



FinTech Rising

Developments indicating the future of money, finance, and payments

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The financial services industry is in the nascent phase of digital transformation. The industry that gave rise to the use of electronic computing in business enters its next stage of technological evolution.

We call our industry briefing “FinTech Rising” to emphasize the growing global traction and innovation in financial technology, the acceleration of the transition from the initial electronic financial technology systems to their digital FinTech cousins.

The year 2014 began with an emphasis on the acceleration of digital, mobile payments and ended with the introduction of Apple Pay as the top story. We wrapped up 2014 with a blogpost on **predictions for 2015**, with the best picks from our industry’s thought leaders.

The last two articles on that list were both surprising and obvious: no big splash for 2015. We’ve examined a lot of interesting pushes happening in payments and FinTech, and it seems clear that 2015 is gearing towards a focus on monetization rather than radical innovation.

“FinTech Rising” starts with the future of cryptofinance. We look at the legitimation of two currencies and their implications for the future of money and trade.

Yet the systems of the present are strongly resilient. Fraud is ever present, even in the new core of mobile payments, Apple Pay. Legacy systems, including paper, remain a problem and focus of the U.S. Federal Reserve System’s move to a “faster payments” system.

Throughout it all, we harbor notions that the existing, established institutions will embrace and be embraced by the digital innovators—an open question, to be sure. Many of these topics are ripe for debate, and we’d love to hear your thoughts. Drop us a line in the **comments**.



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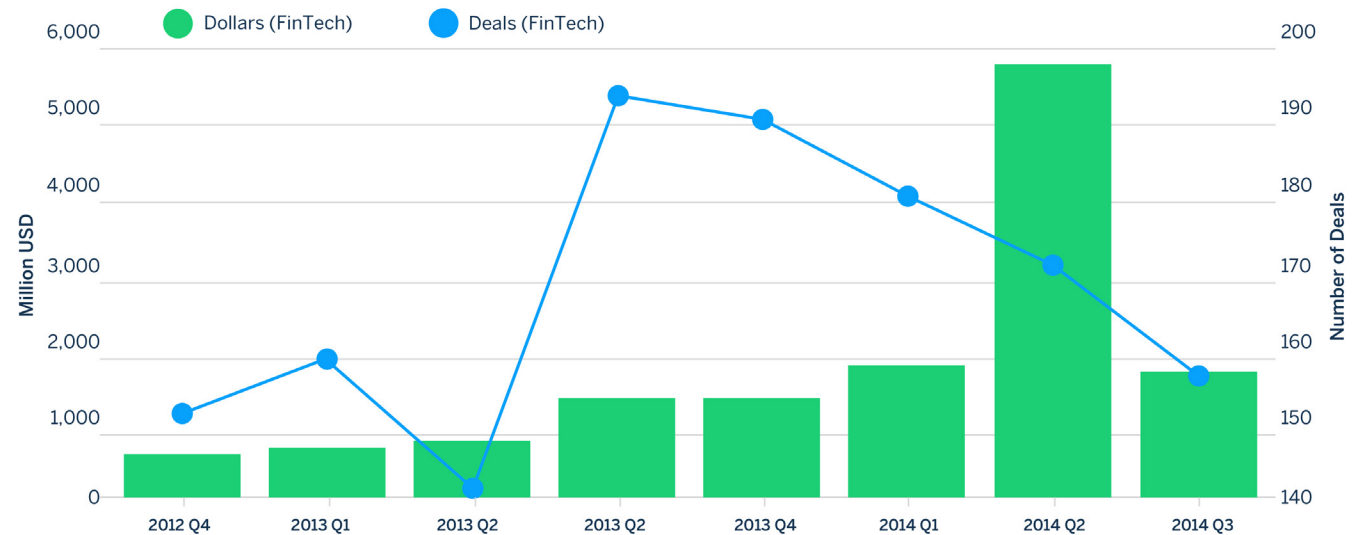
The Growth of FinTech

Venture capital firms paid increasing attention to FinTech in 2014, with a particular focus on the technologies that made the legitimization of the cryptocurrency Bitcoin one of the year's top developments. Investment in FinTech has risen from \$520 million in 2010 to about \$3 billion in 2014, with over 60% of this past year's investment coming from the United States.

The 2014 Accenture analysis of data from New York-based investment and venture research firm CB Insights

predicts that global investment will continue to rise steadily. With investment dollars more than doubling 2013 rates by 2018, the total investment has risen to \$6-8 billion. CB Insights puts total 2014 FinTech investment at more than \$12 billion, as opposed to more than \$4 billion in 2013, as reported in Silicon Valley Bank's 2015 "Investment Trends in Fintech" **annual report**. The research firm Venture Scanner now tracks more than 1,000 digital **FinTech firms**.

FinTech Investment Q42012 – Q32014
Dollars and Deals



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The Growth of FinTech (continued)

2014 has been called a **watershed year for FinTech**, but payments, lending services, crypto-currencies, and money transfers still have plenty of traction to gain. With domestic total investment projected to reach up to \$4.7 billion by 2018, FinTech's rise doesn't appear to be slowing, Accenture predicts.

Geographically, most investment is focused in Silicon Valley, which still holds the largest FinTech investment dollar share domestically. Since 2008, the FinTech investment growth percentage curves of Silicon Valley, the United States, and global investment have been similar, while New York City's has grown exponentially, as reported in Accenture's "**The Rise of Fintech: New York's Opportunity for Tech Leadership.**" New York maintains the largest local FinTech group in the country. Boston, the other important technology cluster in the United States, maintains the third-largest FinTech group in the country.

The EU saw a 34% year-over-year increase in FinTech investment for 2014, with the United Kingdom leading the charge. Many analysts **put London as the center of FinTech investment** and suggest that the city will dominate the space in the coming years. Accenture agrees.

Social media continues to confirm this trend, showing a growing number of EU FinTech groups, most recently in France, Germany, and Holland. As for Asia, Singapore boasts a number of FinTech startups, vying with Hong Kong as Asia's top center of FinTech innovation.

In terms of sectors within the industry, the payments sector gets the most investment, according to a survey of FinTech startups conducted by Informilo. *American Banker* has published its FinTech 100 for 11 years now, with banking, payments, and large financial systems integrators leading the way.

Lending, personal financial management, commerce, and cryptocurrencies also gained increasing investment. Person-to-person and social payments, personalized security including biometrics, and location-based commerce are all areas still in their infancy. "From wealth management to remittances to payments processing, the landscape of private companies, investors and corporate strategic investing and acquiring in financial technology. . . has grown immensely," summarizes CB Insights in its "**Periodic Table of FinTech.**"

Yet these investment statistics and geographic clusters, along with the growing focus on startups in the financial services, all raise an interesting question, as our favorite banking writer Chris Skinner suggests: **What Is FinTech?**

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What is FinTech?

