Stackr

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Long-term saving solution for capital and digital assets*

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Contents

1 EXECUTIVE SUMMARY

"Stackr" or the "Stackr Solution[1]" is a complete global long-term savings solution, through which a personalized trust structure allows investors to hold a diversified portfolio of both capital and digital assets. The intersection of traditional finance and modern-day financial technology has enabled the Stackr Group to pioneer this innovative, secure and flexible savings solution in a regulated environment.

Saving has long been the cornerstone of wealth generation. As technology evolves, it is apparent that savings solutions need to move forward in a similar manner. The Stackr Group promises exactly this by minimizing traditional frictions (fees, taxes etc...) that adversely impact savings solutions, while providing dynamic investment choices within a secure trust structure. Stackr is the first of its kind.

The core investment choices are curated with an emphasis on delivering long-term sustainable results. Digital asset exposure affords investors an opportunity to track an index of top crypto assets with the option of protecting against drawdown. Capital asset choices allow investors exposure to global markets, with a machine learning driven risk management approach facilitating adaptive long-term exposure. The ability to hold fiat (US$) and crypto affords investors flexibility.

Stackr clients will benefit from an affordable, personalized international Trust Account, which allows for the nomination of beneficiaries, and facilitates smooth intergenerational transfer on a tax-efficient basis. Consolidated administration and third-party custody keep assets safe while a web portal enables ease of use and flexibility.

2 OVERVIEW

2.1 Stackr Trust Account

The Stackr Solution provides clients an elegant and simple solution to hold assets within a secure, international Trust Account – usually reserved for high net-worth individuals. The architecture that supports Stackr has been designed by a team with decades of experience in creating and managing global investment products in conjunction with a highly specialized team of data scientists and blockchain engineers to provide a robust financial savings solution. Stackr leverages best-in-class service providers and legal constructs to provide holders of Stackr Trust Accounts with the following:

- The security and stability of a robust international jurisdiction boasting mature, tried-and-tested trust legislation.
- Capital and digital assets in one place.
- US$ and crypto holding choices.
- Ability and freedom to move seamlessly, at low cost, between capital and digital asset investments.
- Deferred taxes (in circumstances where the Stackr savings model permits tax deferrals for users, which in some cases may occur where taxes are typically incurred with respect to capital gains when liquidating an investment).
- Beneficiary nomination, permitting investments to safely, seamlessly and cost-effectively transfer to beneficiaries in the event of death.
- Digital onboarding and advice with no entry fees, no exit fees and no traditional financial advisor fees, via a digital user interface.

2.2 Stackr Investment Choices

The Stackr Group has partnered with crypto asset specialists, Invictus Capital, and machine learning specialists, DataProphet, to build the optimal savings solution.

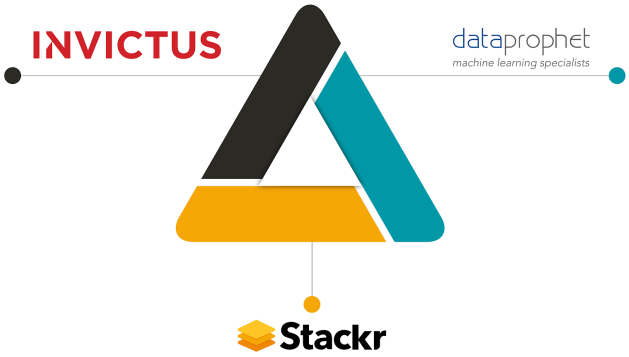

Figure 1: Stackr Investment Partnerships

Invictus Capital[2] created Crypto20 (C20)[31], the first tokenized cryptocurrency index fund which successfully raised US$ 38M[3] in its 2017 token offering. The Stackr Group has leveraged its partnership with Invictus Capital to create C10, a solution that autonomously tracks a bespoke optimal index of the top 10 crypto assets by market capitalization. C10 has 3 variations with different strategies tailored to suit an investor's risk profile. C10 is expanded on in Section 4.3.1 of the whitepaper.

The Stackr Group advocates that machine learning should be utilized to provide investors with measured and optimal exposure to traditional capital markets. Accordingly, the Stackr Group partnered with DataProphet[4] to construct an extensive capital asset investment solution. Details surrounding the solution are found in Section 4.3.2 of the whitepaper.

In addition to the above investment choices, investors can simply hold US$, EOS, BTC or ETH so as to allow maximum flexibility.

[1] Capitalized terms used herein shall have the meanings given to them in Appendix C.

[2] www.invictuscapital.com

[3] www.icobench.com/ico/crypto20

[4] www.dataprophet.com

3 CONTEXT

The importance of long-term saving needs little explanation. The wealth of benefits afforded to individuals through effective long-term saving is profound. Long-term saving up to this point in time has for the most part been a complex process where investors are faced with excessive fees, paperwork and other frictions that detract from both the ease and effectiveness of long-term saving. Stackr aims to disrupt this inefficient cycle to bring real value and efficiency to the long-term savings process.

We highlight some key aspects that are currently detrimental to the long-term investment cycle, namely fees, application of tax and human behavior. Particularly in the context of fees and taxes, these elements work strongly against the notion of compounding which ultimately drives value for long-term investors. Accordingly, Stackr has been designed to minimize the adverse effects of these components.

