
THE VANGUARD GROUP, INC.
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This brochure provides information about the qualifications and business practices of The Vanguard Group, Inc. (“VGI”). If you have any questions about the contents of this brochure, please contact us at 1-877-662-7447. The information in this brochure has not been approved or verified by the United States Securities and Exchange Commission (“SEC”) or by any state securities authority.

Additional information about VGI also is available on the SEC’s website at www.adviserinfo.sec.gov.

VGI is a registered investment advisor with the SEC. Registration does not imply a certain level of skill or training.

MATERIAL CHANGES

There have been no material changes to this brochure since the last version available March 31, 2016.

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ADVISORY BUSINESS

The Vanguard Group, Inc. (“Vanguard” or “VGI”), is a Pennsylvania corporation that has, since 1975, provided investment advisory services to the Vanguard family of funds. VGI is jointly owned by the U.S. funds of the Vanguard group of investment companies. VGI’s advisory services are offered through its Equity Investment Group (“EIG”) and its Fixed Income Group (“FIG”). VGI serves as investment advisor to: (i) over 180 U.S. -registered Vanguard mutual funds; (ii) over 100 pooled investment vehicles that are not registered mutual funds (e.g., Vanguard’s offshore funds); and (iii) separate account institutional clients of Vanguard’s international subsidiaries.

This brochure describes only the advisory services VGI provides to Vanguard’s non-U.S. clients, which are comprised of the following: (i) funds that are investment vehicles that operate pursuant to the European Communities Undertakings for Collective Investment in Transferable Securities (“UCITS”) in Ireland and the United Kingdom; (ii) Irish qualifying investor funds; and (iii) funds established as trusts under the laws of the Province of Ontario in Canada (collectively, in this brochure, the “Vanguard offshore funds”), and to separate account clients of Vanguard’s international subsidiaries. References to “client” in this brochure mean the Vanguard offshore funds and the separate accounts, collectively. This brochure does not apply to the advisory services provided to the Vanguard U.S.-registered mutual funds because the SEC does not require delivery of a brochure to U.S. registered mutual funds.

As of December 31, 2016, VGI provided discretionary advisory services for the Vanguard offshore funds and separate accounts, which collectively accounted for approximately \$153 billion in assets.

VGI offers both passive (i.e., indexing) and active discretionary investment advisory services that cover the U.S. and international markets.

Indexing.

Indexing is an investment strategy for tracking the performance of a specified market benchmark, or “index.” An index is an unmanaged group of securities whose aggregate performance is used as a standard to measure the investment performance of a particular market. There are many types of indexes. Some represent entire markets, such as the U.S. stock market or the U.S. bond market. Other indexes cover market segments, such as small-capitalization stocks or short-term bonds.

VGI employs two types of indexing strategies: replication and sampling. When using the replication methodology, VGI’s portfolio managers generally will seek to hold the same stocks (or bonds) as those in the target index, and in approximately the same proportions. When using the sampling methodology, VGI portfolio managers use computer programs to select from the target index a representative sample of securities that resembles the target index in terms of key risk factors and other characteristics. Depending on the type of fund,

these factors include, but are not limited to, industry weightings, country weightings, market capitalization, and other financial characteristics of stocks (for equity securities) and duration, cash flow, quality, and callability of bonds (for fixed income securities). Because a fund that samples does not hold all the securities of its target index, some of the securities are over- (or under-) weighted compared with the target index. Generally, VGI manages the weightings within specific target limits.

Separate account clients may impose investment limitations on VGI's investment selection process through individually negotiated investment guidelines. Except as otherwise specifically negotiated, VGI manages all assets for the Vanguard offshore funds and any separate accounts on a discretionary basis.

Active Management.

VGI also serves as investment advisor to Vanguard offshore funds that are actively managed. Actively managed funds do not seek to track the performance of a benchmark index; rather the portfolio managers try to outperform that index and peer funds through investment selection. VGI's equity active management generally employs quantitative computer modeling that seeks, depending on the particular investment mandate, to assess a number of factors when selecting a fund's securities including, but not limited to, an assessment of a stock's relative return potential, valuation, growth prospects, and risk profile.