FinTech is a term commonly used within the banking, finance, and technologies industries to describe the literal business of the companies that develop software, run networks, and integrate systems in banking, payments, trading, and beyond. It's a large and lucrative sector—and in a literal sense, the earliest business to become automated through computing technologies.

These days, however, financial technology has taken on the context of the digital disruptors, from music to media to transportation. Indeed, the narrative of mobile payments and banking since at least 2010 has been of the laggard banking industry getting their comeuppance from more nimble digital innovators.

Unsurprisingly, the new interest in FinTech technologies and investments tends to focus on digital startups. One of the better attempts to focus FinTech in this manner comes from Alexander Pease of Union Square Ventures, New York, in a **short presentation** called **Disaggregation of a Bank**.

Pease breaks down the functions of a bank and maps them to digital startups, all of which are looking for a part of the business conducted by a bank, the technology provided by traditional FinTech providers, or ways to integrate existing and legacy systems with IP-based networks.

London-based banking-expert Chris Skinner describes two FinTech poles in a blog post **"What is fintech?"**:

- **Traditional fintech** as "facilitators" with larger incumbent technology firms supporting the financial services sector; and

- **Emergent fintech** as "disruptors" with small innovative firms disintermediating incumbent financial services with new technology.

The key distinguishing factor, which we described as digital FinTech, is that Emergent FinTech "builds a new world of finance using a digital core that is IP-enabled," Skinner writes. "FinTech is a new market. It is 21st century finance. It is the new form of banking, and is related but very different to the old form. Some of the old form players will metamorphose into these new digital fintech players. Some, not all. Some of the new players will take over the markets of the old incumbents. Some, not all."

In this industry briefing report, we will use "FinTech" throughout to refer to the industry overall all and, specifically, to Traditional FinTech. We will use "digital FinTech" to refer to Emergent FinTech, whether referring to small innovative startups or large nonfinancial software firms like Apple.

This is not merely an exercise in grammar and punctuation. It's a way of describing and designating the current stage of evolution of bureaucratic control, business management, and commerce processes: from centralized manual and paper-intensive processes; to centralized MIS and electronic processes; to decentralized digital and distributed network-based processes.

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Currency Currents

Although international currency trading is the largest daily trading market, international exchange is a footnote in the news reports to most of us. Currency is, by and large, taken for granted. New denominations come online from time to time, with the Euro in 1999 as the last major currency change to attract widespread attention.

When British philosopher John Locke wrote of currency in the late 1600s, he assigned currency two distinct roles: measuring value and asserting ownership. On the one hand, currency counts value. On the other, it lays claim of ownership to goods. Currency circulates with trade, and in the last months of 2014, two currency developments gained critical mass, with implications for technology and trade well into the future:

1. The legitimation of bitcoin

2. The internationalization of the renminbi

As developments in finance, bitcoin (BTC) and China's renminbi (RMB) share characteristics. Bitcoin is an international currency by design, and RMB is becoming increasingly legitimate as a settlement currency as it becomes more international in scope. (Renminbi is the name of the currency of China while the better known term "yuan" is its basic monetary unit.)

From a technology point of view, bitcoin and its related technologies portends the future of digital money. The technological implications of the RMB are less clear and dramatic, but it does further strengthen London as the world's financial capital and increases the importance Hong Kong at a time when the FinTech capital of Asia remains indeterminate.

“ From a technology point of view, bitcoin and its related technologies portends the future of digital money.”

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The Legitimation of Bitcoin

I did not start out the year much of a bitcoin believer. Through my research and interviews, however, I have gained an appreciation of the technology underlying the cryptocurrency, explained in “**The Basics of Bitcoin.**”

It becomes increasingly difficult to dismiss a cryptocurrency like bitcoin as its acceptance grows as a medium for the exchange of payments. In the last half of 2014, PayPal supported bitcoin payments, Square announced plans to build a bitcoin register, and Microsoft began to accept it for payment of digital goods in the United States. Payment volumes are miniscule, yet online computer retailer NewEgg sees 2015 as the year bitcoin becomes mainstream.

Largest Bitcoin-Accepting Retailers

Rank	Company	Annual Revenue (\$bn)
#1	Microsoft 86.8	86.8
#2	Dell	56.9
#3	Time, Inc 29.8	29.8
#4	Dish Network	13.9
#5	Expedia	5.0
#6	Monoprix	4.3
#7	NewEgg	2.8
#8	Overstock	1.3
#9	TigerDirect	1.0
#10	1-800 Flowers	0.8

Source: CoinDesk

The character of media coverage is starting to change as well. Most mainstream media coverage focuses on the currency's price volatility, the more speculative aspects of the market, and the shadier uses of bitcoin for the anonymous payment for illegal drugs – notwithstanding that the primary currency used the illegal drug and arms trade is the U.S. dollar. Articles on the mysterious identity of bitcoin's inventor crop up occasionally as well.

Yet the number of the country's leading business and mainstream publications and analysts stating that bitcoin will be the prevailing and mainstream cryptocurrency grows weekly.

- *Bloomberg Markets* in November 2014 interviewed venture capitalist Marc Andressen on reinventing finance, covered Silicon Valley on taking bitcoin mainstream, and counted bitcoin-wallet startup Coinbase as one of its “bank busters.”
- *The Wall Street Journal* lent its name to bitcoin as a mainstream currency in “Bitcoin and the Digital Currency Revolution,” writing that “**for all bitcoin's growing pains, it represents the future of money and global finance.**”
- *Details* magazine sent a reporter to cover a major bitcoin conference, focusing on the promise of the currency and the problems it faces in gaining mainstream acceptance.
- *LinkedIn* founder Reid Hoffman predicted that there would be one global cryptocurrency and it would be bitcoin, at the recent “**O'Reilly Bitcoin Summit,**” Much of what people know of bitcoin, however, concerns its mysterious origins, the seamier side of the bitcoin business, and the erratic volatility of its trading price.

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3 One fundamental distinction that's critical to digital
5 currencies remains misunderstood: the difference
6 between the market for bitcoin as a currency and the
7 technology upon which bitcoin as a means of exchange
9 is built.