The notion of compounding is simple. It refers to the fact that when receiving interest on one's principal investment, interest earned is reinvested affording exponential rather than linear growth. In light of the nature of this growth, the introduction of fee and tax frictions consequently presents a negative impact on an investor's long-term savings. The following theorem can be derived to model this concept for contextualization:

Theorem 3.1. *Let X be the principal amount invested. If i is the interest earned compounded annually, with the management fee given by f, then after period n the following amount will be lost due to fees:*

$$= (1 - (1 - f)^n)(X(1 + i)^n)$$

Proof. Suppose the following account value after a fee is paid for t_1

$$t_1 = X(1 + i)^1 - f * X(1 + i)^1 = (1 - f)^1 X(1 + i)^1$$

Then,

$$t_n = X(1 + i)^n - f * X(1 + i)^n = (1 - f)^n X(1 + i)^n$$

If we take the difference between investment without fees and the above structure, we are left with the following total amount of fees payable over the life of the investment:

$$= X(1 + i)^n - (1 - f)^n X(1 + i)^n$$
$$= (1 - (1 - f)^n)(X(1 + i)^n) \quad (1)$$

□

The above illustrates the need to reduce these frictions in order to provide investors with an optimal savings solution. In the next section we quantify the exact impact of fees in a traditional savings structure compared to Stackr.

3.1 Fees

The fees of traditional saving solutions are both complex and often substantial. Furthermore, traditional solutions restrict an investor's flexibility due to entry and exit fees. Table 1 succinctly compares fees presented by traditional global investment savings products[5] in comparison to the Stackr Group's offering.

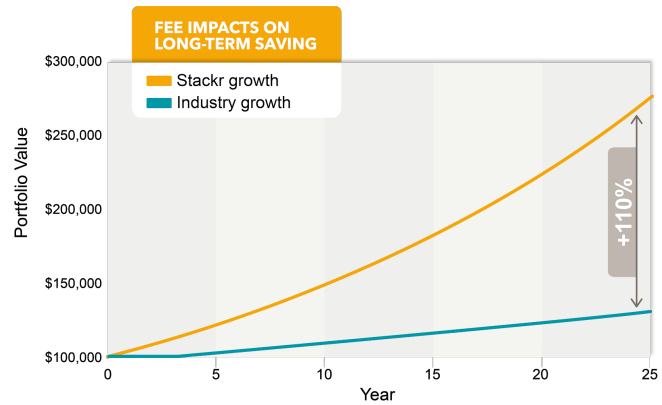

Figure 2: Assuming a US$ 100 000 initial investment and a constant 6% annual return. 4.5% Industry fees (with 3% upfront financial advisory fee paid over 3 years), the Stackr fee model (1.75% annually) outperforms the industry model by 37% over 10 years and 110% over 25 years.

Description	Traditional Unit Linked Product Fees[1]	Stackr Fees
Upfront Financial Advisor Fee	3% (paid over 3 years)	-
Annual Financial Advisor Fee	1%	-
Wrapper/Product fee	1.5% p.a	1.00% p.a
Annual Asset Management Fee (Fund)	2.0% p.a	0.75% p.a
Total Expense ratio (est.)	**4.5%** plus 3% upfront fee paid over 3 years	**1.75%**
Exit Fees	Up to 9.0%[2]	-

[1] A traditional unit-linked product is an investment wrapper that can be used as an investment vehicle to control when one pays tax, how much one pays and whom one pays it to. It is a similar solution to Stackr in a more traditional environment.
[2] Typically depends on upfront advisor fee.

Table 1: Table comparing fees offered by traditional investment products compared to Stackr

The numbers in table 1 are self-explanatory and figure 2 helps one to easily visualize and quantify the value gained from a Stackr investment contrasted against a traditional investment.

Another major source of fees comes from the notion of "active management" where fund managers charge higher fees due to their active involvement in altering the investment portfolio composition in the hopes of achieving greater returns. The reality is 84.23% of actively managed US large-cap funds have failed to beat the

[5] https://www.oldmutualinternational.com/globalassets/documentsint/t-and-c/13293_iib_life_terms_and_conditions.pdf

S&P 500 over the past 5 years[29]. Academic literature further supports the inability of active managers to outperform passive indexes[12, 13, 21, 25, 28]. Stackr utilizes index, or passive, funds with a risk management framework to deliver maximum value to investors with minimal fees.

3.2 Human behavior

From highly paid fund managers to first-time investors, all humans are subject to a broad range of heuristics, biases and emotions[5, 23]. Behavioral Finance is the general subject that attempts to explain how and why humans make poor decisions [24]. Extensive research has been conducted highlighting these heuristics, biases and emotions and how they adversely affect optimal investing [4, 6, 26]. One example is humans reacting more to losses than gains. This often results in investors selling assets at the wrong time in a state of panic[34, 35]. The Stackr Group, by design, mitigates the adverse effects of these human biases.

3.3 Traditional investment theories

Modern investment products employed in savings solutions mostly utilize multi-asset portfolios that have been constructed to mitigate risk through diversification. They are developed on the assumption that Modern Portfolio Theory (MPT) always holds true. MPT states that diversification of assets with differing correlations will reduce investment risk[14, 19]. Simply put equities and bonds have historically moved in almost opposite directions[7]. When combined in a portfolio for long-term growth the two assets work together to reduce the overall risk of the portfolio while still providing some returns. While diversification does provide obvious benefits, past times of financial crisis have demonstrated that even diversified portfolios of assets can become highly correlated and experience adverse movements[20]. In light of these problems, Stackr's risk management framework utilizes financial instruments to protect investors against adverse market movements. The intricacies of this will be elaborated on in Section 4.3.2.

3.4 Motivation for including digital assets into long-term savings

The advent of blockchain technology and associated digital assets present an array of new opportunities and challenges for investors. Cryptocurrencies provide investors with either direct or indirect participation in the value that this revolutionary and disruptive technology will create.

As with any nascent technology, cryptocurrencies present specific challenges, the most prominent of which is secure and independent custody. Whether kept on exchanges or in self-custody, vulnerability to hackers, theft and accidental loss have caused minor crises of confidence. Currently, more than US$ 15 billion has been hacked or lost since the inception of cryptocurrencies[8]. The rolling out of institutional custody solutions in 2018[33] is solving the long-cited problem of individuals needing to achieve a high level of sophistication to manage their own private keys; something seen as a hindrance to mass-adoption. Stackr will allow individual investors to invest in capital and digital assets in the same way with the same level of security and peace of mind.

