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The Shadow Banking Sector & Alternative Financing Driven by Technology

Industry Snapshot and Forecast

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Executive Summary

The "shadow banking sector" refers to the activities of non-banks that raise short-term funds in the money markets and use those funds to buy assets with longer-term maturities. A new generation of "shadow" actors emerged (or in some cases re-emerged) out of the financial crisis and, by creatively harnessing technology and other trends, is serving to disrupt the traditional financial sector. Key players in the shadow banking sector cut across six segments of activity: consumer lending, small business lending, leveraged lending (loans to non-investment grade businesses), mortgage banking (both origination and servicing), commercial real estate and student lending.

The shadow banking sector was not the only form of alternative financial services emerging from or otherwise charged by the crisis. Other variants that have enjoyed significant attention and growth include digital wealth management strategies that are leveraging high-tech talent to build out simpler and cheaper methods of delivering financial advice in an innovative way, as well as cryptocurrencies that make it easier to transfer funds between two parties in transactions and enables users to avoid the steep fees charged by most banks and financial institutions for wire transfers.

The U.S. Federal Reserve estimated in 2013 that gross shadow banking liabilities in the U.S. (which is the Fed's measure of non-bank credit intermediation) were at roughly $15 trillion, reflecting a decrease of 30% from a peak of $22 trillion in 2007. Traditional bank liabilities grew from $14 trillion to $16 trillion over the same period. In regards to digital wealth advising, evidence from EY estimated a steep growth curve associated with assets controlled by millennials (the primary audience for the digital wealth management platforms) to rise from about $2 trillion in aggregate net worth today to approximately $7 trillion in five to seven years.

Whether discussing the major segments of shadow banking or digital wealth management strategies and cryptocurrencies, evidence suggests a few trends are similarly influencing the emergence of all three. These include: regulatory arbitrage, technology lowering barriers to entry, demographics, and a favorable macro environment. This has led to the emergence of new players at lower prices, faster and more convenient access to loans, and as investors search for higher yield assets, these new entrants have been pushing to higher risk borrowers.

The risks and challenges associated with the shadow banking sector, digital wealth management, or cryptocurrencies essentially are reflected in one common threat: the prospect of increased regulatory oversight. As the players in the shadow banking sector experience continued growth, a tipping point will be reached whereby (a) regulators like the Financial Stability Oversight Council (FSOC) will directly take an interest and respond with new

regulations and/or (b) incumbent banks will indirectly push the FSOC and others for increased regulatory scrutiny of the shadow banking sector (in addition to becoming more price competitive and replicative with services).

Digital wealth management strategies are grappling with the challenge of going beyond millennials who are largely younger and tech savvy to earn the trust of older generations, a pivot that will likely be challenging given these firms' limited track record and recognition. Similar to the "shadow" sector, cryptocurrencies face increased scrutiny, with regulators and competitors alike beginning to focus on the blockchain technology that underpins digital currencies and are pushing for a transparent and decentralized market.

To overcome these challenges and fulfill the disruptive potential of the shadow banking sector and digital advice and currencies, a number of breakthrough opportunities are needed, including: achieving true mass market feasibility, better mixing people and technology, coalescing around the open ledgers and increased transparency, going deeper with banking the unbanked, and engaging more effectively with regulatory and policy players.

Key Terms & Definitions, Scope & Scale, and Influencing Trends & Innovations

TERMS AND DEFINITIONS

"Shadow banking" was first coined by Paul McCulley, PIMCO's former chief economist, in a 2007 speech at the annual financial symposium hosted by the Kansas City Federal Reserve Bank in Wyoming. As framed by McCulley, the term and corresponding sector of activity have a particularly U.S. focus and refer "mainly to nonbank financial institutions that engaged in what economists call *maturity transformation*. Traditional commercial banks engage in maturity transformation when they use deposits, which are normally short term, to fund loans that are longer term."[i] It is in this way that shadow banks similarly "raise (that is, mostly borrow) short-term funds in the money markets and use those funds to buy assets with longer-term maturities. But because they are not subject to traditional bank regulation, they cannot—as banks can—borrow in an emergency from the U.S. Federal Reserve and do not have traditional depositors whose funds are covered by insurance." [ii] As one observer at the IMF noted, they

essentially operate in the "shadows."[iii]

