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Form ADV Part 2A Brochure  
March 30, 2017

This brochure provides information about the qualifications and business practices of Arrowstreet Capital, Limited Partnership (Arrowstreet). Arrowstreet is a registered investment adviser with the United States Securities and Exchange Commission (SEC) under the U.S. Investment Advisers Act of 1940, as amended. Registration as an investment adviser under applicable SEC rules and regulations does not imply any level of skill or training. The information in this brochure has not been approved or verified by the SEC or by any U.S. state or other securities authority.

If you have any questions about the contents of this brochure, or would like a copy of this brochure, you may contact Eric Burnett, Arrowstreet's Chief Compliance Officer, by telephone at 617-919-0000 or by electronic mail at [regcompliance@arrowstreetcapital.com](mailto:regcompliance@arrowstreetcapital.com). Additional information about Arrowstreet also is available on the SEC's website at [www.adviserinfo.sec.gov](http://www.adviserinfo.sec.gov).

## Item 2 - Material Changes

We last filed our brochure with the SEC on July 12, 2016. This brochure contains the following changes and/or updates to the information set forth in our most recent filing which may be considered material:

- Item 4 has been updated to reflect our assets under management as of December 31, 2016, as well as our investment and proxy voting practices related to environmental, social, and corporate governance.
- Item 5 has been updated to reflect our current management fee schedules and minimum account sizes.
- Item 8 has been updated with information regarding investment risks relating to Brexit and emerging markets.
- Item 11 has been updated to reflect updated language from our compliance manual with respect to the following policies: Code of Ethics, Best Execution (including use of participation notes), trade aggregation and allocation for foreign exchange transactions, directed brokerage/commission recapture, step out transactions, trade errors and soft dollar benefits.
- Item 17 has been updated to reflect our proxy voting practices related to environmental, social, and corporate governance and the impact of an account termination on proxy voting.

We may, at any time, update this brochure and send you a copy by electronic mail or in hard copy form. Clients should carefully review this brochure and address any questions to the Arrowstreet personnel identified on the cover page of this brochure.

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### Attachments

Form ADV Part 2B Brochure Supplement (Items 1-6)

**This brochure provides clients and prospective clients with information about Arrowstreet Capital, Limited Partnership that should be considered before or at the time of obtaining advisory services from us. Please retain a copy of this brochure (and any updates) for your future reference.**

## **Item 4 – Advisory Business**

### ***Firm Overview***

Arrowstreet is a discretionary institutional global asset manager registered as an investment adviser with the SEC under the U.S. Investment Advisers Act of 1940, as amended (referred to in this brochure as the Advisers Act). Our principal place of business is located at 200 Clarendon Street, 30th Floor, Boston, Massachusetts.

### ***Ownership Structure and Leadership***

We are organized as a Massachusetts limited partnership whose general partner is Arrowstreet Capital GP LLC (a Delaware limited liability company) and whose sole limited partner is Arrowstreet Capital Holding LLC (a Delaware limited liability company), the ultimate owner of Arrowstreet. Arrowstreet Capital Holding LLC is the sole member of, and wholly-owns, Arrowstreet Capital GP LLC. Arrowstreet Capital Holding LLC is wholly-owned and controlled by Arrowstreet's senior management team and its non-executive directors. No member of Arrowstreet Capital Holding LLC owns more than 25% of its membership interests.

Our leadership team consists of Messrs. Anthony W. Ryan, President and Chief Executive Officer, Peter L. Rathjens, Chief Investment Officer, and Bruce E. Clarke, Chairman of the Board.

Our board of directors consists of four executive directors, Messrs. Ryan, Rathjens, John Y. Campbell, Co-Director of Research, and Mr. Tuomo O. Vuolteenaho, Co-Director of Research; and four non-executive directors, Messrs. Clarke, Thomas J. DeLong, Albert S. Kyle and Richard I. Morris, Jr. Mr. Campbell also serves at the Morton L. and Carole S. Olshan Professor of Economics at Harvard University, Cambridge, Massachusetts.

### ***Description of Advisory Services***

We offer institutional investors a select range of global equity investment strategies managed as follows:

- *Long-Only* – seek to outperform global equity benchmarks with long-only portfolios
- *Alpha Extension* – seek to outperform global equity benchmarks more efficiently than long-only portfolios by relaxing the short-sale constraint to specified limits (certain of the “alpha extension” investment strategies that we offer are characterized in the institutional marketplace as “130/30”)
- *Long/Short* – seek to produce absolute returns and outperform short-term cash benchmarks (e.g. Citigroup 3-Month US Treasury Bill Index) with the ability to use more leverage and have fewer constraints than an alpha extension strategy

Our investment process utilizes quantitative methods that focus on identifying and incorporating investment signals into our proprietary return, risk and transaction cost models. Our investment approach involves creating and investing in diversified equity portfolios. We utilize a structured investment process that attempts to add value relative to a client specific benchmark. This involves identifying opportunities across companies, sectors and countries by evaluating a diverse set of fundamental and market-based predictive factors. Portfolios are constructed through the use of a mean variance optimizer and proprietary risk and transaction cost models.

Depending on the particular client mandate, we also may offer advice on forward foreign currency contracts, options on foreign currency, futures, participation notes, interest rates, currency, equity swap transactions, real estate investment trusts and repurchase agreements. We effect transactions in derivatives pursuant to the terms customarily set forth in established legal frameworks, such as the International Swaps and Derivatives Association form (ISDA Master Agreement) and the International Foreign Exchange Master Agreement form (IFEMA) and, where applicable, negotiated agreements with futures commission merchants or other financial intermediaries.

Our research focuses on identifying, testing, and incorporating investment signals into our quantitative alpha and risk models. We understand that environmental, social, and corporate governance (ESG) considerations can impact businesses' profitability and sustainability of earnings, in addition to the risks associated with their securities. As such, we evaluate and selectively incorporate ESG information into our investment process through our proprietary risk model. We are a signatory to the Principles for Responsible Investment.

At a client's request, we can also apply exclusionary screens that accommodate a variety of responsible investment considerations and restrictions specified by the client that may generally prohibit the purchase of certain securities, either individually or by region, sector, or other designated class. Moreover, we offer ESG specific proxy voting services to separate account clients upon request.

In addition, we have a Responsible Investing Committee that meets semi-annually to discuss our approach to various ESG related issues, both in our investment process and in our internal business practices.

Our investment process does not take into consideration a particular client's tax characteristics or attributes, including those that specifically apply to the portfolio of assets we manage. We do not monitor global tax laws, rules or regulations (or filing obligations) with respect to client accounts. In addition, we do not manage tax reclaims for client accounts. Please refer to Item 8 for a discussion of tax-related risks relating to our investment strategies.

Please refer to Item 8 for a discussion of our equity investment strategies and certain material risks related to such strategies.

### ***Separately Managed Accounts and Pooled Investment Funds***

Prospective clients may, depending on their desired investment strategy and funds available for investment, generally choose to have a separately managed account or invest through a pooled investment fund for which Arrowstreet is the investment adviser.

*Separate Accounts.* A separate account is a client specific portfolio individually managed according to one of our offered equity investment strategies. Examples of separate account clients include public pension funds, corporate pension plans, endowments and registered or unregistered pooled investment funds for which we serve as adviser or sub-adviser. Separate account clients typically grant us discretionary authority to manage and invest client assets allocated to the account, subject to the clients' stated investment objectives and investment guidelines. Each separate account is subject to the terms of an investment management agreement or other similar agreement between Arrowstreet and the relevant client. While Arrowstreet generally does not tailor its advisory services to the individual needs of its clients, clients may impose restrictions on investing in certain securities (or types of securities) or other limitations. Please refer to Item 16 for more information regarding our investment discretion over client accounts.

*Pooled Investment Funds.* Arrowstreet is the investment adviser to, and promoter of, a number of pooled investment funds (the Arrowstreet Sponsored Funds). Each Arrowstreet Sponsored Fund is managed according to one of our offered investment strategies and designed to take into consideration the domicile and certain tax and/or regulatory characteristics of the likely potential investors.

A brief description of each Arrowstreet Sponsored Fund is as follows:

Arrowstreet Collective Investment Trust

A group trust under Internal Revenue Service Revenue Ruling 81-100 organized under the laws of the State of Maine and designed to permit U.S.-based defined benefit and defined contribution plans to commingle assets for investment purposes on a tax-exempt basis. This fund family has an umbrella structure with multiple investment funds, each utilizing one of our offered investment strategies.

Arrowstreet US Group Trust

A group trust under Internal Revenue Service Revenue Ruling 81-100 organized under the laws of the State of New York and designed to permit U.S.-based employee benefit plans and certain governmental plans to commingle assets for investment purposes on a tax-exempt basis. This fund family has an umbrella structure with multiple investment funds, each utilizing one of our offered investment strategies.

Arrowstreet Investment Trust

A trust organized in series under the laws of the State of New Hampshire and designed to permit select, qualified investors (e.g., U.S. endowments and foundations) to commingle assets for investment purposes on a tax-transparent basis. This fund family has an umbrella structure with multiple investment funds, each utilizing one of our offered investment strategies.

Arrowstreet Canadian Pooled Funds

A unit trust formed under the laws of Manitoba and designed for Canadian investors such as pensions or charities to commingle assets for investment purposes in a separate pool and also for Canadian investors which are not pensions or charities to commingle assets for investment purposes in a separate pool. This fund family has an umbrella structure with multiple investment funds, each utilizing one of our offered investment strategies.

Arrowstreet Common Contractual Fund

A common contractual fund organized under the laws of Ireland and established as a UCITS (an undertaking for collective investment in transferable securities) pursuant to the European Communities (UCITS) Regulations, 2011, designed for non-U.S. institutional investors generally. This fund family has an umbrella structure with multiple investment funds, each utilizing one of our offered investment strategies.

Arrowstreet Multi-Strategy Umbrella PLC

An investment company with variable capital incorporated with limited liability in Ireland, designed for U.S. and non-U.S. institutional investors generally. This fund family has an umbrella structure with multiple investment funds, each utilizing one of our offered investment strategies.

Arrowstreet Capital Global Equity Long/Short Fund Limited

Arrowstreet Capital Global Equity Long/Short Fund (Feeder) Limited

Each is a Cayman Islands exempted company with limited liability. This fund has a master-feeder structure with the feeder fund designed for U.S. and non-U.S. institutional investors generally. The master fund has a global long/short equity strategy.

Arrowstreet Capital Global Equity Alpha Extension Fund Limited  
Arrowstreet Capital Global All Country Alpha Extension Fund Limited  
Arrowstreet Capital Global All Country Alpha Extension Fund (Cayman) Limited  
Arrowstreet World Small Cap Equity Alpha Extension Fund (Cayman) Limited

Each is a Cayman Islands exempted company with limited liability, designed for U.S. institutional investors and non-U.S. institutional investors generally. Each fund has a global equity strategy which seeks to outperform a global equity benchmark more efficiently than a long-only portfolio by relaxing the short-sale constraint to specified limits.

Please refer to Items 5, 8, 10, 11, 12 and 15 for more information about the Arrowstreet Sponsored Funds.

### ***Affiliated Irish Management Company***

Arrowstreet Capital Ireland Limited (ACIL) is a wholly owned subsidiary of Arrowstreet Capital Holding LLC. ACIL serves as the UCITS management company for the Arrowstreet Common Contractual Fund.

### ***Affiliated Marketing Offices***

Our firm has affiliated marketing offices located in the U.K. and Australia that focus on client relationship management and marketing activities.

- Arrowstreet Capital Europe Limited (ACEL) is a private company limited by shares. ACEL engages in client relationship management and permitted marketing activities throughout Europe. ACEL is authorised and regulated in the U.K. by the Financial Conduct Authority to advise on certain investments, arrange deals in investments and make arrangements with a view to transactions in investments. Its registered office is 1 Berkeley, London, United Kingdom W1J 8DJ.
- Arrowstreet Capital Australia Pty. Ltd. (ACA) is a proprietary company limited by shares under the Corporations Act 2001 in Victoria, Australia. ACA engages in client relationship management and permitted marketing activities throughout the Asia-Pacific region. ACA is licensed by the Australian Securities and Investments Commission to provide general financial product advice to wholesale clients with respect to specific classes of financial products. Its registered office is Level 61, MLC Centre, 19 Martin Place, Sydney NSW 2000.