The entrance of cryptocurrencies into the mainstream discourse has, beyond the hype, highlighted the interesting and desirable investment characteristics of certain crypto assets. The available data suggests that over the last five years, cryptocurrency correlations with traditional market assets are low, approaching zero for bitcoin vs the S&P500[16] (see figure 3). Bitcoin is used as the proxy given it is the most established of all cryptocurrencies with the first bitcoin being mined on 03/Jan/2009. In fact, text contained in the coinbase of the genesis block reads: "The Times 03/Jan/2009 Chancellor on brink of second bailout for banks"[9]. This sentiment in reference to the financial crisis, combined with bitcoin's architecture, reflects both its roots and its perception as a safeguard against the dangerous aspects of fractional-reserve and centralized monetary systems in general.

Decorrelation is important due to its centrality in diversification. The ultimate goal of constructing a diversified investment portfolio is to reduce unsystematic risk while maximizing returns. Unsystematic risk is risk specific to a particular entity, market, economy or country and can be effectively reduced through portfolio diversification. What remains is systematic risk, also known as market or undiversifiable risk, caused by factors such as inflation rates, exchange rates, political instability, war, and interest rates. These risk factors are not constrained to particular companies or industries and thus are unable to be eliminated effectively through diversification.

In times of financial crisis, all traditional capital asset classes become highly correlated, and prior diversification provides investors with little protection[10]. Appropriate statistical tests (t-test and granger-causality test) have shown that the correlation between bitcoin and the S&P 500 is not statistically significant over the past 5 years[15]. This bodes well for the fact that cryptocurrencies could potentially provide a hedge against traditional systematic risk factors.

The volatility of cryptocurrencies is well known and is of the order of ten times that of equity indices over five years. This is, however, balanced by the likes of bitcoin delivering eighty times the return of the S&P500 over the same period. The risk-adjusted returns of cryptocurrencies, as traditionally measured for the purposes of portfolio construction, are therefore attractive. These characteristics support the inclusion of cryptocurrencies as part of a traditionally constructed portfolio.

3.5 Optimal holding vehicle or structure

There are many savings and investment structures available in the market. These structures are typically driven by two main considerations, regulation and tax treatment, both of which vary significantly from jurisdiction to jurisdiction. Due to the global and discretionary savings nature of Stackr's potential client base, a Bermuda trust

[6] bitcoin correlation analysis performed from 2013/08/26 until 2018/08/24. Ethereum correlation analysis performed from 2015/08/10 until 2018/08/24

	MSCI World	MSCI Emerging Markets	S&P 500	Nasdaq	Bloomberg Barclays Global Aggregate	Real Estate (REIT)	Bloom-berg Comm-odity	Gold Spot	WTI Crude	S&P Listed Private Equity	HFRX Global Hedge	Bitcoin	Ethereum
MSCI World	1,00												
MSCI Emerging Markets	0,41	1,00											
S&P 500	1,00	0,41	1,00										
Nasdaq	0,92	0,38	0,92	1,00									
Bloomberg Barclays Global	-0,19	0,03	-0,19	-0,16	1,00								
Real Estate (REIT)	0,20	0,79	0,20	0,21	-0,09	1,00							
Bloomberg Commodity	0,25	0,32	0,25	0,16	0,12	0,13	1,00						
Gold Spot	-0,12	0,00	-0,12	-0,12	0,45	-0,07	0,29	1,00					
WTI Crude	0,31	0,26	0,31	0,23	-0,06	0,10	0,69	0,06	1,00				
S&P Listed Private Equity	0,72	0,59	0,72	0,63	-0,09	0,36	0,33	-0,07	0,34	1,00			
HFRX Global Hedge	0,76	0,57	0,76	0,70	-0,25	0,41	0,29	-0,11	0,35	0,76	1,00		
Bitcoin	0,00	-0,01	0,00	0,01	0,00	-0,01	0,00	-0,02	-0,01	0,00	0,00	1,00	
Ethereum	0,01	-0,03	0,01	0,02	0,03	-0,01	-0,07	0,04	-0,04	-0,07	-0,02	0,33	1,00

Figure 3: Correlation analysis conducted on bitcoin, ethereum and traditional asset classes over the last 5 year period.[6]

structure was chosen as it provides multiple potential benefits.

A trust is a regulated, legal relationship through which assets can be held. Trusts operate autonomously under the supervision of an independent trustee that is appointed as the nominal owner of these assets and holds the fiduciary responsibility to manage them in the interest of the individual who is appointed as the settlor and/or beneficiary of the trust. It is important to note that in the Stackr Master Trust, client fiat or crypto flows directly from the client to a custodian, appointed by the Trustee, and will be invested according to the client's wishes by the administrator, also appointed by the Trustee.

Trusts and trustees are governed by trust laws and can be established in international financial centers like some of the British Crown Dependencies, e.g. Jersey or British Foreign Territories like Bermuda. These jurisdictions typically have well established and robust trust legislation, due to their English Common Law based legal system [27].

International financial centers are typically progressive and innovative due to their economic dependency on financial services, e.g. Malta and Bermuda are some of the few countries in the world that have officially adopted and promulgated digital asset legislation[1]. Other benefits typically include:

- Economic stability
- Political stability
- Favorable tax legislation, especially for non-residents
- Well established service providers

Furthermore, trusts are important for safeguarding and passing on savings to future generations. Assets outside of a trust structure can fall under standard probate procedures which can be tedious, complicated and very time-consuming. In many cases, these assets will form part of a deceased estate and will attract estate duty or other forms of tax, dependent on the jurisdiction. Estate duty can be as high as 55% in certain circumstances and jurisdictions[11].