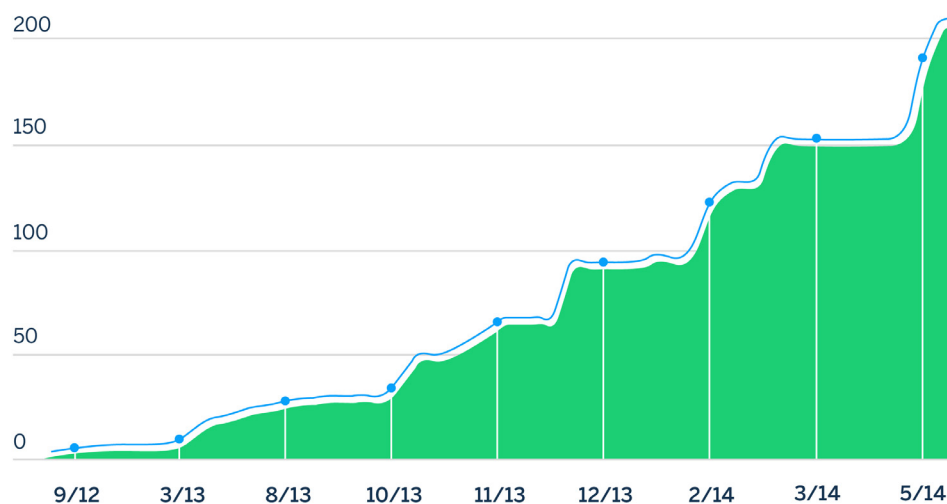
Bitcoin evangelist Andreas Antonopoulos, author of the bitcoin development guide *Mastering Bitcoin: Unlocking Digital Cryptocurrencies*, drew the critical and not well-understood distinction between bitcoin the currency and bitcoin the cryptocurrency technology at a January

22, 2015 talk at the initial meeting of the Chicago Bitcoin Center.

"The price of bitcoin the currency is not tracking bitcoin the technology," he said, in addressing bitcoin's price volatility, – one of the main reasons bitcoin critics consider the currency a failure. Bitcoin technology showed strong investment in 2014, attracting some \$500 million, Antonopoulos said. The New York-based venture research firm CB Insights tracked the figure at \$400 million by November 2014.

Total VC Funding For Bitcoin Startups

Cumulative VC funding since CoinDesk started tracking investments in 2012



Source: Coin Desk

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The currency's volatility has a lot to do with speculators in the market, which can be manipulated as a result of its miniscule trading volumes in relation to other currencies. "The volatility is reflecting the fact that it represents a very small pool of liquidity," Antonopoulos said.

All the more remarkable that bitcoin was the toast of the Sibos international banking conference, held in Boston Sept. 20 - Oct. 2, 2014. The SWIFT-sponsored Innotribe

innovation initiative spent the first day of sessions on bitcoin specifically and cyptocurrencies in general. They were the most attended sessions of the conference that day, a first for an Innotribe session. SWIFT is the Brussels-based Society for Worldwide Interbank Telecommunications, the international bank messaging network.

Throughout the rest of the conference, the line on Bitcoin went something like this: bitcoin proved digital

The Fed Drives Forward on Payments Innovation

The legitimation of digital money accelerated with a push on the gas pedal by the U.S. Federal Reserve. The Fed's highly anticipated paper "Strategies for Improving the U.S. Payment System", provides both a surprise and more of the same for business people interested in the development of a faster and more efficient system for making domestic and international payments in the US.

Without using the "B" (bitcoin) or "C" (cryptocurrency) words, the Fed presented an option to "facilitate direct clearing between financial institutions on public IP networks using common protocols and standards for sending and receiving payments." That refers to the use of **cryptocurrency protocols** to clear payments over the internet, a surprise seized upon by American Banker in its report, "**The Fed's Unexpectedly Bold Payments Idea.**"

Before its release, the report often was tagged as the Fed's "faster payments" paper, in reference to systems in other countries that provide realtime payments clearance.

What's the same, as reported by PYMNTS.com in "**The Fed's Slow March to Maybe Faster Payments,**" is the pace at which payments innovation, whatever form it takes, will come to the U.S. system. The article notes that the Fed's main immediate action is more planning and suggests that it's "even a bit ironic that a move to deploy faster payments seems to be moving along so slowly."

The Fed report, released Jan. 26, lays out five major areas of need within the industry: speed, security, efficiency, international reach, and collaboration. These aims are mostly in keeping with their September 2013 **Public Consultation Paper**, but have now been fleshed out after hearing industry responses to that paper.

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The Legitimation of Bitcoin (continued)

money works. It may not be the form digital currencies take, but it shows that cryptocurrencies are here to stay. This would have been unthinkable even a year ago.

As bitcoin becomes more mainstream, three distinct categories of bitcoin followers have developed, with **a battle brewing** amongst them. On one side of the spectrum are the true bitcoin believers. Bitcoin, a currency and financial system free of government control, irresponsible money creation, and special interests.

To the fanatics, it's the future of finance, a total displacement of existing financial institutions that

eliminates the need for costly, **slow transactions in multiple fiat currencies**.

On the opposite side of the spectrum are the bitcoin naysayers, who scoff at the idea that bitcoin should be deemed a currency. To the skeptics, working outside existing payment systems, economies, and financial institutions is simply ridiculous, regardless of the technologies involved.

Somewhere in the middle are the technologists and venture capitalists, the crypto-technologists, they see bitcoin and blockchain technologies as opportunities to reduce the friction in existing systems: lower costs for individuals and smaller organizations, provide new means of exchanging value, yet remain in concert with existing currency systems with controlled procedures.

“ Bitcoin, a currency and financial system free of government control, irresponsible money creation, and special interests.”

CryptoFinance

Chris Larsen, co-founder and CEO of Ripple Labs, represents the crypto-technologist point of view. Ripple Labs has developed a cryptocurrency and a protocol for transferring value over the internet, and he is particularly articulate on this point: “Bitcoin proved that you could confirm transactions without a central operator, like a central bank.”

Distributed financial networks like bitcoin show great promise in lowering the costs of payments; broadening markets like foreign exchange; and providing more direct connections between financial institutions, individuals, and companies. “There’s no global switch for moving value,” Larsen says. “That’s why it takes two-plus days with no competition on foreign exchange to move money internationally.”

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CryptoFinance (continued)

Ripple is an internet protocol for money much like hypertext transport (http) is a protocol for information exchange or SMTP is for email exchange. Ripple supports the transfer and settlement of currencies like USD, EUR, or JPY; crypto currencies like Bitcoin or Ripple's native XRP; or other sources of stored value, like airline miles. This is cryptofinance.

