## Education

# Risk friendly ways to consider a Bitcoin allocation

November 2020

### **Executive summary**

The rapid development of institutional grade financial infrastructure such as exchanges and custody arrangements has made digital assets such as Bitcoin more accessible to traditional asset managers, ETF issuers and other investment institutions. However, questions of how to think about allocation to digital assets and the mitigation of risk are not widely considered.

### Bitcoin risks: an allocation analysis

Compared to traditional assets such as equities and fixed income, digital assets are highly volatile with deep drawdowns frequently observed. However, they typically have a very low return correlation with other assets. For example, since the beginning of 2015 the average rolling 12 month historical volatility of Bitcoin has been approximately 73% with a maximum drawdown of 83%, whilst the Russell 1000 (large and mid-market capitalization sized US Equities), had a volatility of 18.5% and a maximum drawdown of nearly 35% over the same period. The 12 month rolling return correlation of Bitcoin to the Russell 1000 over this period has been on average 0.06. More recently, since the beginning of 2020, correlation has been higher (~0.26) as a consequence of COVID 19 induced market conditions. Nevertheless, despite the drawdown, Bitcoin has returned ~80% per annum since 2015, significantly greater than the ~11% per annum return of the Russell 1000.

How then can the risks associated with Bitcoin be managed to permit a portfolio allocation? The key is to utilize diversification and control volatility in the portfolio construction. There are many sophisticated techniques to facilitate this, which make use of forecasting and optimization, however, such complexity it not necessary. In this short note three simple and accessible approaches are explored, which can aid the incorporation of Bitcoin and other digital assets into an existing portfolio.

The first is to apply a volatility control mechanism to reduce the volatility of Bitcoin to a level comparable to stocks. A simple approach is to combine Bitcoin with a low volatility asset such as cash. Rebalanced daily, a 50% equal weighting of Bitcoin and cash will almost halve volatility over the 2015-2020 period from 72% to 36% — see Exhibit 1. This in turn helps reduce the maximum drawn down from 80% to 55%.

#### AUTHOR

Martin Howard Senior Research Analyst +44 0 20 7866 1950 martin.howard@lseg.com

### FTSE Russell

A more sophisticated method is to adjust the weighting of the cash component based on the current level of Bitcoin volatility, thereby controlling volatility to achieve a target level on average, for example 25%. There are several ways this can be achieved, one being the FTSE Russell Target Volatility methodology, which on average has around 45% allocated to Bitcoin and 55% allocated to cash when targeting 25% volatility. However, whilst this results in significant mitigation of risk in the cash and Bitcoin portfolio, performance is dampened and it essentially represents an all or nothing exposure to the digital asset. The performance resulting from applying the FTSE Russell Target Volatility methodology with a 25% volatility target and a 50% Bitcoin, 50% cash portfolio is presented in Exhibit 1 and Exhibit 2 below.

#### **Exhibit 1: Summary statistics**

# Summary Statistics from 31/12/2014 to 30/09/2020 (FTSE Russell Data)

	Russell	Bitcoin	Bitcoin 50%	Bitcoin 25% Target Volatility	Russell 1000	Russell 1000	Russell 1000 Bitcoin Boost 25%/5%
$Poturp \ p \ o \ (9/)$	10.71	90 E0	42.75	29.40	12.21	15.97	10.41
Return p.a. (%)	10.71	00.59	43.75	30.49	13.31	10.07	12.41
Volatility p.a. (%)	18.49	72.86	36.43	24.39	18.46	18.72	17.78
Risk/Reward Ratio	0.58	1.11	1.20	1.58	0.72	0.85	0.70
Max. Drawdown (%)	-34.58	-83.00	-55.22	-42.07	-34.54	-34.63	-33.92
Excess Return (%)		69.89	33.04	27.78	2.60	5.16	1.70

Source: FTSE Russell as of September 30, 2020. Past performance is no guarantee of future results. Data for Bitcoin indices represents hypothetical, historical data. Please see the end for important legal disclosures.