Trust structures are typically reserved for high net worth and ultra-high net worth individuals, due to the significant costs involved in the structuring and maintenance of an international trust. Stackr provides every client with their own segregated Sub-Trust, which will house each client's investment choices.

For more details on the actual implementation of the Stackr Master Trust structure, please refer to Section 4.1.

3.6 Tax Considerations

In a similar fashion to fees, taxes can significantly erode the value of long-term investments.

> *"In this world, nothing can be said to be certain, except death and taxes."*
>
> *– Benjamin Franklin*

Taxation of savings results in a realized reduction of capital that limits the potential for future growth. The compounding of investment growth is a central principle in effective long-term saving as mentioned earlier. For compound growth to operate optimally, it is critical to ensure that as much of the growth generated over time remains within a savings account.

While taxes can vary substantially from country to country, long-term savings are frequently subject to two broad kinds of taxation; capital gains tax and income tax. Income and capital gains taxes are typically levied against investors when receiving investment income (interest or dividends) or on selling and buying different assets and/or asset classes. A different type of tax, estate duty, is levied against intergenerational asset transfers.

Trust structures may in certain circumstances be used effectively to defer taxation, allowing the annual growth of savings and realized returns to be retained for future returns.

Figure 4 showcases the impact deferring capital gains taxes may have on a long-term investment.

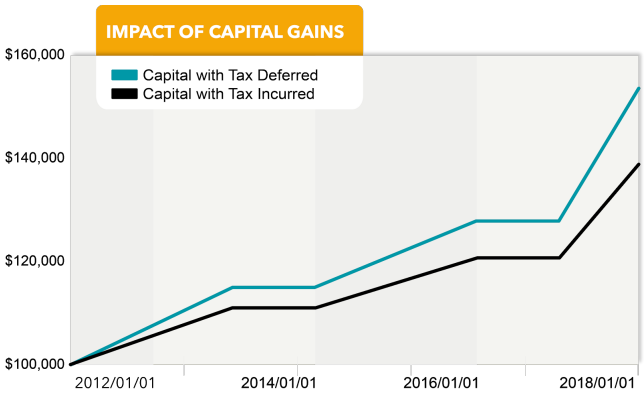

Figure 4: Investing in the SP500, and moving to cash for the years 2013 and 2016. 11% is sacrificed over 7 years by simply moving the investment in and out of cash.

IMPORTANT NOTE REGARDING TAXES: Information contained in this whitepaper should not be construed as tax advice, and each client's tax status and affairs should be discussed with his/her own tax advisor.

4 THE STACKR SOLUTION

The basis of the Stackr Solution is the Stackr Trust Account structure in conjunction with innovative investment choices. The trust structure provides an efficient and secure savings vehicle while capital and digital assets indices, underpinned by machine learning, ensure optimal exposure. These components are combined to give clients the best possible chance of meeting their savings needs. The Stackr Solution is already a working product that is continually being improved.

4.1 Stackr Trust Account Structure

Figure 5 gives further details on the structure of the Stackr Trust Account.

4.1.1 Legal structure. A trust forms the foundation of the Stackr Solution, which leverages the benefits highlighted above and the attributes of Bermuda's trust laws[3] to the advantage of every holder of a Stackr Trust Account.

4.1.2 Master trust. The Stackr Master Trust sits at the highest level of the Stackr architecture. Every client's trust that is contained within the Stackr Master Trust structure benefits from the overarching legal attributes and benefits of the Stackr Master Trust. This includes fiduciary oversight by the Trustee, Know-Your-Customer (KYC) and Anti-Money Laundering (AML) compliance, beneficiary nomination at the client Trust Account level, aggregation of all trading and additional benefits in regards to possible tax deferral.

4.1.3 Client Trust Accounts. Each Stackr Trust Account is contained within the Stackr Master Trust as a Sub-Trust. Each Stackr Trust Account is a complete trust in its own right, imbued with the rights and attributes of the Stackr Master Trust in Bermuda and is fully compliant with Bermuda trust law[3]. Bermuda trust law is based largely on English Common Law but does feature several further jurisdictional enhancements. Bermuda represents a politically stable and legally robust trust jurisdiction. Within Bermuda trust law each trust has at least a settlor, a trustee and a beneficiary. In the case of the Stackr Sub-Trust, the settlor is the account holder of the Stackr Trust Account.

The Trustee of the Stackr Master Trust, and by design, all Stackr Trust Accounts contained within the Stackr Master Trust, is Altree Trust Ltd[7] - the trust and fiduciary division of the Altree Group of Companies. Altree Trust Ltd is licensed to conduct Trust Business by the Bermuda Monetary Authority[8]. As an independent trust and fiduciary services company, Altree Trust Ltd provides dynamic trust and estate services which are tailored to individual requirements.

The trustee is assigned the power and the duty to manage and dispose of the trust assets in accordance with the terms of the trust. These actions must be carried out at all times for the benefit of the beneficiaries in accordance with the fiduciary duties imposed upon them by law. The Stackr Master Trust operates autonomously despite the fate of the Stackr Group or the Stackr Solution.

Taxes may, in some cases, be deferred in a legally compliant manner under the Stackr trust investment architecture in order to reap the full benefit of compounding returns. When taxes are deferred growth of assets held within Stackr Trust Accounts may not be subject to tax until assets are transferred to the settlor or nominated beneficiary of the trust. Importantly, tax deferral is by no means the avoidance of tax, but rather the delay of payment until investments are cashed out.