VGI's fixed income methodologies generally are based upon fundamental investment research, as well as research obtained from external investment organizations. VGI's portfolio managers rely on research, market forecasts, and their own judgment and experience in selecting securities to buy and sell. The methodology uses information gathered from a wide variety of sources, both public and private, regarding short-term and long-term economic and financial market characteristics and trends. VGI's investment research includes both quantitative and fundamental methods of analysis. It also incorporates VGI's own investment philosophies, beliefs, and fiduciary approach to the investment advisory process. VGI's investment strategies and recommendations are based on methodologies that are approved and reviewed by internal committees composed of senior management.

In all cases, VGI's portfolio management operates in accordance with investment guidelines outlined in a fund's governing documents.

FEES AND COMPENSATION

VGI provides advisory services to Vanguard's offshore funds pursuant to the terms of an investment advisory agreement with the sponsor, or manager, of the Vanguard offshore funds. Fees for advisory services to both the offshore funds and separate account clients are individually negotiated and payable in a manner and frequency according to the relevant agreement. VGI does not deduct fees directly from client accounts.

Vanguard offshore funds have administrative, custodial, and operational expenses that are part of a fund's expense ratio. The purchase or sale of Vanguard offshore funds is not subject to a load or sales charge, although there may be purchase or redemption or anti-dilution levy fees. Investors also may pay brokerage commissions to an intermediary when buying and selling ETFs. Separate account clients incur custodial fees from the account's custodian. Vanguard clients also incur brokerage and trading costs that are not reflected in the advisory fee or expense ratio, but are reflected in the fund's/account's performance. A more detailed description of how VGI selects broker-dealers is included in this brochure in the section "Brokerage Practices."

PERFORMANCE-BASED FEES AND SIDE-BY-SIDE MANAGEMENT

VGI does not receive performance-based fees for advisory services provided to clients. Therefore, VGI does not engage in side-by-side management of clients with performance-based fees.

TYPES OF CLIENTS

This brochure describes the services provided to the Vanguard offshore funds and a small number of separate account clients of Vanguard's international subsidiaries.

VGI has no required minimum investment amount for the offshore funds or the separate accounts that it advises. Underlying offshore fund investors must satisfy fund investment minimums as may be disclosed in a fund's governing documents.

METHODS OF ANALYSIS, INVESTMENT STRATEGIES, AND RISK OF LOSS

As noted previously, VGI's indexing strategies follow the principles of replication and sampling. VGI's active management equity methodology is based upon quantitative modeling; its fixed income analysis is based upon fundamental investment research, as well as research obtained from external investment organizations. The fundamental research uses information gathered from a wide variety of sources, both public and private, regarding short-term and long-term economic and financial market characteristics and trends. It also incorporates VGI's own investment philosophies, beliefs, and fiduciary approach to the investment advisory relationship.

Indexing strategies generally are subject to the risks associated with the markets that such strategies track. Actively managed funds, in addition to the risks posed by the stocks or bonds themselves, are subject to the risk that poor security selection will result in underperformance compared with the relevant benchmark. All investments involve some risk, including possible loss of principal. VGI can make no guarantee that any particular asset allocation or investment strategy will meet a fund's or an account's particular investment objective, or provide a particular investment return or a given level of income. Fluctuations in the financial markets and other factors may cause declines in the value of client accounts.

Diversification does not ensure a profit or protect against a loss in a declining market. VGI cannot guarantee the future performance of its funds or accounts. Each Vanguard offshore fund's prospectus/supplement (or an account's investment guidelines) offers additional information about a particular investment strategy's specific risks.

DISCIPLINARY INFORMATION

VGI has no disciplinary information to disclose.

OTHER FINANCIAL INDUSTRY ACTIVITIES AND AFFILIATIONS

The Vanguard Group, Inc. ("VGI"), is a Pennsylvania corporation and provides significant non-advisory services to the Vanguard offshore funds and separate accounts as well as to its U.S.-based mutual fund business. Only a small percentage of VGI personnel are engaged in providing investment advisory services through EIG and FIG.