#### Exhibit 2: Volatility and drawn downs can be mitigated by mixing Bitcoin and cash

Source: FTSE Russell. Past performance is no guarantee of future results. Data for Bitcoin indices represents hypothetical, historical data. Please see the end for important legal disclosures.

How about diversification? Greater diversification can be achieved by increasing the number of holdings in a portfolio and/or by choosing assets with low correlation to Bitcoin. As mentioned above, Bitcoin generally has a low return correlation with equities. This aids diversification since equity returns and Bitcoin returns are more asynchronous and drawn downs consequently are more likely to occur in different periods. This provides the second mechanism to mitigate risk associated with Bitcoin.

For example, allocating 2.5% to Bitcoin and the remaining 97.5% to the Russell 1000 and rebalancing the allocations on a quarterly basis ensures exposure to Bitcoin is limited and overall portfolio risk is mitigated through diversification across large number of stocks in the Russell 1000. The volatility and maximum drawn down are comparable to those of the Russell 1000, however an excess return of 2.6% per annum was realized. An increased allocation of 5% to Bitcoin enhanced the performance further, whilst volatility and drawdowns were virtually identical to those of the Russell 1000. Exhibit 3 and Exhibit 1 provide an illustration of the simulated history and summary statistics.

# Exhibit 3: A small allocation of Bitcoin can provide enhanced performance, additionally indexes with Bitcoin exposure have an almost identical risk profile to the underlying Russell 1000



Source: FTSE Russell. Past performance is no guarantee of future results. Data for Bitcoin indices represents hypothetical, historical data. Please see the end for important legal disclosures.

The final approach combines these two ideas. The benefit of doing this can be seen in Exhibit 4, which illustrates the rolling 12 month volatility of the portfolios discussed. A 5% allocation of a 25% target volatility Bitcoin portfolio, with the remainder being allocated to the Russell 1000 is used to create the Russell 1000 Bitcoin Boost 25%/5% Index. This results in marginally lower realized volatility during the high volatility periods of later 2017 and in 2020. The performance is presented in Exhibit 3 with summary statistics in Exhibit 1.



#### Exhibit 4: The rolling 12 month historical volatility of different portfolios

Source: FTSE Russell. Past performance is no guarantee of future results. Data for Bitcoin indices represents hypothetical, historical data. Please see the end for important legal disclosures.

### Conclusion

In summary, utilizing relatively straightforward portfolio construction techniques it is feasible to mitigate some of the perceived risks of Bitcoin and other digital assets by reducing volatility and taking advantage of their low correlation to traditional asset classes and diversification through portfolio weighting. In doing so, a risk controlled Bitcoin portfolio can be integrated into equity (or other asset class) portfolios, thereby gaining exposure to Bitcoin as a natural extension to the portfolio construction process.

### About FTSE Russell

FTSE Russell is a leading global provider of benchmarks, analytics and data solutions with multi-asset capabilities, offering a precise view of the markets relevant to any investment process. For over 30 years, leading asset owners, asset managers, ETF providers and investment banks have chosen FTSE Russell indexes to benchmark their investment performance and create investment funds, ETFs, structured products and index-based derivatives. FTSE Russell indexes also provide clients with tools for performance benchmarking, asset allocation, investment strategy analysis and risk management.

# To learn more, visit <u>ftserussell.com</u>; email <u>info@ftserussell.com</u>; or call your regional Client Service Team office

**EMEA** +44 (0) 20 7866 1810 North America +1 877 503 6437 Asia-Pacific Hong Kong +852 2164 3333 Tokyo +81 3 4563 6346 Sydney +61 (0) 2 8823 3521

© 2020 London Stock Exchange Group plc and its applicable group undertakings (the "LSE Group"). The LSE Group includes (1) FTSE International Limited ("FTSE"), (2) Frank Russell Company ("Russell"), (3) FTSE Global Debt Capital Markets Inc. and FTSE Global Debt Capital Markets Limited (together, "FTSE Canada"), (4) MTSNext Limited ("MTSNext"), (5) Mergent, Inc. ("Mergent"), (6) FTSE Fixed Income LLC ("FTSE FI"), (7) The Yield Book Inc ("YB") and (8) Beyond Ratings S.A.S. ("BR"). All rights reserved.