### ***Back-office/Middle-office Service Provider***

Arrowstreet engages a third party service provider to provide administrative back-office/middle-office accounting and record keeping services, including trade settlement processing and custodial communications. Periodic reports prepared for clients are generally based on the records of our service provider.

### ***Proxy Voting Service Provider***

A third party service provider is engaged to provide proxy-voting services for client accounts and Arrowstreet Sponsored Funds, including vote execution, reporting and certain recordkeeping. Environmental, social and corporate governance (ESG) principles are not incorporated into our standard proxy voting policies; however, we offer ESG specific proxy voting services to separate account clients upon request. It is the responsibility of the custodian or other client service provider to timely and

effectively communicate all proxy notices to us (or our designee) and, once instructed by Arrowstreet or its designee, to execute such instructions accurately. In certain cases proxies may not be voted. Please refer to Item 17 for additional information regarding proxy voting, including ESG proxy voting.

### ***Corporate Action Service Provider***

A third party service provider is engaged to provide certain corporate action administrative and processing services with respect to client accounts. In order for Arrowstreet to utilize this service with respect to client accounts, each client must authorize their custodian to provide the relevant corporate action information to our service provider. It is the responsibility of the custodian or other client service provider to timely and effectively communicate all corporate action notices to us (or our designee) and, once instructed by Arrowstreet or its designee, to execute such instructions accurately.

### ***Shareholder Claims Monitoring; Participation in Legal Proceedings***

With respect to our separate account clients, Arrowstreet does not monitor the occurrence or status of legal proceedings or claims affecting securities held in client accounts. From time to time we receive notices with respect to securities held or previously held in client accounts that become subject to legal proceedings, including class action claims or bankruptcies. It is our policy not to file claims or take any other action with respect to these legal proceedings, including filing proofs of claims and related documents. Clients or their custodians are responsible for arranging for the supervision and management of all such shareholder matters.

With respect to the Arrowstreet Sponsored Funds, a third party claims processing service or the relevant fund custodian is engaged to monitor and process claims on behalf of such funds.

### ***Assets Under Management***

As of December 31, 2016, Arrowstreet had approximately U.S. \$69,952,300,000 in assets under management. All assets were managed on a discretionary basis.

## **Item 5 – Fees and Compensation**

### ***Advisory Fees***

Advisory fees may be structured as asset-based fees or as performance fees, depending on the client account. Arrowstreet generally invoices advisory fees on separate accounts on a quarterly basis, typically in arrears. However, certain advisory fees may be charged in advance (generally not to exceed one quarter) of investment advisory services performed if requested by the client. We do not instruct clients or their custodians, trustees, administrators or other similar service providers to deduct advisory fees from client accounts managed by us.

While advisory fees are generally negotiable, set forth in the table below are the typical current annual advisory fees for each investment strategy, whether managed as a separate account or with respect to an investment in an Arrowstreet Sponsored Fund.

<b>Investment Strategy*</b>	<b>Advisory Fees (in USD)**</b>
<i>Long-Only</i>	
ACWI	0.80% first \$50 million
ACWI ex US	0.65% next \$50 million
	0.55% thereafter



Investment Strategy*	Advisory Fees (in USD)**
World	0.75% first \$50 million
EAFE	0.60% next \$50 million
	0.50% thereafter
Global Small Cap	0.90% first \$50 million
	0.75% next \$50 million
	0.65% thereafter
Global Minimum Volatility	0.70% first \$50 million
	0.60% next \$50 million
	0.50% thereafter
Emerging Markets	0.90% first \$25 million
	0.75% next \$25 million
	0.65% thereafter
US	0.35% first \$200 million
	0.33% next \$200 million
	0.30% thereafter
<i>Alpha Extension</i>	
ACWI	0.30% on assets under management with an annual performance fee that is typically 20%
ACWI ex US	
World	
EAFE	
Global Minimum Volatility	
US	0.20% on assets under management with an annual performance fee that is typically 20%
<i>Long Short</i>	
Global Long/Short	0.80-1.00% on assets under management with an annual performance fee that is typically 20%

\* Descriptions of our equity investment strategies and the risks related to such strategies are set forth in Item 8.

\*\* The performance fees described in this table are applicable for clients meeting the requirements of Rule 205-3 under the Advisers Act and are calculated on cumulative long-term performance over an agreed upon benchmark net of certain fees and subject to a high watermark provision.

Our investment management agreements generally allow either party to terminate the applicable mandate upon prior written notice to the other party. The required notice period for termination varies across client agreements.

If a client mandate terminates on a date other than the end of the specified period used to determine the market value of the client account for the purpose of calculating our advisory fee or performance fee, such amounts payable to Arrowstreet will be prorated in accordance with the client's investment management agreement. Similarly, in the event a client mandate is terminated where advisory fees have been paid in advance, a refund will be processed such that fees for the period are prorated in accordance with the client's investment management agreement. For billing purposes, the market value of client accounts will

be determined using the records as maintained by our third-party back-office/middle-office service provider, unless we and the client agree otherwise.

### ***Other Fee Arrangements***

Arrowstreet, from time to time, negotiates special fee arrangements with clients, including performance-based fee arrangements meeting the requirements of Rule 205-3 under the Advisers Act. Please refer to Item 6 below for additional information regarding performance fees.

Fee information regarding Arrowstreet Sponsored Funds (and the fees associated with investing in these sub-funds) is set forth in the offering documents of the applicable Arrowstreet Sponsored Funds. Copies of the offering documents may be obtained by select, qualified investors upon written request to Arrowstreet. Prospective investors are required to demonstrate their eligibility to invest in the applicable Arrowstreet Sponsored Funds prior to receiving such offering documents.

### ***Third Party Fees and Expenses***

In addition to advisory fees paid to Arrowstreet, clients pay other fees, costs and expenses in connection with the management of their accounts. Clients are generally responsible for all fees, costs and expenses external to Arrowstreet relating to the management of the applicable client account. Such fees, costs and expenses include brokerage commissions and spreads (including with respect to foreign exchange transactions) incurred on behalf of the client by Arrowstreet, as agent (please refer to Item 12 for more information relating to our brokerage practices). Fees, costs and expenses may also include amounts incurred directly by the clients, such as:

- custody fees;
- administrator fees;
- transaction fees and other related costs;
- transfer fees and other related transaction costs;
- clearing house fees; and
- taxes (including stamp, duty and transfer taxes).

In addition, client accounts will be charged advisory fees and other expenses by third party pooled investment funds (such as mutual funds, closed-end funds and exchange traded funds) in which the client account is invested. These fees and expenses are described in the disclosure documents of such pooled investment funds. Investments in these third party pooled funds are only made if allowable under the applicable client mandate or the offering documents of the applicable Arrowstreet Sponsored Fund. As noted above, Arrowstreet does not invest the assets of separately managed client accounts in any Arrowstreet Sponsored Fund. Clients may choose to invest directly for their own account in an Arrowstreet Sponsored Fund while at the same time maintaining a separately managed account.

Investors in the Arrowstreet Sponsored Funds will indirectly incur many of the same fees and expenses as a separately managed client account. Arrowstreet Sponsored Funds are also subject to certain additional fees and expenses, which may include audit fees, legal fees, regulatory compliance fees, consulting fees, insurance fees, fees for management, administration, trustee, custodial and related services, including external pricing, subscription and redemption fees, other third party professional fees, as well as private placement or other fees paid to local regulators (e.g., with respect to investors from certain Canadian

provinces). Please refer to the offering documents of the applicable Arrowstreet Sponsored Fund for additional information regarding fees and expenses in connection with an investment in that fund.

### ***Additional Compensation***

Arrowstreet and its personnel neither seek nor accept third party compensation, including sales charges and service fees, from any person for the sale of securities or other investment products.

### ***Minimum Account Sizes***

While minimum account sizes for each investment strategy managed as a separate account are generally negotiable, the typical minimum account size for a separate account is U.S.\$200 million (U.S.\$400 million for U.S. long-only) for a long-only investment strategy and U.S.\$1 billion for an alpha extension strategy or long/short strategy.

The minimum investment amount for each Arrowstreet Sponsored Fund is typically U.S.\$10 million, with the exception of Arrowstreet Capital Global Equity Long/Short Fund (Feeder) Limited, where the minimum investment amount is typically U.S.\$5 million. However, such minimum investment amount sizes are subject to waiver or otherwise subject to change in accordance with the offering documents of the applicable Arrowstreet Sponsored Funds.

## **Item 6 – Performance-Based Fees and Side-By-Side Management**

Arrowstreet's advisory fees are typically calculated as a percentage of assets as more fully described above in Item 5. Arrowstreet, from time to time, enters into performance-based fee arrangements with qualified clients meeting the requirements of Rule 205-3 under the Advisers Act. Such arrangements are negotiated on a case-by-case basis with the particular client. While such arrangements will vary from client to client, they typically provide for a base fee based on the market value of the applicable client account at specified periods, plus a performance fee based on the portfolio return over an agreed upon trailing period which may be relative to a designated benchmark or customized index return.

Performance-based fees paid to investment advisers may be higher than the asset-based fees. Accordingly, certain performance-based fee arrangements create an incentive for Arrowstreet to recommend investments that are riskier or more speculative than those which would be recommended under a different fee arrangement. Such fee arrangements also create an incentive to favor higher fee paying accounts over other accounts in the allocation of investment opportunities. However, Arrowstreet's investment process and operational procedures are designed and implemented, in part, to ensure that all clients are treated in a fair and equitable manner over time, including with respect to the allocation of investment opportunities.

For more information about our investment process, please refer to Item 8. For more information about other potential conflicts, please refer to Item 11.

## **Item 7 – Types of Clients**

Arrowstreet provides investment advisory services to a global institutional client base located in North America, Europe and the Asia-Pacific region, including Australia. Our clients consist of a broad range of institutional clients, including corporate pension and profit-sharing plans, charitable institutions, foundations, endowments, state and municipal government entities, sovereign wealth funds, U.S. private funds and registered funds (such as U.S. registered investment companies), non-U.S. private funds and

registered funds (such as UCITS and non-UCITS), insurance companies and other U.S. and non-U.S. institutions. Please refer to Item 5 for information relating to minimum investment amounts for purposes of establishing a separately managed account or for investing in an Arrowstreet Sponsored Fund.

## **Item 8 – Methods of Analysis, Investment Strategies and Risk of Loss**

### ***Investment Process and Strategies***

We offer institutional investors a select range of global equity investment strategies. Investing in these strategies involves a risk of loss of capital as markets can be volatile and can go down. Risks relating to our equity investment strategies are more fully described below in this Item 8.

Our investment process utilizes quantitative methods that focus on identifying and incorporating investment signals into our proprietary return, risk and transaction cost models. Our investment approach involves creating and investing in diversified equity portfolios. We utilize a structured investment process that attempts to add value relative to a client specific benchmark. This involves identifying opportunities across companies, sectors and countries by evaluating a diverse set of fundamental and market-based predictive factors. Portfolios are constructed through the use of a mean variance optimizer and proprietary risk and transaction cost models.

Arrowstreet uses the same general investment process for each of its equity strategies, varying the characteristics according to client benchmark preferences, restrictions, investment objectives and investment guidelines. Arrowstreet manages diversified equity portfolios, rather than recommending any particular type of security. We provide the following equity investment strategies to clients through separate accounts and/or the Arrowstreet Sponsored Funds:

#### **Long-Only Strategies:**

- **Global** – a core global equity strategy which seeks to outperform benchmarks such as the MSCI All Country World Index, MSCI All Country World ex US Index, MSCI World Index, MSCI EAFE Index or other diversified global equity index.
- **Global Small Cap** – a core small cap global equity strategy which seeks to outperform benchmarks such as the MSCI All Country World Small Cap Index, MSCI All Country World Small Cap Index or other diversified global small cap equity index.
- **Global Minimum Volatility** – a global equity strategy which seeks to both provide lower systematic risk than a capitalization weighted equity benchmark and also to outperform minimum volatility global equity benchmarks, such as the MSCI World Minimum Volatility Index, which are constructed with the objective of minimizing risk.
- **Emerging Markets** – a core emerging market equity strategy which seeks to outperform benchmarks such as the MSCI Emerging Market Index or other diversified emerging market equity index.
- **US** – a core US equity strategy which seeks to outperform broad US benchmarks.