VGI devotes the majority of its time and resources to the provision of corporate management, administrative, and distribution services to certain of its advisory clients. These services may include, as applicable: (1) accounting and financial; (2) legal and regulatory; (3) shareholder account maintenance (transfer agency); (4) monitoring and control of custodian relationships; (5) shareholder reporting; (6) review and evaluation of advisory and other services provided to the funds by third parties; and (7) trust services through VGI's wholly-owned subsidiary, Vanguard Fiduciary Trust Company, a Pennsylvania non-depository trust company.

Vanguard Marketing Corporation ("VMC") is a Pennsylvania corporation and a registered broker-dealer that is a wholly owned subsidiary of VGI. VMC markets and distributes shares of Vanguard's U.S. funds. VMC's services to the U.S. funds are conducted on an at-cost basis in accordance with the terms and conditions of an SEC exemptive order, which permits Vanguard funds to internalize and jointly finance such activities. VMC does not receive transaction-based compensation in connection with the distribution of the Vanguard funds. Certain members of VGI's management are registered representatives of VMC.

Vanguard Asset Management, Limited ("VAM") is an English limited company that is authorized and regulated by the UK Financial Conduct Authority. VAM is an indirect wholly owned subsidiary of VGI. VAM is licensed in the UK to conduct portfolio management and investment trading functions and serves as a distributor of certain Vanguard offshore funds. VAM is also registered with the SEC as an investment adviser under registration number 801-107653.

Vanguard Investments UK, Limited ("VIUK") is an English limited company that is authorized and regulated by the UK Financial Conduct Authority. VIUK is an indirect wholly owned subsidiary of VGI. VIUK serves as an authorized corporate director and operates the UK domiciled collective investment schemes. VIUK has appointed VGI to provide advisory

services to such UK schemes. VIUK is an “exempt reporting adviser” in the U.S. under the Investment Advisers Act of 1940 (the “Advisers Act”).

Vanguard Group (Ireland) Limited (“VGIL”) is an Irish limited company that is regulated by the Central Bank of Ireland. VGIL is an indirect wholly owned subsidiary of VGI. VGIL was formed to provide, or to arrange for the provision of, management, administrative, and distribution services to Irish-domiciled collective investment schemes. VGIL has appointed VGI to provide advisory services to VGIL for the benefit of the Irish-domiciled collective investment schemes managed by VGIL.

Vanguard Investments Singapore, Pte, Ltd. (“VIS”), is a private company incorporated in Singapore limited by shares and is regulated by the Monetary Authority of Singapore. VIS is an indirect wholly owned subsidiary of VGI. VIS is a licensed fund manager and an exempt financial advisor. VGI provides advisory services to VIS separate account clients.

Vanguard Investments Canada Inc. (“VIC”) is a Canadian company that is regulated by the Ontario Securities Commission. VIC is an indirect wholly owned subsidiary of VGI. VIC serves as trustee and investment fund manager of the Vanguard ETFs that are listed on the Toronto Stock Exchange and available for sale in Canada. VIC also serves as trustee and investment fund manager of a number of pooled funds. VIC has appointed VGI to provide portfolio management to such ETFs and pooled funds pursuant to a sub-advisory agreement between VIC and VGI. VIC is an “exempt reporting adviser” in the U.S. under the Advisers Act.

VGI has other financial industry affiliations and subsidiaries. However, these other affiliations are not material to the advisory services VGI provides to the Vanguard offshore funds or separate accounts.

CODE OF ETHICS, PARTICIPATION OR INTEREST IN CLIENT TRANSACTIONS, AND PERSONAL TRADING

Code of Ethics.

VGI operates under a Code of Ethics that complies with Rule 17j-1 of the Investment Company Act of 1940 and Rule 204A-1 of the Advisers Act.

The Code sets forth fiduciary standards that apply to all personnel, incorporates an insider trading policy, and governs outside employment and receipt of gifts. The Code requires all VGI personnel to conduct their trading of stocks, bonds, and ETFs through a Vanguard brokerage account. In addition to these safeguards, personnel that have access to information about VGI fund trading activity or client trading activity are subject to stringent trading restrictions described in more detail below and that are designed to ensure that VGI personnel do not misuse fund and/or client information for their own benefit.