[7] www.altreefinancial.com
[8] www.bma.bm

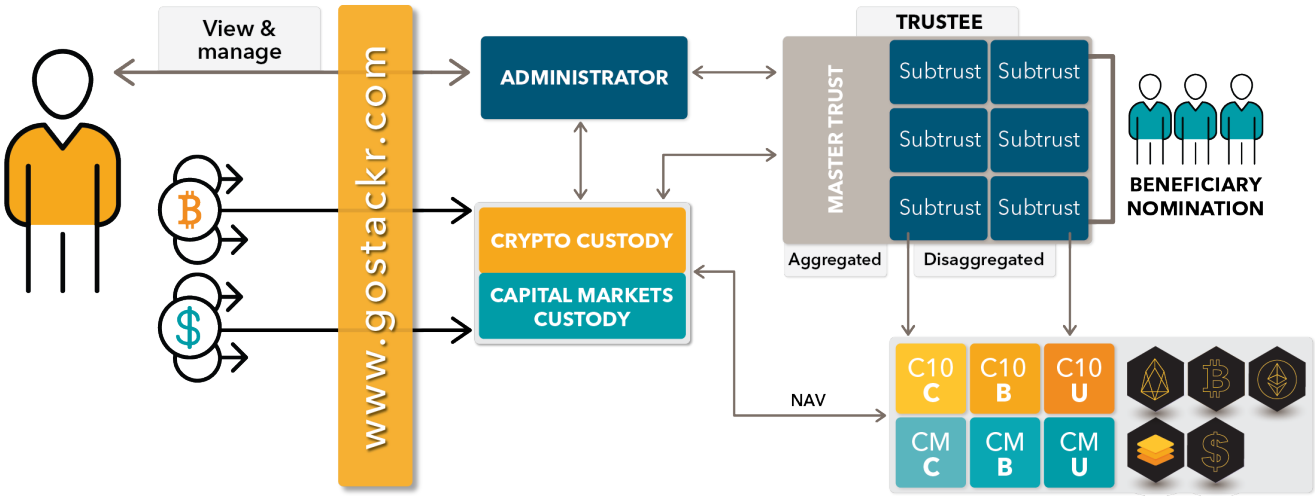

Figure 5: Stackr Trust Account structure

Figure 6: Stackr trust service providers

All service providers are appointed to the trust by the Trustee.

Stackr is a solution delivered through coordination and arrangement by the Stackr Group. The service providers have very specific roles to fulfill and were brought together as a result of years of development and relationships built by the team behind the Stackr Group. Figure 6 showcases various Stackr service providers.

4.1.4 Capital Asset Banking and Custody. Banking and custody of all capital market assets of all Stackr Trust Accounts is performed by SwissQuote[9], a fully regulated Swiss Bank listed on the SIX exchange as SQN. Swiss Quote guarantees the highest level of asset security and legal compliance as a respected fintech innovator and service provider.

4.1.5 Crypto Asset Banking and Custody. Digital asset custody and banking is performed by a fully qualified independent custodian, Kingdom Trust[10]. Kingdom trust is regulated by the South Dakota Division of banking in the United States of America.

4.1.6 Administration. The administration of assets within each Stackr Trust Account is performed at the direction of the Trustee by Kane LPI[11]. Kane LPI has 18 years of experience, specializing in the development and ongoing management of highly scalable, cost-effective administration solutions in the international Life, Pension & Investment sectors. Kane LPI Solutions Limited is licensed by the Bermuda Monetary Authority under the Investment Funds Act 2006. Kane LPI's technology will provide the Client Relationship Management (CRM) functionality behind the Stackr user interface. Kane LPI will be responsible for the accounting, reconciliation and transaction execution of all Stackr Trust Accounts.

4.2 Automated risk profiling

The Stackr Group utilizes the premier provider of risk profiling – FinaMetrica[12], to provide their clients with a service used all over the world. FinaMetrica's clients include Goldman Sachs, Investec, Raymond James, Schwab and Financial Express. The Risk Tolerance Toolkit™ utilized by Stackr incorporates a psychometric personal risk tolerance profile and supporting methodologies to help provide clients with general risk tolerance guidance, based on their individual circumstances. It is maintained with expertise from the London School of Economics, and its reliability and validity is backed by over one million users, ranging from financial advisors and a host of different service providers, across 20 countries.

The Stackr Group will create a fully interactive, user interface directly with FinaMetrica, which will enable the Stackr Group to provide this service, free of charge to all clients.

4.3 Investment Choices

Traditionally, there has been a structural disconnect between what an investor expects and what asset managers provide. An investor

[9] https://en.swissquote.com/
[10] www.kingdomtrust.com
[11] http://www.kane-group.com/
[12] www.finametrica.com

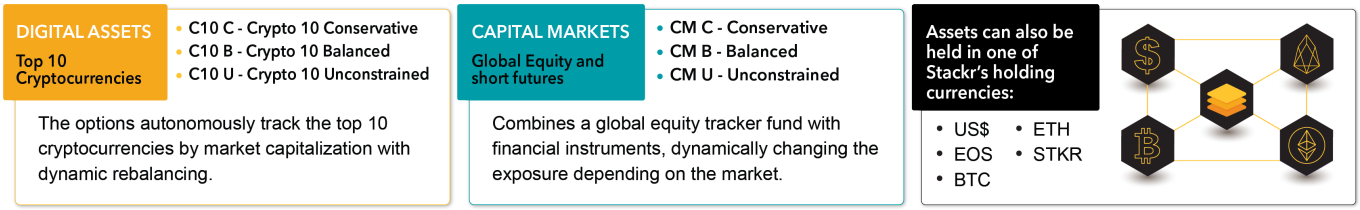

Figure 7: Stackr Investment Choices

usually considers real capital loss to be the number one measure of risk. However, fund managers typically consider volatility to be their primary risk measure. As an example of this, the generic Cautious, Balanced and Aggressive Peer Groups[13] have historically had volatilities of 4%, 6% and 8% respectively. In spite of these figures, their maximum drawdown or measure of capital loss was -17%, -31% and -44% respectively. That is more than four times worse than investors expectations.