#### **Alpha Extension Strategies:**

- **Global** – a global strategy which seeks to outperform global benchmarks such as the MSCI All Country World Index, MSCI All Country World ex US Index, MSCI World Index or MSCI EAFE Index more efficiently than long-only portfolios by relaxing the short-sale constraint to specified limits.
- **Global Small Cap** – a core small cap global equity strategy which seeks to outperform benchmarks such as the MSCI All Country World Small Cap Index, MSCI All Country World Small Cap Index or another diversified global small cap equity index more efficiently than long-only portfolios by relaxing the short-sale constraint to specified limits.
- **Global Minimum Volatility** – a global equity strategy which seeks to (i) provide lower systematic risk than a capitalization weighted equity benchmark; (ii) outperform minimum volatility global equity benchmarks, such as the MSCI World Minimum Volatility Index, and (iii) outperform global benchmarks more efficiently than long-only portfolios by relaxing the short-sale constraint to specified limits.
- **US** – a core US equity strategy which seeks to outperform broad US benchmarks such as the Russell 3000 Index more efficiently than long-only portfolios by relaxing the short-sale constraint to specified limits.

Long/Short Strategy:

- **Global Long/Short** – a global long/short equity strategy which seeks to produce absolute returns and outperform short term cash benchmarks (e.g. Citigroup 3-Month US Treasury Bill Index).

In connection with the implementation of these equity investment strategies, and depending on the particular client mandate, we may also offer advice on forward foreign currency contracts, options on foreign currency, futures, participation notes, interest rates, currency, equity swap transactions, real estate investment trusts and repurchase agreements. We effect transactions in derivatives pursuant to the terms customarily set forth in established legal frameworks such as the International Swaps and Derivatives Association form (ISDA Master Agreement) and the International Foreign Exchange Master Agreement form (IFEMA) or, where applicable, negotiated agreements with futures commission merchants or other financial intermediaries.

As a global asset manager we generally implement our trading programs through regularly scheduled rebalance sessions that involve trading client accounts across multiple time zones, and in markets with varying trade settlement cycles. As a result, the timing of implementation of such rebalance sessions and other operational considerations may cause a client's account to experience short term economic leverage and/or overdrafts.

***There can be no assurance that the objectives associated with any strategies described above will be met. At any time, Arrowstreet may add strategies, remove strategies, or modify any of the strategies it employs and this includes any of the strategies discussed above.***

***Risks Related to Our Investment Strategies***

Arrowstreet equity investment strategies involve the risks of investing in equities and currencies globally. In addition, our alpha extension strategies and long/short strategy involve the risk of shorting equities and leverage. Clients and prospective clients should be aware of, among others, the following material risks associated with our strategies.

## Risks Generally Applicable to Equity Strategies

*Investment Risk.* Arrowstreet's investment approach (which is more fully described above) involves establishing a diversified equity portfolio for each client, taking into consideration the underlying mandate terms, including any investment guidelines provided by the client. There can be no assurance that a client's specific investment objectives will be achieved or that income or profits will be guaranteed. Arrowstreet's past performance is not indicative of future results.

As noted above, our investment process incorporates varying client benchmark preferences, restrictions, investment objectives and investment guidelines. This may result in investment positions or actions taken for one client account which differ or directly contradict those taken for another client account. For example, we may cause one client account to engage in short sales of or take a short position in an investment that is at that time owned or being purchased long by another client account, or we may cause one client account to purchase shares of preferred stock of an issuer while at the same time causing another client account to purchase common stock of the same issuer. These positions and actions may adversely affect or benefit different clients at different times.

*Modeling Risk.* Arrowstreet uses proprietary quantitative models in its investment process as described previously. While Arrowstreet expects these models to perform as expected, deviation between model predictions and the actual events can result in either no advantage or in results opposite to those desired by Arrowstreet and our clients. In particular, these models may draw from historical data that may not predict future returns, volatilities, correlations or market performance adequately. In addition, market conditions may be such that they are outside of the confidence level employed by the models. There can be no assurances that the models behave as expected. An error in the coding of data or formulas within the models may be magnified by the model and may be difficult to detect. Unexpected market turbulence or unanticipated extraneous events may also cause the actual results to fall outside of the range predicted from the models' forecasts.

*Non-diversification Risk.* Non-diversified portfolios are exposed to additional market risk. We can invest a relatively high percentage of client assets in a limited number of issuers or concentrate our investment in a particular sector or country. This will likely result in a client's account with these characteristics being more susceptible to any single political, regulatory or economic occurrence and to the financial condition of individual issuers in which the account invests. Any of these could have a negative effect on the performance and management of a client's account.

*Risks of Investments in Non-U.S. Securities.* We invest in securities of non-U.S. issuers, securities traded principally in securities markets outside the U.S. and/or securities denominated in non-U.S. currencies. Such investments involve certain special risks due to non-U.S. economic, political and legal developments, including favorable or unfavorable changes in currency exchange rates, exchange control regulations (including currency blockage), expropriation of assets or nationalization, imposition of withholding taxes on dividend, interest, or other payments, imposition of financial transaction taxes, imposition of required holding periods, trade-date settlement requirements, and possible difficulty in obtaining and enforcing judgments against foreign entities. Furthermore, non-U.S. issuers are subject to different, often less comprehensive, accounting, reporting, and disclosure requirements than U.S. issuers. The securities of some non-U.S. companies and non-U.S. securities markets are less liquid and at times more volatile than securities of comparable U.S. companies and U.S. securities markets. Non-U.S. brokerage commissions and other fees are also generally higher than in the United States. All of these risks and costs will be exacerbated to the extent we make investments in securities issued by companies in

emerging and frontier market countries. Risks relating to investing in emerging and frontier markets are more fully discussed below.

*Risks Relating to Brexit.* In June 2016, the United Kingdom approved a referendum to leave the European Union. In March 2017, in connection with the British exit from the European Union (commonly known as “Brexit”), the United Kingdom invoked article 50 of the Treaty of Lisbon to withdraw from the European Union. There is a significant degree of uncertainty about how negotiations relating to the United Kingdom’s withdrawal and new trade agreements will be conducted, as well as the potential consequences and precise timeframe for Brexit. It is expected that the United Kingdom’s exit from the European Union will take place within two years. During this period and beyond, the impact of any partial or complete dissolution of the European Union on the United Kingdom and European economies and the broader global economy could be significant, resulting in negative impacts on currency and financial markets generally, such as increased volatility and illiquidity, and potentially lower economic growth in markets in the United Kingdom, Europe and globally, which may adversely affect the value of portfolio investments.

*Emerging Market Risks.* Depending on the particular client mandate, we invest in emerging market countries. Emerging markets may be less liquid than more developed economies and markets. Moreover, certain emerging markets may impose restrictions that specifically impact liquidity, such as restrictions on buying and selling within the same trading day, which could impact our ability to sell securities at a given time and therefore impact the investment strategy. In addition, a given security may be listed on multiple exchanges in one or more emerging markets, but may lack access to one or more of such exchanges and such exchanges may not have coordinated trading hours and/or banking services. Where the client account has access to one such exchange in respect of a given security but not to another, the client account may be subject to the risk of price fluctuations in the security during the times when the exchange to which the client account has access is not trading but the other exchanges are trading.

Levels of volatility in price movements in emerging markets are often greater than those experienced in more developed economies and markets. In addition, reporting standards and market practices may not provide the same degree of information as would generally apply in more developed economies and markets and therefore may increase risk. In addition, an issuer in which a client account invests may default on payments to its holders, which would negatively impact the client account’s performance.

The legal infrastructure and accounting, auditing and reporting standards in emerging markets may not provide the same degree of shareholder protection or information to investors as would generally apply in more developed markets. In particular, valuation of assets, depreciation, exchange differences, deferred taxation, contingent liabilities and consolidation may be treated differently from accounting standards in more developed economies and markets. Likewise, the client account may experience tax risks around a lack of clarity or definition in respect of the payment of tax on dividends and/or capital gains income realized as a result of holding investments in an emerging market. Further, a client account’s ownership rights, including the right to bring claims against an issuer, may be uncertain or otherwise limited.

The value of the assets of a client account could be affected by uncertainties, such as political developments, changes in government policies, taxation, currency repatriation and restrictions on foreign investment in some of the countries in which we invest. For example, certain emerging markets may limit a single foreign client account’s holding and/or all foreign client account holdings in securities of a listed company to a given percentage of the total issued shares. In such case, if the client account is a holder of such a security and these aggregate foreign holding limits are exceeded, the client account may need to sell shares of such security within a given timeframe in which optimal pricing may not be

possible. Moreover, forced sale arrangements could be imposed by a regulator or sovereign, on terms that are not under the control or influence of the client account.

A risk with respect to investment in certain emerging market securities is the way in which ownership is recorded. For certain investments in such markets, the investor will receive a “share extract” that is not legally determinative of ownership. A company’s share register maintains the official record of ownership of the company’s shares. Issuers control these share registers, and investors have few legal rights against companies in respect of such registers. In other cases in such markets, the holding of emerging market securities by investors is not evidenced by a direct entry on the issuer’s share register. Instead, the ownership of, and settlement of transactions in, those securities is on a central securities depository, and the Depository (or its local sub-custodian) is a participant on such central securities depository. The central securities depository in turn is reflected as the nominee holder of the securities on the share register of the relevant issuer. While this is intended to provide a centralized and regulated system for recording of the ownership of, and settlement of transactions in, such securities, it does not eliminate all of the risks associated with the registrar system described above.

We invest in emerging markets where custodial and/or settlement systems are not fully developed. Further, the assets of a client account which are traded in such markets and which have been entrusted to sub-custodians, in circumstances where the use of such sub-custodians is necessary, will be exposed to risk in circumstances whereby the applicable client custodian will have no liability. Moreover, certain emerging markets may provide settlement procedures that differ materially from developed markets using delivery versus payment (DVP) trade settlement procedures. For example, some markets may require pre-funding of cash and securities to brokers to accommodate trade-date settlement requirements. Some brokers have developed settlement alternatives such as pre-trade checking of a given security such that such security must be transferred out of a custodial network in anticipation of a sale and held by a broker or clearing agent before the commencement of trading. In such cases there may be safekeeping risk relating to a broker’s ability to instruct cash/securities out of the applicable custody account and the consequence of having cash/securities held outside of the custody network. In addition, these markets may experience increased settlement risk as a result of settlement occurring prior to the standard trade reconciliation process.

*Frontier Markets Risks.* Depending on the particular client mandate, we invest in securities of companies in frontier market countries. Frontier market countries often have smaller economies and/or less developed capital markets than traditional emerging market countries, and as a result the risks of investing in emerging market countries may be magnified in frontier market countries. For instance, the political and economic structures in frontier market countries may be in their infancy and developing rapidly, or may experience significant upheaval, causing a high risk of instability. Trade barriers and other protectionist measures may also have significant adverse effects on the economies of frontier countries as such economies may be largely supported by international trade. Furthermore, frontier market economies may be controlled by a few sectors which could lead to related investments being concentrated into a few sectors.

The political climate in such countries may be highly unstable and include the risk of significant government changes, policy changes such as government appropriation or risks of terrorism.

Investments in frontier markets may be subject to restrictions on foreign investment, and possible repatriation of investment income and capital. In addition, foreign investors may be required to register the proceeds of sales, and future economic or political crises could lead to price controls, forced mergers, expropriation or confiscatory taxation, seizure, nationalization or the creation of government monopolies. While companies in certain frontier markets may be subject to limitations on their business relationships



under that country's law, these laws may not be consistent with certain political and security concerns of the U.S. or other developed markets. Investments in such companies may subject a client account to the risk that these companies' reputation and price in the market will be adversely affected.

In addition, the small size, limited trading volume and relative inexperience of the securities markets in these countries may make investments in such countries less liquid and more volatile than investments in more developed countries. Investments in frontier markets may be regarded as highly speculative and even listed securities could be illiquid. Frontier markets may also have different clearance and settlement procedures, which may be unable to keep pace with the volume of securities transactions or otherwise make it difficult to engage in such transactions. Settlement problems may cause a client account to miss attractive investment opportunities, hold a portion of its assets in cash pending investment, or be delayed in disposing of a portfolio security.

