Operational Certification Methodology

January 2017

AMBER PARTNERS

Table of Contents

1 Introduction

Investors in hedge funds face two main sources of risk which may lead to a partial or complete loss of their investment: investment risk and operational risk. Investment risk is the risk of loss arising from the investment decision making process and the choices made by a hedge fund's manager with respect to investment strategy, portfolio construction and individual security selection. Investment risks include market, credit, liquidity, counterparty and foreign exchange risks, which, in a hedge fund, may be magnified through the use of leverage and by position concentration. Operational risk is the risk of loss arising from factors that are not investment related, resulting from deficiencies in the fund's operational infrastructure. Amber Partners Ltd.'s ("Amber", or "Amber Partners") methodology considers operational risk exclusively.

Ambers' operational certification and operational certification summary reports do not address investment risks. Investors should recognise that portfolio losses may occur even in instances where operational risk is deemed to be at acceptable levels. Fund assets may decline in value due to various reasons including market, liquidity, counterparty and/or credit risk(s). Amber Partners does not conduct any due diligence on the merits of investment strategies, or the risk profiles of the investment strategies of the hedge fund, including any assessment of risk management systems and/or tools used for these purposes.

Many investors have traditionally underestimated the impact of operational risk on the performance of a hedge fund portfolio. It is easy to associate operations with the mundane necessity of the back office, far removed from the sophistication of front office decision making. Such attitudes have changed, however, due in part to the increasing number of hedge fund "blow ups" caused by fraud and other operational factors. Recent hedge fund failures have cost investors billions of dollars, and the industry has also experienced a steady flow of other losses attributed to Ponzi schemes, theft, deliberate mis-pricing and other operational failures.

However, the impact of operational risk on a hedge fund portfolio also extends beyond the risk of a catastrophic "blow up." Investors have become increasingly conscious that hedge funds should be managed by well controlled and resourced firms if they are to generate attractive returns over the long term: a fund with a weak operational infrastructure may suffer a drag on performance due to poor controls resulting in frequent errors and poor internal information. Above all, investors recognise that, unlike investment risk, exposure to operational risk does not provide a promise of greater return.

Investors have paid increasing attention to operational risk as the hedge fund industry has grown and matured. Despite industry initiatives, no standard has emerged to assess operational risk and investor due diligence remains a lengthy and costly process, varied in approach and ad-hoc in application. Against this background, Amber Partners was formed in 2004 to respond to investors' needs for enhanced operational risk information. Amber provides hedge fund investors with benchmark due diligence analysis and the industry standard of Amber Certification.

2 Assessing Hedge Fund Operational Risk

Amber Partners' main objective is to provide operational risk information which corresponds to the information sophisticated investors could reasonably expect to gather as part of their operational due diligence process when considering a potential hedge fund investment. It is important to note that Amber does not perform an audit of a hedge fund and does not substantively test transactions. Amber's approach identifies key operational risks through interviews with staff of the hedge fund manager and administrator and review of key documents. Amber then assesses relative strengths and weaknesses in a fund's operational infrastructure and communicates findings in a report format.

The diversity of the hedge fund industry provides significant challenges for all investors allocating capital to this asset class. These challenges are equally applicable to the assessment of operational risk. The size of the industry means that one approach does not suit all. Funds may follow a straightforward or complex investment strategy, have significant assets or have raised only seed capital. Furthermore, hedge fund managers may fall under varying degrees of regulatory oversight, have a track record or be newly founded. While the largest hedge fund managers may have in excess of 100 employees, many managers remain small.

The lack of a standard business model within the hedge fund industry means that it is not meaningful to apply a "scorecard" approach to the evaluation of operational risk. Amber's experience strongly suggests that a rigid, quantitative approach is unhelpful as a finite list of criteria will fail to take into account unique features within a particular fund or management company which may work to increase (or mitigate) risk. Assigning scores to a predetermined list of control questions is also unproductive as it introduces model risk and suggests a degree of mathematical precision which is simply not present in reality to assess the overall level of operational risk within a hedge fund. Amber Partners' Certification process therefore balances a consistent and objective process to gather relevant information with professional judgment to qualitatively assess the unique strengths and weaknesses of each fund's operations.

This paper presents Amber's proprietary Operational Certification Methodology ("Methodology"). The Methodology has been designed in light of current industry practices whilst also considering the recommendations of industry trade associations. In particular, Amber's Methodology considers the operational recommendations of the MFA's Sound Practices for Hedge Fund Managers, AIMA and the UK HFSB Standards. The Methodology creates a consistent framework for each Amber Certification, and provides standard guidelines for the performance of a due diligence investigation irrespective of fund size or strategy. Amber's Methodology has three key elements:

- **Process.** Amber follows a consistent process to conduct due diligence as described in section 3.

