The Emerald Handbook on Cryptoassets

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The Emerald Handbook on Cryptoassets: Investment Opportunities and Challenges

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INVESTOR IN PEOPLE

We dedicate this book to Linda and Rory Baker; Pascale and Luciano Benedetti; Parvin, Auzin, and Daniel Nikbakht, and Ximena Romero; and Frederick Smith, Kathleen Stein Smith, Patrick Stein Smith, and Frederick Stein Smith.

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"To write is human, to edit is divine."

Stephen King

Publishing a book is a team effort. Therefore, we have several major players to thank for their roles in this book project. For this edited book, the chapter authors created the content. We are grateful to them for devoting countless hours to writing and revising their chapters. Our role as editors was to honor their intention while helping to enhance each chapter's clarity. We wanted the book's format and style to be internally consistent so that it is more than just a collection of chapters from different authors. Michael Lee notes, "The first draft reveals the art; revision reveals the artist." We also appreciate the high degree of professionalism exhibited by Emerald Publishing's staff, especially Charlotte C. Maiorana (Vice President, Emerald Books), Kirsty Woods (Contact Development Editor), and Pavithra Mutha (Production Manager). We also thank S. Rajachitra, Lead Project Manager, KnowledgeWorks Global Ltd. We appreciate the support provided by our respective institutions: Kogod School of Business at American University; ESE Business School at Universidad de Los Andes, Chile; Frank G. Zarb School of Business at Hofstra University; and Lehman College at the City University of New York. We thank our families for their support. Finally, we dedicate this book to Linda and Rory Baker; Pascale and Luciano Benedetti; Parvin, Auzin, and Daniel Nikbakht; Ximena Romero; and Frederick Smith, Kathleen Stein Smith, Patrick Stein Smith, and Frederick Stein Smith.

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Part I

The Cryptoasset Landscape

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Chapter 1

Cryptoassets: An Overview

H. Kent Baker, Hugo Benedetti, Ehsan Nikbakht and Sean Stein Smith

Abstract

Bitcoin's introduction as the first cryptoasset in 2009 ushered in a new era, representing a seismic shift in the financial markets. Since then, this evolving asset class has generated much interest, excitement, and growth. This chapter begins by providing a brief background of cryptoassets. It then discusses their main types (cryptocurrencies, security tokens, and utility tokens), users (individual investors, major financial institutions, endowments, and hedge funds), and benefits and drawbacks. Next, it sets forth the book's purpose, distinguishing features, intended audience, and structure. The chapter provides a synopsis of each of the remaining 21 chapters. Although no single book can encompass all changes and iterations of these technologies as they emerge in the marketplace, this book brings together a broad collection of industry expertise and academic analysis to create a book helpful to researchers, academics, and practitioners.

Keywords: Cryptoassets; bitcoin; security tokens; utility tokens; individual investors; financial institutions

Introduction

Since bitcoin's introduction as the first cryptoasset in 2009, this evolving asset class has generated considerable interest and excitement among both academics and practitioners. A *cryptoasset* is a private digital asset that uses cryptography and serves as a medium of exchange. The most well-known cryptoassets are cryptocurrencies, such as bitcoin, that permit buying goods and services or trading them for a potential profit. However, cryptocurrencies are not like using cash and are not very "money-like." Thus, cryptoasset owners view them as investments and expect their value to rise.

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Besides cryptocurrencies, other types of cryptoassets include security tokens, utility tokens, stablecoins, and tokenized securities. The price of cryptoassets can be unpredictable and highly volatile, making them risky investments. Some, like bitcoin, are well-known global brands trading on exchanges worldwide. Others have a much smaller market presence.

What is sure about cryptoassets is that they are here to stay. CoinMarketCap, a popular data aggregator, reports thousands of different cryptoassets, with new ones created frequently. Multiple cryptoassets exist because their creators optimize the underlying blockchains for various uses. The market capitalization of some cryptoassets exceeds $1 trillion. Those involved in cryptoassets include individual investors, major financial institutions, endowments, and hedge funds.

