



MACQUARIE

Macquarie Proprietary Indices

Risk Factors

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The following list contains certain risk factors associated with an investment in a financial instrument linked to one or more Macquarie proprietary indices for which Macquarie Bank Limited (together with its affiliates, “Macquarie”) is the Index Administrator. Macquarie has endeavoured to cover what it perceives to be the key risks, but there may be additional risks in general or risks specific to a particular investor which are not included below. Any investor must make an independent assessment of the appropriateness of any transaction in light of their own objectives and circumstances including the potential risks and benefits of entering into such a transaction. If you are in any doubt about any of the contents below, you should obtain independent professional advice.

Part 1 – General risk factors

1. Return

There is no assurance as to the return of the Index, which may not reflect past performance. The level of the Index (the “**Index Level**”) may go down as well as up, depending on the performance of the constituents of the Index (the “**Components**”) and the weighting strategy that the Index implements.

The weighting strategy may not be successful or may not be as successful as other strategies employing the same or a similar strategy implemented in a different way. The performance of the Index could be significantly less than the performance of alternative indices and benchmarks with similar risk characteristics.

The Index Level (or any Component thereof) may fall to zero and investors in financial products linked to the Index could lose their entire investment. Unless the relevant Index Manual specifies that the Index is floored at zero, then the value of such Index (or any Component thereof) may fall below zero and have a negative value, in which case an investment linked to such Index may incur losses that exceed such investment’s notional amount.

The Index is composed of a number of Components and is intended to offer a return which may be replicated by an investment in the corresponding assets or instruments, weighted appropriately. However, the Index Level is calculated according to an algorithm as set out in the relevant Index Manual and is not the same as holding the portfolio of Components.

Unless otherwise indicated in the relevant Index Manual, there is no active management of the Index. The Index will be rebalanced according to an algorithm on the relevant rebalancing days, whereas an actively managed investment may respond more immediately or directly to market, political, financial or other factors, and potentially more effectively than the Index. There may be significant differences between the return of the Index and the return from an actual holding of the Components. Such differences may arise from, amongst other reasons, the impact notional fees and costs embedded in the Index, from the treatment of any income earned from such Components (e.g. dividends) and from the way that the Components are valued and notionally traded.

In the event that there is an increase in investments seeking to capture a similar objective to that of an Index, or a change in market structure, this may negatively affect the Index. In such circumstances, the features or rationale that the Index is seeking to capture may cease to exist or change; and this may lead to a negative performance of the Index.

Investors should be familiar with indices and financial instruments in general.

The Index may embed leverage, as described in the Index Manual. Any such leverage may result in the magnification of the performance of the Index, as well as any costs deducted from the Index, and consequently, the loss associated with any financial product linked to the Index could be substantial.

2. Components

Multiple Components

The performance of the Index reflects the overall return of the Components as weighted according to the applicable strategy.

The return of the Index does not reflect the return of any particular Component. For example, even if one Component performs positively, the Index may perform poorly depending on the return of the other Components and the applicable weighting algorithm.

Correlation between Components

The correlation between the Components will affect the return of the Index. For instance, if there is high correlation during periods of negative return contributions of Components, the performance of the Index may be adversely affected. Correlations may change and the performance of the Index may be adversely affected.

Weighting of the Components

The gross exposure of the Components may total less or more than 100%. In such circumstances, increased or reduced exposure (as the case may be) may cause an adverse effect on level of Index or underperformance.

The actual weights of the Components may vary following each rebalancing. The longer the period between rebalancing, the more likely it is that the Component weights in the Index will diverge from the rebalancing constraints.

Short Exposure to a Component

If the Index Manual specifies that the Index will take a short position in a Component, then the Index will provide a negative exposure to such Component by virtue of attributing a weight of less than zero to it. Where an Index has a short position in a Component, the Index will be negatively affected if the value of such Component increases and positively affected if the value of the Component decreases. Due to the negative exposure, the increase in the value of a Component to which an Index takes a short position may cause unlimited losses and could cause the Index Level to decline, potentially to, or below, zero.

Reliance on External Sources

The Index relies on third party sponsors and external sources to get inputs for the Components. Investors should read the information sources referred to in the Index Manual in respect of the Components. The Index Calculation Agent may use a market data provider to provide data from an information source and, in such a case, the Index Calculation Agent will rely on the data received from such market data provider without reference to the original information source. Information regarding the market data provider(s) used by the Index Calculation Agent is available on request. Macquarie makes no warranty as to correctness and accuracy of that information. The policies of the administrator of a Component may affect the value of such Component and therefore could affect the performance of the Index.

Corrections

If the value of a Component is corrected after the Index Calculation Agent has used such value in relation to a calculation or determination in respect of the Index, the Index Calculation Agent may use the original value and not the corrected value. Consequently, the performance of the Index may differ, potentially materially, from the performance that would have been calculated using the corrected value.

Currency Exchange Rate Risk

If the currency of any Component is different from the base currency of the Index (the “**Index Currency**”), then the Index will be exposed to currency exchange rate risk, particularly in the case where no currency hedging feature is applied. Unless otherwise specified in the Index Manual, the Index is not currency hedged.

If the Index is not currency hedged, the value of a Component, and any cash profit and loss attributed to holding such Component, is converted to the base currency of the Index on a daily basis. If the Index includes a notional cash position held in a currency other than the Index Currency, such other currency will be converted into the Index Currency on a periodic basis. The less frequently such conversion is performed, the higher the potential FX risk.