VGI will provide a copy of its Code of Ethics to any client or prospective client upon request at no charge.

Please see the section of this Brochure entitled “Other Financial Industry Activities and Affiliations” for a discussion of VGI’s affiliations with other Vanguard entities, and how those affiliations may impact clients of VGI.

Personal Trading.

All VGI personnel are prohibited from taking personal advantage of their knowledge of recent or pending securities activities of the VGI funds. In particular, VGI personnel are prohibited from purchasing or selling, directly or indirectly, any security or related security when they know that the security or related security is being purchased or sold, or considered for purchase or sale, by a Vanguard U.S. or offshore fund or separate account. This prohibition applies to all securities in which the person has acquired or will acquire beneficial ownership. These policies are set forth in both the Code of Ethics and the insider trading policy, which are subject to annual certification and to ongoing oversight by VGI’s Compliance Department. All VGI personnel and their spouses, unless otherwise exempted under the Code of Ethics, are required to maintain their personal brokerage accounts through Vanguard Brokerage Services so any trading can be monitored by VGI’s Compliance Department.

Transactions in Vanguard offshore funds.

VGI personnel are prohibited from purchasing shares of the offshore funds pursuant to the terms of the funds’ prospectuses and policies, as well as applicable law.

General trading restrictions for fund access persons.

VGI officers and all personnel who are involved in making securities recommendations, including the purchase or sale of securities for VGI investment companies, are deemed to be “fund access persons” and are subject to additional trading and reporting restrictions. These restrictions include a requirement to pre-clear their personal transactions in covered securities or obtain prior approval from VGI’s Compliance Department in accordance with exemptions under the Code of Ethics. The Code of Ethics places additional limitations on the ability to purchase private placements. Fund access persons cannot sell any security that the access person does not own or otherwise engage in "short-selling" activities. Fund access persons are prohibited from purchasing and then selling at a profit, or selling and then repurchasing at a lower price, any covered security or related security within 60 calendar days. If a fund access person realizes profits on such short-term trades, the fund access person must relinquish the profits to The Vanguard Group Foundation®, a charitable organization established by VGI.

All fund access persons are subject to trading restrictions when their purchases and sales of covered securities coincide with trades by a VGI fund. The Compliance Department reserves the right to exempt from these restrictions fund access person trades that coincide with trading by certain Vanguard offshore funds (e.g., index funds). Generally, fund access

persons are prohibited from purchasing or selling any security that a VGI fund has also purchased or sold with seven days of such VGI fund trade. If such prohibited transaction occurs, the fund access person must relinquish any gain from the transaction to The Vanguard Group Foundation.

Conflicts of Interest.

VGI seeks to avoid or minimize conflicts of interest through business and investment practices that are subject to policies and procedures designed to protect the interest of clients while maintaining VGI's fiduciary obligations.

Portfolio managers may manage multiple accounts for multiple clients. Managing multiple accounts could create potential conflicts of interest, such as those between investment strategies, or allocations of investment opportunities. Managing multiple accounts also can raise concerns that some accounts would be favored over others. VGI manages these types of potential conflicts between funds or with other types of accounts through its policies and procedures, which include allocation policies and procedures, internal trading review processes, compliance department trading oversight, and oversight by directors and independent third parties.

VGI has robust trade-allocation procedures and controls to ensure that all funds'/accounts' aggregated orders are conducted in a fair and equitable manner. These allocation policies address potential conflicts through a number of different practices including, but not limited to pro rata allocation and specific procedures for the allocation of partially filled aggregated orders.

BROKERAGE PRACTICES

Broker Selection and Best Execution.

VGI decides which securities to buy and sell on behalf of clients and selects brokers or dealers that will execute the trades on an agency basis, or the dealers with whom the trades will be effected on a principal basis. For each trade, VGI selects the broker-dealer that VGI believes will provide "best execution." Best execution does not necessarily mean paying the lowest spread or commission rate available. It means executing client transactions so that the client's total cost (in the case of a purchase) or net proceeds (in the case of a sale) are the most favorable under the circumstances.

