing that reflects such risk mitigation. If DBSI were at full risk for the basket, the pricing would reflect the inability of DBSI to manage the expected risk in the basket. Additionally, in the event of a guaranteed market on close ("GMOC") order such as an index rebalance, we may similarly engage in the aforementioned pre-hedging activities that serve to offset the risks associated with a guaranteed-price order. Please note that due to the size of these activities, for us to facilitate your order, we may hedge over a longer period of time prior to the GMOC. Please also note that we may hold or trade individual instruments composing a basket (or related securities or derivative instruments), whether at risk or pursuant to another client order, and that such trading may impact the pricing of such basket (whether in the market or guaranteed to you). When hedging, DBSI may achieve a better price than guaranteed to you, and DBSI may retain the benefit of such pricing as compensation for risk assumed in providing you a guaranteed price. These hedging activities may impact the market prices of the security you are

buying or selling, and may ultimately affect the guaranteed price that we have contractually agree with you.

There may be other cases in which we may handle your orders in this manner. For instance, where we use trading algorithms to execute principal orders, the algorithm may execute these orders at prices which could satisfy your open orders, for reasons having nothing to do with whether the orders were principal orders or customer orders (e.g. time of order entry, specific algorithm strategy, order parameters such as urgency of execution, or any combination of these). Likewise, in instances in which you instruct us to use our discretion in executing your order (for example, your instruction to work the order over the course of the day or subject to other parameters), we may execute principal orders at prices that would satisfy your orders.

Pursuant to FINRA Rule 5320 and certain NYSE exchanges, you may instruct DBSI not to handle certain types of orders in equity securities in the manner described in the preceding two paragraphs. If you wish to send us this type of instruction, please email us at Rule.5320@db.com (with a period between “Rule” and “5320”) and in your email, let us know whether the instruction applies to all or only some of all of your orders covered by the Rule so that we may act accordingly. Please note, however, that we may take such an instruction into account when we set pricing

terms for your transactions. In the case of over-the-counter derivatives transactions, for example, the Bank's price for such transactions takes account of and is informed by its hedging activity in respect thereof.

Please also note that DBSI maintains informational barriers reasonably designed to prevent our trading units from obtaining knowledge of customer orders handled by other trading units. As such, if you provide us the instruction described in the preceding paragraph, subject to compliance with applicable laws and regulations, DBSI trading units other than those handling your orders may continue to trade on a principal basis at prices that would satisfy your orders.

Once the Bank has committed capital to facilitate a customer trade and taken on as principal the risk of such position, the Bank will manage such resulting risk on an individual, portfolio, or other risk parameter basis. The risk management techniques may include, without limitation, trading in the actual assets or securities that the Bank has taken on, trading in assets or securities that are correlated thereto, and establishing derivatives positions on any of the foregoing. Such risk management techniques may also take account of other positions that the Bank has exposure to, including without limitation principal positions, derivative instruments, and collateral positions.

In addition to the foregoing, the Bank may establish, maintain, modify and terminate principal positions for its own account in some of the same instruments, or the securities or assets underlying such instruments, in which its customers trade or which may be associated with the other services the Bank provides. The Bank takes these positions based on the ideas of its traders, sales staff, structurers, research staff, as well as from public information sources. These same ideas are often ideas shared with Bank customers and upon which the customers may or may not act. It is possible, therefore, that the Bank could have principal positions that are the same, similar, different or opposite to the positions of its customers.

FINRA Rule 5270 generally prohibits a broker-dealer from trading for its own account while in possession of material, non-public information concerning an imminent client block transaction. However, Rule 5270 does not preclude a broker-dealer from trading for its own account when the transactions are undertaken for the purpose of fulfilling or facilitating a client block order. This disclosure outlines the Bank's order handling practices in relation to FINRA Rule 5270. The Bank may trade the same security and one or more related financial instruments for its own account while in possession or after completion of your block order, including trades undertaken to hedge the risk associated with facilitating your block order. Affiliates of the Bank may engage in similar activity when facilitating certain client block orders received by the Bank (e.g., when trading foreign ordinaries to fulfill client orders for depositary receipts). These activities may impact the market prices of the security or related financial instruments you are buying or selling; however, the Bank and its affiliates will conduct these activities in a commercially reasonable manner, consistent with their best execution obligations and in the best interest of clients.

Institutional clients that do not consent to the handling of their block orders in this manner should contact their sales or trading representative.

The Bank may also record telephone lines pursuant to regulation or otherwise.

Indications of Interest

The Bank may disseminate expressions of trading interest commonly known as "indications of interest" or "lOIs" in order to inform its customers that it seeks to, or that it represents trading interest that seeks to, interact with other order flow in a particular security. One attribute that is often associated with an lOI is whether the 101 is "natural".