Ripple is also representative of the venture-funded bitcoin technology startups that received so much funding in 2014. Rather than seeking to create a currency and financial system separate from government-controlled systems, like bitcoin's Libertarian-oriented core, the cryptocurrency startups seek to work with and through existing financial systems institutions.

"It makes more sense to build on existing institutions than to try and create an alternative to banks," Larsen says. "If it's billed as an alternative outside the existing banking infrastructure, it's too small and niche."

Banks can use Ripple to transfer money directly to other banks using the protocol, rather than relying on large-bank intermediaries. Transfers are instant and inexpensive. FX rates are lower than traditional correspondent banks. Market-makers in the Ripple network provide FX bids and liquidity, through prefunded accounts with network banks.

Other technology firms are seeking to bridge the technology gap between cryptocurrencies, protocols like Ripple and existing bank systems. Epiphyte Corp., for instance, develops software that integrates digital currencies with traditional banking networks like SWIFT and ATMs.

Digital currencies like Bitcoin and Ripple are translated into standard ISO 8583 formatted messages, providing a bridge between digital money and secure, existing technologies and currencies. Epiphyte won the Innospring Startup Challenge at the Sibos 2015 conference, which is put on by SWIFT.

What's important is that the technologies are becoming available for banks to offer services using alternative payments if and when it suits their customer bases. As Epiphyte CEO Eden Yago said in his Sibos presentation, "Right now, you cannot make fees or see revenue in these transactions. You are sending customers to low-trust, third-party providers who make them navigate a complicated morass of cryptocurrencies and cryptowallets."

A few banks have adopted it, including community banks CBW Bank, Weir, Kansas, and Cross River Bank, Teaneck, New Jersey. London-based Earthport has added Ripple to its open network for cross-border bank payments, providing a larger set of banks using the protocol for payments. Fidor Bank in Germany is also working with cryptocurrencies.

CBW Bank sees technologies like Ripple as a means to build and offer services that reach new markets. As CBW Chairman Suresh Ramamurthi put it last December at the Future of Money and Technology conference, "There has to be an ROI. If people pay us for realtime payments, we will make it happen." Last year, the bank launched GlobalRemit, a service that sends remittance to India for a fee of \$2.50. The payments and risk-management technology was developed by Yantra Financial Technologies, a technology development company affiliated with CBW.

At the same time, bitcoin trading exchanges are coming to the United States. To date, cryptocurrency trading

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has taken place outside the heavily regulated U.S. financial system. In January 2015, Wilklevoss Capital announced the launch of a **regulated bitcoin exchange**, still awaiting regulatory approval in March 2015. Also in March, a **former J.P. Morgan executive** joined Digital Assets, a

decentralized wholesale settlement system. Cryptofinance is becoming a reality.

What is Bitcoin?

Bitcoin is a form of cryptocurrency that is produced, used and stored, solely electronically. Cryptocurrency is a combination of cryptography and currency. The word "cryptography" is derived from the Greek root word, *kryptos*, (hidden), and *graphy*, (a form of drawing and/or writing).

The ancient Egyptians used cryptography as early 1900 B.C. to inscribe non-standard hieroglyphs into their writing. Years later, it was used in government and military affairs—see the movie *The Imagination Game* to learn about its role in World War II and how the British cracked the German Enigma codes. Today, encryption is used heavily by the financial industry to keep data secure, especially over the internet, and now it is the very fabric of digital currency.

Satoshi Nakamoto, the inventor of bitcoin (who in keeping with a fundamental feature of bitcoin transactions remains anonymous) wrote in a 2009 paper, "The root problem with conventional currency is all the trust that's required to make it work."

He means trust, essentially, in the centralized institutions that issue and maintain currencies: the government-controlled central banks that create money; the Treasury departments that print, mint, and distribute its physical representations; and the private institutions (banks) that track and account for the transactions. To Satoshi, those institutions have all too

"You can securely email cash any time, instantaneously. It's money for the internet or the internet of money."

often broken that trust, leading to currency debasement and credit bubbles.

Bitcoin as a currency is not controlled by any governmental agency. It's the first widely and globally used decentralized currency. There is no federal institution that prints or mints bitcoins—instead bitcoins are mined, using specially built, high-powered computers that run bitcoin's software and maintain what amounts to a distributed accounting network, called the blockchain. Miners maintain the blockchain that verifies all bitcoin transactions in an anonymous ledger and are rewarded with bitcoins. They are required to solve increasingly difficult and complex mathematical problems as proof of their work.

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What is Bitcoin? (continued)

For more on the history of bitcoin, bitcoin mining, and the early early adopters, watch the documentary, *The Rise and Rise of Bitcoin*.

Andreas Antonopoulos, author of the bitcoin development guide **Mastering Bitcoin: Unlocking Digital Cryptocurrencies**, gives some of the clearest and easiest to understand explanations of bitcoin to a general audience. Speaking at the initial meeting of the Chicago Bitcoin Center on 22 January 2015, Antonopoulos explained bitcoin as “cash you can email.” It’s person-to-person, with no intermediaries when sent. “You can securely email cash any time, instantaneously. It’s money for the internet or the internet of money.”



Andreas Antonopoulos discusses the rise of bitcoin in 2014 at the initial gathering of the Chicago Bitcoin Center.

Many people know about bitcoin through reports of its demise, with its magnificent swings in price. Most media reports, however, focus on the currency (BTC) as opposed to the underlying technologies. “Bitcoin has died a lot and is going for the record for the technology that died but didn’t,” he joked.

The technology that runs bitcoin transactions is called the blockchain. It enables a peer-to-peer network and community to publicly verify all transactions through “mathematical proofs that cannot be faked,” he said.

Accordingly, one of the major problems with digital money that bitcoin’s technology solves is the “double-spending” problem. The blockchain ledger ensures that the encrypted bitcoin is only spent once, just as physical currency, barring counterfeiting, is only passed from one person to the next,

and just as a bank serves to guarantee that funds in an account it maintains are transferred once and only once.

Bitcoin as a currency may or may not make it to mainstream acceptance, but the investors backing the technology and the products that are coming to market suggest it is still in the **early innovation stage of technology adoption**.

Others suggest the money pouring into bitcoin companies—more than went into internet firms over the same time period, bitcoin promoters like to point out—puts it on track for Wall Street and then **Mainstreet adoption in the several years**.

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The Internationalization of the RMB

In December, China's currency, the renminbi, broke into the top five currencies used in international trade, behind Japan's yen and moving ahead of the Canadian and Australian dollars. The renminbi, designated by the currency code RMB, is used as payment in more and 2% of the world's trade, notable, given that it was hardly used at all in 2010 when SWIFT, the international bank messaging network, started tracking RMB use internationally.