- **Scope.** For each fund under review, Amber considers operational risk in the following areas:

    - Manager Overview
    - Fund Structure[1]
    - Governance and Oversight
    - Custody of Assets and Trading Relationships
    - Trading, Operations and Accounting
    - Valuation

    Further information on the scope of each Amber Certification is provided in section 5.

Certification. Amber analyses information gathered at each stage of the due diligence process to determine whether a fund has implemented sufficient policies and procedures to reduce operational risk to acceptable levels. Amber considers operational risk on a pass/fail basis: when, in Amber's opinion, suitable policies and procedures are present to reduce the risk of fraud, the risk of a material misstatement in the NAV calculation, and other key operational risks, the fund will pass Amber's due diligence process and become eligible to receive an Amber Certification.

[1] The Fund Structure section is not included in the scope of Ambers' certification summary review or report.

3 Certification Process

Amber's due diligence process provides the means to systematically gather and evaluate information affecting the operational risk profile of a hedge fund.

- **Information gathering and corporate documentation review**

  Amber provides a document request list to each manager to obtain factual information about the fund, the manager and key service providers. The manager is requested to provide complete and up to date documentation.

  Amber reviews the fund's formation documents[2], including the offering document, audited financial statements, material contracts and marketing materials provided by the manager. Where key documents are not provided by the manager for confidentiality or other reasons, this fact is noted in our report.

- **Manager due diligence**

  Amber visits the office location where the majority of the manager's back office staff are located. Onsite meetings include interviews with key manager personnel such as the COO, CFO, CTO, CCO/Chief Legal Counsel, investor relations, and human resources staff, as applicable. During its review process, Amber obtains its understanding of the fund's operational risks across the areas highlighted in section 2. Amber does not perform substantive tests of transactions or apply other tools that commonly form part of an audit beyond the corroborative inquiry and documentation review noted in the Methodology.

- **Administrator due diligence**

  Amber has separate discussions with the independent administrator to confirm its engagement and the scope of servicing provided to the fund. Items discussed include procedures used to calculate the fund's NAV, shareholder servicing (including AML checks conducted on investors), reconciliations, asset transfers, valuation and confirmation of existence of portfolio securities.

- **Report**

  Amber prepares a draft operational certification report or draft operational certification summary report which is provided to the manager to identify any errors of fact. Where operational weaknesses are noted, the manager may implement changes which, once verified by Amber, are reflected in the report as changes made subsequent to our onsite review. Amber's Certification Committee then evaluates the findings noted in each due diligence review to determine if the fund is eligible for certification. An operational certification report or operational certification summary report is valid for 12 months following the date of the review, which is indicated (month and year) by the certification seal.

[2] The formation document review is not included in the scope of Ambers' certification summary review or report.

- **Distribution**

  Once approved by the Certification Committee, Amber's comprehensive operational certification report or operational certification summary report on each certified fund may be distributed to fund shareholders, potential shareholders, counterparties and other interested parties at the manager's discretion. Reports are accessed at our website, www.amberpartners.com, using a fund-specific password whose distribution is controlled by the manager.

4 Annual Re-Certification Process

Once engaged, Amber Partners conducts an annual review of the fund after each 12 month period from the date of the last certification report. The annual re-certification review process is the same as the certification process described in section 3. The re-certification process focuses on the key risk areas, as detailed in section 5.

- **Report format**

  Amber prepares either a draft operational certification report or draft operational certification summary report which is provided to the manager to identify any errors of fact.

  Where operational weaknesses are noted, the manager may implement changes which, once verified by Amber, are reflected in the operational certification report or operational certification summary report as changes made subsequent to our onsite review. Amber's Certification Committee then evaluates the findings noted in each due diligence review to determine if the fund is eligible for re-certification.

- **Distribution**

  Once approved by the Certification Committee, Amber's comprehensive operational certification report or operational certification summary report on each certified fund may be distributed to fund shareholders, potential shareholders, counterparties and other interested parties at the manager's discretion. Re-certification is announced annually and reports and updates on each Amber certified fund are accessed at our website, www.amberpartners.com, using a fund-specific password whose distribution is controlled by the manager.

5 Operational Risk Areas

The certification process and each operational certification report or operational certification summary report focuses on the key risk areas, detailed below.

5.1 Manager Overview

The starting point for each Amber Certification is to assess the policies and procedures in place within the manager's organisation. Each certification review therefore considers:

- **Ownership**

  The structure and ownership of the management company is reviewed based on disclosures provided by management. Amber also considers any important features such as the existence of material strategic partners. Key man risk and succession planning are discussed with management.

  Amber's due diligence process does not include the conduct of background checks to verify the educational record and employment history of key employees, or to search for criminal charges, sanctions and similar actions. We strongly recommend that investors complete their own background checks prior to investment.