Please note that when the Bank identifies its lOI as "natural", the Bank is representing that (i) it is committed to the price and quantity of the 101 if contacted within the appropriate time; and (ii) the lOI represents either customer interest, interest for the Bank's own account on a principal basis or as a

result of facilitation, or a combination of
such. Although you may act upon an lOl, it does not guarantee execution.
Order Handling
Absent instructions to the contrary on a per order basis, we will handle orders you place with us on a “not held”
basis, regardless of how they are received. This handling provides us with the flexibility to work your orders to
obtain favorable pricing on your behalf within the parameters that you provide to us.
In furtherance of our best execution for you, your orders may be executed in an automated execution facility
operated by DBSI or its affiliate. These execution facilities are designed to provide efficient access to aggregated
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sources of liquidity within DB. DBSl operates a facility known as SuperX which is a registered alternative trading
system bringing together multiple buyers and sellers of U.S. equity securities. SuperX executes orders based on
price-time priority without regard to whether the orders represent principal or agency interest. We may also execute
your orders in an execution facility separate from SuperX in which DBSI serves as exclusive counterparty (i.e., each
trade occurring in the facility is filled by DBSI on a principal basis). Upon your request, your sales coverage can
provide you with additional information regarding our automated execution facilities. The SuperX website can be
found here: httDs://auiobahn.db.com/'microSite/html/suDerxUS.html
Upon request, we will provide you with information regarding the identity of the venues to which we have routed
your orders during the preceding six months, whether the orders were directed orders or non-directed orders, and the
time of the transactions, if any, that resulted from such orders. Please note that you may instruct us to discontinue
routing your orders to any venue, including any of our own execution facilities.
DBSI may receive payment from certain broker-dealers for directing to them certain orders for listed options on
equities and indices. The sources of these payments are marketing fee programs adopted by the options exchanges,
which programs have been approved by the Securities and Exchange Commission. We do not take these payments
(or the potential for such payments) into consideration when determining where to route your order. However,
please note that if DBSI determines that the execution quality of two venues is materially similar, it may take such
payments into account. Please find the Characteristics & Risks of Standardized Options document here:
http://www.optionsclearing.coin/comDonenis/docs.'riskstoc.pdf
Certain equities exchanges and third party trading centers to which DBSI routes equities orders have implemented
fee structures under which broker-dealer participants may receive rebates on

certain orders. Under these fee
structures, participants are charged a fee for orders that take liquidity from (or that provide liquidity to) the venue,
and provided a rebate for orders that add liquidity to (or that remove liquidity from) the venue. Rebates received by
DBSI from a venue during any time period may or may not exceed the fees paid by DBSI to the venue during that
time period. Fee rates and rebate amounts on any given venue may change periodically. If DBSI determines that
the execution quality of two venues is materially similar, it may take such payments into account. We will provide
you additional information regarding fees and rebates on your written request, including the amount per order or per
share received by DBSI.
Under SEC Regulation NMS Rule 606, broker-dealers that route customer orders in equity and option securities are
required to make publicly available quarterly reports that, among other things, identify the venues to which customer
orders are routed for execution. In addition. Rule 606 requires broker-dealers to disclose to clients, on request, the
venues to which their individual orders were routed. DBSI has contracted with an outside vendor to prepare
statistical reports to comply with this rule. To download and view the most recent disclosures please
visit http:.Vww'w.tta.thomson.com/reports/. A written copy of the Rule 606 report for DBSI can also be furnished to
you upon request.
Financing
Subject to the provisions available under applicable law, the Bank may charge different financing rates to different
customers. Similarly, please be aware that *e Bank's prime finance unit provides its services, such as stock
lending, to the Bank's trading desks. Such trading desks could be charged internal financing rates that are less than
the financing rates charged to customers and could enjoy better access to hard-to-borrow securities than customers
enjoy.
Securities Lending and Rehypothecation
To the extent you have entered into a securities lending agreement with DBSI that allows DBSI, as principal, to
borrow your fully-paid securities, DBSI may use such securities to make delivery in connection with short sales or
to lend to others who may similarly use them in connection therewith. Of course, if you would desire that your
fully-paid securities not be used for this purpose, you have the right to terminate the applicable securities lending
agreement, subject to the applicable terms of such agreement. Also, please be advised that, in accordance with
applicable law, DBSI may use or rehypothecate certain of your margin securities (e.g., margin securities that are not
fUlly-paid or excess margin securities) or borrow fiilly-paid securities

(pursuant to a separate securities lending
agreement in the case of fiilly-paid securities) for, among other things,
settling short sales and lending the securities
for short sales and, in doing so, DBSI and its affiliates may receive
compensation in connection therewith.
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Furthermore, please note that you may lose certain rights with respect to
your securities during the time a securities
loan is outstanding or while your securities have been rehypothecated. For
example, until DBSI returns the loaned
or rehypothecated securities to your account, you will not have the right to
vote, or to provide any consent or to take
any similar action with respect to, the loaned or rehypothecated securities,
and you may be unable to tender the
securities, participate in a corporate action or deliver the securities to a
third party.
DBSI may have in its possession or under its control securities which, by
their terms, may be called or redeemed, in
part, prior to maturity. Pursuant to FINRA Rule 4340, DBSI has implemented
procedures to identify such callable
securities and to provide for the fair and impartial allocation of such
securities among its customers. DBSI's
allocation procedures are available here: https://www.db.com/usa/docs/DBSI-Callable-Securities-Procedures.pdf In
addition, DBSI will provide hard copies of its allocation procedures to
customers upon request.