Also included are other variants of alternative financing that are being similarly disrupted by technology such as digital wealth management strategies and cryptocurrencies. "These firms have created direct-to-consumer models to provide the basic elements of wealth management advice, minimizing the traditional reliance on human advisors and ultimately changing the fundamental economics and scalability of underserved segments. They have done so by combining the basic components of a wealth management offering with simple user interfaces, seamlessly integrated and automated technology, lower pricing with greater transparency, and client-relevant digital content."[iv]

Finally, while the creation and growth of cryptocurrencies such as Bitcoin have been tainted by stories of the illegal activities, it is the underlying technology of the blockchain that is the most important element of this phenomenon. In essence, the blockchain is a shared, trusted, public ledger that everyone can inspect, but which no single user controls. The participants in a blockchain system collectively keep the ledger up to date: it can be amended only according to strict rules and by general agreement. Bitcoin's blockchain ledger prevents double-spending and keeps track of transactions continuously. It is what makes possible a currency without a central bank.[v] Blockchains are also the latest example of the unexpected fruits of cryptography. Mathematical scrambling is used to boil down an original piece of information into a code, known as a hash. Any attempt to tamper with any part of the blockchain is apparent immediately—because the new hash will not match the old ones. In this way a science that keeps information secret (vital for encrypting messages and online shopping and banking) is, paradoxically, also a tool for open dealing.

A BRIEF HISTORY OF SHADOW BANKING, DIGITAL ADVISING & CRYPTOCURRENCIES

Like the very trends that are now influencing its development, shadow banking is largely driven by regulatory developments. Chief among them are the Dodd-Frank Wall Street Reform and Consumer Protection Act that was passed in 2010 following the financial crisis, as well the Basel III reform measures that placed new capital requirements on banks.[vi] The net of these regulatory changes has been lower returns on equity for certain products, historically offered by regulated banks. This has led banks to raise prices or shrink various businesses, creating room for an expansion of shadow banking players.[vii]

The financial crisis also helped to trigger the emergence of the digital financial services market, due as much to regulatory changes as it did to the creative uses of technology that addressed the resulting loss of client trust in incumbent financial institutions. Coming out of the crisis, "traditional wealth management firms were focused on meeting new regulatory requirements and the complexities of crisis-driven consolidation" but digital technology startups "saw an opportunity to leverage their high-tech talent to build out simpler and cheaper methods of

delivering financial advice in an innovative way."[viii] This collision of increasingly regulated traditional banks mixed with the arrival of innovative digital technology firms has served to enable alternative business models as well as expand "the boundaries of the wealth management client base."[ix]

Cryptocurrencies—particularly the generation that Bitcoin (the first decentralized cryptocurrency) has helped to usher in—also emerged around the time of the crisis. The main appeal of cryptocurrencies is that they "make it easier to transfer funds between two parties in transaction…enabling users to avoid the steep fees charged by most banks and financial institutions for wire transfers."[x] What's more, cryptocurrencies have "proposed a payment system that could do away with the need to trust in financial intermediaries or, in plainer parlance, banks. So out goes a need for money to be backed by gold or government fiat, and out too goes the need for established financial institutions. Currency is left naked for what it always was – anything that commands social agreement as a way of settling bills, even if that anything is not a tangible thing at all."[xi]

SCOPE & SCALE

The U.S. Federal Reserve estimated in 2013 that gross shadow banking liabilities in the U.S. are at roughly $15 trillion, which reflected a decrease of 30% from a peak of $22 trillion in 2007. Traditional bank liabilities grew from $14 trillion to $16 trillion over the same period.[xii] Researchers at Goldman Sachs argued in 2015 that:

> *The contraction of shadow banking liabilities is not surprising considering that the Fed's broad definition includes all structured credit (including asset backed securities now consolidated on bank balances following accounting rule changes), as well as commercial paper, repo and money market mutual funds. Additionally, during the financial crisis, several of the largest non-banks (particularly the investment banks) converted to Fed-regulated bank holding companies, further reducing the shadow bank universe.*[xiii]

Given the pendulum swing in the size of the shadow banking sector, Goldman researchers used a narrower definition and found:

> *Across six key lending segments with $12 trillion loans across banks and non-banks, we estimate that 59% were held on bank balance sheets (or serviced by banks in the case of mortgages), while non-banks held 41%. This compares to the Fed's measure of $15 trillion shadow bank liabilities with 52% inside the banking system. Across these segments, we estimate that banks could lose roughly $11bn of profit to non-banks.*[xiv]