Additional risks of investing in frontier markets may include exposure to less developed legal systems than in more developed countries and differences in auditing and financial reporting standards, which may result in unavailability of material information about issuers. Moreover, the currencies of frontier market countries may experience significant declines against the U.S. dollar or other developed market currencies, and devaluation may occur subsequent to investments in these currencies by a client account. Inflation and rapid fluctuations in inflation rates have had, and may continue to have, negative effects on the economies and securities markets of certain frontier market countries.

*Currency Risk.* We invest in assets that are denominated in a currency other than the applicable base currency of the client account. Accordingly, the value of the assets in the client account will be affected favorably or unfavorably by fluctuations in the rates of the different currencies. Depending on the particular client mandate, we engage in currency transactions either on a spot (i.e., cash) basis at the rate prevailing in the currency exchange market, or by entering into forward foreign currency exchange contracts to purchase or sell currencies as agent for our client. Certain accounts allow for enhanced currency management (referred to as an "active strategy") where the forward foreign currency exchange contracts are generally used to invest in currencies in the portfolio's benchmark and opportunistically in currencies outside the portfolio's benchmark to manage the currency exposure of the portfolio relative to the benchmark within certain bounds and may result in net short currency exposures. For example, the currency exposure of the portfolio may be managed using forward currency exchange contracts to be within +/-15% of the benchmark currency exposures on a currency by currency basis. Other accounts may only allow for forward foreign currency exchange contracts to be used to manage the currency exposure of the portfolio such that the portfolio is fully hedged relative to the benchmark (referred to as a "passive strategy"). In passive strategies, the offset from any unhedged equity positions lies in the US dollar currency exposure. Forward foreign currency exchange contracts are performed against the US dollar and may be entered into in anticipation of equity trades to be executed in the near future as part of the portfolio's trading program. Currency exposures in certain markets are not hedged due to liquidity, transaction costs or other prohibitive conditions. The particular currency to which a security is exposed is determined using Arrowstreet's proprietary models.

In entering a forward foreign currency exchange currency contract, our client is dependent upon the creditworthiness and good faith of the counterparty. Spot and forward contracts involve the risk that anticipated currency movements will not be accurately predicted, which may result in unlimited losses to our client. Using forward foreign currency exchange currency contracts does not eliminate fluctuations in the underlying prices of the securities. Forward foreign currency exchange contracts simply establish a rate of exchange that can be achieved at some future point in time. Positions in underlying securities, coupled with an unanticipated increase in the value of the relevant currency, could expose a portfolio even if fully or partially hedged relative to its benchmark to unlimited losses.

*Counterparty, Execution and Settlement Risks.* Clients will be exposed to the credit risk of parties with whom they trade and will also bear the risk of settlement default by any such counterparty. In addition, market practices in relation to the settlement of transactions and the custody of assets could result in increased risks. Please also note, in particular, the risks around settlement that may be present in emerging markets and/or frontier markets. For additional information, please see “Emerging Market Risks” and “Frontier Market Risks” above.

*Substantial Redemptions Risk.* If there are substantial redemptions by a client with respect to an account within a limited period of time, it may be difficult for us to provide sufficient funds to meet such redemption requests without liquidating positions prematurely at an inappropriate time or on unfavorable terms.

*Tax Risks.* Arrowstreet’s investment process and client account management procedures do not consider the tax attributes or characteristics of our clients or of the underlying portfolio of assets in the clients’ accounts. For example, a client account generally will be managed without regard to any state, federal or provincial tax implications to clients, including withholding tax, capital gains taxes, cross-border taxes, transfer, stamp or other duty taxes. Clients should consult their own tax advisers to understand the tax consequences of establishing a client account with Arrowstreet.

*Risks Associated with Investment in Other Collective Investment Schemes and Pooled Investment Funds.* Depending on the particular client mandate, we invest client accounts in one or more third party collective investment schemes or other pooled funds, including exchanged traded funds (ETFs). The level of protection such collective investment scheme provides will vary by jurisdiction. In addition, the underlying collective investment vehicle may impose a restriction on the withdrawal of its shares in circumstances where the withdrawal requests it receives exceed a certain threshold or percentage of its shares in issue on a particular date. The imposition of such a restriction by the underlying collective investment vehicle will also affect a client account’s ability to realize its investment in that scheme in a timely manner. As a shareholder of a collective investment scheme or pooled fund, a client account will bear its pro rata portion of the expenses of such collective investment scheme or vehicle, including management and/or other fees. These fees will be in addition to the advisory fees paid to Arrowstreet and other fees and expenses which the client account bears directly in its account.

*Risks Associated with Restricted and Illiquid Securities.* We may invest in securities that are, or may in the future become, restricted or illiquid. We may also receive illiquid securities in connection with corporate action events. Any securities that are thinly traded or whose resale is restricted can be difficult to sell at a desired time and price. Some of these securities may be new and complex and traded only among institutions. The markets for these securities are still developing and sometimes do not function as efficiently as established markets.

In addition, an account’s holdings in securities or other instruments for which the relevant market is or becomes less liquid are more susceptible to loss of value. Less liquid instruments also may fall more in price than other instruments during periods when markets decline generally.

*Risks Associated with Financial Derivative Instruments.* Financial derivative instruments involve risks different from, and in certain cases greater than, the risks presented by more traditional investments. Depending on the particular client mandate, we enter transactions in over-the-counter (OTC) markets that expose a client account to the credit of its counterparties and their ability to satisfy the terms of such contracts. Where a particular client account employs derivative contracts, such account will be exposed to the risk that the counterparty may default on its obligations to perform under the relevant contract. In

the event of a bankruptcy or insolvency of a counterparty, the client account could experience delays in liquidating the position and may incur significant losses. There is also a possibility that ongoing derivative transactions will be terminated unexpectedly as a result of events outside of our or our client's control, for instance, bankruptcy, supervening illegality or a change in the tax or accounting laws relative to those transactions at the time the agreement was originated. In accordance with standard industry practice and where agreed with the applicable counterparty, an account may net exposures on a counterparty by counterparty basis.

Furthermore, risks associated with counterparties may be further complicated by recently enacted U.S. and non-U.S. financial reform legislation which includes provisions for new clearing, execution, margin and reporting requirements for derivatives transactions and new restrictions on the types of derivatives transactions that can be entered into by certain financial companies. The U.S. government, the European Union and regulators in various other jurisdictions have adopted mandatory minimum margin requirements for bilateral derivatives. Such requirements could increase the amount of margin required to be provided by a client in connection with its derivatives transactions and, therefore, make derivatives transactions more expensive. The ultimate impact of these regulatory changes remains unclear. Also, the new legislation may limit the flexibility of a client to protect its interests in the event of an insolvency of a derivatives counterparty because of powers granted to clearinghouses and to U.S. and non U.S. regulators to limit or delay close-out of derivatives positions of insolvent clearing members or financial companies and to transfer such positions to other entities. Also, with respect to counterparties who are subject to resolution proceedings in the European Union, the liabilities of such counterparties to clients could be reduced, eliminated, or converted to equity in such counterparties (sometimes referred to as a "bail in").

Since many financial derivative instruments have a leverage component, adverse changes in the value or level of the underlying asset, rate or index can result in a loss substantially greater than the amount invested in the derivative itself. Certain financial derivative instruments have the potential for unlimited loss regardless of the size of the initial investment. If there is a default by the other party to any such transaction, there will be contractual remedies; however, exercising such contractual rights could involve delays or costs which could result in the value of the total assets of the related portfolio being less than if the transaction had not been effected. The swap market has grown substantially in recent years with a large number of banks and investment banking firms acting both as principals and as agents utilizing standardized swap documentation. There can be no assurance, however, that a liquid market will exist at any specified time for any particular swap. Derivatives do not always perfectly or even highly correlate or track the value of the securities, rates or indices they are designed to track. Consequently, our use of derivative techniques for a particular client account may not always be an effective means of, and sometimes could be counter-productive to, the client's investment objective. An adverse price movement in a derivative position could require cash payments of variation margin by the particular client account that might in turn require, if there is insufficient cash available in the portfolio, the sale of the client account's investments under disadvantageous conditions. Also, there are legal risks involved in using financial derivative instruments which could result in loss due to the unexpected application of a law or regulation or because contracts are not legally enforceable or documented correctly.

Other risks in using derivatives include the risk of mispricing or improper valuation of derivatives. Many derivatives, in particular OTC derivatives, are complex and often valued subjectively. Improper valuations can result in increased cash payment requirements to counterparties or a loss of value to a portfolio.

*Risks Associated with Futures, Forwards and Options.* Depending on the particular client mandate, we may from time to time utilize both exchange-traded and over-the-counter futures, forwards and options as part of our investment policy. These instruments are highly volatile, involve certain special risks and

expose investors to a high risk of loss. The low initial margin deposits normally required to establish a futures position permit a high degree of leverage. As a result, a relatively small movement in the price of a futures contract could result in a profit or a loss which is high in proportion to the amount of funds actually placed as initial margin and may result in unquantifiable further losses exceeding any margin deposited. Further, when used for hedging purposes there may be an imperfect correlation between these instruments and the investments or market sectors being hedged. Transactions in over-the counter derivatives involve additional risk as there is no exchange or market on which to close out an open position. It may be impossible to liquidate an existing position, to assess or value a position or to assess the exposure to risk.

*Risks Associated with Participation Notes and Other Equity-Linked Instruments.* Depending on the particular client mandate, we will from time to time use participation notes (including other equity-linked notes and instruments) to gain exposure to issuers in certain markets, including frontier markets. Participation notes and other equity-linked notes and instruments may be traded over-the-counter and typically constitute general unsecured contractual obligations of the banks or broker dealers that issue them. The process often involves a bank or broker-dealer buying securities listed on a non-U.S. exchange and then issuing a participation note linked to the performance of those securities. The performance results of participation notes will not exactly replicate the performance of the securities that the notes seek to replicate due to transaction costs and other expenses (although the return on a participation note that is linked to a particular security generally is increased to the extent of any dividends paid in connection with the security).

Participation notes may present similar risks to investing directly in the underlying security; however, participation notes also entail many of the risks of over-the-counter derivatives, including the risk that the counterparty or issuer of the participation note may not be able to fulfill its contractual obligations and the potential for delays in liquidating the position in circumstances involving the bankruptcy or insolvency of a counterparty, which may result in an account incurring significant losses as a result. The risk that a client account loses its investments due to the insolvency of a counterparty may be amplified to the extent that a client account purchases participation notes issued by as few as one issuer.

In addition, the holder of a participation note typically does not receive voting rights in the underlying/linked security. Moreover, there is no guarantee that a liquid market will exist generally for a participation note or that the issuer or counterparty of the participation note will be willing to repurchase such instrument when a client account wishes to sell it. For more information, please see “Risks Associated with Financial Derivative Instruments” above.

*Risks Associated with Depositary Receipts.* We may purchase sponsored or unsponsored American Depositary Receipts, European Depositary Receipts and Global Depositary Receipts (collectively Depositary Receipts) typically issued by a bank or trust company which evidence ownership of underlying securities issued by a corporation. Generally, Depositary Receipts in registered form are designed for use in the U.S. securities market and Depositary Receipts in bearer form are designed for use in securities markets outside the U.S. Depositary Receipts may not necessarily be denominated in the same currency as the underlying securities into which they may be converted. Depositary Receipts may be issued pursuant to sponsored or unsponsored programs. In sponsored programs, an issuer has made arrangements to have its securities trade in the form of Depositary Receipts. In unsponsored programs, the issuer may not be directly involved in the creation of the program. Although regulatory requirements with respect to sponsored and unsponsored programs are generally similar, in some cases it may be easier to obtain financial information from an issuer that has participated in the creation of a sponsored program. Accordingly, there may be less information available regarding issuers of securities’ underlying

unsponsored programs and there may not be a correlation between such information and the market value of the Depositary Receipts.

*Risks Associated with Other Instruments and Future Developments.* Depending on the particular client mandate, we may take advantage of opportunities with respect to “synthetic” or derivative instruments which are not presently contemplated or which are currently not available, but which may be developed to the extent such opportunities are both consistent with a client’s investment objective and legally permissible. Special risks may apply to such investments in the future.

*Risks Associated with Highly Volatile Markets.* The prices of derivative instruments are highly volatile. Price movements of forward contracts, futures contracts and other derivative contracts in which a client account is invested are influenced by, among other things, interest rates, changing supply and demand relationships, trade, fiscal, monetary and exchange control programs and policies of governments, and national and international political and economic events and policies. In addition, governments from time to time intervene, directly and by regulation, in certain markets, particularly those markets in currencies and interest rate related futures and options. Such intervention often is intended to directly influence prices and may, together with other factors, cause those markets to move rapidly in the same direction because of, among other things, interest rate fluctuations.