Since 2013, trade settlements in RMB have increased 321% worldwide. Settlements between China and Germany have increased 151%, and between Canada and China by 346%, reports **SWIFT**. *The Financial Times* reports that "Last year (2013), 17 percent of China's trade was settled in renminbi, according to Deutsche Bank, up from almost nothing five years ago."

International banks are positioning themselves for RMB business, while London and Hong Kong vey as centers for RMB trade, reports **Euromoney** SWIFT, for its part, is most concerned with how the RMB will affect the revenues of its member banks. "The full implications of

the internationalization of the RMB are still not clear," states its recent white paper.

The parallels to bitcoin are striking. Like BTC, RMB is gaining international acceptance because it reduces costs, especially for foreign exchange, and reduces the friction often associated with international payments of any sort. The infrastructure required for the new currency is lacking, and institutions are responding, though in this case those institutions are global banks rather than FinTech startups and VC firms. In both cases, London is the center of the action globally, and Hong Kong is the focal point in Asia.

Growing niche markets like RMB hold potential for FinTech firms, as they require technologies to gain efficiencies and advantages. Trading systems, exchanges, payments applications, and the like will need to be developed or modified as both payment transactions

and trading in the currency grow as expected.

For a history of the Chinese currency, see the **CME Group's whitepaper** on the Chinese offshore currency market.

" RMB is gaining international acceptance because it reduces costs, especially for foreign exchange, and reduces the friction often associated with international payments of any sort."

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The Resilience of Existing Payment Systems

It's a generally accepted truism that the U.S. has never shut down a payment system. A similar problem for banks is reflected in their branches, drive-thrus, ATMs, telephone banking centers, online banking systems, and mobile banking. Merchants face a similar situation with point-of-sale systems that manage cash and an increasing number of card and payment methods.

The main payments and financial stories over the last year, taken as a whole, show the resilience of existing systems (as long as you don't count last year's major credit card breaches). Technology is being developed to accommodate or work around legacy hardware and software, burdensome and outdated regulations, or entrenched interests.

Apple Pay, the most widely reported and discussed payments story of 2014, uses existing payment systems—or “rails” as the industry likes to describe the underlying infrastructure—and established financial institutions and card processors. It also addresses mobile security concerns in a novel manner.

As such, Apple Pay provided a welcome counterpoint to the other most widely reported payments development of 2014: card data breaches at major retailers. Two of the more spectacular, at Target and Home Depot, are so widespread that it has led to announcements on public radio that donors likely need to update the credit cards they have on file, given so many cards have been replaced as a result of the breaches.

“The fact that two massive breaches of such similarity happened just months apart indicates a major problem with the system. Gaining entry is simple,” reported **Mashable** in Sept. 2014.

“The fact that two massive breaches of such similarity happened just months apart indicates a major problem with the system. Gaining entry is simple”

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The Resilience of Existing Payment Systems (continued)

Issues with the current state of payments are numerous. Too much paper persists throughout the process; checks account for almost 20% of all noncash retail transactions. Legacy payment methods, while ubiquitous, are slow, cumbersome, or lack features consumers value. Speed and ease of payments domestically and internationally pale in comparison to what other countries and regions can offer.

2015 began, then, with resilience in the face of the need for change

While the existing system is adapting and will continue to do so, by and large we will see that as in 2014, expect to see more of the same during this year:

- **Accelerated movement toward adoption of mobile payments.**
- **Increasing development of faster payments, though existing automated clearinghouse (ACH) systems, new faster-payment systems, or both.**
- **More credit-card fraud and data breaches. In terms of adaptability, retailers face a major transition in the United States to the use of EMV cards and compatible point-of-sale (POS) systems. EMV stands for Europay, MasterCard and Visa and is a global standard for payments card with an embedded chip – a smart card.**

Also called chip-and-PIN, the cards are used globally

to deter fraud, and the difference is readily apparent to anyone who has tried to swipe a U.S. card in Europe: it just doesn't work.

Though the last of the G20 countries to make the migration, and though the upgrade is the most expensive in U.S. history, some 67% of merchants with \$1 million or more in revenues plan to upgrade to support EMV by October 2015. Retailers have until then to invest in POS terminals that accept the standard (the cards themselves work regardless) lest liability for fraud shifts to the retailer from banks and card processors. POS devices already crowded with payment options will have adapt.

All of the major payments consultancies, payments processors, card issuers, and equipment providers are preparing for the EMV "liability shift." Many good resources are available explaining every detail of the standard, its use, and implementation, including this one from **CapGemini**.



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Federal Reserve Faster Payment Initiative

The Fed's highly anticipated paper **Strategies for Improving the U.S. Payment System** provides the framework for modernizing the U.S. system. This in part toward "faster payments," a tag used for realtime or near-realtime payments clearing through the nation's low-cost payment system. High value, high cost payments are made through the 50 year old, highly reliable wire transfer system.

For the past several years, the Fed and other organizations have been working toward low-value, low-cost faster payments, through the automated clearinghouse (ACH) system. Other payment systems have made the transition, notably in Hong Kong, Japan, Singapore, the United Kingdom, and Australia. The United States is still playing catch up.

The effort began with a clear edict for change in the U.S. payments system sounded in Sept. 2013, with the release of **Payment System Improvement – Public Consultation Paper**. Two weeks later, the Chicago Payments Symposium, a collaboration of over 160 payments industry leaders, addressed the gaps and opportunities identified across the industry. Sandra Pianalto, the President and CEO of the Federal Reserve Bank of Cleveland, set the tone in her opening keynote, saying:

"We can ask ourselves, 'How will most payments be made in the US 20 years from now?' I think the more appropriate question is, 'How *should* most payments be made?'" She

advocated developing a universally available system of near-realtime payments for B2B and C2B transactions.

The industry reaction has mostly been supportive, though the question of who would bankroll the infrastructural overhaul has not yet been addressed. Another concern is the estimated timetable. Some estimates for a migration to realtime payments put development time at ten years. This would be far slower than ideal, given the speed at which technology and the nature of commerce are currently changing.

After encountering some hesitance on the part of banks and financial institutions during the first half of 2014, the market seems to be moving forward. Dwolla announced its partnership with BBVA, which uses Accenture's Alnova banking system, and FIS's PayNet realtime network is expected to expand to over 1,800 banks by year's end, even The Clearing House has announced a multi-year effort to build a realtime, secure payment system.

Most recently, NACHA, the electronic payments association in the United States, **recently proposed its second version** of same-day ACH. (The first failed.) The Fed suggests, in **its comments**, that this is only one part of a "broader initiative to modernize and improve the U.S. payment system broader payments."