All Stackr investment choices are designed with a maximum capital loss objective to safeguard against investors' biggest concern – the risk of losing money.

Clients can invest in a range of innovative capital and digital asset choices that have varying risk profiles. Passive indices together with data science represent the Stackr Group's investment philosophy. This enables a consistent process delivering preset objectives and ensuring realistic investor expectations. Stackr's risk management framework should remove client emotions in market downfalls due to the comfort that funds offer downside protection.

Stackr Trust Account holders will be able to keep their funds in one, or a combination of investment choices. Account holders can easily switch their holdings in any one investment choice, which will be executed and reported online, within 24 hours. The underlying funds that will be utilized as the initial fund investment choices within the Stackr Solution are set up as portfolios managed by a Cayman Islands Segregated Portfolio Company (SPC).

4.3.1 ***Digital Assets***. All choices autonomously track a bespoke optimal index of the top 10 crypto assets by market capitalization, termed C10, in a similar way to funds such as the Vanguard 500 that track an index based on the market capitalization of the top 500 publicly listed US companies (the S&P 500). The parameters of the index which include a maximum allocation to any one asset and frequency of rebalance, were optimally determined using data science techniques.

- **Crypto 10 Conservative (C10C):** Designed for the more conservative investor who seeks capital loss protection. A passive strategy will move portions of the fund into cash (or cash equivalent) depending on levels and velocity of market stress, thus decreasing exposure to the Crypto 10 optimal index. The maximum exposure the investment can have to cash is 100%. Exposure to the index will generally be increased in performing markets.
- **Crypto 10 Balanced (C10B):** Designed for the more balanced investor. A passive strategy will move portions of the fund into cash (or cash equivalent) depending on levels and velocity of market stress, thus decreasing exposure to the Crypto 10 optimal index. The maximum exposure the investment can have to cash is 100%. Exposure to the index will generally be increased in performing markets.
- **Crypto 10 Unconstrained (C10U):** Designed for the investor with risk appetite. A passive strategy will move portions of the fund into cash (or equivalent) depending on levels and velocity of market stress, thus decreasing exposure to the Crypto 10 optimal index. The maximum exposure the investment can have to cash is 50%. Exposure to the index will generally be increased in "performing" markets.

C10C and C10B determine market drawdown stress using data science techniques. It should be noted that an overweight of cash (or cash equivalent) may not necessarily precede a market fall and vice versa.

The Crypto 10 funds will be constructed in a manner analogous to the successful C20 project, the first tokenized cryptocurrency index fund. The Stackr Group has forged a strategic partnership with Invictus Capital, the creators of C20, allowing the Stackr Group to leverage the core data science techniques used to create C20, in order to deliver C10. For a more technical overview of the construction process, please refer to the C20 whitepaper[31].

Note that C10 will not need to have its own token like C20, the underlying crypto-assets of the C10 index will instead be held directly by the Fund.

The conservative, balanced and unconstrained variants of the C10 index allow investors to choose an optimal instrument aligned with their preferred risk level. To achieve these varying levels of market exposure, each C10 variant is overlaid with a distinct hedging strategy.

4.3.2 ***Capital Assets***. Exchange traded funds (ETFs) are listed investments that track an underlying benchmark or index, such as an equity index, providing investors with an equivalent risk-return profile. ETFs provide an accessible means to a diversified capital asset portfolio, without prohibitive transaction costs, perfectly aligning with the Stackr investment philosophy. Global ETFs, with

[13] Based on the Financial Express Offshore Mutual Mixed Asset Peer Groups; supplied by Financial Express (FE) Analytics

strong growth in total assets under management in the past decade, provide desirable liquidity across a wide range of asset classes. Initially, Stackr will focus on combining a holding in a global equity ETF, such as the MSCI World Index, with short exchange-traded equity index futures. The short equity index futures will facilitate the execution of the optimal net equity exposure.

Machine Learning (ML) enhanced funds have driven strong long term performance in portfolio selection across a range of different risk profiles, as well as a nascent track record of highly effective decision making in the managed risk context. However, significant technical complexity, the fast pace of technical innovation, as well as industry conservatism mean that ML and specifically deep learning is an underexploited approach to managing risk and being utilized in portfolio selection.

The Stackr Group, in conjunction with the renowned machine learning specialist studio, DataProphet, have created a machine learning framework that can leverage collections of financial time series data, predicting likely market movements, and prescribe optimal levels of exposure to an underlying ETF. This framework effectively addresses the complexities of the managed risk context, where an optimal level of exposure for a single ETF is determined, and downside risk is hedged against via short equity index futures contracts.

Stackr utilizes this framework to provide investors with exposure to global capital markets for long-term growth. Investors can choose between the following three capital asset options that are tailored to fit a specific downside, or capital loss risk profile.

- **CM Conservative:** The fund is appropriate for investors looking for stable capital growth at moderate levels of volatility. Investors should be willing to accept a maximum drawdown or capital loss objective between 6-8% p.a.
- **CM Balanced:** The fund is appropriate for investors looking for long term capital growth through a healthy exposure to equity markets. Suitable for investors willing to accept a maximum drawdown or capital loss objective between 8-12% p.a.
- **CM Unconstrained:** The fund should appeal to investors who have an aggressive risk profile and who can look beyond short-term market and capital volatility for the potential of superior returns and long-term capital growth. Suitable for investors willing to accept a maximum drawdown or capital loss objective in excess of 12% p.a.

The ML framework predicts the optimal portfolio composition for each risk profile on a weekly basis. Initially, the portfolio will be comprised of a single equity-based ETF with desired exposure achieved by shorting a determined amount of equity index futures contracts, effectively reducing the net market exposure. A fundamental goal of the ML framework is capital loss minimization, subject to which return above benchmark will be maximized.