FTSE Russell<sup>®</sup> is a trading name of FTSE, Russell, FTSE Canada, MTSNext, Mergent, FTSE FI, YB and BR. "FTSE<sup>®</sup>", "Russell<sup>®</sup>", "FTSE Russell<sup>®</sup>", "MTS<sup>®</sup>", "FTSE4Good<sup>®</sup>", "ICB<sup>®</sup>", "Mergent<sup>®</sup>", "The Yield Book<sup>®</sup>", "Beyond Ratings<sup>®</sup> and all other trademarks and service marks used herein (whether registered or unregistered) are trademarks and/or service marks owned or licensed by the applicable member of the LSE Group or their respective licensors and are owned, or used under licence, by FTSE, Russell, MTSNext, FTSE Canada, Mergent, FTSE FI, YB or BR. FTSE International Limited is authorised and regulated by the Financial Conduct Authority as a benchmark administrator.

All information is provided for information purposes only. All information and data contained in this publication is obtained by the LSE Group, from sources believed by it to be accurate and reliable. Because of the possibility of human and mechanical error as well as other factors, however, such information and data is provided "as is" without warranty of any kind. No member of the LSE Group nor their respective directors, officers, employees, partners or licensors make any claim, prediction, warranty or representation whatsoever, expressly or impliedly, either as to the accuracy, timeliness, completeness, merchantability of any information or of results to be obtained from the use of FTSE Russell products, including but not limited to indexes, data and analytics, or the fitness or suitability of the FTSE Russell products for any particular purpose to which they might be put. Any representation of historical data accessible through FTSE Russell products is provided for information purposes only and is not a reliable indicator of future performance.

No responsibility or liability can be accepted by any member of the LSE Group nor their respective directors, officers, employees, partners or licensors for (a) any loss or damage in whole or in part caused by, resulting from, or relating to any error (negligent or otherwise) or other circumstance involved in procuring, collecting, compiling, interpreting, analysing, editing, transcribing, transmitting, communicating or delivering any such information or data or from use of this document or links to this document or (b) any direct, indirect, special, consequential or incidental damages whatsoever, even if any member of the LSE Group is advised in advance of the possibility of such damages, resulting from the use of, or inability to use, such information.

No member of the LSE Group nor their respective directors, officers, employees, partners or licensors provide investment advice and nothing contained herein or accessible through FTSE Russell products, including statistical data and industry reports, should be taken as constituting financial or investment advice or a financial promotion.

Past performance is no guarantee of future results. Charts and graphs are provided for illustrative purposes only. Index returns shown may not represent the results of the actual trading of investable assets. Certain returns shown may reflect back-tested performance. All performance presented prior to the index inception date is back-tested performance. Back-tested performance is not actual performance, but is hypothetical. The back-test calculations are based on the same methodology that was in effect when the index was officially launched. However, back-tested data may reflect the application of the index methodology with the benefit of hindsight, and the historic calculations of an index may change from month to month based on revisions to the underlying economic data used in the calculation of the index.

This document may contain forward-looking assessments. These are based upon a number of assumptions concerning future conditions that ultimately may prove to be inaccurate. Such forward-looking assessments are subject to risks and uncertainties and may be affected by various factors that may cause actual results to differ materially. No member of the LSE Group nor their licensors assume any duty to and do not undertake to update forward-looking assessments.

No part of this information may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without prior written permission of the applicable member of the LSE Group. Use and distribution of the LSE Group data requires a licence from FTSE, Russell, FTSE Canada, MTSNext, Mergent, FTSE FI, YB, BR and/or their respective licensors.