If the Index Manual specifies that the Index includes a currency hedging feature relating to any Component that is denominated in a currency other than the Index Currency, such currency hedging feature will seek to minimise to a certain extent certain effects of currency exchange rate fluctuations in the relevant currency. A currency hedging feature may be employed by way of notional foreign exchange spot transactions or the inclusion of foreign exchange forward Components in the Index, or as otherwise described in the Index Manual. Any currency hedging feature may be ineffective if the relevant money markets perform in a different direction or to a different extent from that intended in the implementation of the currency hedging. Accordingly, investors will be exposed to the risk of currency fluctuations that are likely to affect the performance of the Index.

Currency exchange rates are influenced by various factors and may be volatile and move in unexpected ways. An unfavourable performance of any reference currency in relation to the Index Currency may have an adverse effect on the Index Level at any time. Historical currency exchange rates should not be considered indicative of future currency exchange rates.

3. Notional Exposure

The Index creates a notional exposure to the Components and such notional exposure will only exist in the books and records of the Index Administrator and the Index Calculation Agent.

No rights

Investors in financial instruments linked to the Index (1) have no legal or beneficial ownership interest in any Component and therefore have no recourse to any Component; (2) have no right to take delivery of any Component; (3) have no voting rights with respect to any Component; and (4) have no right to receive dividends, distributions or other payments with respect to any Component.

Total Return

If the Index is a “total return index”, it will include the notional reinvestment of amounts calculated by reference to any dividend, distribution or payment that would be received by a holder of a Component (or, if the Index is comprised of unfunded instruments or derivatives contracts, the total return shall include a return from a notional investment in “risk-free” assets). If the Index is not a “total return index”, it will not include any such notional reinvestment.

In respect of an Index comprised of Components that are equities, the Index Calculation Agent will assume a notional tax rate for dividends. The effective tax rate may be different from the assumed notional tax rate depending on a number of factors that may change from time to time. If at any time the effective tax rate is lower than the assumed notional tax rate, then Macquarie may accrue a benefit from its hedges that will not be passed on to the investors in financial products linked to the Index.

If an Index that is calculated on a total return basis includes Components that are calculated on an excess return basis, the risks outlined below under “Excess Return” may apply.

Excess Return

If the Index is an “excess return index” then it will be calculated based on changes in the price of a notional portfolio of unfunded instruments or derivatives excluding any notional collateral returns. If specified in the Index Manual, such a portfolio may be constructed synthetically with funded instruments (as described for a total return index), from which is deducted a notional investment in “risk-free” assets. Accordingly, an excess return index will underperform a related total return index, where there are positive risk-free rates.

4. No investigation

Neither the Index Administrator nor the Index Calculation Agent has made or will make any investigation or enquiry with respect to any Component, including with respect to any publicly-available information that is disclosed in these Risk Factors or the relevant Index Manual with respect to any Component. Consequently, there can be no assurance that all events have been disclosed which would affect the performance of the Index or the value of any financial instrument linked to the Index.

5. Fees and costs

The Index Level may include notional fees and/or costs (which may be referred to as a notional cost, fee, charge, spread or similar term, which may be dynamic based on market conditions) as described in the relevant Index Manual. Unless otherwise specified in the Index Manual, the impact of such fees and/or costs will be to reduce the Index Level. As a consequence, the Index will underperform a hypothetical investment portfolio of the same Components from which no such fees and/or costs are deducted.

If the Index represents a leveraged exposure to the Components, the impact of the fees and/or costs will be magnified accordingly.

Due to market conditions (such as Index disruption), the Index Calculation Agent may determine to increase the costs that are deducted from the Index. Any such increase must be determined in accordance with the policies and procedures of the Index Calculation Agent, including under the supervision of the Oversight Committee, but without any specific limitation on the amount and duration of such increase. It is likely that the performance of the Index will be adversely affected by any such increase in costs.

6. Index Disruption

Upon the occurrence of certain events as specified in the relevant Index Manual, the Index Administrator or the Index Calculation Agent (as applicable) may take the following action: (i) postpone the day on which a calculation or publication is due to take place; (ii) suspend the calculation, publication and dissemination of the Index; (iii) make a modification or change to the Index (including an increase in the fees and costs); (iv) discontinue and cancel the Index; or (v) exercise discretion in the calculation of the Index Level as set out in the Index Manual. Unless otherwise stated, the Index Administrator has no obligation to inform any person of the result of any such action taken.

7. Back-testing and historical data

Any past performance of the Index provided for the period prior to the Index Live Date is calculated from a back-test simulation using historical data for the Components. Historical and back-test data may be based on assumptions, historical estimates, simulated analyses and hypothetical circumstances to estimate how the Index would have performed prior to the Index Live Date. Past performance is not an indication of future performance and the actual performance of the Index may diverge considerably from historical performance. There can be no guarantee or assurance that the Index or its Components will perform consistently with the available data.

Where there is limited historical data for an Index or its Components, an investment linked to the Index may involve greater risk than an investment linked to an Index with a longer back-test or live index with a proven track record.

Back-test data is provided for illustrative purposes only and is not indicative of future performance. Simulated or past performance may not capture all possible scenarios (including, but not limited to, negative performances, drawdowns, increases in volatility, etc.) that could arise in the future.

8. Liquidity Risk

In normal market conditions the Components of the Indices are liquid and aim to provide regular liquidity to investors. However, a number of factors can significantly affect the liquidity and the ability of investors to liquidate their investments compared to normal market conditions. Such factors include, amongst others, market disruption, extraordinary events, political factors, disruptions or limitation of the trading activities on trading venues and exchanges and unforeseen systemic disruptions of the financial system.

9. Conflicts of interest

Discretion

The Index Calculation Agent may exercise a degree of discretion or expert judgement in making certain determinations and calculations, for example in connection with the occurrence of disruptions and adjustments. Discretion will be exercised in a commercially reasonable manner, but it may have an adverse effect on the Index.