Cryptoassets, especially more prominent cryptocurrencies such as bitcoin, are attractive to investors because of potentially high returns. However, increased volatility accompanies high returns. Another potential benefit of including bitcoin in an investment portfolio is its low correlations with traditional assets such as stocks and bonds. Thus, including bitcoin in a portfolio offers diversification benefits. Over time, however, bitcoin's low correlations with other asset classes are likely to rise. Bitcoin is currently an early-stage investment opportunity, and its core drivers differ from those of other assets. Despite the investment opportunities offered by bitcoin and other cryptoassets, investors entering this market face substantial challenges, including low quality of information, a lack of sound or academically defensible valuation models, regulatory uncertainty, and inadequate due diligence.

About this Book

This section discusses the book's purpose, distinguishing features, and intended audience.

Purpose

This book offers curious investors and others, such as investment practitioners, academics, and students, a helpful guide to understanding cryptoassets and their role in investment portfolios.

Distinguishing Features

The following features distinguish *The Emerald Handbook on Cryptoassets: Investment Opportunities and Challenges* from others.

- This book provides a detailed examination of cryptoassets from an investment perspective. It focuses on investment opportunities and real-world challenges rather than technical or theoretical topics.
- It skillfully blends scholars' and practitioners' contributions into a single review of critical topics and issues about cryptoassets. The contributors' varied

backgrounds ensure different perspectives and a rich interplay of ideas. The book also reflects the latest trends and research.

- The book follows an internally consistent format and style while retaining the contributors' content and perspectives. Like a choir, the book's authors have separate voices. A goal of a choir and this book is to have the voices act harmoniously. This task requires skilled editing to create a smooth flow between chapters. Hence, the book is an orderly presentation of various topics organized into separate sections from different authors.
- When discussing the results of empirical studies that connect theory and practice, our objective is to make them understandable to a wide array of readers with different backgrounds.
- The end of each chapter contains four to six questions reinforcing key concepts. The end of the book includes guideline answers for each question. This feature should help faculty and students use the book in courses.

Intended Audience

The Emerald Handbook on Cryptoassets: Investment Opportunities and Challenges should appeal to its target audience of academics and practitioners because of its investor perspective. Because it covers a broad range of topics related to cryptoassets, it can serve as a guide for investors, financial practitioners, and students. The book should interest anyone seeking to become more knowledgeable about this fast-moving subject area.

This volume spans the gamut from theoretical to practical while offering the right balance of detailed and user-friendly coverage. Discussion of relevant research permeates the book. Although other books are available on cryptoassets, especially cryptocurrencies, few examine this topic from an investor's perspective. Scholarly, edited books, including academics and practitioners' contributions on the investment opportunities and challenges facing cryptoassets, are largely absent in the marketplace. This book helps to fill this gap and contributes to the growing field of cryptoassets.

Book's Structure

The remainder of this book consists of 21 chapters divided into five parts. Below is a brief synopsis of each section and chapter.

Part I. The Cryptoasset Landscape. Besides the current chapter, this part includes Chapters 2 and 3, examining the cryptoasset auditing, accounting, and investing landscapes.

Chapter 2 – The Cryptoasset Auditing and Accounting Landscape (Sean Stein Smith). This chapter examines emerging topics and trends as it connects cryptoassets to accounting, auditing, and financial reporting. It discusses the treatment of cryptoassets from a financial reporting perspective under United States and international accounting standards, frequently asked questions about auditing, attestation, and potential best practices for auditing various cryptoassets. It also discusses accounting for now and potential in the future. The chapter

outlines how the rapidly changing cryptoasset landscape could lead to differentiated accounting treatment and audit best practices for practitioners seeking to attest to certain aspects of cryptoassets.

Chapter 3 – The Crypto Investing Landscape (John Ward). This chapter discusses the current landscape for digital asset investing and the operational risks facing cryptocurrency investors. It also examines the ongoing progress in the institutionalization of digital asset investment and the risks inherent when investing in cryptocurrencies and blockchain opportunities. Investors considering investing in a public or private fund that invests in digital assets must be aware of the operational risks that may directly impact their investments, including risks from portfolio concentration, illiquidity, hacking, digital asset custody, and digital asset valuations. Operational due diligence reviews of funds and fund managers are critical in assessing operational risks for digital asset investment.