In regards to digital wealth advising, evidence from EY estimated a steep growth curve associated with assets controlled by millennials (the primary audience for the digital wealth management platforms) to rise from about $2 trillion in aggregate net worth today to

approximately $7 trillion in five to seven years.[xv] What's more, EY's findings also reflect fast growth in other generations of investors including Gen X, Gen Y and Baby Boomers. Regionally, data suggests global penetration of digital wealth management strategies and cryptocurrencies in markets beyond the US. One such market is the UK, where digital advice platforms have launched, to fill the gap in affordable advice created by the regulatory rules of 2013. These rules, which prohibit banks and financial advisors from pocketing commissions for investment recommendations, were introduced to avoid any potential bias or conflict of interest.

The result, however, was a majority of banks exiting financial advice services altogether: advisor numbers dropped from 40,000 at the end of 2011 to 31,000 by the start of 2013, according to the UK Financial Services Authority.[xvi] This left millions of investors without access to any affordable advice and in search of an alternative, which the digital advisory space (fully compliant with new regulations) has been increasingly filling.[xvii] Asia-Pacific and Australia, both growing or large private wealth markets, are also becoming hotbeds of innovation in digital advice and solutions.[xviii]

KEY SEGMENTS

As reflected in the figure below, the Goldman report referenced above breaks down the shadow banking market of key players across 6 different types or segments of activity: consumer lending, small business lending, leveraged lending (loans to non-investment grade businesses), mortgage banking (both origination and servicing), commercial real estate and student lending. Also included are other variants of alternative finance that are being similarly disrupted by technology such as digital wealth management strategies (including robo-advising) and cryptocurrencies. While not the focus of this research inquiry, other variants such as Exchange Traded Funds (ETFs) and crowd-funding are also relevant to this discussion.[xix]

Exhibit 1: Profit pools at risk

Type	Total market size	Market size type	*% inside banking system*	Amount in banking system	*% in banking system at risk of leaving*	Amount at banks at risk of leaving	Total banking profit pool at risk	Select disruptors / new entrants	Competitive advantage?
Unsecured personal lending	$843bn	Loans O/S	*81%*	$683bn	*31%*	$209bn	$4.6bn	Lending Club, Prosper	Lower capital requirement, technology
Small business loans	$186bn	Loans O/S	*95%*	$177bn	*100%*	$177bn	$1.6bn	OnDeck, Kabbage	Technology (drives time, convenience)
Leveraged lending	$832bn	Loans O/S	*7%*	$57bn	*34%*	$19bn	$0.9bn	Alternative AM, BDCs	Regulatory
Student lending	$1,222bn	Loans O/S	*5%*	$65bn	*100%*	$65bn	$0.7bn	SoFi, Earnest, CommonBond	Regulatory, technology, convenience
Mortgage origination	$1,169bn	Ann'l volume	*58%*	$678bn	*100%*	$678bn	$2.1bn	Quicken, PFSI, Freedom	Regulatory, convenience
Mortgage servicing	$6,589bn	Loans O/S	*73%*	$4,810bn	*6%*	$300bn	$0.1bn	OCN, NSM, WAC	Regulatory, cost
CRE lending	$2,354bn	Loans O/S	*56%*	$1,322bn	*9%*	$118bn	$0.8bn	Comm. mREITS, alt. lenders	Regulatory, market dislocation
Total	$13,195bn		*59%*	$7,792bn	*20%*	$1,566bn	$10.9bn		

Source: Goldman Sachs Global Investment Research estimates.

INFLUENCING TRENDS

Whether discussing the major segments of shadow banking or digital wealth management strategies and cryptocurrencies, evidence suggests a few trends are similarly influencing the emergence of all three. These include: regulatory arbitrage (new regulations have made activities more expensive for regulated banks and caused many to exit or downsize lines of business, and products have been re-priced due to new rules), technology lowering barriers to entry (access to data and the internet have made it easier for lower cost and occasionally more convenient alternatives to banks to lend directly to consumers), demographics (adoption rates for the use of tech-based banking, wealth advising and currencies is high among millennials but is also generally growing among older generations), and a favorable macro environment (all-time low interest rates and historically low delinquencies for consumer loans have also contributed to credit creation).[xx] This has led to the emergence of new players at lower prices, faster and more convenient access to loans, and as investors search for higher yield assets, these new entrants have been lending to higher risk borrowers.[xxi]