*Risks Associated with Small Sized Companies.* Investments in companies with relatively small market capitalizations generally involve greater risk and price volatility than investments in larger, more established companies because small capitalization companies tend to have younger and more limited product lines, markets and financial resources and may be dependent on a smaller management group than large capitalization companies. In addition, the equity securities of such companies are typically less liquid than larger capitalization companies. As a result, certain securities may be difficult or impossible to sell at the time and the price desired. A client account may have to lower the price, sell other securities instead or forego an investment opportunity. Any of these could have a negative effect on the management or performance of a client account investing in small capitalization companies.

*Risks Associated with Hedging Transactions.* Depending on the particular mandate, we may not be required to hedge portfolio positions or we may not anticipate a particular risk so as to hedge against it. Furthermore, we may utilize a variety of financial instruments (including derivatives), both for investment return enhancement purposes and for risk control purposes in order to:

- protect against possible changes in the market value of an investment portfolio resulting from fluctuations in the securities markets and changes in interest rates;
- protect the unrealized gains in the value of an investment portfolio;
- facilitate the sale of any such investments;
- enhance or preserve returns, spreads or gains on any investment in an investment portfolio;
- hedge the interest rate or currency exchange rate on any of an investment portfolio’s liabilities or assets;
- protect against any increase in the price of any securities we anticipate purchasing at a later date; and/or
- for any other reason that we deem appropriate.

The success of a hedging strategy employed for a particular mandate is subject to our ability to correctly assess the degree of correlation between the performance of the instruments used in the hedging strategy and the performance of the investments in the portfolios being hedged. Since the characteristics of many

securities change as markets change or time passes, the success of the instances when we may hedge portfolio positions is also subject to our ability to continually recalculate, readjust and execute hedges in an efficient and timely manner. While we may enter into certain hedging transactions to seek to reduce risk, such transactions may result in a poorer overall performance than if we had not engaged in any such hedging transactions. For a variety of reasons, we may not seek to establish a perfect correlation between such hedging instruments and the portfolio holdings being hedged. Such imperfect correlation may prevent an account from achieving the intended hedge or expose an account to risk of loss. The successful utilization of hedging and risk management transactions requires skills complementary to those needed in the selection of an account's portfolio holdings.

*Portfolio Turnover Risk.* Depending on the particular client mandate, we may not place any limit on the rate of portfolio turnover, and portfolio securities may be sold without regard to the time they have been held when, in our opinion, investment considerations warrant such action. A high rate of portfolio turnover involves correspondingly greater expenses than a lower rate, may act to reduce investment gains, or create a loss for clients and may result in increased tax costs for clients depending on the tax provisions applicable to such clients. The after-tax impact of portfolio turnover is not considered when making investment decisions for a client.

*Performance Fee Risk.* Depending on the particular client mandate, we (or an affiliate) may receive a performance fee that is calculated with regard to unrealized gains as well as realized gains. Therefore, a performance fee may be paid on unrealized gains which may subsequently never be realized by the client account. A performance fee may provide an incentive for us to make investments for a client which are more risky than would be the case in the absence of compensation based solely on realized gains.

The computations required to be made for purposes of computing a performance fee may be made separately with respect to separate contributions to or redemptions from a client account, to reflect appropriately the different times at which contributions or redemptions were made and the net asset value of the client account at such times. As a result, a performance fee may be paid with respect to a specific contribution from a client even if no performance fee would have been paid had all of such client's contributions been aggregated.

*Risks Associated with Misconduct of Employees and of Third Party Service Providers.* Misconduct by our employees or by a third party service provider that we utilize could cause significant losses to a client account. Employee misconduct may include binding a client account to transactions that present unacceptable risks and unauthorized activities or concealing unsuccessful activities (which, in either case, may result in unknown and unmanaged risks or losses). Losses could also result from actions by a third party service provider, including, without limitation, failing to record transactions or improperly performing other administrative responsibilities. In addition, employees and third party service providers may improperly use or disclose confidential information, which could result in litigation or serious financial harm. Although we have adopted measures reasonably designed to prevent and detect employee misconduct and to select reliable third party providers, such measures may not be effective in all cases.

*Risks Associated With Information Technology Systems and Cyber-Security.* We rely on computer programs to evaluate certain securities and other investments, to monitor each client's portfolio, to trade, clear and settle securities transactions, and to generate asset, risk management and other reports that are utilized in the oversight of each client's activities. In addition, certain of our operations will interface with or depend on systems operated by third parties, which may not be possible to monitor. Any or all of these programs or systems may be subject to certain defects, failures or interruptions, including, but not limited to, those caused by computer 'worms,' viruses and power failures. Such failures could cause settlement of trades to fail, lead to inaccurate accounting, recording or processing of trades, and cause inaccurate reports, which may affect the ability to monitor investment portfolio and risk. Any such defect or failure

could cause a client account to suffer financial loss, the disruption of business, liability to third parties, regulatory intervention or reputational damage.

Also, our operations may be prone to operational and information security risks resulting from cyber-attacks, despite our efforts (and the efforts of our service providers) to adopt technologies, processes and practices intended to mitigate these risks and protect the security of our computer systems, software, networks and other technology assets, as well as the confidentiality, integrity and availability of our information and information belonging to our clients. In general, cyber-attacks are deliberate, but unintentional events may have similar effects. Cyber-attacks include, among others, stealing or corrupting our data, a service provider's data or data of our clients, preventing legitimate users from accessing information or services on a website, releasing confidential information without authorization, and otherwise causing operational disruption. Third parties may also attempt to fraudulently induce employees, customers, third-party service providers or other users of our or a service provider's systems to disclose sensitive information in order to gain access to our data or that of our clients. Successful cyber-attacks against, or security breakdowns of, us or a custodian or other third-party service provider may adversely affect our clients. For instance, cyber-attacks may cause the release of a client's information, impede trading, expose assets to theft or embezzlement, cause reputational damage, cause the inability to access electronic systems, or cause physical damage to a computer or network system or costs associated with system repairs. While we have established business continuity plans and systems designed to prevent cyber-attacks, there are inherent limitations in such plans and systems, including the possibility that certain risks have not been identified. Similar types of cybersecurity risks are also present for issuers of securities in which our clients invest, which could result in material adverse consequences for such issuers, and may cause a client's investment in such securities to lose value.

#### Additional Risks Applicable to "Alpha Extension" and Long/Short Equity Strategies

*Risks Associated with Short Sales.* We effect short sales in our client accounts for certain client mandates. Our use of short sales involves distinct investment risks and transaction costs. A client's potential loss from an uncovered short position in an equity security is unlimited. We may not be able to close out a short position at any particular time or at the desired price. The use of short sales increases the market exposure of a client's account and allows the client to leverage its portfolio. Such leverage will exaggerate the effect of any increase or decrease in the value of the account's assets and, therefore, may increase the volatility of the client's account. The transaction costs associated with short sales may exceed the income received through short sales. There can be no assurance that we will be able to leverage investments through short sales effectively.

Many non-U.S. jurisdictions where an account may trade have adopted reporting requirements. In addition, the SEC has in the past adopted interim rules requiring reporting of all short positions above a certain de minimis threshold and may adopt rules requiring monthly public disclosure of short positions in the future. If an account's short positions or its strategy become generally known, it could have a significant effect on our ability to implement its investment strategy. In particular, it would make it more likely that other investors could cause a "short squeeze" in the securities held short by a client forcing such client to cover its positions at a loss.

If other investors engage in copycat behavior by taking positions in the same issuers as a client, the cost of borrowing securities to sell short could increase drastically and the availability of such securities to such client could decrease drastically. Such events could render us unable to execute our investment strategy. The SEC has adopted restrictions on the short sale of securities which fall more than 10 percent (10%) in a given day (referred to as the "circuit breaker" or "modified uptick rule"). Furthermore, various exchanges have adopted additional mechanisms designed to address extraordinary volatility in

U.S. securities markets. It is unclear what effect these restrictions will have on a client account, but we currently believe that we will be able to continue to carry out our investment strategy while complying with this rule. If the SEC were to adopt additional restrictions on short sales, such restrictions could restrict a client's ability to engage in short sales in certain circumstances, and we may be unable to execute our investment strategy as a result.

The SEC and regulatory authorities in other jurisdictions may adopt (and in certain cases have adopted) bans on short sales of certain securities in response to market events. Bans on short selling may make it impossible for us to execute certain investment strategies and may have a material adverse effect on our ability to achieve our investment objective and generate returns. In addition, engaging in short selling may increase the risk of us becoming subject to government investigation.

*Risks Associated with Leverage.* A client mandate that utilizes short sales will be leveraged. The use of leverage creates special risks and may significantly increase a client's investment risk. Leverage creates an opportunity for greater yield and total return but, at the same time, will increase a client's exposure to capital risk and interest costs. Any investment income and gains earned on investments made through the use of leverage that are in excess of the interest costs associated with such leverage can cause the value of a client's account to increase more rapidly than would otherwise be the case. Conversely, where the associated interest costs are greater than such income and gains, the value of a client's account can decrease more rapidly than would otherwise be the case.

#### ***Risks Associated with the Arrowstreet Sponsored Funds***

The risks identified above are substantially the same as those applicable to an investment in an Arrowstreet Sponsored Fund, depending on the specific fund chosen for investment. However, additional risks may be relevant and investors who wish to invest in an Arrowstreet Sponsored Fund, such as risks relating to use of prime brokers, reliance on third party service providers, fund asset valuation and pricing, subscriptions and redemptions (including compulsory redemptions), lack of investor control/voting rights, receipt of in-kind distribution and regulatory risks. Investors are urged to carefully review the offering documents for the applicable fund, including the risks relating to an investment such fund as described in such materials.

### **Item 9 – Disciplinary Information**

There are no legal or disciplinary events that are material to a client's or prospective client's evaluation of our investment advisory business or the integrity of our management.

### **Item 10 – Other Financial Industry Activities and Affiliations**

#### ***Broker, Dealer, Commodity Registrations***

Arrowstreet is registered as a commodity trading advisor and commodity pool operator with the U.S. Commodity Futures Trading Commission (CFTC), and has management personnel that are registered as "approved principals," "associated persons" and/or "swap associated persons" of a commodity trading advisor and a commodity pool operator with the CFTC. Arrowstreet is also an approved "swap firm" with the National Futures Association (NFA).

Neither Arrowstreet nor any of its personnel are registered (or have a registration application pending) as:

- a broker-dealer;



- a registered representative of a broker dealer;
- a futures commission merchant; or
- an associated person of a futures commission merchant.

### ***Other Material Relationships***

Arrowstreet serves as investment adviser to each Arrowstreet Sponsored Fund. Arrowstreet also has an active oversight role with regard to the Arrowstreet US Group Trust and Arrowstreet Investment Trust.

Members of our management team serve on the board of directors of each of the following Arrowstreet Sponsored Funds: Arrowstreet Capital Global Equity Long/Short Fund Limited, Arrowstreet Capital Global Equity Long/Short Fund (Feeder) Limited, Arrowstreet Capital Global Equity Alpha Extension Fund Limited, Arrowstreet Capital Global All Country Alpha Extension Fund Limited, Arrowstreet Capital Global All Country Alpha Extension Fund (Cayman) Limited and Arrowstreet World Small Cap Equity Alpha Extension Fund (Cayman) Limited.

A member of our management team serves on the board of directors (and a second member of our management team serves as an alternative director) of each of Arrowstreet Capital Ireland Limited (the governing body of Arrowstreet Common Contractual Fund) and Arrowstreet Multi-Strategy Umbrella PLC.

Please refer to Item 4 for information relating to ACIL, our affiliated Irish management company and our affiliated marketing offices located in the U.K. and Australia.

Select, qualified investors may, upon written request to Arrowstreet, obtain copies of the offering documents relating to an Arrowstreet Sponsored Fund. Prospective investors are required to demonstrate their eligibility to invest in the applicable Arrowstreet Sponsored Fund prior to receiving such offering documents.