In making determinations or using expert judgment, the Index Calculation Agent will not take into account the interests of any investors in financial products linked to the Index and will not consider the effect its determinations or expert judgement may have on the value of any such investment. All determinations shall be at the Index Calculation Agent's sole discretion and shall be conclusive for all purposes and shall bind all investors in any investments linked to the Index.

Macquarie may act as the Index Calculation Agent in respect of one or more Components of an Index and accordingly, may exercise discretion or expert judgment in making certain determinations or calculations with respect to any such Component. The exercise by the Index Calculation Agent of any such discretion or expert judgement with respect to a Component may have an adverse effect on the Index. In performing its role as index calculation agent of a Component, the Index Calculation Agent will not take into account any impact that its determinations will have on the Index.

Neither Index Calculation Agent nor the Index Administrator owes any fiduciary duties with respect to an Index or a Component.

Hedging

Macquarie may hedge its obligations under investments linked to the Index, including by trading the Components or other instruments linked thereto. Such hedging activity could affect the value of the Components and therefore the Index Level.

Investors have no rights in any of Macquarie's hedge positions. Macquarie's hedging activity may generate revenues that are not passed onto investors in financial products linked to an Index.

Macquarie will effect its hedging activities without consideration of whether these may negatively affect the value of any investment linked to the Index.

Trading activities

Macquarie is engaged in a range of activities that could affect the Index Level or the level or value (as applicable) of any Component. Macquarie may engage in trading the Components or other instruments linked to the Components of the Index for its own account or for other customers. Such activity may adversely affect the Index Level. Macquarie may receive substantial returns from its trading activities, including in circumstances where the value of an investor's investment relating to the Index declines.

Information

Macquarie may have access to information relating to a Component, investments linked thereto and the Index, in each case which it is not obliged to use for the benefit of any person investing in any financial products linked to the Index. Macquarie may publish research or express opinions or provide recommendations that are inconsistent with investing in products linked to the Index and which could negatively affect the performance of the Index.

Internal Marks and Internal Models

If indicated in the relevant Index Manual that the Index references Internal Marks (as defined below) or Internal Models (as defined below), then Macquarie may not, and is not required to, consider the Index either in its calculation of such Internal Marks or Internal Models or policies related thereto (including any changes to such calculations or models). Macquarie shall have no liability for any effect that any Internal Marks or Internal Models (including, in each case, any changes thereto) may have on an Index. See the sections headed "Internal Marks" and "Internal Models" under Part 3 (*Risks associated with features of the calculation methodology*) below.

10. U.S. Withholding Tax on Dividend Equivalent Payments for Non-US Holders

The United States Treasury Department has issued regulations under which amounts paid or deemed paid on certain financial instruments (“**Section 871(m) financial instruments**”) that are treated as attributable to U.S. source dividends are treated as “dividend equivalent” payments (wholly or partially, depending on the circumstances) and are subject to US withholding tax at a rate of 30% (or a lower rate under an applicable treaty, subject to the third paragraph below) when paid to non-US persons and non-US entities.

In respect of any investment linked to an Index that is a Section 871(m) financial instrument and for which no exception from these regulations applies (an “**Affected Index Linked Investment**”), any “dividend equivalent” payment received under such Affected Index Linked Investment will be subject to such withholding tax. The counterparty to, or issuer of, any Affected Index Linked Investment will be required to withhold such taxes on any dividend equivalents paid on any Component during the term of such Affected Index Linked Investment (regardless of whether or not a notional withholding tax is applied to such dividends in accordance with the relevant Index Manual). Any such withholding will reduce the performance of the Affected Index Linked Investment, possibly materially so.

Where a Component of an Index gives rise to a dividend equivalent payment, the Index Calculation Agent will assume a withholding tax rate of 30% in calculating the Index Level, regardless of whether any lower rate may be applicable to any investor of an Affected Index Linked Investment under a treaty. Further, if the actual withholding tax required to be paid to the Internal Revenue Service of the United States (the “**IRS**”) on any dividend equivalent is lower than the assumed notional tax rate of 30%, then Macquarie may accrue a benefit from its hedges on the difference that will not be passed onto investors.

Prior to making any investment, all investors in an Affected Index Linked Investment will be required to make certifications as to their US tax status in order for a determination to be made on what withholding tax will need to be paid to the IRS.

These products are subject to complex US tax rules. Investors in Affected Index Linked Investments should consult their own tax advisors.

11. COVID-19 Pandemic

An outbreak of an infectious respiratory illness, COVID-19, caused by a novel coronavirus was first detected in China in December 2019 and has spread globally. The COVID-19 outbreak has resulted in disruptions in markets, lower consumer demand, layoffs, defaults and other significant economic impacts, as well as general concern and uncertainty. Disruptions in markets can adversely impact the Index and its Component(s), including impairing notional trading in the Component(s) of the Index. Certain financial markets have been or may be subject to closures to their pricing methodologies; and there can be no assurance that trading will continue in any financial markets in which the Component(s) of the Index may be traded, when any resumption of trading will occur or, once such markets resume trading, whether they will face further closures.

Certain financial markets have undergone significant volatility due to the COVID-19 outbreak. In these more volatile markets, investors in financial products linked to the Index should expect lower liquidity of their investments which could result in the partial or total inability to liquidate their investments within the timeframe which would otherwise be achievable in normal market conditions.

The significantly higher volatility in certain markets has caused the prices of certain futures contracts trade below zero. The potential for futures contracts prices to fall to zero or become negative means that the Index may be subject to increased volatility. To preserve the replicability of the Index and the objective of the Index, adjustments may need to be made to the Index in order to mitigate this volatility. Any adjustments to, or alteration of the methodology of, an Index in such circumstances will be determined by the Index Oversight Committee established by the Index Administrator or, if the Index Oversight Committee determines that no adjustment or alteration could be made to preserve the object of the Index, the Index Oversight Committee may determine to discontinue the Index.