Ecosystem of Players – The Shadow Banking Sector

PERSONAL CONSUMER LENDERS

The disaggregated consumer lending market is subject to disruption as the new entrants enjoy lower regulatory burdens than banks and gain pricing advantages due to their lower cost structure. This cost structure advantage is expected to continue to drive down the unit costs as the market share of the new entrants grows. These new consumer financers are peer-to-peer (P2P) lenders like publicly-traded Lending Club (ticker: LC) and private companies like Prosper. They have seen high growth in loan originations because they can offer a product similar to an unsecured personal loan from a bank but without the lenders retaining any credit risk. Unlike a bank loan funded by deposits, P2P loans are funded by merely connecting investors to borrowers. Today's P2P lenders can use technology, the internet and social networks to anonymize this process. Borrowers source their loans from people they have never met and investors can disburse loans based only on credit information and statistics.

SMALL BUSINESS LENDERS

The challenging small business lending sector that requires clear underwriting data in a historically opaque but underserved market will be increasingly captured by those lenders that can best apply big data analytics to fine tune their underwriting algorithms. The new entrants such as OnDeck and Kabbage can also benefit by accessing large data sets to better understand the underlying patterns of the small business credit risk within their loan portfolios. In order to

bring additional capital to small businesses, the U.S. Small Business Administration maintains several loan guarantee programs that provide partial guarantees to loans that conform to its guidelines. Most banks (and increasingly non-banks) originate a large portion of their small business loans using these programs and then package and sell the loans to third party investors. However, the underwriting and processing of these loans can take up to several months. New entrants are also able to differentiate their products by offering faster underwriting and origination of loans, often within 24 hours.

LEVERAGED LENDERS

Leveraged lending was at one time the bread and butter business of corporate banking as bank syndicates financed recapitalizations, acquisitions, stock buybacks, dividends and other highly-leveraged corporate transactions. Regulatory scrutiny on banks has pushed them away from these higher risk (and higher margin) transactions, creating an opportunity for private equity firms, business development companies and unregulated brokers. These increasingly risky assets—which have been disintermediated from the banking system—are now found in the portfolios of pension funds, endowments and retail investors. This shift is less about start-up entrants with disruptive business models or technology than a sector shift pre-dating the 2008 financial crisis from commercial bank loans to capital market products offered by firms such as Blackrock and KKR.

COMMERCIAL REAL ESTATE LENDERS

Similar to leveraged lending, commercial real estate lending is a niche opportunity for some non-banks such as Starwood Property, Colony Financial and Blackstone, which have been able to take advantage of a wave of maturities of commercial mortgage-backed securities (CMBS) that will not be eligible for refinancing from banks or CMBS due to their cash shortfalls. Many of these transactions were closed just before the 2008 crisis. These non-bank lenders are increasingly financing riskier assets such as acquisition and construction loans and non-U.S. assets.

MORTGAGE BANKERS

As banks shed long-term assets like mortgages, mortgage origination is experiencing a fast shift to non-banks. In just three years, the large non-banks' market share of mortgage originations has doubled to 42% and is expected reach up to 50%.[xxii] By way of example, Quicken Loan's is now the third largest mortgage originator (and largest online lender) in the U.S. This expansion has been driven by Quicken Loan direct online origination process as well as the retrenching of the established large banks and its lack of legacy problem assets such as subprime mortgages. By not having a branch system, Quicken Loan can also enjoy a lower cost of origination, but does have a correspondent lending operation through which it can provide funding to small community banks. Another illustration is PennyMac Financial Services (ticker: PFSI), which was founded by former executives of the failed Countrywide mortgage business in 2008 and has grown to be the 8th largest originator of mortgages in the U.S. PFSI has benefited from the pull

back by Bank of America, Citi and other incumbents from both their correspondent business and their origination of government-supported FHA/VA loans.