## **Item 11 – Code of Ethics, Participation or Interest in Client Transactions and Personal Trading**

### ***Overview of Code of Ethics***

Arrowstreet maintains a Code of Ethics that establishes fundamental principles of conduct and professionalism expected by Arrowstreet personnel in discharging their duties. The Code of Ethics requires that Arrowstreet personnel must at all times act in good faith in accordance with the law and place client interests first, avoiding actual and apparent conflicts of interest between personal and firm or client matters.

Arrowstreet seeks to foster a reputation of integrity and professionalism. The confidence and trust placed in Arrowstreet by clients must be valued and protected by all personnel. Upon joining our firm, Arrowstreet personnel must acknowledge they have read and understand our Code of Ethics. Arrowstreet personnel must also affirm their compliance with the Code of Ethics on a quarterly basis.

The Code of Ethics is designed to deter inappropriate behavior and promote honest and ethical conduct, including full, fair and accurate disclosure, compliance with applicable rules and regulations and reporting of Code of Ethics violations. Specifically, the Code of Ethics addresses, among other things:

- nondisclosure of confidential information (including client information), subject to applicable law;

- compliance with applicable law and regulations;
- prohibition on insider trading;
- prohibition on market manipulation;
- explanation of fiduciary obligations;
- additional responsibilities for investment personnel including compliance with the CFA Institute's Code of Ethics;
- restrictions and prohibitions relating to the giving and receiving of gifts and other inducements;
- reporting and approval requirements for certain outside business activities;
- restrictions on personal security trading and preclearance procedures;
- duty to report, and accountability for, violations of the Code of Ethics;
- internal and external reporting requirements; and
- record keeping.

A copy of our Code of Ethics is available to any client or prospective client upon request.

#### ***Purchase of Securities for Own Account; Pre-Clearance***

Arrowstreet does not purchase or sell securities for its own account that it also recommends to, or purchases for, its clients, with the exception that Arrowstreet Capital Holding LLC has invested (and may invest in the future) a nominal amount in certain of the Arrowstreet Sponsored Funds.

Arrowstreet personnel and its affiliates may enter into transactions for their own account that are also recommended to, or purchased for, Arrowstreet clients, subject to the personal trading rules set forth in our Code of Ethics, including strict pre-clearance procedures and reporting requirements.

As a general rule, Arrowstreet personnel (other than non-executive directors of our parent company and its affiliates) must obtain written pre-clearance from the Chief Compliance Officer (or his delegate) prior to effecting any transaction in a security (defined broadly in our Code of Ethics). Pre-clearance for a transaction in a security is granted in certain limited cases in accordance with the pre-clearance rules set forth in our Code of Ethics. The Chief Compliance Officer (or his delegate) may deny or impose conditions on pre-clearance of any proposed trade if such trade would be, or would appear to be, inconsistent with applicable legal or fiduciary obligations.

Arrowstreet personnel are required to report all non-exempt personal securities transactions to the Chief Compliance Officer (or his delegate) on a quarterly basis.

Arrowstreet provides investment advisory services to many institutional clients. We give advice and take action with respect to certain client accounts which might differ from the advice made or recommended or actions taken with respect to other client accounts even though the investment objectives of such client accounts may be the same or similar. We are not obligated to purchase or sell, or to recommend for purchase or sale, for a client account any security which Arrowstreet or its affiliates may purchase or sell for its own accounts or for the account of any other client.

#### ***Aggregation of Trades; Trade Allocation***

Arrowstreet typically aggregates (block) trades for its clients (including the Arrowstreet Sponsored Funds), with the exception of trades in equity index futures used for the purpose of equitizing client cash flow activity (discussed in more detail in Item 12 below). Please refer to Item 12 for additional information about our trade aggregation and allocation policies.

## **Item 12 – Brokerage Practices**

### ***Broker and Counterparty Selection and Best Execution***

Arrowstreet selects brokers, dealers, counterparties and futures commission merchants in accordance with the terms of our best execution policy, as may be in effect from time to time. Arrowstreet's best execution policy acknowledges Arrowstreet's fiduciary responsibility to take prudent steps to ensure that best execution is obtained on behalf of its clients in connection with the purchase and sale of securities for client accounts. Arrowstreet's determination of best execution is not based necessarily on lowest commission rates (or other direct costs) but more broadly on whether the transactions as a whole represent the best qualitative and quantitative execution for the account.

### Securities

*Broker-Dealer Selection.* Our portfolio management team performs extensive due diligence regarding broker-dealer selection, usage, monitoring and evaluation by considering the full range and quality of a broker's services. These considerations may include:

- Execution capability, reliability and familiarity with specific markets
- Integrity
- Current and historical responsiveness
- Historical effectiveness in executing orders
- Commission rates
- Financial condition
- Execution research services
- Operational capabilities
- Ability to handle high volume transactions
- Technology infrastructure
- Commitments extended (where applicable)

When a new executing broker is to be added to our approved list of broker-dealers, the portfolio management team conducts due diligence relative to the broker's expertise and capabilities in light of the above factors. The information is analyzed and presented to the Investment Committee for review and approval.

Each broker-dealer is required to acknowledge, in writing, acceptance of the specific process by which trades will be communicated to them and the parameters established for trading. This communication includes, among other items, a list of persons authorized to communicate trades and the format of trade communication.

*Monitoring.* Post-trade analysis reports on the costs of implementing the trading strategies are prepared by the portfolio management team on a monthly basis. These post-trade analytics allow portfolio managers and other investment personnel to monitor broker-dealer performance against various execution benchmarks. These analyses consider such topics as how our trading strategies performed during a specified period, overall trading costs in various markets, the costs associated with the delay in getting trades to the markets and the ability of broker-dealers used to execute trades while minimizing market impact. These analyses are presented and discussed at the monthly account review meetings, chaired by the Chief Investment Officer, and also periodically at the Investment Committee meetings.

Score cards that evaluate each broker-dealer are completed by our portfolio management team, and the results are shared with the relevant broker-dealers as part of a quarterly evaluation process that ranks equity brokers, and determines their allocation of order flow for the subsequent quarter. When necessary, broker-dealers are temporarily placed on “probation” and, if their performance does not improve, permanently removed from the list of approved broker-dealers.

The results of these scorecards, as well as any broker-dealer probationary measures, are discussed periodically with the broader group of investment professionals at Investment Committee meetings and/or account review meetings.

There may be instances where trading may be limited to the use of a single broker or comparatively fewer brokers than prescribed by our customary trading practices. For instance, there may be restrictions imposed by local market rules or custom, or applicable laws and regulations. Under these circumstances, there may be fewer eligible brokers available for trading and best execution may be more difficult to achieve.

### Foreign Currency

*Foreign Currency Trading with Third-Party Counterparties Selected by Arrowstreet.* Arrowstreet’s practice with regard to foreign exchange trading (other than with respect to certain currencies described below) is to execute the majority of client trades through multiple third-party counterparties that are selected on a case-by-case basis in accordance with the “Broker-Dealer Selection” principles described above. Because foreign exchange trading is conducted on a principal/counterparty basis, the creditworthiness of the counterparty is an additional important criterion in the selection of foreign exchange counterparties. Arrowstreet believes that the discretion to utilize multiple third-party counterparties allows it to seek more competitive pricing than if it were limited to a single counterparty, or if it outsourced currency trading to its clients’ custodians.

In performing these trades, portfolio management evaluates price quotations against related data trends at the time of the trade reviewing bid-ask quotations from our selected counterparties on an ongoing basis throughout the day the receipt of this real-time data helps to ensure that we obtain competitive pricing.

There are a number of instances, however, where trading may be limited to the usage of a single counterparty or comparatively fewer counterparties than prescribed by our customary trading practices. These include circumstances where a client has imposed certain counterparty credit eligibility standards or other counterparty usage restrictions. Further, in the case of Arrowstreet Sponsored Funds that use prime brokers, foreign currency trading may be conducted entirely with the prime brokers of such Arrowstreet Sponsored Funds due to margin-maintenance and operational considerations. In such cases, Arrowstreet may be limited in its ability to negotiate rates or otherwise ensure the quality of executions.

*Foreign Currency Trading through Client Custodians.* Arrowstreet trades certain emerging market currencies through custodians chosen by our clients to facilitate trade settlement or for cash management purposes. This limited usage of clients' custodians for trading such currencies is primarily due to:

- country level exchange controls that restrict, or preclude, cross-border currency movements; and/or
- the custodian's ability to reduce operational risks associated with trading these currencies.

In addition, Arrowstreet might direct client custodians from time to time to sweep small foreign currency balances that accumulate in a client account into U.S. dollars or other currencies as part of our cash management process.

In the situations described above, it is Arrowstreet's expectation that currency trades placed with a client custodian will be executed pursuant to best execution standards as agreed between the client and custodian. We do not, under these circumstances, have the ability to negotiate rates or to fully evaluate the quality of the execution because important elements of the counterparty relationship are outside of our knowledge and control. Our clients are advised in such cases that we may not be able to achieve best execution under these circumstances.

Similar practices as described above are followed for the Arrowstreet Sponsored Funds. While Arrowstreet will similarly not have the ability to negotiate rates or seek competitive pricing in such cases, the Arrowstreet Sponsored Funds seek to secure assurances with respect to the execution of such trades and the reporting that Arrowstreet receives to permit evaluation of certain elements of such transactions.

#### Exchange Traded Futures

Subject to a client's investment guidelines, Arrowstreet trades exchange traded equity index futures for client accounts. Arrowstreet currently utilizes a single futures commission merchant in connection with such trades. The process for selecting and monitoring executing brokers and futures commission merchants for futures transactions generally follows the same principles described above under "Broker-Dealer Selection" and will be subject to similar monitoring reviews.

#### Participation Notes

Subject to a client's investment guidelines, we trade participation notes for client accounts. The selection and monitoring of participation note counterparties follows the same principles described above under "Broker-Dealer Selection" and "Foreign Currency Trading with Third-Party Counterparties Selected by Arrowstreet" and is subject to similar monitoring reviews. Referencing the principles described above, we evaluate the counterparty's acquisition and disposal of the local security referenced by the participation note (and the corresponding foreign currency transaction) on a real time basis.

A copy of our best execution policy is available to clients and prospective clients upon request.

#### ***Equity Trades and Commissions***

Trades are typically conducted through program trading desks. Rates are typically, but not always, negotiated at a country level and tend to be consistent across all brokers we use, however, such rates may be further adjusted based on broker routing practices. It is conventional in non-U.S. markets to calculate commissions as a specified number of basis points relative to the price of the security being traded (i.e., as a percentage of the price), rather than as an absolute amount per share traded as is the norm in the United States. We typically negotiate commissions using the basis points method for all markets, including the

United States. We believe the commission rates we negotiate in the United States are likely to be comparable to the rates negotiated in other developed, liquid markets (e.g., the U.K., Canada, and Japan). Accordingly, the commission paid on a particular transaction in a high-priced security in the United States may be higher than the commission that would have been paid for that transaction had it been calculated as an absolute amount per share. However, our experience is that, at the average price of the securities we acquire for client accounts, such basis point commission rates generally result in lower overall commissions than if we had paid commissions on a per share basis. Arrowstreet monitors market conditions and will re-negotiate the level and type of commission schedule if and when appropriate.

We typically trade on regulated markets and trading venues (including OTC markets) on which the security subject to such trade is listed, registered or otherwise admitted to trading. We also trade on non-exchange alternative trading and crossing networks. In certain limited cases, we sell or buy securities to or from a dealer off-exchange or where the dealer is acting on a principal basis.

### ***Trade Aggregation and Allocation***

*Equities.* Our investment process is designed to generate trade orders at the individual account level. Arrowstreet's general policy is to aggregate and execute as a block order those trade orders in the same security or contract for multiple client accounts, except where a client directs, or local market requires otherwise, or with respect to the use of equity index futures for purposes of equitizing client cash flows as further described below. We believe that block trading may, where appropriate, allow us to execute trades in a more timely and equitable manner and may reduce overall commission charges to our clients. Where a block order is executed at multiple prices, a weighted average price for the order will be calculated, and the block order and the related transaction costs will be allocated substantially pro rata across all participating client accounts, subject to the requirements of a particular trading market. Exceptions to the pro rata basis for allocation will not be made to systematically favor one client account over another.