The performance of the Index may be adversely affected by the wider macroeconomic effect of the ongoing COVID-19 pandemic and any possible future outbreaks. While the final effects of the COVID-19 pandemic are at this stage difficult to assess, it is possible that it will have substantial negative effect on the markets in which the Components of the Index are traded and consequently, the performance of the Index. These effects may also take place in the event of any possible future outbreaks.

Part 2 – Asset Class Specific Risk Factors

The following paragraphs cover the market risks arising in respect of the Components as classified according to their asset class.

1. Index Component

If any of the Components is an index (an “**Index Component**”), the investor should identify the asset class of each constituent of such Index Component (a “**Sub-Component**”) and refer to the applicable paragraphs below applicable to each Sub-Component.

2. Equities

If any of the Components is an equity security (a “**Share**”), then investors in such Index should be familiar with equity securities generally. The value of Shares may go down as well as up, and the value of the Shares on any date may not reflect their performance in any prior period. The value of Shares can fall due to factors including (but not limited to) negative changes in the value of assets and profitability of the relevant issuer, negative market sentiment of the issuer, weakness in stock market trends or in financial markets generally. Other factors specific to a Share may impact its value, such as its market sector, the country of incorporation of its issuer and the regulatory and tax regime applicable to the Issuer. There can be no assurance as to the future value of a Share, or as to the continued existence of a Share or its issuer.

Share prices may be volatile and consequently the value of the relevant Component, and accordingly the Index Level, may fluctuate significantly in short periods.

3. Commodity Indices

If any of the Components is a Commodity Index, then investor should be familiar with investments in commodity markets, financial instruments and indices in general.

Commodity markets can be highly volatile. In addition to being affected by general economic and market factors, commodity markets can be affected by various other factors, including (without limitation): (1) weather; (2) governmental, agricultural, commercial and trade programmes and policies introduced to influence commodity prices; (3) global political and economic events; and (4) changes in interest rates, commodity markets are also subject to temporary distortions or other disruptions caused by various factors including (a) changes in supply and demand; (b) any potential lack of liquidity in the market; (c) the participation of speculators; and (d) government regulation and intervention.

As the performance of commodities can be highly volatile, any rules-based algorithm using historical performance or behaviour of commodity prices may be negatively impacted by unexpected or unpredictable commodity price behaviour.

4. Single Futures Indices

If any of the Components is an Index Component that is a single futures index (a “**Single Futures Index**”), such Single Futures Index will provide a synthetic exposure to the performance of futures contracts on an underlying asset, by notionally entering into and then rolling futures contracts. The change in value of the futures contracts and therefore the Index Level of such Single Futures Index, does not track directly the changes in the underlying asset and may fluctuate in value quite differently from the performance of the underlying asset, due to the losses and gains that may arise from the rolling.

The exchange on which an underlying asset is listed, or the index administrator of an underlying index (as applicable), may make changes to such underlying asset, which could materially affect the values of the relevant futures contracts and, consequently, the value of the Single Futures Index. Any applicable exchange or index administrator (as the case may) relating to an underlying asset has no obligation to consider the impact of its determinations on the Single Futures Index or investors in financial products linked thereto.

The price of futures contracts can fluctuate significantly and the relevant exchange will typically limit the extent to which the price can vary in a single day by enforcing limit prices.

The market for the futures contracts that are tracked by a Single Futures Index may have limited liquidity. Macquarie may hedge its exposure to a Single Futures Index by actively trading in the relevant futures contracts and such trading may negatively affect the value of a Single Futures Index, in particular where such trading activities are conducted at the times of rolling of the relevant futures contract.

Investors in financial products linked to a Single Futures Index should be familiar with futures contracts and indices generally.

5. Foreign Exchange Rates

If the Index Manual provides that the methodology of the Index includes a currency hedging or FX Sweep feature, or if any of the Components is a foreign exchange transaction (an “**FX Component**”), then the following will apply.

Foreign exchange rates quotes can fluctuate significantly. Foreign exchange rates are influenced by many factors, including supply and demand, which in turn are influenced by existing and expected rates of inflation, existing and expected interest rate levels, the balance of payments between the relevant nations, and government surpluses and deficits in the relevant nations.

Foreign currency exchange rates may be subject to market disruptions or distortions due to numerous factors specific to each foreign country, such as political or economic factors, laws and regulations, the participation in the markets of speculators and governments and lack of liquidity. Governments and central banks may intervene in the markets in order to attempt to fix or support the value of a currency, including actions such as imposing exchange controls or taxes on foreign currency transactions, issuing a new currency to replace an existing currency, pegging of a currency to another currency, designating banking holidays and restricting or suspending convertibility or transferability of a currency. Furthermore, the status of a currency can change without notice.

The currencies of emerging markets may be subject to additional risks, including (but not limited to) exchange controls and restrictions on convertibility and repatriation of funds. If the Index Manual specifies that the Index will have exposure to an emerging markets currency, see “Emerging Markets” below.

The interbank market in foreign currencies is a global, twenty-four hour market. Therefore, the time at which calculations or determinations are made in respect of any currency hedging or FX Sweep feature or an FX Component (as applicable), may not conform to the hours during which the underlying currencies are most traded and accordingly, this may adversely impact the Index Level.

Relevant information relating to conditions affecting underlying foreign exchange markets may not be as well-known or as rapidly or thoroughly reported in an investor’s country as is the case with comparable information regarding domestic developments. Information regarding developments in certain emerging market jurisdictions may be even less readily available, if at all.