Part II. Types of Cryptoassets. This part consists of Chapters 4–8, examining different types of cryptoassets: cryptocurrencies, security tokens, utility tokens, stablecoins, and tokenized securities.

Chapter 4 – Cryptocurrencies (Lennart Ante). This chapter introduces the concept of cryptocurrencies such as bitcoin, ether, or litecoin. The chapter describes the history of cryptocurrency, blockchain technology, and the quest for secure digital money, followed by a discussion of cryptocurrency as a phenomenon. Next, it discusses individual cryptocurrencies, including an overview of bitcoin and relevant subgroups, such as so-called forks or privacy coins. It also explains developments such as stablecoins or central bank digital currencies, which are potentially much more in line with bitcoin's original idea of digital cash. The chapter provides a basic understanding of cryptocurrencies, their defining characteristics, challenges, and markets.

Chapter 5 – Security Tokens (Paul P. *Momtaz*). This chapter synthesizes the economics, law, and technology of security tokens and security token offerings (STOs). Security tokens are an increasingly important instrument in decentralized finance (DeFi) markets. They are blockchain-based investment contracts that are subject to securities law. Interoperability, fractional ownership, market liquidity, and rapid settlement are the main reasons for considering security tokens a primary catalyst for digitizing finance. The chapter empirically compares STOs with initial exchange offerings (IEOs) and initial coin offerings (ICOs). STOs take longer and raise more funding. However, controlling for other factors, the amount raised in STOs and IEOs is lower than in utility token ICOs. These findings suggest an avenue for future research. Moreover, both the law and the technology of security tokens need to address critical challenges related to the competent jurisdiction in multinational activities and blockchain interoperability, scalability, and natural resource degradation.

Chapter 6 – Utility Tokens (Hugo Benedetti, Christian Caceres, and Álvaro Abarzúa). Utility tokens are digital currencies that serve as the only accepted means of payment for services and products provided through a blockchain-based platform. They finance the development of their product or service, reward and incentivize early adopters and network promoters, align economic incentives between supply, demand, and the marketplace, and enhance network

effects among all participants. Their tokenomic design consists of the rules and regulations governing a token's issuance, distribution, allocation, and potential destruction. The chapter describes utility tokens, compares them with other types of cryptoassets, and discusses their value creation process and role in network economics. It also reviews standard tokenomic designs, discusses different regulatory approaches, and provides examples of current utility token applications in decentralized applications such as DeFi and virtual reality platforms (metaverses).

Chapter 7 – Stablecoins (Ingo Fiedler and Lennart Ante). This chapter introduces the concept of stablecoins such as Tether, DAI, or Ampleforth. It also provides a taxonomy of the different types of stablecoins consisting of (1) traditional asset-backed stablecoins, (2) crypto-collateralized stablecoins, and (3) algorithmic stablecoins and seigniorage shares. The chapter continues with a brief history of stablecoins, starting from BitShares as the first stablecoin implementation over Tether and market-wide stablecoin adoption to Facebook-initiated Diem. Next, the chapter explains the impact of stablecoins on cryptocurrencies and other markets and discusses trends and challenges facing stablecoins. The chapter provides a basic understanding of stablecoins, their defining characteristics, challenges, and markets.

Chapter 8 – Tokenized Assets and Securities (Hugo Benedetti and Gabriel Rodríguez-Garnica). Tokenization is a relatively new activity in digital finance. Developers can enhance the standard features and characteristics of assets and securities by tokenization, a process that creates a blockchain representation of the underlying instrument. Asset and security tokenization produces benefits. These benefits include reducing issuance and trading costs, lessening dependency on intermediaries, facilitating more liquidity in markets, and providing greater transparency around an asset's lifecycle for all parties involved. This chapter synthesizes the key characteristics, benefits, processes, tools, and techniques of tokenizing real-world assets. It also provides examples of current asset-backed token applications to help understand the rapidly growing industry and analyzes future expectations of this new technology.