- **Assets and Products**

  Amber considers total firm assets under management, including a comparison to one year earlier. A summary of products offered by the firm is reviewed. Operational risk may increase in a period of asset growth if operational resources lag increases in trading volume and/or complexity of the manager's products and portfolios.

- **Offices**

  Amber considers the location, sufficiency of space, security and lease period (as applicable), indicating which office(s) were visited by Amber during the course of our review.

- **Staffing**

  Amber assesses the manager's basic organisational structure, number of staff in each key functional area and terms of employment, as well as any significant changes in staffing.

- **Infrastructure and Business Continuity**

  Amber considers the manager's information technology infrastructure and resources. Amber pays particular attention to policies and procedures with regards to changes to software, logical and physical security over IT infrastructure, document retention, and contingency plans for failure of key service providers. The reasonableness of the manager's disaster recovery and business continuity plans are assessed based on the size of the organisation (i.e. number of staff), as well as the nature and volume of securities traded.

5.2 *Fund Structure*[3]

While investor due diligence often concentrates on the manager, it is also extremely important to pay sufficient attention to the hedge fund itself. In particular, investors must have a full understanding of the legal terms of their investment: while many offering documents appear almost identical, precise terms can vary greatly. In the area of fund structure, Amber's operational certification review considers:

- **Legal Structure**

  Amber identifies the jurisdiction of incorporation and reviews the fund structure i.e. whether the fund is a standalone entity, component in a master feeder structure or umbrella type structure, and considers any specific risks such as cross class liability, borrowing/lending arrangements between the manager and/or the funds, or other unusual transactions.

- **Terms and Conditions**

  Amber reviews the capital structure and terms of investment, considering the rights attached to each share class. Amber reviews the terms of subscriptions and redemptions, and identifies features such as: lock-ups, redemption gates, redemption penalties and other unique characteristics. Fees and expenses are also considered and non-standard fees identified. Amber considers matters such as performance fees which crystallise intra year, unusual expenses charged to the fund and the method by which the fund's performance fees are allocated to investors (e.g. equalisation, partnership allocations or series of shares).

  When reviewing fund terms and conditions, Amber cautions investors to note that a hedge fund's offering document, partnership agreement, bye-laws and articles and memorandum of association, as applicable, typically provide extremely wide freedom to the fund directors and manager. In particular, the directors or general partner may have the ability in some circumstances to suspend redemptions, satisfy redemptions by transfer of securities (which may prove to be illiquid) rather than payment in cash, or otherwise vary pre-existing terms and conditions. Investors may therefore be unable to liquidate their investment on a timely basis. Offering documents also typically provide that the manager may adopt any investment strategy or acquire various financial instruments. These issues may be present in any hedge fund investment and should be considered by investors prior to any allocation.

  The existence and salient features of side letters, particularly preferential transparency or liquidity terms which may disadvantage other investors, are considered based on disclosures provided by management.

[3] The Fund Structure section is not included in Ambers' operational certification summary review or report.

- **Investor Base**

  Amber reviews the current investor base.

- **Listings**

  Amber considers exchange listings, if any.

5.3 Governance and Oversight

Effective governance and oversight, both internal and independent, is essential to the control of operational risk. Strong internal governance structures allow a manager to retain appropriate levels of control as an organisation grows beyond the initial group of founders. Robust fund governance, through independent representation on the board of directors or other governing body, assists in mitigating potential conflicts of interest.

Third party involvement means external verification of the accuracy and integrity of the fund's books and records both through the annual financial statement audit and through the work of an administrator. More fundamentally, independent oversight reduces the degree to which investors must rely solely on trust, ethics and competence of the manager. This is particularly important in the hedge fund industry as the complexity and valuation subjectivity of many hedge fund strategies provides an increased opportunity for manager manipulation and fraud compared to more traditional investment vehicles. Incentive compensation in most hedge fund structures may lead to a conflict between the interests of the manager and those of the investor.

- **Manager and Fund Governance**

  Amber reviews internal committee oversight as well as service providers hired to report to senior management.

  Where relevant, Amber considers the governance of the fund, notes whether there is independent representation on the fund's board of directors and notes the degree of oversight by the board over the activities of the fund.

- **Regulatory Oversight**

  Amber firstly considers regulatory oversight, if any, over the management company and any significant correspondence with regulator(s) as well as any threatened or pending litigation, based on disclosures by management. The results of any recent regulatory inspections are discussed, and any regulatory sanctions or violations disclosed by management are considered. Amber Partners does not verify the completeness or accuracy of any regulatory investigations, matters of litigation or taxation.