Trading in a currency may be substantially less liquid on days when banks in the principal financial centre of the currency are not open for business. If a calculation is made in respect of any currency hedging or FX Sweep feature or an FX Component (as applicable) on a date on which the relevant bank is not open for business, diminished liquidity may affect bid-offer spreads and/or the level of exchange rates may adversely affect the return on such currency hedging or FX Sweep feature or the value of such FX Component (as the case may be) and, in turn, the performance of the Index.

Investors should be aware of the potential risks of any market disruptions on the return on a currency hedging or FX Sweep feature or an FX Component (as applicable) and should understand their effect on the performance of the Index. In addition, market practice statements by, or provisions published by, industry bodies (if deemed to be incorporated into the notional transaction terms of an instrument used to determine a currency hedging or FX Sweep feature or an FX Component (as applicable)) may influence the treatment of market disruption events under an FX Component.

In addition to any Market Disruption Events set out in the Index Manual, there may be additional risks concerning price sources, including material changes to the methodology applied by an administrator of a price source or manipulation of a price source by unannounced government intervention or by unauthorized third parties. While these actions may have an impact on the rate displayed by the particular price source, they may not trigger a Market Disruption Event (as defined in the relevant Index Manual) in respect of the Index but, nevertheless, may have a potential adverse effect on the Index Level.

An investor in a financial product linked to an Index which has exposure to FX rates should be familiar with currency markets generally.

6. European options

If any of the Components is a European option, then due to the non-linear relationship between implied option volatility and option prices, large daily changes in the volatility of the underlying may result in significant changes in the prices of the options that the Index notionally holds, and the performance of the Index may be adversely affected.

Delta hedging

If the Index aims to hedge each options position by entering into an offsetting position in a futures contract or a forward contract (as described in the Index Manual) of the same underlying ("**Delta hedging**"), then the following risk will apply.

The Delta hedging process aims to ensure that any loss generated by an options position is, in whole or in part, offset by the position held in the underlying futures contracts or forward contracts (as applicable). There is no guarantee that the aim of the Delta hedging process will be achieved. In particular, in the Delta hedging process, the Index is exposed to the non-linear and convex relationship between the options prices and the level of the underlying, and during large market moves the Delta hedging may become ineffective and the Index performance may be adversely impacted.

7. OTC Derivatives

If any of the Components, regardless of asset class, is a notional over-the-counter ("**OTC**") derivative transaction (an "**OTC Component**"), then the following risks will apply.

OTC derivative transactions involve a variety of significant risks, including those described below. Additional specific risks will apply to an OTC Component, but will depend on the specific terms of, and notional counterparties to, the relevant notional OTC derivative transaction.

An OTC Component will be subject to market risk. The value of an OTC Component may be adversely affected by fluctuations in the level or volatility of, or the correlation or relationship between, market prices, rates or indices or other market factors impacting the relevant notional OTC derivative transaction. Illiquidity in the market for the relevant notional OTC derivative transaction, or in a related market, may also adversely affect the value of an OTC Component and therefore the performance of the Index.

The price and other terms of an OTC derivative transaction are individually negotiated between the counterparties thereto and consequently, an OTC Component may not represent the best price or terms available. There may be various factors, including (but not limited to) the model employed for pricing, the credit rating of the counterparty and the terms of any related margin agreement that will impact the price of a particular OTC derivative transaction and therefore the value of an OTC Component. An OTC Component based on a notional OTC derivative transaction may therefore perform differently from an OTC Component based on an OTC derivative transaction with a different counterparty and/or with different terms, potentially significantly.

An OTC derivative transaction may be modified or terminated only by mutual consent of the counterparties thereto. Accordingly, it may not be possible to modify, terminate or offset obligations or exposure to the risks associated with an OTC Component prior to the scheduled termination date of the related notional OTC derivative transaction.

OTC derivative transactions can be less liquid than exchange traded transactions. While market makers and dealers generally quote prices or terms for entering into or terminating OTC derivative transactions and provide indicative or mid-market quotations with respect to outstanding OTC derivative transactions, they are generally not contractually obligated to do so. If the notional OTC derivative transaction to which an OTC Component relates is illiquid, this may negatively impact the value of the OTC Component and therefore the performance of the Index.

The Index Calculation Agent intends to source indicative or mid-market quotations for an OTC derivative transaction from a reputable data provider, market maker or dealer that is not a counterparty to the transaction to value the corresponding OTC Component in the Index, but it may not be possible to obtain

such indicative or mid-market quotations. Consequently, it may be difficult for the Index Calculation Agent to establish an independent value for an OTC Component.

There may be other significant risks, based on the specific terms of the relevant notional OTC derivative transaction that relates to the OTC Component. For instance, if the notional OTC derivative transaction relating to an OTC Component is highly customised, there is likely to be an increased liquidity risk and other significant risk factors of a complex character may apply. In addition, if the notional OTC derivative transaction is highly leveraged, then the OTC Component may be exposed to substantial gains or losses in value as a result of relatively small changes in the value or level of an underlying or related market factor.

An investor in a financial product linked to an Index which has exposure to any OTC Components should be familiar with the OTC derivative markets generally, including full understanding of the terms and risks of OTC derivative transactions, including the extent of potential risk of loss.

8. Emerging Markets

If the Index Manual specifies that the Index may provide exposure, directly or indirectly, to an emerging market, the following risks apply.

Investments in emerging markets are subject to all the risks associated with investments into developed markets, however, these risks may be magnified in emerging markets. Furthermore, investments in emerging markets may involve additional risks that may not be typically associated with investing in more developed markets. The nature and extent of such risks will vary from country to country and non-exhaustive examples of such risks are outlined below.