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The Legacy of Bank Legacy Systems

As existing systems adapt to fraud, banks are also facing competition from digital technology companies. Banks, however, are falling behind. Hampered by increasing regulatory concerns and still relying on outdated computer systems, few banks are ready for mobile and digital payments and products.

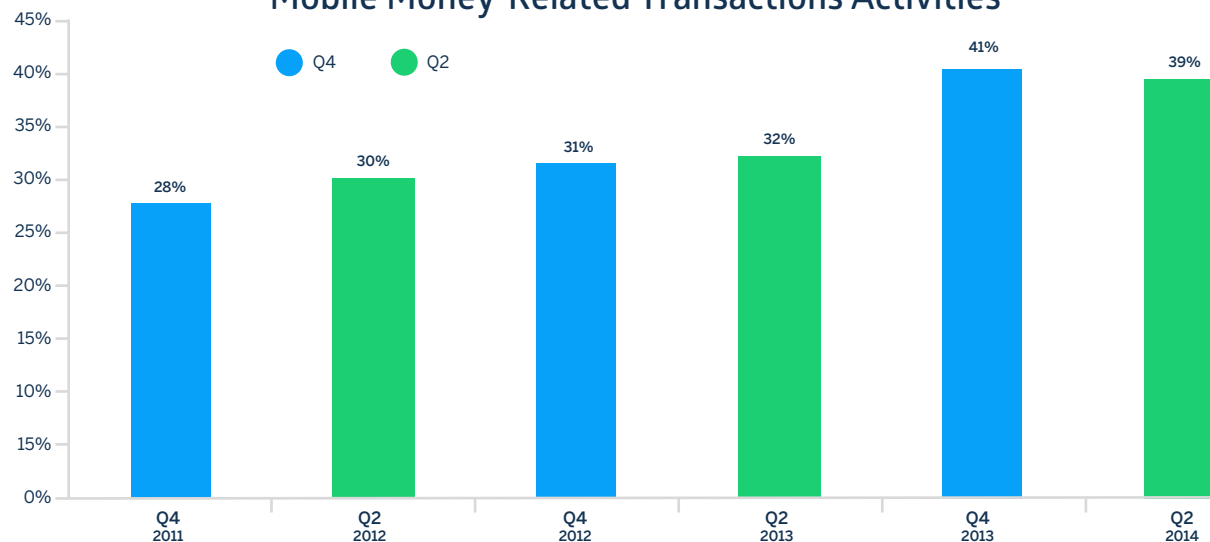
"The reality is that the marketplace today is controlled by legacy payments systems," says Steve Mott, principal at the mobile payments consultancy Better Buy Design, Stamford, CT. As a result, it's difficult for many banks do anything other than evolutionary development and rely on existing system vendors for the present and future digital product development roadmap.

It's become a familiar story by now; large banks,

merchants, and technology customers are looking to make gains in the financial transaction business. Research suggests that consumers are increasingly using mobile technologies for banking and payments. And there is clear consensus that the future banking customer—the Millennial—is mobile and technology based. "Digitization is increasingly an imperative. Banks must digitize how they interact with clients or they will be left behind," said Jamie Forese, Co-President Citi, CEO Citi Institutional Clients Group.

Plenty of the more nimble financial technology companies are after bank customers, especially given the increase in mobile-money related transactions. Data from the global business advisory firm AlixPartners, for instance, show that some 40% of smartphone and tablet owners have used their device for money-related transactions in the last month.

Mobile Money-Related Transactions Activities



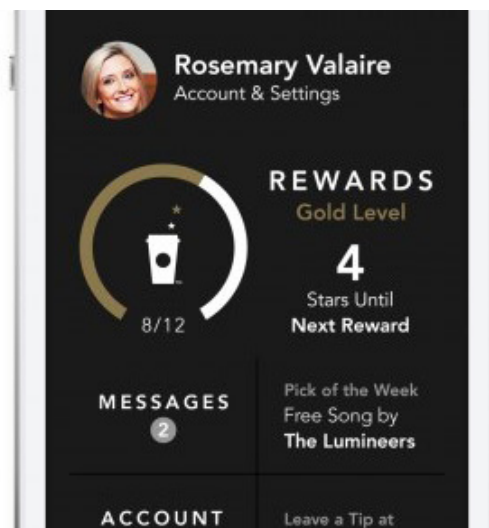
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The Legacy of Bank Legacy Systems (continued)

"Banking is digitizing, and payments are the first to move," said McKinsey & Company director Marc Niederkorn. The firm's 2014 global payments report **notes** that markets for other financial services may matter more in terms of profitability, but payments anchors the digital banking relationship to capture the customer.

As with any industry in the midst of disruption, the payments industry has been receiving a lot of attention by the tech media. Discussions of mobile payments especially, seem to consist mostly of speculations over who will "win."

It's a war over customer preferences: the banks, which surveys show consumers trust, against the technology companies, whose devices consumers love. Consumers



overall are not exactly fans of mobile banking, but they are huge fans smartphones, tables, and emerging "phablets," all of which are the platforms of mobile banking and payment initiatives.

AlixPartners studies show increasing mobile-banking adoption. The firm's semi-annual survey reports similar growth in the awareness and use of mobile-based remote-deposit capture applications. Not surprisingly, the data show that younger consumers lead the way, with the highest and fastest growing adoption levels in the 18-25, 26-34, and 34-44 age segments respectively. The youngest two age groups show 60% percent and 50% percent adoption rates, among banked smart phone users.

The question is whether banks will rise to the digital challenge, a relevant concern when the average consumer's banking relationship is dominated by making payments. What are banks doing to defend themselves? McKinsey asks this very question in its August 2014 study, **"The Digital Battle that Banks Must Win."** Not much, the report finds.

"Nonbank attackers", from large telecommunications companies to nimble technology firms are defining the standards of digital banking as more consumers make payments on their smartphones. The smartphone is the "beachhead" where banks are most vulnerable to losing customers to competitors outside the banking industry.

"For now, the payments business remains squarely within the core bank franchise, but attackers such as Google, Apple and PayPal threaten critical source of revenue," the McKinsey report says. The other usual suspects include Amazon and the major retails and their **CurrentC system**, as well as the upstart startup financial technology firms like Square and Stripe, with their POS- and smartphone-based systems.

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Apple Pay Becomes the Core of Mobile

However you look at it, Apple Pay became the core of mobile payments adoption in 2014, with **Business Insider** and **Finextra** headlines that mobile payments are primed and ready to explode in 2015, all led by Apple Pay.