STUDENT LOAN LENDERS

Student loans have grown faster than any other financial asset class since the recession, reaching $1.3 trillion loans as of September 2015 (up from $700 billion in 2008).[xxiii] Because the U.S. Department of Education only offers a standard "one size fits all" product (and this accounts for almost all of the growth in the student loan market), new entrants such as SoFi have the opportunity to skim off the students with higher credit scores by offering lower interest rates and still maintain a good margin. This strategy has been called "disintermediating Uncle Sam" and generated high growth for the new players. For example, SoFi has been very successful in raising capital since its founding in 2011 and has issued over $5 billion in loans to date.[xxiv] Their business model is to refinance higher quality, lower risk student loans and then securitize them and sell them to third party investors that include banks, asset managers and targeted school alumni. Lenders must be accredited investors. In fact, SoFi has been marketed as an impact investment offering capital for education and allowing alumni to 'give back' while also receiving a diversified fixed income return. SoFi is now diversifying into mortgage and general consumer credit. CommonBond is another new lender focused on the graduate school loan market targeting MBA students. CommonBond offers a range of repayment options, including unemployment protection, deferred, interest-only options.

Ecosystem of Players – Digital Wealth Management

While shadow banking and wealth management reflect different aspects of financial services, the impact of technology, generational shifts, the democratization of finance and disruptive new entrants and business models are driving change in both.

DIGITAL WEALTH MANAGERS

All wealth management business models have been built on asset gathering strategies. These models have relied on a range of client acquisition strategies based on a combination of people and technology. Wealth management companies now struggle to reach the "next generation" of investors, as the cost of reaching and servicing these customers typically outweighs their assets. New entrants are using automated advising strategies, technology, and viral customer acquisition strategies to efficiently scale asset gathering efforts. These platforms benefit from changing demographics and consumer behavior to favor automated and passive investment strategies, a simple and transparent fee structure, and attractive unit economics that allow low

or no investment minimums. They are targeting an emerging but increasingly important segment of the market, the HENRYs – high earning, not rich yet.[xxv]

As reflected in the figure below, Wealthfront and Betterment, two of the largest automated advisers, have reached $2 billion and $1.4 billion in assets under management, respectively, likely driving a continued competitive response from traditional wealth managers. Correspondingly, Schwab is the most aggressive of the incumbents in developing competing automated products. The company launched Schwab Intelligent Portfolios in March 2015, an automated investment advisory service with 0% advisory fees. This product offers similar benefits to Wealthfront and Betterment, including automatic rebalancing, tax loss harvesting, and a fully online and automated environment. The incumbents such as Schwab will test the competitive advantage of Wealthfront and Betterment, though all of these companies could be beneficiaries as consumers adopt this type of wealth manager. [xxvi]

	Year founded	Investment Min	Advisory fee ($100k)	AUM ($mn)	Investors served
Wealthfront	2007	$5,000	0.25%	$2,000	22,000
Betterment	2008	$0	0.15%	$1,400	65,000
Personal Capital	2009	$100,000	0.89%	$1,000	2,500
FutureAdvisor Premium	2010	$10,000	0.50%	$240	1,700

Source: Company data, Goldman Sachs Global Investment Research

ADVISOR ASSISTED DIGITAL WEALTH MANAGERS

Advisor assisted digital wealth managers seek to offer the right combination of low-cost technology-driven automation with sufficient client support using their financial advisor representatives to find the optimal mix of people and technology to attract assets beyond Millennials to include the Generation Xers, Generation Ys and Baby Boomers, who currently have the bulk of investable assets.[xxvii] Their offering typically includes phone-base financial advisors to deliver personalized service but does not included the in-person interaction of traditional wealth management firms. These firms offer stocks in addition to the index funds and ETFs available at the robo-advisors. A higher intensity of the personal interaction typically correlates to higher assets under management and fees, but firms are finding that some HENRYs are staying with the low-touch options even as they grow their wealth rather than switching to more traditional wealth management models.

BLOCKCHAIN-ENABLED CURRENCY

Blockchain technology is now being revised by a broader range of players—well beyond Bitcoin—who are adapting it to more business applications. Major technology and financial firms – including IBM, Intel, Cisco, the London Stock Exchange, JP Morgan, Wells Fargo and

State Street – have launched an open source project overseen by the not-for-profit Linux Foundation to bring the benefits of blockchain technology to the business world, stock exchanges and other financial markets.[xxviii] While blockchain technology has the potential to serve as the foundation for a fundamental realignment of how all forms of assets are bought, sold and tracked, the emergence of specific disruptive new entrants will likely meet the strong pushback of incumbents who are already mastering the technology and applying it to their businesses.