Part III. Cryptoassets as Investment Opportunities. The third part contains Chapters 9–14, discussing cryptoasset products, decentralized finance, blockchain and crypto exchange-traded funds, cryptocurrency valuation, cryptoassets in a portfolio context, and cryptoasset frauds.

Chapter 9 – A Comparative Review of Cryptoasset Products (Kristin M. Kalish, Kerem Proulx, and Andrew C. Spieler). Cryptoassets are an asset class recorded digitally that does not represent a financial claim or liability for an issuer or a custodian. This chapter provides a detailed review of various cryptoassets by comparing different characteristics, products, and listing exchanges and discusses criticisms of the crypto ecosystem. It also discusses cryptoasset features, methods of tokenization, and advances in decentralized, peer-to-peer exchanges. Another topic examined is the criticisms of cryptoasset exchanges and ongoing regulatory implications due to cryptocurrency's open-source nature. The chapter evaluates various types and trends of cryptoassets, including currency, utility, platform, and transactional tokens

Chapter 10 – Decentralized Finance (Kiran Pandian, Daniel Pfeiffer, and Samson Qian). One aspect of the opportunities and challenges for cryptoassets concerns DeFi. DeFi is a growing area of cryptoassets that couples blockchain technology, digital assets, and financial services. DeFi is a publicly available system on a decentralized blockchain network, offering financial products and applications. This chapter provides an overview of the DeFi universe with massive potential in various industries in the global market. It also discusses the implications of DeFi's new wave and its applications involving ICOs and stablecoins and specific challenges like the scalability trilemma in DeFi and financial markets.

Chapter 11 – Blockchain and Crypto Exchange-traded Funds (Philip C. Sookram). This chapter examines the current state of crypto exchange-traded funds (ETFs). It focuses on issues preventing wider implementation and specific products. ETFs have become a popular investment vehicle that investors use to help achieve their long-term goals. A recurring theme is that regulators protect individual investors from exposure to cryptocurrency, which can be a highly speculative investment. Pressure from institutions and investors for a bitcoin-based ETF made progress in 2021 when Proshares, an ETF specialized investment company, debuted the first-ever bitcoin futures ETF in the United States. This event is the first-time investors could buy a fund on the New York Stock Exchange that tracks derivative futures contracts of bitcoin. This occurrence pushed this digital asset's spot price to all-time highs, serving as a breakthrough in cryptocurrency history.

Chapter 12 – Approaches to Cryptocurrency Valuation (Arman Eshraghi). Cryptocurrencies are notoriously tricky to value from a fundamental perspective. This valuation challenge is rooted in various debated issues in academia and the investments industry. For example, do cryptocurrencies and other cryptoassets have intrinsic value in the conventional sense? Can one appropriately regard cryptocurrencies as digital fiat currencies? What distinguishes cryptocurrencies such as bitcoin and ether from precious metals like gold from a financial perspective? How do cryptocurrencies compare to other cryptoassets in terms of pricing and valuation? This chapter answers these questions, discusses approaches to valuing cryptoassets, and identifies areas for future research.

Chapter 13 – Cryptoassets in a Portfolio Context (Robinpreet Dhillon and Ehsan Nikbakht). Since the inception of modern portfolio theory, traditional asset classes have been the standard investment products for portfolio construction. With the introduction of cryptoassets, including cryptocurrencies, tokenized securities, smart contracts, and blockchain-based token assets, the crypto "revolution" created a new asset class for consideration in a modern portfolio. This chapter explains cryptoassets in a portfolio, including their limitations and parameters as an asset class in a diversified portfolio. Finally, it reports an improvement in a new portfolio's reward/risk ratio using the Sharpe ratio when adding cryptoassets to simulated equity, bonds, and real estate portfolios. A caveat is that a cryptoasset's contribution to a well-diversified traditional portfolio differs from the performance of investing in a single and isolated cryptoasset.

Chapter 14 – Protection of Portfolios and Financial Consumers from Cryptoasset Frauds (Ibrahim E. Sancak). This chapter introduces the fundamentals of