- **Compliance**

  Amber assesses core features of the compliance regime, identifying the compliance officer and presence/scope of a compliance manual. Policies including, but not limited to, personal account trading, trade errors, and best execution are also discussed. Amber reviews the anti-money laundering policies, including training programs, in place and oversight where this function has been outsourced. Additionally, Amber discusses how the compliance program is kept current for updates/changes in applicable regulations. Amber does not, however, perform a compliance inspection to verify that the management company and/or the fund is in compliance with applicable regulatory and/or legal requirements.

- **Administrator**

  Amber Partners believes that capable, independent fund administration, providing full scope servicing, is an important control for the protection of investor assets. Amber recognises the challenges certain hedge fund strategies can pose to administration servicing. For the investor, however, an effective administrator may provide added protection against manager fraud and provide a further level of independence over the NAV calculation process. Amber identifies the administration company, its business continuity plan, the level of service provided and any recent changes thereto.

  It is important to note that services provided by an administrator to individual funds can be highly tailored (indeed, administrators may provide varying service levels for different clients, even from the same office). It is also possible for generic language in a fund offering document to suggest a greater deal of administrator involvement than is actually the case, providing false confidence for investors who do not conduct additional due diligence.

  In general, funds should engage the administrator for "full service" administration services, where the administrator maintains its own set of transaction level accounting records, confirms existence of fund assets, independently prices or verifies portfolio security values to third party sources where possible and calculates a wholly independent NAV. Some funds, however, rely on "NAV Light" procedures, where the administrator performs restricted procedures such as a review of the manager's own accounting records, or uses the administrator to perform investor servicing work only.

- **Auditors**

  All hedge funds should be audited, generally by a "Big 4" firm or an auditor selected from a small group of hedge fund industry specialists. Amber will review the most recent financial statements of the fund and identify concerns with respect to the audit opinion, financial statements or footnote disclosures. Consideration is also given to previous audit report qualifications (if any) and length of time taken to issue statements to investors.

5.4 Custody of Assets and Trading Relationships[4]

Amber notes where the assets of a fund are custodied and management's procedures to select and monitor custodians and counterparties. Amber also

[4] An Amber Certification does not consider credit, netting or collateral risk related to prime brokers or counterparties, including, but not limited to, the provision of any prime broker or counterparty agreement which may terminate credit facilities, or the occurrence of any trigger events such as (1) a decline in the NAV or (2) redemption triggers. Furthermore, Amber does not contact prime broker(s) or custodian(s) to verify the value of assets held by these entities. Many financial institutions refuse to provide such information and data collection is hindered when funds have large numbers of counterparties. When considering the existence of assets, Amber instead evaluates other mitigating controls such as custody reconciliations performed by the administrator.

assesses the procedures over asset transfers and the operational management of collateral and liquidity.

- **Custody**

  Amber identifies the staff responsible for reviewing and approving bank, prime brokerage and counterparty relationships. We also consider the prime brokers and other entities that hold fund assets, based on information disclosed by the manager, and whether assets are held in segregated accounts.

- **Asset Transfers**

  Cash transfer controls are a significant concern and Amber reviews procedures for the fund's cash transfers, including account opening procedures. Effective policies should be in place over the disbursement of fund assets as a basic check against theft and fraud. As best practice, fund asset transfers should require multiple signatures/approvals.

- **Trading Relationships**

  Amber reviews the fund's counterparties, and operational procedures to monitor terms of agreements and counterparty exposure. Amber considers the process in place to approve new trading relationships and responsibility for ongoing communications with counterparties, noting any trigger events experienced and the resultant resolution.

- **Collateral Management**

  Effective systems and procedures should be in place to oversee the financing and collateral management function. Amber assesses the Manager's procedures to manage collateral and margin posted with the fund's counterparties.

- **Liquidity Management**

  Amber considers the manager's assessment of liquidity within the portfolio and the operational processes in place to monitor and manage liquidity.

5.5 Trading, Operations and Accounting

Each Amber review considers key back office procedures over transaction recording and reconciliation, from trade execution and settlement through to the final review of the fund's NAV and the preparation of investor statements.

- **Staff and Systems**

  Amber considers the resources, with a particular emphasis on the COO/CFO and the operations team, as well as systems used in the trading, operations and accounting functions. In general, a fund's operational infrastructure is likely to be stronger when overseen by a professionally qualified and experienced staff member, able to take ownership of all non-investment activities of the manager.

Amber also identifies core systems, notably order management and portfolio accounting. Amber does not perform a systems audit, but does consider whether the technological infrastructure is reasonable given the complexity and volume of instruments traded.