Risks & Challenges

The risks and challenges associated with the shadow banking sector essentially boil down to one common threat: the prospect of increased regulatory oversight. As the players in the shadow banking sector experience continued growth, a tipping point will be reached whereby (a) regulators like the Financial Stability Oversight Council (FSOC), responsible for monitoring and designating systemic risks as they relate to the banking system, will directly take an interest and respond with new regulations and/or (b) incumbent banks will indirectly push the FSOC and others for increased regulatory scrutiny of the shadow banking sector (in addition to becoming more price competitive and replicative with services).[xxix]

The anonymity of these platforms may prove to be a problem. At the state level, the California Department of Business Oversight, which examines securities and lending activity in the state, sent requests to 14 companies for details about their lending practices, investors and business models. Firms receiving the requests included Kabbage Inc., Prosper Marketplace Inc., Avant Inc., On Deck Capital Inc. and Social Finance Inc., according to representatives for those companies. These investigations reflect regulators' increasing unease about security concerns as well as the terms and conditions under which these platforms originate loans.

Digital wealth management strategies and cryptocurrencies face slightly different risks and challenges. Chief among them is the ability to go beyond millennials that are largely younger and tech savvy, "earning the trust of older generations will likely be challenging given the firms' limited track record and recognition. The current use of mainstream advertising by some digital entrants to target a broader demographic illustrates the type of adjustments needed to venture into the wider market."[xxx] For cryptocurrencies, the threats are different. As **The Economist** put it in regards to Bitcoin, "The decentralized digital crypto-currency, powered by a vast computer network, is notorious for the wild fluctuations in its value, the zeal of its supporters and its degenerate uses, such as extortion, buying drugs and hiring hit-men in the online bazaars of the 'dark net.'"[xxxi] Regulators and competitors alike are beginning to focus on

the blockchain technology that underpins digital currencies and are pushing for a transparent and decentralized market.[xxxii]

Breakthrough Opportunities

There are a few key ways for the shadow banking sector and digital advice and currencies to fulfill their massive disruptive potential.

ACHIEVE TRUE MASS MARKET FEASIBILITY

The changes in economics and scalability enable these robo-advisors to reach client segments that have traditionally been unattainable for wealth managers. Providing financial services to the less well-off and the unbanked is also an area seeing considerable investment interest and activity. The sector promises to open hitherto closed spigots of capital to all classes, not just the middle and upper.

MIXING PEOPLE AND TECHNOLOGY

The clear split between business models driven by technology-based standardization and those with personal service will become less distinct as new entrants and incumbents will both seek to optimize their product offerings to combine both elements.

COALESCING AROUND THE OPEN LEDGER PROJECT

The blockchain could be the technology that will bring the promise of digitized banking closer to a reality. Open ledgers could transform how transactions are made, settled and monitored and bring the possibility of new decentralized ways to operate businesses and move capital.

GOING DEEPER WITH BANKING THE UNBANKED

The provision of financial services across communities has been a significant function of financial regulation (CRA, Usury Laws, etc.). As new entrants arrive that are not subject to the same forms of regulatory control as traditional regulated banks, the question of equity and appropriateness is highlighted. Are the new peer-to-peer lenders democratic grassroots platforms providing accessible and fairly priced capital to those who not have had access to it? Or are they just hi-tech pay-day lenders operating on the internet rather than out of a strip mall in a low-income community?

GATEKEEPERS OR GUARDRAILS?

By taking the institutional gatekeepers out of the flow of funds and information, the shadow banking sector has the opportunity to rewire the way we interact, providing larger swaths of the world's population with access to financial services and unlocking data to better inform and democratize finance. However, this speed and directness also raises the specter of illegal transactions and security concerns. The benefits that the shadow banking can create will only be

realized when the sector steps out of the shadows and engages with the regulatory and policy players it is has thus far avoided.

Next Steps

Per the proposed next phases of this stream of inquiry, additional research could usefully be conducted to understand how the shadow banking sector, digital wealth management and cryptocurrencies engage with environmental, social, and governance (ESG) considerations. This research could identify and explore to what extent the integration of ESG factors has penetrated these developments. Moreover, these disruptive sectors hold out the possibility of democratizing finance, but do not address the underlying impact of tools such as peer-to-peer lending on wealth creation. Other dimensions that could be beneficially explored with additional research include: (a) whether or not these business models can extend access to capital in order to build wealth beyond the cost savings from efficiency and standardization; (b) identification of the innovative governance structures for the organizations based on blockchain technologies; and (c) the implications of these technologies for governance.

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