*Equity Index Futures.* Our trade aggregation and allocation policy, as applied to the use of equity index futures for cash equitization purposes, recognizes that these trades are designed specifically to minimize tracking risk for short interim periods and that the timing of execution of such trades for each client is important and may vary between client accounts for a variety of reasons, including the timing of flows into or out of a client account and the benchmark for the client's portfolio. Our policy further recognizes that these instruments are diversified and generally highly liquid. As a result, we generally evaluate and execute each of these trades independently, and client accounts trading the same equity index futures, on the same day, in the same direction, may receive different execution prices and different completion percentages. Where client accounts' futures trades are executed independently, the futures trades will be assigned on a pre-trade basis and there will be no discretionary allocation of trades among clients post-trade. We will block such orders and allocate pro rata in the manner described above to the extent we determine that doing so is in the relevant clients' best interests under the circumstances, where practicable.

*Foreign Exchange.* Other than with respect to certain currencies as described below, we execute the majority of client account foreign exchange trades through third-party counterparties. At the time of order placement we aggregate foreign exchange trades across client accounts. Where clients impose counterparty credit eligibility standards or other counterparty usage restrictions exist (including due to margin-maintenance and operational considerations), orders in a single currency may be placed with different counterparties across client accounts.

Furthermore, for certain emerging market currencies we may be limited to transacting with the custodians appointed by our clients.

### ***Directed Brokerage/Commission Recapture Arrangements***

We define the term “directed brokerage” as an arrangement whereby a broker-dealer agrees to pay client expenses in exchange for commissions. This contrasts with our definition of the term “commission recapture,” which we define as a cash rebate on commissions paid. In both scenarios, the client is receiving benefits from commissions paid on its own trading activity. Under these arrangements, investment advisers do not receive products, cash rebates or services. Instead, the advisers’ clients receive the products, services or cash rebates generated by their commissions.

As a general rule, we do not participate in client directed brokerage or commission recapture programs. However, we may track a client account’s participation in a directed brokerage/commission recapture program in our order management system and provide periodic reporting of applicable trades to the client.

However, in the event we do participate in such a program, we may do so only upon written instruction from the client and where we have made the client aware that use of these types of arrangements may deprive the client of benefits that might otherwise be obtained by “aggregating” the client’s order with orders for other firm client accounts. For example, participation in such programs may result in the client’s paying a higher commission rate or receiving less favorable execution than if we had discretion to select the broker or negotiate the commission rate. In cases where we participate in a directed broker/commission recapture program on behalf of a client, although an effort will be made to obtain prices for directed brokerage orders comparable to those given to non-directed brokerage accounts, these trades will typically be executed after non-directed brokerage trades. Accordingly, it is the client’s responsibility to satisfy itself about the adequacy of these brokerage arrangements as a whole.

In the event Arrowstreet does not retain full discretion with respect to the selection of brokers and execution of trades, Arrowstreet’s duty to achieve best execution will be mitigated and, in some cases, eliminated. Our clients should be aware that we may not be able to achieve best execution under these circumstances.

### ***Step-Out Transactions***

A step-out transaction typically involves a transfer of all or a portion of a broker-dealer’s securities position to another broker-dealer, the transfer of which does not constitute a trade. In a step-out transaction, a block trade is placed with a broker with the instruction that the broker execute the entire transaction but “step out” of a portion of the trade in favor of a different broker that has a step-out arrangement with one or more clients of the adviser. The broker with the step-out arrangement receives the commission (or a portion of it) for the stepped-out portion of the trade. In these instances we may not be privy to the commission sharing arrangements between the client and the broker. As a general rule, we do not participate in this type of transaction. Should a client account participate in a step-out transaction, such transaction is tracked by our order management system. Periodic reporting is provided to the relevant client and the broker/beneficiary pair.

### ***Trade Errors***

We recognize that trade errors may occur from time to time with respect to client trades and that such events must be identified and reported promptly. A trade error is a violation of our fiduciary duty. We expect that trade errors will be promptly reported and reimbursed to the client, if applicable.

We seek to correct any trade error in a prompt and efficient manner to minimize any loss. Pursuant to guidance from the SEC and DOL, we do not use commissions from account transactions to compensate brokers for absorbing a trade error, or use one account to absorb an error in a different account. Additionally, consistent with the safe harbor under Section 28(e) of the Exchange Act, we will not compensate for a loss by providing future commissions or soft-dollars to a broker-dealer. In general, when an error and the responsible party are identified, the trade is broken (or effectively managed) immediately, if possible, and the error is corrected the same day.

All firm personnel must promptly notify the Chief Compliance Officer and Chief Investment Officer of any actual or suspected trade errors so that they are addressed appropriately.

In the event of a loss, we will reimburse the client account for the amount of the loss, including transaction costs (by check or wire). The client account will keep any profit from the trade error.

### ***Referrals***

Brokers selected by us to execute transactions for client accounts may from time to time also refer clients to us. The firm has no agreement to select brokers who refer clients and will not consider client referrals in selecting or recommending brokers or dealers for its clients.

### ***Reconciliation Policies***

Our account reconciliation process is designed to identify differences between our internal trading records and client custodian or administrator official account records. We maintain policies and procedures addressing the management and review of these differences, particularly as they pertain to account charges or account receivables attributable to a mistake or delay by a third party, such as a broker, counterparty, custodian or administrator, or otherwise arising in the ordinary course of trading.

For reconciliation discrepancies in the context of trade settlement, our policy is generally not to pursue reimbursement where the associated trades are permitted to settle, as the marketplace has determined such discrepancies are immaterial. For other reconciliation discrepancies, our policy is to review overdraft charges of greater than U.S. \$ 1,000, differences in dividend receivables of greater than U.S. \$5, and to review other miscellaneous charges to the extent they are greater than U.S. \$100. In each case where we review a discrepancy, we will use reasonable efforts to pursue reimbursement for the client account where appropriate.

### ***Soft Dollar Benefits***

Arrowstreet does not have any commitments or understandings to trade with specific broker-dealers or to generate a specified level of brokerage commission in order to receive brokerage or research services. These commitments or understandings are generally known as “soft dollar arrangements.” The Chief Compliance Officer must be consulted prior to Arrowstreet establishing any such arrangement. From time to time, Arrowstreet may receive research and brokerage services from broker-dealers including prime brokers as an incident of doing business (such as market/research data, research analyst reports and industry seminars), but only where:

- there is no formalized arrangement with an explicit target or ratio linked to Arrowstreet’s commission business with such broker-dealers; and



- Arrowstreet does not “pay up” for these items in the form of higher commissions on similarly situated client trades.

We execute portfolio transactions with broker-dealers only in a manner that complies with Section 28(e) of the Securities Exchange Act of 1934, as amended (the Exchange Act). We will execute portfolio transactions through broker-dealers only if we believe such broker-dealers provide best execution, and in evaluating best execution we may consider the value of eligible research and brokerage services (for purposes of compliance with Section 28(e) of the Exchange Act) received from a broker-dealer in accordance with Section 28(e) of the Exchange Act in terms of the particular transaction or our responsibilities with respect to accounts for which we exercise investment discretion.

### **Item 13 – Review of Accounts**

Arrowstreet does not assign client accounts to individual portfolio managers. Rather, client accounts are reviewed on a regular basis by the portfolio management, research and trade compliance teams, as well as the Investment Committee, for conformity with a client’s investment policies and objectives as well as for investment performance. Client accounts are also reviewed by our investment operations team on at least a monthly basis to reconcile our account records to those of the clients’ custodians.

Unless a client specifies otherwise, we provide each client with written monthly reports consisting of accounting statements (portfolio valuations, transaction detail, income detail, etc.), a reconciliation of the client’s account with records of the client’s custodian and performance information. In addition, each client receives monthly and quarterly letters describing recent performance, account positioning and market outlook.

### **Item 14 – Client Referrals and Other Compensation**

Arrowstreet maintains in-house client relationship management and business development teams. In addition, Arrowstreet has affiliated marketing offices located in the U.K. and Australia. Please refer to Item 4 for more information regarding these marketing offices.

Arrowstreet does not compensate third parties such as finders and placement agents for client referrals.

### **Item 15 – Custody**

#### ***Separate Account Assets***

Each separate account client selects and contracts with a custodian of its choice to maintain the assets that the client appoints Arrowstreet to manage. Each separate account client deposits its assets with such custodians, and our authority with respect to such assets is, typically, limited to issuing instructions to the client’s custodian to effect or settle trades (and other matters relating thereto). As such, we generally do not have possession, or the authority to obtain possession, of assets held in such accounts in our role as investment manager.

We do, however, maintain certain controls to seek to protect against unauthorized access to such assets. We maintain access controls around the systems used by portfolio management and trade compliance to execute and approve trades, in order to ensure that trades are authorized. We also reconcile our records of client assets to the records provided by client custodians (although we note that our statements may vary from custodial statements based on accounting procedures, reporting dates, or valuation methodologies of

certain securities). We urge each client to carefully review such statements and compare such official custodial records to any account statements that we may provide.

### ***Arrowstreet Sponsored Fund Assets***

The Arrowstreet Sponsored Funds maintain their assets at third-party custodians, although as sponsor and promoter of the Arrowstreet Sponsored Funds, Arrowstreet is typically involved in the selection of such custodians. The selection and retention process is ultimately determined by the governing body of the applicable Arrowstreet Sponsored Fund (e.g., the board of directors of the applicable fund), but in many cases Arrowstreet or a member of our management team is a part of such governing body. Please refer to “*Other Material Relationships*” in Item 10 for more information in this regard.

As a result of our relationship to the Arrowstreet Sponsored Funds, we seek to ensure that additional measures are taken to safeguard these assets. We seek to ensure that each Arrowstreet Sponsored Fund maintains its assets with a custodian or prime broker (as applicable) that meets the requirements of a “qualified custodian” for purposes of the Advisers Act and that each Arrowstreet Sponsored Fund (and underlying investment fund, as applicable) is audited on an annual basis and that investors receive audited financial statements within 120 days of the end of the relevant fiscal year.

### **Item 16 – Investment Discretion**

Arrowstreet accepts authority to manage a client’s assets on a discretionary basis pursuant to a written investment advisory agreement, including the authority to determine the securities or other assets to be bought or sold and the total amount of securities or other assets to be bought or sold, subject in some cases to restrictions agreed with the client in advance and set forth in the applicable investment advisory agreement or supplemental policies applicable to the client. Arrowstreet will accept reasonable limitations on its authority through client guideline restrictions, provided that such restrictions are generally consistent with Arrowstreet’s investment process. Typical contract provisions include:

- restrictions relating to what constitutes a permissible or authorized investment;
- restrictions/prohibitions relating to borrowing, leverage, short selling, currency hedging and use of derivatives;
- the client’s ability to provide written instructions to Arrowstreet regarding the management of the client account (generally subject to our right to object to such instructions); and
- selected exposure limits relative to the client’s chosen benchmark.

We also have discretion in most cases to select broker-dealers, counterparties and futures commission merchants used to execute securities transactions and other transactions for our clients’ accounts. Please refer to Item 12 for information relating to our broker-dealer/counterparty selection process.

### **Item 17 – Voting Client Securities**

Arrowstreet may vote securities held in client accounts (including the Arrowstreet Sponsored Funds) when given the discretion to do so; however, Arrowstreet does not generally accept directions or guidelines from clients regarding the voting of securities. The authority to vote securities is typically set forth in the client’s investment management agreement or a similarly signed written instruction addressed

to Arrowstreet. If such authority is vested in Arrowstreet, we engage an independent third party proxy voting service to vote such securities.

We believe that engaging a proxy voting service provider is in the best interest of our clients because the service provider:

- is better able to effectively monitor events affecting issuers of client securities in a careful, comprehensive and timely manner, thus allowing it to cast informed votes in accordance with its stated guidelines; and
- has appropriate procedures for addressing material conflicts of interest if any arise.

Upon the request of a client, we may implement procedures to follow environmental, social and governance (ESG) voting procedures with respect to the securities held in such client's account. For such clients, we contract with ISS to cast votes based on a specialized ISS proxy voting policy which is based on the Principles for Responsible Investment. ISS then monitors events affecting the issuers of securities as required to cast informed votes based on these principles, makes decisions on voting securities and maintains necessary records on the votes cast. We will pay for the cost of such services. We do not expect that such procedures will be implemented in the Arrowstreet Sponsored Funds.

We or the proxy voting service provider may determine that voting any particular security is not in a client's best interest and may refrain from voting certain securities. Arrowstreet may in certain cases refrain from voting if voting could potentially restrict Arrowstreet's ability to sell out of a particular name for certain duration. This is often the case in markets that follow the practice of "shareblocking." Since voting rights or trading rights can be affected in securities held in shareblocking markets, we generally instruct our proxy voting service provider to refrain from voting in shareblocking markets.