The algorithm for the ML portfolio optimization tool is logically separated into two core components. The first component consists of supervised ML models, which are trained to predict future market prices for the underlying ETF as accurately as possible. The second component consists of an optimization algorithm that determines the ideal percentage of the fund value to allocated to the underlying ETF, given the current state of the market and the predicted price movements from the supervised models.

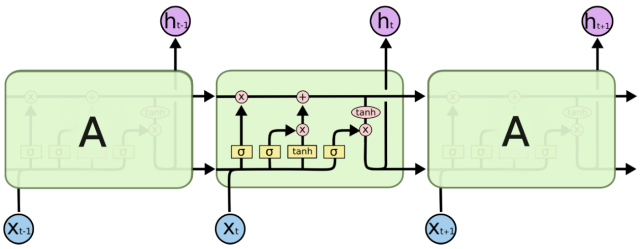

Figure 8: Sequential LSTM neural network technical detail.

Given the sequential nature of the price time series, recurrent neural networks, and specifically LSTM networks have been one of the mainstays of our ML modelling approach. LSTM networks carry the memory of the price series through time, allowing the network to learn complex temporal dependencies, and have achieved promising results in multiple sequence-based modelling contexts[22]. Refer to figure 8 for a visual depiction.

Furthermore, additional neural net architectures along with tree-based methods have been examined to construct an ensemble solution maximizing predictive power. Extensive feature engineering, Monte Carlo dropout methods, stress testing, scenario testing and cross-validation, amongst other techniques, have been used to ensure the greatest statistical accuracy and validity [2, 17, 18, 30, 32].

In the future, we are planning to extend the ML framework beyond the risk management context, to the portfolio optimization context, where we will determine optimal levels of exposure within portfolios comprised of equity, bond and cash ETFs. We plan to continually conduct extensive research and use significant investment to continually improve our ML driven investment techniques.

4.3.3 Holding Choices. The Stackr Solution allows clients to add various holding currencies to their accounts. Clients can also switch from the index based capital and digital asset choices to US$, EOS, BTC, ETH or STKR. The client can easily do this, at any point in time. In the future, the Stackr Group will continually add to the current holding choices to afford the client even more flexibility.

5 TIMELINE

2008 October - The Global Financial Crisis & emergence of digital assets, specifically bitcoin.

2010 October - Genesis of Stackr Solution. Glacier International (Cobus Kruger) launch a Bermuda based trust structure for South African investors. First incarnation of the Stackr Solution.

2012 January - Sanlam Global Investment Plan launched providing the benefits of the trust structure to a global audience via an intermediated structure. Second incarnation of the Stackr Solution.

2014 September - The direct to consumer business structure for the trust was conceived – and will eventually become Stackr.

2017 March- Executive team at Sanlam Global Investment Solutions switches the management of assets to machine learning.
October - Brendan Gallagher and Cobus Kruger leave Sanlam to start partnership.
October - Research and Development. Stackr conception, initially does not include digital assets. Cobus Kruger attends the artificial intelligence and machine learning course at MIT.
December - Realization that crypto needed to be included in the Stackr Solution but team had no experience.

2018 March - Cobus and Brendan join Invictus Capital on contract to develop knowledge and bring traditional experience to the team.
May - Stackr Inception. Stackr is born and the regulatory and company structure setup commences; across multiple jurisdictions.
July - Stackr project kicks off with the core team from Sanlam Global Investment Solutions agreeing to join in October 2018.
August - Development of IT infrastructure. Engage Nona, a leading Blockchain focused Software Development Studio, to build website, interfaces and APIs for Stackr.
31 August - Public Launch of Stackr.
September - MPV & Release of whitepaper.
Q3/4 - Private sales.

2019 Q1 - Stackr Solution live.
Q2/3 - Aggressive user adoption.
Q4 - Average 10 000 clients or US$ 100 M total client assets.

2020 - Continuous user adoption drives.
1H - Native applications & Machine Learning R&D.
Q4 - Average 30 000 clients or US$ 250 M AUM.

6 TEAM & KEY STRATEGIC PARTNERS

6.1 Stackr

The Stackr Group boasts 6 members of the previous Sanlam Global Investment Solutions team, that was responsible for raising approximately US$ 3 BN over a period of 8 years with multiple international saving and investment solutions. The team managed to secure distribution from some of the largest banks in the world including but not limited to Commonwealth Bank of Australia, Standard Chartered Bank and Wells Fargo. For comprehensive details regarding the Stackr Group, please refer to the Stackr website[14].

6.2 DataProphet partnership

DataProphet are worldwide industry leaders focused on building highly specialized machine learning solutions. Stackr Group has partnered with DataProphet to ensure the world leading ML investment driven Stackr architecture comes into fruition. For comprehensive details regarding DataProphet team please refer to the DataProphet website[15].

6.3 Kane LPI partnership

Kane LPI Solutions is a leading turnkey administrator of life, pension and investment products and services.

A trusted provider of Third Party Administration services for more than 15 years, Kane LPI has issued over US$11 billion of offshore annuity and investment products for an extensive global client base. By embedding process efficiency into the DNA of each organization, full optimization at all levels is ensured. Their highly customizable, end-to-end process solutions help accelerate product implementation, reduce new-business cycle times, rationalize administration costs and enhance the customer delivery experience.

Bringing together extensive experience, broad-spectrum financial expertise, full system functionality, a robust compliance culture and stringent data security measures, Kane LPI builds solutions which leverage people, process and technology.