- **Trade Flow**

  Amber considers typical trading volume, trading turnover and the trade process. Specifically, we note the reasonableness of procedures over trade authorisation, execution, capture, allocation, confirmation, transmission to service providers, and settlement and reconciliations including the frequency of reconciliations (cash, transactions, positions and market value). A key focus is segregation of duties in the back office, as persons responsible for trading and execution should not be involved in subsequent settlement, trade break resolution and reconciliation procedures. If there is a lack of segregation of duties due to a small number of employees, Amber will consider whether or not there are sufficient mitigating controls to compensate for weaknesses in segregation of duties depending on the nature of securities traded, responsibilities of the Manager's employees and oversight provided by external service providers.

- **Accounting and Investor Servicing**

  Amber reviews the preparation of the official NAV and the scope of administrator servicing. Issues such as 'NAV Light' and non-transaction level accounting are identified. Amber considers procedures implemented to review the Administrator's NAV calculation prior to issuance. Amber pays particular attention to whether the manager maintains a full set of parallel accounting records or if a detailed review of the administrator's NAV package is performed. Amber does not evaluate whether tax obligations have been correctly recognised and accounted for within the fund or the management company.

  During the course of our discussions with the administrator, Amber determines the scope and effectiveness of oversight for the NAV calculation process.

  Amber assesses the share registration servicing performed by the administrator, including systems used to calculate investor allocations. The administrator should perform investor servicing, including maintenance of the share register/partnership accounts, processing of subscriptions and redemptions, as well as anti-money laundering and know your customer checks.

5.6 Valuation

Valuation is a critical risk factor for many hedge funds. While some funds pose little inherent valuation risk (large cap and developed market equity funds, for example), others may hold a wide range of highly complex instruments, from esoteric derivatives to thinly traded, illiquid securities. Even a "simple" long/short equity fund may hold significant positions in small or micro cap stocks or use exotic OTC options.

While the price of large cap equity securities may be relatively easy to determine, many hedge funds hold assets for which “fair value” is less clear. As such, securities which are more complex and illiquid increase the levels of subjectivity, estimation and overall variability in the valuation process. Moreover, for many instruments it is not possible to determine the “correct” mark for a position, but rather a range of prices which are individually supportable and fall within an observed range of market quotes and current trading activity. As such, the pricing of complex securities is unavoidably inexact: indeed, different funds/managers may use different estimates of fair value for an identical security in their respective NAV calculations.

Amber Partners emphasises that each Amber Certification review evaluates only operational processes and procedures. Amber does not perform an audit of pricing or perform valuation testing to compare fund, manager or administrator marks to alternative sources. **Given the inherent levels of valuation subjectivity which may be present in financial instruments held by many hedge funds, an Amber Certification does not certify that valuations are “correct” or otherwise “appropriate”.**

Amber Partners’ approach when considering valuation is to differentiate between factors related to investment risk and those related to operational risk. Investment risk rather than operational risk is responsible for the overall level of valuation subjectivity in a portfolio, being the degree to which valuations of fund instruments are exposed to estimation and dispersion as a result of the fund’s strategy and the individual instruments traded. Investors who allocate capital to more complex strategies assume additional valuation risk inherent to that strategy, irrespective of the quality of operational procedures in place to control the pricing process at each NAV calculation date.

Examples of investment risk factors which directly influence security valuation include market risk and liquidity risk which may be further magnified by the use of leverage.

- **Market Risk:** All security markets can be volatile, and certain markets (e.g. emerging markets) can experience rapid changes in value. A price determined at a dealing date using an appropriate valuation methodology may therefore differ significantly from a subsequent sale shortly thereafter in the event of rapid changes in market levels.

- **Liquidity Risk:** Liquidity is a significant issue for funds which hold esoteric or thinly traded securities. Many types of instruments fall into these categories, from exotic, custom derivatives and thinly traded mortgage backed securities to private equity positions. For such strategies, investors should recognise that a significant source of potential investment return is the assumption of liquidity risk. Pricing information on thinly traded securities may be hard to obtain and difficult to corroborate. Bid / ask spreads, if available may be wide, and such markets may be particularly exposed to sudden declines in trading activity and liquidity.

  Many hedge funds may also hold large positions in individual securities measured against factors such as average daily trading volume, issued share capital or the size of a bond issue. Therefore, even when exchange traded, the rapid sale of large security blocks may depress market prices resulting in realised proceeds being less than prevailing market prices prior to sale. Funds which own significant positions may find it more difficult to find buyers, and indicative market maker quotes on a bond issue, for example, may not be representative if a fund holds a substantial portion of an issue. Overall levels of market liquidity may also impact portfolio valuations and in periods of market dislocation the ability to dispose of securities may be significantly curtailed. Moreover, should a fund enter trading difficulties, other investors may deliberately trade against the manager, exacerbating unrealised and/or realised losses to the fund's investors.