In addition, certain clients engage in securities lending programs, under which shares of an issuer could be on loan while that issuer is conducting a proxy solicitation. As part of the securities lending program, if the securities are on loan at the record date, the client lending the security cannot vote that proxy. Because neither Arrowstreet nor our proxy service provider are generally aware of when a security may be on loan, these securities cannot generally be recalled prior to the record date, and, therefore, in most cases, the shares on loan will not be voted. Likewise, with securities held at a prime broker, neither Arrowstreet nor our proxy service provider are generally aware of when specific securities may be rehypothecated and these securities cannot generally be recalled prior to the record date. Therefore, in most cases, securities that are rehypothecated during the voting period will not be voted.

Moreover, if we determine that the costs of voting in a particular case are likely to exceed the expected economic benefits of voting, our proxy service provider may not vote. This is likely to occur, for example, in cases where particular documentation, a registration or a power of attorney is required for proxy voting in certain markets or specific meetings and a client has not provided (or facilitated) such documents with its custodian.

In certain cases proxy notices may not be received by Arrowstreet, or if received, may be received too late for Arrowstreet to take action.

In the event of a client account termination, we will manage proxies for any meeting having a record date on or prior to the effective date of such termination (which includes voting proxies for meetings occurring after such effective date, if the meeting record date occurred prior to termination). Reporting on such proxy votes following such client account termination is available upon request.

As a result of utilizing a third party proxy voting service provider, we believe conflicts of interest between Arrowstreet and a client in the proxy voting context will be rare. If, in our reasonable judgment, a conflict of interest does arise, we will seek instructions from any affected client as to the voting of the particular proxy.

We provide clients with monthly reports of votes cast on securities in their client accounts. Clients may also contact Arrowstreet's regulatory compliance team by calling 617-919-0000 or via email at [regcompliance@arrowstreetcapital.com](mailto:regcompliance@arrowstreetcapital.com) to obtain a copy of our proxy voting policy, the proxy voting guidelines of our service provider or a specific report of how securities were voted for their client accounts.

Prospective clients may obtain a copy of our proxy voting policy upon request.

#### **Item 18 – Financial Information**

We are not aware of any financial condition that is reasonably likely to impair our ability to meet contractual commitments to our clients. We have not been the subject of a bankruptcy petition at any time.

\* \* \*



200 Clarendon Street, Boston MA 02116  
617-919-0000  
[www.arrowstreetcapital.com](http://www.arrowstreetcapital.com)

## Form ADV Part 2B Brochure Supplement March 30, 2017

This brochure supplement to the Form ADV Part 2A Brochure provides information about supervised persons of Arrowstreet Capital, Limited Partnership (Arrowstreet), a copy of which should have been provided to you. If you have any questions about the contents of this brochure supplement, or would like an additional copy of Arrowstreet's Form ADV Part 2A Brochure, you may contact Eric Burnett by telephone at 617-919-0000 or by electronic mail at [regcompliance@arrowstreetcapital.com](mailto:regcompliance@arrowstreetcapital.com).

**Item 1- Cover Page****Peter L. Rathjens**

Arrowstreet Capital, Limited Partnership  
200 Clarendon Street, Boston MA 02116  
617-919-0000  
www.arrowstreetcapital.com

March 30, 2017

**Item 2- Educational Background and Business Experience**

Mr. Rathjens (born 1959) currently serves as Arrowstreet's Chief Investment Officer and chairs the firm's Investment Committee. He has held these positions since the firm's inception in 1999. Prior to Arrowstreet, Mr. Rathjens served in various capacities at PanAgora Asset Management from September 1991 through July 1999, most recently as Chief Investment Officer. Mr. Rathjens also held the following positions at PanAgora Asset Management during his tenure: director of global investments, director of research and senior manager of research. Mr. Rathjens holds a Ph.D. and M.A. in economics from Princeton University, and a B.A. in mathematics and economics from Oberlin College.

Arrowstreet is registered as a Commodity Trading Advisor (CTA) and as a Commodity Pool Operator (CPO) with the Commodity Futures Trading Commission (CFTC), and is registered as a CTA and CPO with the National Futures Association (NFA). Arrowstreet is also an Approved Swap Firm (ASF) with the NFA. Mr. Rathjens is an NFA "approved principal," an NFA "associate member" and an NFA "registered associated person" of Arrowstreet in its capacity as a CTA and CPO. Mr. Rathjens is also a "swap associated person" of Arrowstreet in its capacity as an ASF. Additional information can be found on the NFA's website ([www.nfa.futures.org](http://www.nfa.futures.org)).

**Item 3- Disciplinary Information**

Not applicable.

**Item 4- Other Business Activities**

Mr. Rathjens also serves as a member of the Oberlin College Investment Committee which oversees the college's endowment.

**Item 5- Additional Compensation**

Not applicable.

**Item 6 - Supervision**

Arrowstreet's investment process utilizes quantitative methods that focus on identifying and incorporating investment signals into its proprietary return, risk and transaction cost models. Portfolios are constructed through the use of a mean variance optimizer and proprietary risk and transaction cost models. Client accounts are generally traded during scheduled optimization sessions.

Arrowstreet utilizes a team approach to the implementation of its investment process and the management of client accounts. Mr. Rathjens is the firm's Chief Investment Officer and is responsible for the investment advisory activities of the firm and its team of investment professionals. Mr. Rathjens reports to the firm's board of directors.

**Item 1- Cover Page****John Y. Campbell**

Arrowstreet Capital, Limited Partnership  
200 Clarendon Street, Boston MA 02116  
617-919-0000  
www.arrowstreetcapital.com

March 30, 2017

**Item 2- Educational Background and Business Experience**

Mr. Campbell (born 1958) currently serves as Arrowstreet's Co-Director of Research and holds a seat on the firm's Investment Committee. He has held these positions since the firm's inception in 1999. Prior to Arrowstreet, Mr. Campbell served as the director of research (external) at PanAgora Asset Management from September 1998 through June 1999, and served on its technical advisory board from 1991 to 1998. Mr. Campbell was also an assistant professor of economics at Princeton University from July 1984 through June 1989, and then a professor of economics at Princeton University from July 1989 through June 1994. He has been a professor of economics at Harvard University since 1994. Mr. Campbell holds a Ph.D. in economics from Yale University and a B.A. in philosophy, politics and economics from Oxford University.

Arrowstreet is registered as a Commodity Trading Advisor (CTA) and as a Commodity Pool Operator (CPO) with the Commodity Futures Trading Commission (CFTC), and is registered as a CTA and CPO with the National Futures Association (NFA). Arrowstreet is also an Approved Swap Firm (ASF) with the NFA. Mr. Campbell is an NFA "approved principal," an NFA "associate member" and an NFA "registered associated person" of Arrowstreet in its capacity as a CTA and CPO. Mr. Campbell is also a "swap associated person" of Arrowstreet in its capacity as an ASF. Additional information can be found on the NFA's website ([www.nfa.futures.org](http://www.nfa.futures.org)).

**Item 3- Disciplinary Information**

Not applicable.

**Item 4- Other Business Activities**

Mr. Campbell also serves as the Morton L. and Carole S. Olshan Professor of Economics at Harvard University. He has been a member of the faculty of Harvard University since July 1994. Mr. Campbell is on the Board of Trustees for the Andover Newton Theological School and also serves as the chairman of the investment committee.

**Item 5- Additional Compensation**

Not applicable.

**Item 6 - Supervision**

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**Item 1- Cover Page****Tuomo Vuolteenaho**

Arrowstreet Capital, Limited Partnership  
200 Clarendon Street, Boston MA 02116  
617-919-0000  
www.arrowstreetcapital.com

March 30, 2017

**Item 2- Educational Background and Business Experience**

Mr. Vuolteenaho (born 1973) currently serves as Arrowstreet's Co-Director of Research and holds a seat on the firm's Investment Committee. He has held these positions since January 2005. Prior to Arrowstreet, Mr. Vuolteenaho was an assistant professor, then associate professor, of economics at Harvard University from July 2000 to June 2005 while also serving as a faculty research fellow at the National Bureau of Economic Research during the same time period. Mr. Vuolteenaho holds a Ph.D. in business finance from the University of Chicago and a B.S. and M.S. in business administration from the Helsinki School of Economics.

Arrowstreet is registered as a Commodity Trading Advisor (CTA) and as a Commodity Pool Operator (CPO) with the Commodity Futures Trading Commission (CFTC), and is registered as a CTA and CPO with the National Futures Association (NFA). Arrowstreet is also an Approved Swap Firm (ASF) with the NFA. Mr. Vuolteenaho is an NFA "approved principal," an NFA "associate member" and an NFA "registered associated person" of Arrowstreet in its capacity as a CTA and CPO. Mr. Vuolteenaho is also a "swap associated person" of Arrowstreet in its capacity as an ASF. Additional information can be found on the NFA's website ([www.nfa.futures.org](http://www.nfa.futures.org)).

**Item 3- Disciplinary Information**

Not applicable.

**Item 4- Other Business Activities**

Not applicable.

**Item 5- Additional Compensation**

Not applicable.

**Item 6 - Supervision**

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**Item 1- Cover Page****John D. Capeci**

Arrowstreet Capital, Limited Partnership  
200 Clarendon Street, Boston MA 02116  
617-919-0000  
www.arrowstreetcapital.com

March 30, 2017

**Item 2- Educational Background and Business Experience**

Mr. Capeci (born 1962) currently serves as a Portfolio Manager of Arrowstreet and holds a seat on the firm's Investment Committee. He has held these positions since September 1999. Prior to Arrowstreet, Mr. Capeci served in various roles at PanAgora Asset Management from January 1995 through September 1999, most recently as director of research. He also served as an assistant professor of economics at Brandeis University from July 1989 through December 1994. Mr. Capeci holds a Ph.D. in economics from Princeton University and a B.A. in economics from Harvard University.

Arrowstreet is registered as a Commodity Trading Advisor (CTA) and as a Commodity Pool Operator (CPO) with the Commodity Futures Trading Commission (CFTC), and is registered as a CTA and CPO with the National Futures Association (NFA). Arrowstreet is also an Approved Swap Firm (ASF) with the NFA. Mr. Capeci is an NFA "associate member" and an NFA "registered associated person" of Arrowstreet in its capacity as a CTA and CPO. Mr. Capeci is also a "swap associated person" of Arrowstreet in its capacity as an ASF. Additional information can be found on the NFA's website ([www.nfa.futures.org](http://www.nfa.futures.org)).

**Item 3- Disciplinary Information**

Not applicable.

**Item 4- Other Business Activities**

Not applicable.

**Item 5- Additional Compensation**

Not applicable.

**Item 6 - Supervision**

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**Item 1- Cover Page****Manolis Liodakis**

Arrowstreet Capital, Limited Partnership  
200 Clarendon Street, Boston MA 02116  
617-919-0000  
www.arrowstreetcapital.com

March 30, 2017

**Item 2- Educational Background and Business Experience**

Mr. Liodakis (born 1972) currently serves as a Portfolio Manager of Arrowstreet and holds a seat on the firm's Investment Committee. He has held these positions since August 2012. Prior to Arrowstreet, Mr. Liodakis served in various roles at Citadel Asset Management from October 2008 through August 2011, most recently as Managing Director, Global Equities Hybrid Strategies. He also served as Director of European Quantitative Equity Research for Citigroup Global Markets from July 2001 through August 2008, and as Managing Director for Citigroup Global Markets from January 2004 through August 2008. Mr. Liodakis holds a Ph.D. in finance from City University (CASS) Business School (London, UK), an MBA in finance from the University of Birmingham (Birmingham, UK) and a B.A. in economics and business from Athens University of Economics and Business (Athens, Greece).

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**Item 3- Disciplinary Information**

Not applicable.

**Item 4- Other Business Activities**

Not applicable.

**Item 5- Additional Compensation**

Not applicable.

**Item 6 - Supervision**

Arrowstreet's investment process utilizes quantitative methods that focus on identifying and incorporating investment signals into its proprietary return, risk and transaction cost models. Portfolios are constructed through the use of a mean variance optimizer and proprietary risk and transaction cost models. Client accounts are generally traded during scheduled optimization sessions.

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