In Apple tradition, its innovation is in understanding user experience, and adoption figures, back this up. By the end of February 2015, Chase reported that it has provisioned some 1.1 million Apple Pay users. Mobile blog *Boy Genius Report* called it, **“Yet another sign that Apple Pay is the breakthrough mobile payments hit we needed.”**

Apple Pay has been successful not only because it's Apple but also because Apple also has stepped on fewer

toes than you would expect, especially if you followed the buzz around Apple's designs on the payments industry since 2010. “At the end of the day, Apple Pay is about leveraging existing infrastructure and the existing demand-deposit accounts (DDAs) of bank existing customers,” said Paul Simpson, global head of equity asset services at Bank of America Merrill Lynch.

Indeed, the most successful mobile payment systems either remove the inconvenience of making a payment out of the transaction entirely (Uber) or provide a solid infrastructure with additional financial incentive to use the mobile system (Starbucks). They are all working firmly within existing bank and card provider. The payment is secondary, built into an app designed for a broader transaction with consumers.



“At the end of the day, Apple Pay is about leveraging existing infrastructure and the existing demand-deposit accounts (DDAs) of bank existing customers,”

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Apple Pay Becomes the Core of Mobile (continued)

For the time being, banks maintain their core payment market leadership. Any number of surveys show that regardless of those macro trends and security headlines, consumers trust banks most with their payment and identity information. "While the consumer perception trends should be alarming, banks still hold a trust advantage when it comes to safeguarding personal data and using data in the best interests of their customers," says Teresa A. Epperson, a managing director at AlixPartners.

Banks still maintain a trust advantage but fall short on

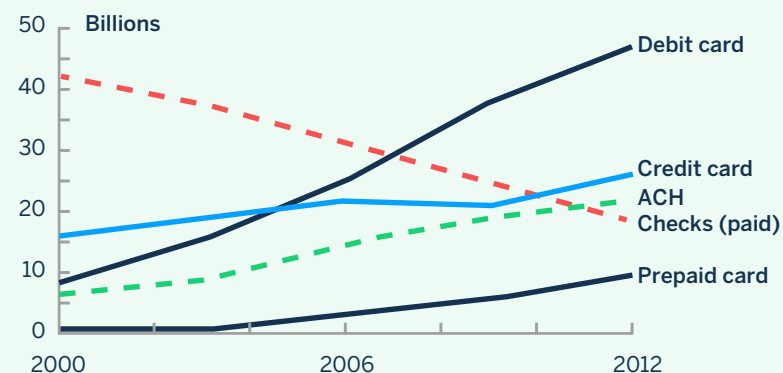
both the customer-service and technology fronts. In analyzing the result of its annual trust survey, Edelman Public Relations notes that banks still suffer because "as negative headlines continue, it is increasingly difficult for consumers to trust when the discussion continues to surround new fees, narrow product offerings and fine print – all of which signal a return to the "old ways" of business."

It's difficult for banks to get beyond traditional products and ways of doing business. Let's face it, "narrow product offerings," "new fees," "fine print," and "old ways" are and will be part of any bank business for a while. They are not the way to win, especially for the coveted Millennial who lives on mobile devices and digital transactions.

What You Need to Know from the Fed's Latest Payment Study

The future of payments may well reside on mobile devices, but today's mobile payments consist of the plastic cards in your pocket or purse, Card payments now make up more than **two-thirds of all noncash payments**, according to a **new report by the Federal Reserve**.

Trends in noncash payments 2000-2012, by number and type of transaction



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The 192-page report, released in July 2014, updates a December 2013 payment study and includes new data on credit and debit cards, wire transactions, cash deposits, withdrawals, and third-party fraud payments. The reports are part of the Fed's ongoing effort, started in 2001, to help banks plan for the future by measuring broad trends in noncash payments.

Here are a few highlights that we found interesting:

Noncash Payments Grow at Slower Rate

There were an estimated 122.4 billion noncash payments, excluding wire transfers, in 2012, with a value of \$174.4 trillion. The number of noncash payments in the U.S. increased at a compound annual rate (annual rate) of 4.2% from 2009—the year examined in the previous study. That is down slightly from the annual rate of 4.6% over the 10-year period from 2003 to 2012.

B2B Checks Falling

It is no surprise that businesses and consumers are writing fewer checks these days as more payments move online. Business-to-business (B2B) checks fell faster than any other category, confirming industry assessments that B2B checks have been challenging to replace.

From 2009 to 2012, the rate of decline for the number of B2B checks accelerated to 3.8 percent per year compared with a decline of 3.5% per year from 2006 to 2012. Nonetheless, overall paper check writing continues to persist as a significant portion of noncash payments, but interbank processing and clearing of these checks are virtually all electronic.

Debit Card Use Soaring, Fraud Rate Falling

The number of debit card payments increased more than any other payment type from 2009 to 2012. In 2012, the number of debit card payments had reached 47.0 billion—much higher than the 26.2 billion credit card payments in the

same year. The number of debit card payments exceeded the number of credit card payments for the first time in 2004.

And while credit card fraud grabbed headlines, debit cards fraud is on the decline. Single-message, or PIN, debit card transactions had the lowest fraud rate among all general-purpose cards in 2012 by both number and value. The ranking applies to debit cards used for both purchases and ATM cash withdrawals.

In the same vein, community bankers are looking to profit from **soaring prepaid card use**, which along with checkless account cards are expected to help banks attract millennials and other underbanked customers. As of now, however, prepaid cards are not providing easy money to many community banks.

Credit-Card Comeback

After declining from 2006 to 2009, credit card payments (including both general-purpose and private-label) returned to growth from 2009 to 2012. The number of credit card transactions grew at an annual rate of 7.6%, rising from 21.0 billion in 2009 to 26.2 billion in 2012.

The number of private-label credit card transactions, which led the decline from 2006 to 2009, bounced back strongly at an annual rate of 17.1%. The number of general-purpose credit card transactions, which were relatively flat from 2006 to 2009, increased a total of 4.2 billion or 6.8% annually.

The 2013 Federal Reserve Payments Study Summary Report released on December 19, 2013, was updated on July 24, 2014, to reflect revised estimates.

For a summary of the revisions, [click here](#)

For the full report, [click here](#)

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Bank-Digital FinTech Collaboration

This report has focused on the rift between tech companies and banks, but there is hope for a profitable alliance on the horizon. Digital giants and FinTech startups supposedly poised to gobble up bank customers, and the defensive banks commonly considered blind and slow, are finally seeing the mutual benefit of collaboration.