Hedge fund strategies may involve substantial on and off-balance sheet leverage. Changes in security values may have a disproportionate effect on the net asset value of a fund using leverage. Leverage may be magnified through the use of synthetic instruments, where the on-balance sheet carrying value may be insignificant relative to the notional value of the underlying asset or liability against which changes in value are determined. Having identified key sources of investment risk and their potential impact on valuation subjectivity, it is possible to separately consider operational risk factors impacting security valuations. **Each Amber Certification evaluates the effectiveness of operational procedures over security pricing based on three criteria: transparency, consistency and independence.**

- **Transparency** addresses the extent to which the manager clearly communicates to investors the specific methods and processes used to value securities. While transparency may be a lesser issue for long/short equity funds holding liquid stocks, best practice for more complex funds is to develop a comprehensive, written valuation policy which describes in detail the specific methods used to value each type of instrument. Generic language in a fund's offering document describing the NAV calculation is typically not prescriptive enough for this purpose. Best practices with regards to transparency may also extend to the application of pre-determined policies and thresholds to challenge and over-ride prices, formal documentation of valuation exceptions and may involve the use of a valuation committee.

- **Consistency** reflects the need for similar securities to be valued in the same manner both at a point in time and over time. If a manager bases month-end valuations for certain instruments on broker quotes, for example, procedures should be in place to ensure that sources of quotations cannot be "cherry picked" to select the most favourable mark at each month-end (be it the highest mark, or the marks which best smooth portfolio performance). Equally, if multiple quotes are available, quotes should be averaged in a consistent manner to ensure proper sampling of market price dispersion from month-to-month.

- **Independence** is a critical factor. Firstly, internal to a manager's organisation, independence means that the back office should oversee the month-end pricing process, rather than front office personnel. Such control and oversight ensures that portfolio managers do not mark their own books without back office verification.

  External to the manager's organisation, Amber strongly believes that the most effective way to implement independence in the valuation process is for funds to appoint a competent administrator who is tasked with oversight for the month-end valuation process. However, Amber recognises that some of the larger hedge fund managers may also be able to effectively implement independence into the month-end valuation process in situations where an independent administrator has not been hired. In such instances, Amber Partners believes that the manager should demonstrate institutional quality policies and procedures where appropriate "Chinese Walls", committees and departments are created. In these instances, a manager should also demonstrate appropriate segregation of duties and reporting lines.

Each Amber Certification review considers valuation risk from an operational perspective against the criteria of transparency, consistency and independence. To ensure a consistent consideration of often complex valuation issues, each certification process assesses the following:

- **Strategy and Instruments**

  As part of the due diligence review, Amber obtains a summary of the fund's current portfolio[5]. Amber reviews the fund's strategy and the types of instruments typically held in the portfolio. Geographic focus and capitalisation bias are noted where relevant.

- **Valuation Policy**

  Amber assesses the valuation policy described in the fund's offering document, noting with whom responsibility for valuation lies. Amber also reviews and assesses the suitability of the manager's valuation policy. Finally, Amber considers the composition and responsibilities of the Manager's valuation committee, if one exists.

- **NAV Valuation Process**

  Amber reviews the procedures in place to ensure consistency and independence of the pricing process at each NAV dealing date. Amber notes whether the administrator independently prices the portfolio or verifies the manager's prices, and reviews where prices are provided by the manager for inclusion in the NAV.

  It is important to note that, given the variety of securities which may be included in many hedge fund portfolios, it is not possible to have a "one size fits all" approach to valuation. As a result, Amber does not impose particular valuation procedures or methods on a fund manager. When collecting broker quotes, for example, it may be acceptable to follow a number of procedures to average marks to develop a composite price – Amber does not consider a procedure to eliminate the highest and lowest mark and then average the remainder to be more "correct" than a process to take the median price. Each method may, however, generate a different price for the same security. Amber's focus is rather that an acceptable method is chosen and then applied consistently, to ensure that investors have reasonable

[5] Such information will be provided to Amber by the portfolio manager and may be approximate. Amber does not require or receive portfolio level transparency and, as such, does not attempt to audit or otherwise independently verify information provided by the manager. Amber corroborates the composition of portfolio instruments and the valuation methods used with the fund Administrator.

confidence that the fund's NAV over time reflects the relative performance of the underlying portfolio.

Where an independent administrator is appointed, Amber obtains a detailed understanding of the administrator's responsibility and month end process for verifying or pricing each type of instrument typically held in the portfolio. Industry practices range from an administrator review of manager supplied prices, to independently sourcing prices for all instruments.

Amber reviews the pricing sources used for portfolio securities (gross percentage) which have been assigned into ACS 820 (formerly FAS 157) Fair Value Measurements and Disclosures' (or IFRS 7) prescribed valuation hierarchy of Level I (quoted prices in active markets), Level II (quoted prices in markets that are not considered active or securities where all significant inputs to pricing are observable) or Level III (significant amount of unobservable inputs to pricing) inputs.