In emerging markets countries there may be a higher likelihood of social, political or economic change or instability and, if so, there may be a greater effect on the related economies or markets and, in turn, the performance of the Index. Furthermore, changes in the political scene may have an impact on the ability to repatriate capital, dividends and profits earned and generally on investment and investment ownership rights. Other risks associated with emerging markets Components may include high rates of domestic inflation and the impact of the foreign debt burden on the domestic economy, which could adversely affect the value of an emerging markets Component and therefore the Index. Government policies, laws and regulations (such as protectionist measures, and practices such as share blocking) or any changes or other developments thereto, could adversely affect the Index Level.

The legal infrastructure and accounting, auditing and reporting standards in emerging markets may not provide the same degree of investor information or protection as would generally apply in more developed markets. Laws and regulations governing foreign investment and securities transactions in emerging markets may be less sophisticated than in developed countries and unclear or contradictory legislation or regulations and lack of enforcement thereof may carry greater risk. Furthermore, the standard of corporate governance and investor protection in emerging markets countries may not be equivalent to that provided in other jurisdictions.

The securities markets in emerging markets countries may be comparatively small to those in developed markets, have low trading volumes and be less liquid and more volatile. This may result in greater volatility in the Index Level than would be the case in relation to an Index that does not have exposure to an emerging market. In addition, settlement, clearing, safe custody and registration procedures may be different from those in developed markets, increasing the risks of error, fraud or default. Investments in companies operating in emerging market countries may be speculative in nature.

The value of currencies used in emerging markets may fluctuate more than the currencies of countries with more mature markets. In addition, in certain emerging markets countries, there are additional risks associated with the local currency, which may adversely affect the Index Level. For example, certain emerging markets countries operate certain exchange controls affecting the transfer of funds in and out of the country and the convertibility of their currencies. An emerging markets currency may not be externally convertible into other currencies, although, subject to restrictions, would be convertible within their own country of origin. Currency regulations are frequently changing and it is possible that the ability to convert an emerging markets currency into the Index Currency may be impaired. Also, the relatively unpredictable operation of the banking systems of emerging markets countries may affect the transfer of funds in and out of such countries and the convertibility of the relevant currency into the Index Currency, including the requirement for advance notice to the respective financial and monetary authorities for the and repatriation of funds.

Investments in emerging markets may have high transaction costs and other related costs and taxes, the deduction of which will negatively impact the performance of the Index. Such costs could include higher custodial expenses for emerging markets securities (compared to developed markets securities), brokerage costs or stock transfer taxes on emerging markets securities. Investors should refer to the Index Manual for details on the costs that apply in respect of the relevant Index.

There may be less well-defined tax laws and procedures in emerging markets countries, including the possibility of retroactive taxes. Furthermore, dividend and interest payments from, and capital gains in respect of, emerging markets securities may be subject to foreign taxes that may or may not be reclaimable. Deductions to account for such taxes will lead to lower Index performance.

Investors in emerging markets should expect lower liquidity of their investments which could result in the partial or total inability to liquidate their investments within the timeframe applicable to developed markets. In times of market stress, the low liquidity of emerging markets investments could be compounded, to extend further the timing for liquidating such investments or causing a total inability to liquidate the same. Such illiquidity could cause one or more of the following: (i) a significant change in the Index Level, (ii) an Index disruption (see the section headed "Index Disruption" above) or (iii) an inability to rebalance certain affected Components or the Index entirely.

Generally, any investment in an emerging market is only suitable for sophisticated investors who fully understand and appreciate the risks involved.

Part 3 – Risks associated with features of the calculation methodology

1. Internal Marks

If indicated in the relevant Index Manual that the Index references certain input data generated by Macquarie, rather than being sourced from regulated markets or exchanges or being based exclusively on executable quotes (“**Internal Marks**”), then the following shall apply.

Internal Marks are determined by Macquarie in the ordinary course of its business as a dealer in the applicable instrument (or where such Internal Mark relates to a rate or signal data, an instrument linked to such rate or signal data) as used for the purposes of its internal books and records. Internal Marks are not generally created exclusively for the purpose of an Index and their use in connection with the Index is likely to be incidental.

Internal Marks are determined using market-standard principles and assumptions, but there can be no assurance that these will be the same as the equivalent values determined by another dealer in the market and may not represent tradable prices.

If indicated in the relevant Index Manual, Internal Marks used in an Index may be made available to investors in financial products linked to the Index upon request (provided that the Index Administrator has provided consent to the use of the Index in such investment).

2. Internal Models

If indicated in the relevant Index Manual, the Index uses internal models (“**Internal Models**”) to generate levels or prices used as inputs for certain parts of the calculation of the Index.

Such Internal Models are based on industry-standard principles and assumptions and are calculated in a commercially reasonable manner using observed market prices, where practicable.

The values resulting from the operation of these Internal Models may be made available, upon request, to investors in financial products linked to the Index (provided that the Index Administrator has provided consent to the use of the Index in such investment). The result of such models may not be the same as those of equivalent models used by another dealer in the market. A model with different specifications or using different inputs from an Internal Model would produce different results. Furthermore, an Internal Model can change from time to time, for example (but not limited to) where there are changes in market convention or Macquarie’s internal policies. Consequently, changes in the Index Level on any day may not be solely related to the change in market value of any Components.

An Internal Model may be complex and if so, an investment in a financial product linked to an Index that uses an Internal Model may involve complex financial risks and be suitable only for investors who (either alone or in conjunction with an appropriate financial or other adviser) are capable of evaluating the merits and risks of such an investment.

3. Use of Optimisers

If indicated in the relevant Index Manual, the Index uses a commercially available optimisation computer software package (an “**Optimiser**”), which may be subject to certain constraints and may use approximations. Therefore, an Optimiser may not determine the mathematically optimal result.