[14] www.gostackr.com

[15] www.dataprophet.com

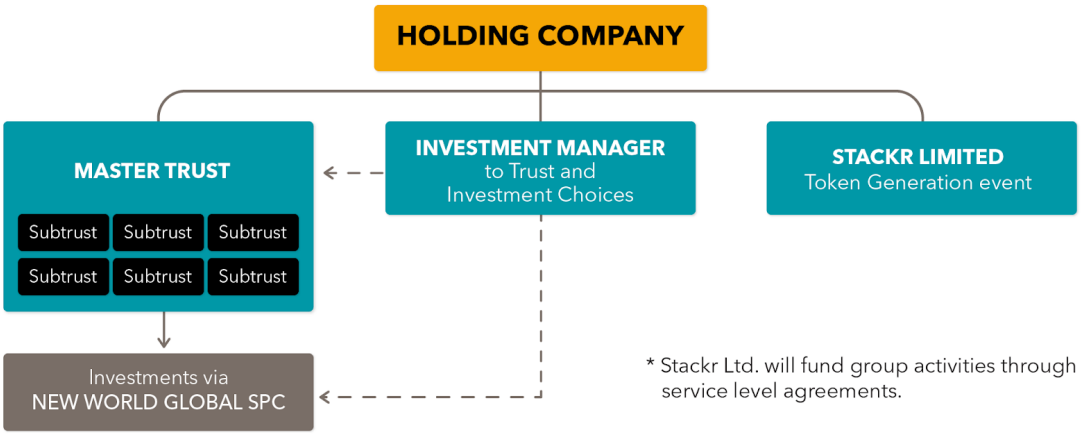

Figure 9: High level legal structure

A HIGH LEVEL GROUP LEGAL STRUCTURE

Refer to figure 9 for an overview of the Stackr legal structure.

B EXTERNAL PARTIES INVOLVED IN ENABLING THE STACKR SOLUTION

B.1 Investments

- Lima Capital LLC (or Investment Manager): Investment manager to the Stackr Master Trust and to New World Global SPC , with an unrestricted investment license in Mauritius. Regulated by the Mauritian Financial Services Commission.
- DataProphet: Data science sub-advisor specializing in machine learning algorithms.
- FinaMetrica: Digital risk assessment and investment classification technology provider.
- New World Global SPC (or the Fund): Cayman Island segregated portfolio company, offering the six core investment choices of the Stackr Solution.

B.2 Technology

- Nona Creative: Stackr website, API integration, future applications and blockchain specialist.

B.3 Lawyers

- Decentra Group: Legal advisor specializing in support of token offerings and related investments.
- Ogier: Cayman law firm with specific Cayman Island TGE expertise, providing legal advice to Stackr Cayman Limited.
- Appleby: Bermuda legal counsel.

B.4 Compliance

- Altree Trust Ltd: Stackr Master Trust Trustee
- Jumio: Technology solution for AML, KYC and source of funds compliance requirements.

B.5 Regulators

- Bermuda Monetary Authority (BMA): Bermuda Monetary Authority regulator of the Stackr Master and Sub trusts.
- Cayman Islands Monetary Authority (CIMA): Cayman Islands Monetary Authority regulator to the Fund, the structure housing all long-term investment solutions of Stackr.
- Financial Services Commission of Mauritius (FSC): Mauritian Financial Services Commission regulator of Lima Capital LLC the fully licensed investment advisor to the Stackr Master Trust and Sub Trusts as well as New World Global Funds SPC.

B.6 Auditors

- PriceWaterhouseCoopers (PWC): Auditor of Mauritian entities.
- KPMG: Auditor of all Cayman Islands and Bermuda entities.

B.7 Other

- Arka Corporate Services (Cayman) Limited: Cayman Islands a management company and company secretary.
- Acutus Management Limited: Mauritian management company and company secretary.

C GLOSSARY

- Capital assets: Assets from traditional capital markets. Equities/bonds/commodities/cash.
- Digital assets: Tokens/coins associated with distributed ledger technology (primarily blockchain) projects.
- Fund: New World Global Funds SPC, a fund incorporated as a segregated portfolio company in the Cayman Islands, regulated by CIMA, managed by the Investment Manager and offering the six core investment options of the Stackr Solution.
- Holding options: Fiat and Cryptocurrencies clients can hold within the trust structure. Currently $US, EOS, BTC and ETH.

- Investment Manager: Lima Capital LLC acting in its capacity as investment manager to the Stackr Master Trust and to the Fund, with an unrestricted investment license in Mauritius. Regulated by the Mauritian Financial Services Commission.
- Machine learning: Using data, statistical techniques and computers to provide prediction or inference. Examples include regression, support vector machines, random forests, generalized linear methods, boosting, neural nets, self organizing maps etc...
- Settlor: Lima Corporation Ltd in its capacity as settlor of the Stackr Master Trust.
- Stackr or the Stackr Solution: interchangeable term for the overall investment product offered to clients inclusive of the Stackr Master Trust, the Stackr Trust Account, the Fund and the investment advisory services provided to each of the Stackr Master Trust and the Fund by Lima Capital LLC.
- Stackr Cayman Limited: a company incorporated in the Cayman Islands as an exempted, limited liability company, refer to Group structure above.
- Stackr Group: the combination of entities involved in offering the Stackr Solution to clients comprising Stackr Cayman Limited, the Settlor, the Investment Manager, the Fund and the management team of such entities.
- Stackr Operations: Stackr Master Trust and all assets invested on behalf of the trust. The Stackr Master Trust generates revenue from charging account fees as a percentage of total assets and the Investment Manager generates revenue from charging an investment management fee as a percentage of assets invested in the six core investment choices via New World Global SPC. Net profit is determined taking into account all revenue on assets attributable to the trust minus proportionate cost and tax.
- Stackr Trust Account or Sub-Trust: refers to each client's individual sub trust in the Stackr Master Trust.
- Stackr Master Trust: a master trust settled in Bermuda by the Settlor aggregating all client assets .and having the Trustee as trustee and managed by the Investment Manager.
- Trustee: Altree Trust Ltd, the corporate trustee with fiduciary responsibility under Bermuda law of the Stackr Master Trust and all Stackr Trust Accounts.

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