6 Certification

As discussed in section 2, the diversity of the hedge fund industry precludes a "checklist" approach to the assessment of hedge fund operational risk. Each fund is unique, and the relative strengths and weaknesses of each fund's policies and procedures must be considered individually. Amber's approach is therefore to follow a uniform process to gather information on every fund (within the scope of Amber's operational risk areas noted in section 2), and then perform a fund-specific evaluation of policies and procedures. Amber considers operational risk on a pass/fail basis: when, in Amber's opinion, suitable policies and procedures are present to reduce the risk of fraud, the risk of a material misstatement in the NAV calculation, and other key operational risks, the fund will pass Amber's due diligence process and become eligible to receive an Amber Certification.

An Amber Certification does not represent or certify that a hedge fund is free from operational risk. Rather, the purpose of each Amber operational certification or operational certification summary report is to indicate to investors whether a fund's policies and procedures *reduce* the level of operational risk to acceptable levels. Investors should recognise that in the hedge fund industry, as in all areas of the financial services industry, it is impossible to design an environment which completely eliminates operational risk. Even a fund with exemplary, best practice policies and procedures remains at risk of loss due to operational failure, particularly in the event of a collusive fraud.

It is also important to note that Amber's Methodology has been designed in light of current industry practices as well as views of best practices in the hedge fund industry. It is clearly of little value to hedge fund investors if either in-house or third party operational due diligence sets standards to such a level that only funds with flawless policies and procedures of the highest, institutional quality will "pass" the process. In practice, such an approach would exclude the vast majority of investment opportunities in the hedge fund industry. Amber Partners' Methodology therefore recognises that many funds may have some weakness, yet maintain an overall operating environment which is nonetheless able to reduce operational risk to acceptable levels.

6.1 Evaluation

Amber reviews information gathered at each stage of the due diligence process. In light of the degree of operational complexity of the fund, Amber then evaluates the degree to which policies and procedures are sufficient to adequately mitigate operational risk and reduce it to acceptable levels.

- **Operational Complexity.** Amber considers the nature of the fund, its investment strategy and its portfolio to determine the demands investment activities place on the operational infrastructure. Funds with a higher degree of operational complexity typically require greater resources and more robust policies and procedures to adequately control operational risk. A multi-strategy manager will typically display much greater levels of operational complexity and therefore requires more formalised procedures and greater operational resources if investors' assets are to be adequately protected.

- **The relative strengths and weaknesses of policies and procedures.** Amber reviews due diligence findings in each of the applicable key risk areas described in section 5. When considering eligibility for Amber Certification, the significance of relative strengths and weaknesses is fund-specific and takes into account the fund's operational complexity as well as any unique or unusual circumstances.

6.2 Report Format

Amber may prepare either i) an operational certification report or ii) an operational certification summary report, following an annual operational certification review.

Amber offers hedge fund managers, with firm wide assets under management of less than US $1billion, the option to engage Amber to produce an operational certification summary report. The same underlying certification methodology and process is used for both the operational certification and operational certification summary report; however, the fund structure section is not included in Ambers' operational certification summary review or report. The operational certification summary report summarizes key findings of Amber's review, rather than report factual findings in each of the sections and subsections noted in this Methodology.

It is important to note that while Amber Partners presents its own findings as to the adequacy of operational policies and procedures given the specific circumstances of the fund, each investor has their own tolerance for operational risk at both the portfolio and individual fund level. Some investors may place greater or lesser emphasis on particular operational issues identified within an Amber operational certification or operational certification summary report. Investors should therefore read each report in detail to identify any factors or observations which are of particular concern relative to their own investment decision making criteria.

When preparing an operational certification or operational certification summary report, Amber strives to provide operational risk information which is relevant and useful to the day-to-day decisions faced by hedge fund investors. Amber's Certification Methodology provides a robust and consistent framework within which the firm can furnish investors with industry leading due diligence information, irrespective of fund size or strategy.

This document is provided for information purposes only. Given the complexity of hedge fund operational risk, this document is not intended to provide a comprehensive analysis of all operational risk issues or situations which may impact the operational risk of an individual hedge fund.