The type of constraints, and the manager in which they are programmed in the Optimiser, in respect of an Index will impact the results generated by the Optimiser. Any alteration, additional or removal of any constraints may lead to an Index performance that diverges, potentially significantly, from the performance that would be generated from different constraints.

Furthermore, there may be alternative results that satisfy the relevant constraints and a different Optimiser might lead to a different performance of the Index. The Index Administrator and the Index Calculation Agent make no guarantee of the results provided by an Optimiser or any changes to an Index if an Optimiser is replaced (in accordance with the relevant Index Rules) at any time.

The results of the Optimisers are often sensitive to data inputs and in particular to rounding, the order in which the data is inputted in the model and other factors that may result in a different Index Level.

4. Complexity

An investment in a financial product linked to the Index may not be a suitable investment for all investors. The risk factors described in this document are not an exhaustive list or explanation of all risks which investors may face when making an investment in a financial product linked to the Index and should be used as guidance only. Additional risks and uncertainties relating to the Index that are not currently known to, or considered material by, the Index Administrator, may individually or cumulatively also have a material adverse effect on Index and, if any such risk should occur, the performance of the Index may decline and investors in financial products linked to the Index could lose all or part of their investment. An investment in a financial product linked to the Index involves complex financial risks and is suitable only for investors who (either alone or in conjunction with an appropriate financial or other adviser) are capable of evaluating the merits and risks of such an investment and who have sufficient resources to be able to bear any losses that may result therefrom. Investors should consider carefully whether an investment in a financial product linked to the Index is suitable for them in light of the information in this document, the relevant Index Manual and their personal circumstances.

In particular, each prospective investor in an investment linked to the Index should have sufficient knowledge and experience to make a meaningful evaluation of the relevant investment and the Index, the merits and risks of investing in the relevant investment and the Index and the information contained in, or incorporated by reference into, the Index Manual;

A potential investor should not invest in an investment linked to the Index unless it has the expertise (either alone or with a financial adviser) to evaluate how the Index will perform under changing conditions, the resulting effects on the value of its investment and the impact this investment will have on the potential investor's overall investment portfolio.

5. Time-Weighted Average Prices (TWAPs)

If the Index Manual specifies that time-weighted average prices (TWAPs) are used to calculate the Index, then the following risks will apply.

There are different ways of calculating TWAPs and using a method different from the one described in the Index Manual may give different results. Moreover, even when the same methodology is used to calculate a TWAP, the granularity of the tick timestamp could lead to different results. For example, a tick timestamp can vary from milliseconds to the whole second depending on the data provider.

Index Calculation Agent as TWAP Source

If the Index Manual specifies that the TWAPs will be calculated by the Index Calculation Agent (including specifying ICA Golden Source as the TWAP Source), then the following will apply:

The Index Calculation Agent relies on the Data Provider to obtain provide the TWAP Data as input data for the Index Calculation Agent to calculate the Index Level. If the TWAP Data is not provided to, or accessible by, the Index Calculation Agent, or if the TWAP Data is inaccurate, then the input data based on the TWAP Data used by the Index Calculation Agent to calculate the Index Level may affect the performance of the Index. The Index Calculation Agent is not responsible or liable for, or for verifying, the correctness, quality or timeliness of the TWAP Data received from the Data Provider.

The Index Calculation Agent will not publish or independently verify any TWAP Data. Investors in any product linked to the Index may not have access to the TWAP Data and will not have access to the ICA Golden Source. The TWAP Data may not represent tradable prices, may be different from similar market data or similar data produced by a third party other than the Data Provider.

The Index Calculation Agent has selected each Data Provider as an appropriate source of TWAP Data and may change the third party data provider(s) that it uses as Data Provider from time to time, as it deems appropriate in the circumstances and investors in products linked to the Index will not be informed of any such change. The Index Calculation Agent may not consider the Index when making changes to the TWAP Golden Source or changing the Data Provider. Any changes to the TWAP Golden Source or a change in the Data Provider may affect the Index Level and, in such circumstances, the change in Index Level may be

opaque to an investor in a product linked to the Index and not solely related to the change in the market value of the Component in respect of which the TWAP Fixing is being calculated.

For the purposes of the foregoing, the term “TWAP Data” shall be deemed to include any Alternative TWAP Data and the term “Data Provider” shall be deemed to include any Alternative Reference Source.

Appointment of Solactive AG

If the Index Manual specifies that the TWAPs will be calculated by Solactive AG (including specifying Solactive AG as the TWAP Source), then the following will apply:

The Index Calculation Agent has, with the approval of the Index Oversight Committee, appointed Solactive AG, to provide time-weighted average prices (each, a **TWAP Fixing** and together, the **TWAP Fixings**) used in the calculation of Component Price(s). Each TWAP Fixing is calculated in accordance with the TWAP Fixing Methodology. The termination or replacement of Solactive AG shall be at all times subject to the approval of the Index Oversight Committee.

If the Index Calculation Agent does not receive any TWAP Fixing needed for the calculation of the Index Level from Solactive AG, the Index Calculation Agent shall itself calculate the relevant TWAP Fixing, using any alternative data source that it deems appropriate. See the paragraph headed “Discretion” in the General Risk Factors.

The Index or any financial instrument referencing the Index is not sponsored, promoted, sold or supported in any other manner by Solactive AG, nor does Solactive AG offer any express or implicit guarantee or assurance either with regard to the results of using an Index and / or an Index trade mark or the Index Level at any time or in any other respect.