In seeking best execution, VGI may consider the full range of the firm's services and other relevant factors as appropriate under the circumstances, such as the following:

- The firm's commission rate.
- The execution capabilities required by the transaction.
- The financial responsibility of the firm.
- The ability and willingness of the firm to commit capital to facilitate the client's portfolio transactions.

- The importance to the client of speed, efficiency, and confidentiality.
- The firm's use of automation.
- The apparent familiarity of the firm with sources from which or to whom particular securities might be purchased or sold.
- The firm's access to underwritten offerings and secondary markets.
- The firm's ability to provide access to company management.
- The trading expertise, responsiveness, reputation, integrity, and perceived soundness of the firm.
- The reliability and accuracy of the firm's communications and settlement processing.
- Other matters relevant to the selection of a broker-dealer for portfolio transactions for any client.

VGI evaluates best execution for client transactions by conducting a periodic analysis of the quality of brokerage executions for funds/accounts. VGI considers both the volume of shares and dollars traded per firm and the corresponding commissions paid. VGI reviews trading reports for evidence of suspicious activity including, but not limited to, unusual trading allocations across broker-dealers; abnormal commission rates; or allocations that could be evidence of a *quid pro quo* for other business relationships between VGI and the broker-dealer.

Unless otherwise specified in the Agreement between VGI and separate account clients, portfolio management, including, but not limited to, allocation and trade execution shall be performed in the same manner as a similarly mandated fund.

Soft Dollar Practices.

Client commission arrangements (also known as "soft dollar" arrangements) are used to describe the practice of advisors using trading commissions to acquire products and services from brokers in addition to the execution of trades. An advisor's use of client assets to acquire these products and services for the advisor's own benefit creates a conflict of interest and, if not appropriately circumscribed, could violate an advisor's duty to obtain best execution.

VGI has adopted a policy for client commission arrangements that is consistent with guidance from the SEC that an advisor does not violate its fiduciary duty solely by causing a fund to pay a broker or dealer a commission for effecting a transaction that exceeds the amount another broker or dealer would have charged for effecting the same transaction (paying up) if the advisor determines in good faith that the amount of the commission is reasonable in relation to the value of the brokerage and research services provided by the broker or dealer, viewed in terms of either that particular transaction or the advisor's overall responsibilities with respect to the account. Although not prohibited from doing so under this policy, VGI generally would not cause a fund or account to pay a higher commission rate or spread (i.e., pay up) in order to obtain products or services in addition to execution of the trade. VGI may receive benefits from brokers that are provided at no charge in recognition of the volume of trades directed to the broker. If VGI believes that more than one broker

can provide best execution, VGI may select the broker that, in addition to executing the trade, will provide products or services at no additional cost.

VGI does not enter into arrangements whereby brokers provide services, including materials or hardware or discounted rates, in consideration for a specified amount of brokerage, although it is legal to do so.

VGI's client commission policy is subject to the following additional requirements:

- Research and brokerage products and services obtained by VGI using fund or account commissions must be used directly or indirectly for the benefit of the fund or account.
- If products or services are used to benefit more than one client, VGI must allocate the benefits over time in a manner that is reasonably related to the trading commissions generated by each client.
- If VGI receives from a broker-dealer a "mixed use" product or service -- one that can be used both to benefit clients and for other purposes that benefit only VGI -- VGI may use client commissions to pay only for that portion of the product or service that is used to benefit clients. The remainder must be paid for with hard dollars (cash). (An example of a mixed use product would be portfolio performance reports used for both investment research and marketing purposes.)

Trade Aggregation.

Based on the investment mandates of the funds or accounts it manages, VGI may seek to achieve best execution by "batching" or aggregating the orders of two or more funds or accounts when it reasonably believes that aggregating is in the best interest of those funds or accounts.

By combining orders, VGI may be able to obtain better trade executions and prices. Purchased securities or sale proceeds that result from aggregation will be allocated among the participating fund and accounts in a manner deemed equitable by VGI. Although there may be no specified formula for allocating transactions, the allocation methods used (e.g., pro rata), and the results of such allocations, are subject to internal order aggregation and allocation policy procedures that are designed to ensure that all funds and accounts are treated in a fair and equitable manner.