User Agreement

Access to this document and any Amber Partners' Operational Certification or Operational Certification Summary report (each an "Amber Certification") is available only to registered users of amberpartners.com and is subject in all cases to Amber Partner's user agreement, as follows:

By becoming a registered user of amberpartners.com, a website owned and operated by Amber Partners Ltd. ("Amber"), and thereby enabling access to Amber Certifications, you acknowledge and agree that (a) you are an accredited investor (as described in Regulation D of the Securities Act 1933, as amended, if a US person, or otherwise in accordance with the requirements of such local laws as to which you may be subject) with sufficient experience in hedge fund investments to make independent and informed investment decisions in respect of hedge fund investments; (b) you have reviewed the description of Amber's Operational Certification Methodology embodied in this document and understand the scope and limits of the assessment that Amber generally purports to undertake in its Amber Certifications, understand the methodology used by Amber in preparing an operational certification report or operational certification summary report and understand the limited import of these certifications; (c) you understand that Amber Certifications are not a recommendation regarding the suitability of the hedge fund as an investment for any particular investor; (d) you understand that Amber Certifications are not to be used as the sole criteria for any investment decision; (e) you understand that the opinions set forth in Amber Certifications are only opinions and that other equally informed evaluators could reach different opinions that might be either more negative or more positive on the issues addressed; (f) you understand that Amber Certifications do not consider the risk of market losses and that Amber Partners does not conduct any due diligence on the merits of the investment strategies, nor of investment risk management, including any assessment of risk management systems and/or tools used for these purposes; accordingly, you understand that Amber Certifications are not, and should not be construed to be, an opinion concerning the investment strategies of, or risk profile of the investment strategies of, the related hedge fund or as to the future investment performance of the related hedge fund; (g) you understand that Amber is not a certified public accountant and has not conducted a financial audit of the hedge fund or its manager and Amber Certifications do not, and should not be construed to, constitute an opinion as to the financial condition of the hedge fund or its manager; (h) you understand that Amber Certifications are based in part upon information provided to Amber by the hedge fund manager in question and Amber has not independently verified that information; (i) you understand that the conclusions set forth in the Amber Certification represent the opinion of Amber determined with respect to its own criteria and do not necessarily indicate the extent to which a hedge fund has met "best practices" criteria that have been or may in the future be adopted by regulators or industry groups; (j) you understand that the opinions set forth in Amber Certifications are based upon the assessment of the hedge fund as of the date of such Amber Certification and Amber has no obligation to update or remove an Amber Certification once posted; k) you understand that Amber's criteria for Certification may evolve over time as industry practice changes and Amber does not undertake to update Amber Certifications previously issued to reflect such evolutions; (l) you understand that Amber receives from each hedge fund or its manager a substantial fee for undertaking an assessment and publishing an Amber Certification in respect of such hedge fund, which fee is payable whether or not the hedge fund authorises Amber to publish its findings; (m) you understand and agree that Amber Certifications are intended for the exclusive use of registered users for the purpose of evaluating the registered user's own investments in hedge funds that are the subject of Amber Certifications and for no other purpose; (n) you understand and agree that the information set forth herein, as well as information in each Amber Certification, together with all information provided by Amber may not be further distributed or communicated by the registered user without the prior written consent of Amber; (o) NEITHER AMBER NOR ANY OF ITS AFFILIATES, NOR THE OFFICERS, DIRECTORS, EMPLOYEES OR AGENTS OF ANY THEREOF (THE "AMBER PARTIES") MAY BE HELD RESPONSIBLE FOR ANY DAMAGE, LOSS, LIABILITY, COST OR EXPENSE, OF ANY KIND WHATSOVER, THAT MAY RESULT FROM RELIANCE ON THE INFORMATION OR ASSESSMENT CONTAINED IN ANY AMBER CERTIFICATION, REGARDLESS OF WHETHER SUCH INFORMATION PROVES TO BE INACCURATE OR SUCH ASSESSMENTS PROVE TO BE ILLFOUNDED FOR ANY REASON WHATSOEVER; (p) YOU WILL NOT SEEK ANY RECOVERY FROM ANY AMBER PARTY IN THE COURTS OF LAW OR EQUITY; (q) ANY DISPUTES ARISING OUT OF THE REGISTERED USER'S USE OF AMBER CERTIFICATIONS SHALL BE SUBMITTED TO BINDING ARBITRATION IN BERMUDA; AND (r) YOU SHALL INDEMNIFY AND HOLD HARMLESS EACH AMBER PARTY FROM ANY COSTS, EXPENSES (INCLUDING LEGAL FEES) AND LIABILITIES INCURRED BY ANY OF THEM AS A DIRECT OR INDIRECT RESULT, IN WHOLE OR IN PART OF EITHER (A) ANY CLAIMS MADE BY SUCH REGISTERED USER OR ANY PERSON OBTAINING AMBER CERTIFICATIONS DIRECTLY OR INDIRECTLY THROUGH SUCH REGISTERED USER OR (B) ANY USE OF ANY AMBER CERTIFICATION IN A MANNER NOT AUTHORISED HEREBY. AMBER RESERVES THE RIGHT TO SUSPEND OR TERMINATE ANY USER'S ACCESS TO AMBERPARTNERS.COM.