Risk Management

The Global Markets Equities division manages its risk on a number of levels,
including a centralized approach that
is designed to take account of a variety of risks arising across the
businesses of the division. These risks include,
without limitation, market risk, credit risk, collateral risk, liquidity
risk, sector risk, and country risk. The Bank may
manage such risks by establishing positions (either, cash, derivative or
both) in assets, instruments and securities that
are the same, similar, different or opposite to the positions of its
customers.

Other Deutsche Bank Roles

In addition to the foregoing, please note that the Bank often acts in
particular capacities distinctly associated with
certain transaction types. For example, the Bank may act as calculation
agent for certain derivatives or other
transactions, or may otherwise provide incidental valuation services for
such transactions. As noted above, the Bank
will undertake these activities with information it believes to be reliable,
accurate and not misleading. In any event,
the Bank may need to exercise appropriate discretion and judgment in such
assessments and related activities,
including taking account of its own risk exposure on such trades.

Extended Trading Hours

Before trading in any securities in the pre- or post-market sessions, please

be aware that trading during such
extended hours involves material trading risks (in addition to those present during regular market hours), as further
set forth immediately below.

• Risk of Lower Liquidity. There may be lower liquidity during extended hours trading as compared to
regular market hours. As a result, your order may only be partially executed, or not at all. Liquidity refers
to the ability of market participants to buy and sell securities.

• Risk of Higher Volatility. There may be greater volatility in the price of securities during extended hours
trading than during regular market hours. As a result, your order may only be partially executed, or not at
all, or you may receive an inferior price during extended hours trading than you would during regular
markets hours.

• Risk of Changing Prices. The prices of securities traded during extended hours trading may not reflect the
prices either at the end of regular market hours or upon the opening of the next morning's trading session.
As a result, you may receive an inferior price during extended hours trading than you would during regular
market hours.

• Risk of Unlinked Markets. Depending on the extended hours trading system or the time of day, the prices
displayed on a particular extended hours trading system may not reflect the prices in other concurrently
operating extended hours trading systems dealing in the same securities- Accordingly, you may receive an
inferior price in one extended hours trading system than you would in another extended hours trading
system.

• Risk of News Announcements. Issuers often make news announcements that may affect the price of their
securities after regular market hours. Similarly, important financial information is fi-equently announced
outside of regular market hours. In an extended hours trading environment, these announcements may
occur during trading, and if combined with lower liquidity and higher volatility, may cause an exaggerated
and unsustainable effect on the price of a security.

• Risk of Wider Spreads. Lower liquidity and higher volatility during extended hours trading may result in
wider than normal spreads for a particular security.

• Risk of Lack of Calculation or Dissemination of Underlying Index Value or Intraday Indicative Value
("HV"). For certain derivative securities products, an updated underlying index value or IIV may not be
calculated or publicly disseminated during extended trading hours. As such, an investor who is unable to

calculate implied values for such derivative securities products during those sessions may be at a
disadvantage to market professionals.
In addition to the foregoing, please note that the following restrictions are applicable to trading of securities
governed by ARCA:
• Except for market orders eligible for execution during the market order auction, limit price orders are
the only orders that are eligible for execution during the opening and late trading sessions.
• An order must be designated specifically for trading in the opening and/or late trading sessions to be
eligible for trading in such sessions.
ERISA Section 408rbl(2)
On February 3, 2012, the Department of Labor ("DOL") issued final regulations under Section 408(bX2) of the U.S.
Employee Retirement Income Security Act of 1974 ("ERISA"). ERISA's Section 408(b)(2) exempts the provision
of services to a covered employee benefit plan from ERISA's prohibited transaction rules, and prescribes enhanced
disclosure requirements for certain covered plans and services under certain conditions. Disclosures made pursuant
to those regulations in connection with institutional service contracts or arrangements your plan may have with DB
can be found at https://www.db.com/usa''erisa.html. We will update the disclosures as necessary through the online
copy and if the disclosures apply to you, we recommend that you review the online copy periodically for any
changes. Questions can be sent to Section408b2@list.db.com.
We hope you see this letter as confirming our commitment to serving you as a valued client, bringing to bear the
many and diverse resources available through the global activities of Deutsche Bank. We seek to continue to earn
your trust and business.
Deutsche Bank Securities Inc.

Thomas Patrick
Managing Director
Head of Global Markets Equity Trading Americas
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Managing Director
President, Deutsche Bank Securities Inc.
Co-Head Global Prime Finance