The TWAPs are calculated by Solactive AG. Solactive AG uses its best efforts to ensure that the TWAPs are calculated correctly. Irrespective of its obligations towards the Index Calculation Agent, Solactive AG has no obligation to point out errors in the Index to third parties including but not limited to investors and/or financial intermediaries of any financial instrument that references the Index. The calculation of the TWAPs by Solactive AG for the purpose of use in connection with any financial instrument that references the Index does not constitute a recommendation by Solactive AG to invest capital in said financial instrument nor does it in any way represent an assurance or opinion of Solactive AG with regard to any investment in such financial instrument.

6. Machine Learning Algorithms

If indicated in the relevant Index Manual that the Index references uses a machine learning algorithm, then the following risks will apply:

General Complexity

Machine learning algorithms are different from static engines, which are programmed to run only along the paths created by their human programmers, and instead use historic data sets and often large amounts of computational resources to enable them to recognise patterns, train themselves, and to make decisions about when and how to trade without human intervention. Machine learning involves highly advanced (post-graduate level) statistics, computer science and mathematics. Accordingly, an Index that employs a machine learning algorithm will be highly complex and an investment in a financial product linked to such an Index will involve complex financial risks and is suitable only for investors who (either alone or in conjunction with an appropriate financial or other adviser) are capable of evaluating the merits and risks of such an investment.

Uncertainty of outcomes

Machine learning trading engines learn for themselves how and when to buy/sell by repeated and constantly evolving experimentation. Due to this optimisation process, it is difficult, or may be impossible, to trace how the engine has made decisions to buy/sell. Consequently, it is not possible to predict the outcome of the optimisation process and it may not be possible to, and (where possible) Macquarie makes no assurance that it will, prevent, or later correct, an undesirable outcome. To determine how a machine learning trading engine reaches an outcome will generally require a detailed inspection of the inner workings of the relevant algorithm and assessment of the existence of any erroneous statistical assumptions. Investors in an Index that employs a machine learning algorithm are likely to need the support of a technical specialist to

understand the details of a machine learning strategy and understand how it has reached a specific outcome.

Algorithmic risks

The risks associated with algorithms, such as those arising in connection with the use of data analytics and data processing software in various automated and semi-automated decision-making environments, will also apply to an Index that employs a machine learning strategy. For example:

Input data: The input data that is used an algorithm will impact its performance and output. For example, if the input data includes any of the following features: biases in the data used for training; incomplete, outdated, or irrelevant data; insufficiently large and diverse sample size; inappropriate data-collection techniques; or a mismatch between the data used for training the algorithm and the actual input data during operations, then this is likely to have a significant impact of the output of the algorithm. Macquarie makes no representation regarding, and is not responsible for, any third party input data used in a machine learning algorithm.

Design: The translation of mathematical and/or statistical models into code during the design process of an algorithm may inadvertently introduce biased logic, flawed assumptions or judgments, inappropriate modelling techniques, coding errors or spurious patterns in the training data. The design and implementation of an algorithm will therefore impact its output.

Use of Output: The way in which the output of an algorithm is used or interpreted will impact its effectiveness in the context of the purpose for which the algorithm has been designed. For example, if the output of an algorithm is misinterpreted, used inappropriately or without regard to the underlying assumptions in an index, then the index may perform worse than in circumstances where the output was used in a more effective manner. See also the paragraph headed “Complexity of Financial Time Series” below.

The risks typically associated with algorithms (including those listed above) may be increased by the added complexity of machine learning, as they operate at extremely fast speeds in fully automated environments and may become increasingly volatile as they interact with other external processes or algorithms. The impact of such increased risk may lead to a machine learning algorithm making inappropriate or sub-optimal trading decisions, which may significantly affect the performance of the Index.

Complexity of Financial Time Series

Machine learning approaches were generally originally developed for cross-sectional data sets, where statistical properties of the data samples do not change much over time. This limits the direct applicability of standard machine learning approaches to financial problems. Addressing the time series properties of financial data sets is a complex statistical challenge and there may be a risk of misinterpretation of a model's outputs both at the model design stage (human) or as part of the machine learning process (software). Where the outputs of a machine learning model are misinterpreted and used by the Index, there may be a significant impact to the performance of the Index.

Software risks

From a software product and engineering perspective, machine learning products have similar code complexity issues to normal code, but also have a larger system-level complexity that can create certain technical and/or unforeseen risks and may be difficult to monitor. The effectiveness of monitoring and feedback mechanisms in machine learning trading may impact the performance of the Index.

Misinterpretation risks

Machine learning strategies are susceptible to a high risk of back-test overfitting resulting from an accidental entanglement of statistical learning and performance analysis. An investment linked to an Index that uses a machine learning algorithm may involve greater risk than an investment with a proven track record and/or a back-test that does is not as susceptible to overfitting. Analysis of the performance of a machine learning strategy, will need a high level of technical expertise.

No guarantee of performance

The performance of a machine learning algorithm is not indicative of how it may perform going forward as market conditions evolve (see the paragraph headed “Uncertainty of outcomes” above). Past performance of an Index that uses that a machine learning algorithm is not an indication of future performance and the actual performance of the index is likely to diverge considerably from historical performance.

7. FX Sweep

If indicated in the Index Manual that the methodology of the Index includes an FX Sweep feature, then the following risks will apply:

The Cash Component corresponding to each currency will be periodically converted to the Index Currency (referred to as an **FX Sweep**) for the purpose of calculating the Index Level. At the time falling between FX Sweeps, any accumulated synthetic profit and loss represented by the Cash Component will be subject to changes in foreign exchange (FX) rates between the Index Currency and the currency of the Cash Component.

The risks set out in Paragraph 5) (*Foreign Exchange Rates*) of Part 2 (*Asset Class Specific Risk Factors*) of this document will apply in respect of the FX Sweep.