The ability of VGI to purchase or dispose of investments in regulated industries, certain derivatives markets, certain international markets, and certain issuers that limit ownership by a single shareholder or group of related shareholders, or to exercise rights on behalf of clients, may be restricted or impaired because of regulatory or issuer-imposed limitations on the aggregate level of investment. When possible, VGI may seek to obtain regulatory or corporate consents or ownership waivers so that clients can maintain unfettered exposure to these issuers and markets. When consents or waivers are not obtained, VGI on behalf of a client may be required to limit purchases, sell existing investments, or otherwise restrict or limit the exercise of shareholder rights by the client, including voting rights. If a client is required to limit its investment in a particular issuer, VGI on behalf of the client may seek to

obtain economic exposure to that issuer through alternative means, such as through a derivative, which may be more costly than owning securities of the issuer directly.

REVIEW OF ACCOUNTS

VGI provides monthly written reports to Vanguard offshore fund clients that contain detailed information about each fund's trading and performance. The reports examine, as applicable, investment restriction monitoring, pricing accuracy, and fund compliance reporting. VGI also meets on an at-least annual basis with offshore fund clients as part of the fund manager's investment management evaluations.

Separate account clients receive detailed account reporting pursuant to the terms of the negotiated agreement. Generally, client service managers, working with the account's portfolio managers and VGI's accounting department, develop specific account statements (daily, monthly, and/or quarterly) and other financial reporting specific to that account relationship. In addition, VGI may participate in periodic investment review meetings.

CLIENT REFERRALS AND OTHER COMPENSATION

VGI receives no economic benefits from persons that are not clients for providing investment advisory services to its clients.

VGI does not directly or indirectly compensate any person who is not a supervised person for client referrals.

CUSTODY

VGI in its capacity as investment advisor does not retain custody of client funds or securities. Vanguard offshore funds have a custodian that is listed in the relevant fund's governing documents. Separate account assets are maintained by a qualified custodian bank selected by the client. Such qualified custodian is responsible for safeguarding client assets and sending any relevant client statements. Clients should carefully review and compare any account statements they may receive from their custodian with any account statements they may receive from VGI.

INVESTMENT DISCRETION

VGI provides discretionary advisory services to offshore funds and separate account clients of Vanguard's international subsidiaries based on investment guidelines that are either set forth in the offshore fund's governing documents (i.e. prospectuses and supplements) or pursuant to individually negotiated separate account agreements. Any limitations on VGI's discretionary authority are set forth in those guidelines.

Please also see the description of VGI’s advisory services under the heading “Advisory Business.”

VOTING CLIENT SECURITIES

The Board of each Vanguard offshore fund (the “Board”) that invests in stocks has adopted proxy voting procedures and guidelines to govern proxy voting by each fund. The Board has delegated oversight of proxy voting administration to a Proxy Voting Group that is made up of VGI personnel that are not part of the investment advisory business. The Proxy Voting Group is subject to oversight by the Proxy Oversight Committee (the “Committee”), which is composed of senior officers of VGI. This Committee reports directly to the Board. VGI is subject to the Board’s guidelines to the extent that the guidelines call for VGI to administer the voting process and implement the resulting voting decisions. Accordingly, VGI, in its role as investment advisor, does not exercise discretionary proxy voting authority with respect to the securities held by the Vanguard offshore funds. VGI offshore fund clients may obtain information about how VGI voted the client’s securities on any individual proxy by submission of a written request to VGI through the client relationship manager.

Separate account clients also retain proxy voting authority and may, pursuant to negotiated agreements, delegate proxy voting administration to VGI’s Proxy Voting Group and Proxy Oversight Committee. VGI, in its role as investment advisor to the separate accounts, does not retain discretionary proxy voting authority. VGI separate account clients that have not delegated proxy voting administration to VGI should obtain proxies through their account custodian.

FINANCIAL INFORMATION

VGI is not aware of any financial condition that is reasonably likely to impair its ability to meet contractual commitments to clients.