It has not been uncommon for FinTech start-ups to take a totally disruptive attitude toward banks and the established financial system. The inventors and early, early adopters of the Bitcoin show one extreme.

Bankers, for their part, have expressed more than a little resentment over the regulatory burden they face that their nonbank competitors can ignore, blissfully developing products for consumers without the need to spend the time on compliance and regulatory concerns. The playing field is not level, and banks have a high hill to climb.

Banks face regulation from all sides, including pronouncements on what kind of technology they can use and how they should evaluate it. Even community banks – who were supposed to be exempt from many of the provisions of the Dodd-Frank bill – show in a recent report from the **Cato Institute** shows that they are, in fact, more hampered by the regulations than not.

Although warnings for banks to go digital and mobile are still dire, and predictions that banks will have their lunch snatched by the tech companies may still be gleeful, attitudes are starting to shift. The smart technology companies, financial technology startups, and global banks are collaborating.

What's changing is the realization by the smart FinTech firms and banks see that they need one another to thrive, if not survive. "When you see



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Bank-Digital FinTech Collaboration (continued)

large U.S. banks working with Apple to bring a product to market, you see that we can all play a role in the ecosystem,” said Vineet Malhotra, managing director, Canadian Imperial Bank of Commerce (CIBC).

For its part, Apple Pay was held up at the Sibos 2014 conference, sponsored by SWIFT, the Brussels-based international bank messaging network, as the prime example of a digital company collaborating with banks, card providers, and, perhaps to a lesser extent, retailers in a way that serves the interests of everyone – including customers. “Apple Pay is a collaboration between a digital corporation, banks, card networks, and merchants, all moving the market forward,” said Michael Fiore, SVP and Group of Head Personal Payments and Mobile Money at MasterCard.

Fear and Innovation

The fact is that digital companies are more aware of where customers spend their time, and create better customer experiences for them on mobile devices. Square and Amazon found a market for micro credit-card payments on mobiles and used new risk models. “If they stayed with legacy technology to manage risks with those micro payments, the market would not exist,” he said.

Banks may then become more like infrastructure providers—with the primary infrastructure being customer

accounts. Few would disagree that large banks do not execute quickly and are not nimble. Today’s hottest technical talent likely does not have large banks on the list of desired programmers. “We have to have partnerships to innovate in this space,” said Emma Loftus, managing director and USD Clearing product executive at J.P.Morgan.

Few would disagree that large banks do not execute quickly and are not nimble.

The smart fintech companies are realizing that they need partnerships to succeed as well. “These firms have really neat software, but they are data starved. They don’t have the data sets,” said Jack Klinck, EVP and head of global strategy and new ventures, State Street, a strategy and analytics firm in securities trading and clearing. “That’s our advantage. Without the data they aren’t going to get anywhere.”

Ripple Labs are exemplifying this alliance, and have created an open-source protocol for realtime, cross-border, cross-currency settlement. Ripple enables organizations and individuals to transfer funds, airline miles, or other representations of value over the internet.

Security, Safety, and Regulation Rule

In the end, the large banks may see their role in emerging digital financial markets as proving their unique experience in complex global financial markets. One bank, **BBVA, has even announced that it will eventually become a software company.**

Banks should refocus on strengthening relationships with and services to their corporate customers without the endless discussions of technologies. “We can collaborate with vendors who can understand corporate

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Bank-Digital FinTech Collaboration (continued)

requirements,” says Charles-Henry Dubarry de Lassale, head of Corporate Innovation & Solutions, Global Payments and Cash Management, HSBC.

Banks know regulation and how to work with regulators. The large ones know how to run low-margin services at scale. They know how to operate globally. They understand security and operate highly secure networks, something merchants have an awfully difficult time doing these days. And they still appear to have consumer trust.

As Dominic Broom, who heads treasury services sales for BNY Mellon put it in analyzing the bank's latest payment study, “Our business has been based for hundreds of years on trust. I trust that currency has value and is going through a pipeline that's secure and safe. That pipeline trust and security has enormous value, and I don't see it being replaced by other market participants.”

Software Intermediated Banking

Banks may also need to build bridges between existing bank systems and corporate customers' systems, especially if they have commercial and institutional customers that demand high-volume payment and account services.

Application programming interfaces (APIs). APIs are software systems and code specifications that make realtime, always-on, application-to-application connections between software applications. APIs themselves are not new. They are part and parcel of how a programmer instructs an operating system, for instance, to provide information from one software application or hardware system to another.

In the last five-plus years, however, APIs have developed as a primary way that one web-based system communicates with another. Web services like **Twitter** and **Twilio** (both with well documented APIs) live and die by getting product developers to incorporate their services, through their APIs, into products and web sites.

“Web services like Twitter and Twilio (both with well documented APIs) live and die by getting product developers to incorporate their services”

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Software Intermediated Banking (continued)

Financial and payment APIs are the two fastest-growing categories, according to the **Programmable Web**, which tracks API usage and provides API news and listings. The facility that nonbank digital firms have with APIs, in part because they do not rely on legacy systems, is one reason they compete so effectively, **especially in payments**.

Some banks, however, are keeping API-enabled systems, and some API developers are keen to serve banks. San Francisco-based FinTech startup Standard Treasury began offering a service to make bank systems compatible with today's digital technologies.

The firm's Commercial Banking API Platform was designed to enable banks to integrate their treasury and accounting systems, regardless of their age, with the

systems from commercial and institutional customers using newer technologies and desiring faster transaction processing. "APIs generate increased revenue and transaction rates," said CEO and co-founder Dan Kimmerling, through what he termed "software-intermediated banking."

Standard Treasury, however, gives one indication of where the market is moving. The company began building and maintaining APIs, offered on a subscription basis, for which it was named one of the "10 companies to watch" by American Banker's annual financial technology listing in November 2014. basis, for which it was named one of 10 "companies to watch" by American Banker's annual financial technology listing in November 2014.

Since then, Standard Treasury has applied for a bank charter in the United Kingdom, to become a fully digital bank. **Another firm** focused on bank APIs has since changed directions.

The FinTech Field of Engagement

For the 30 years I have been involved as a marketer and journalist in the financial industry, banks have remained secure in their position in payments, despite warnings to the contrary. Existing payments systems and reserve currencies may be safe from a future of bitcoins and RMBs for now.

Yet technologies that can lower costs and increase competition by making business connections more direct win in the long run. Digital networking technologies and applications have created remarkably diverse markets of content and commerce, some of which are highly profitable.

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Although banks and banking receive much attention, as hardware manufacturers, software developers, ecommerce firms, and app developers nip at the edges of their services, the entire financial services industry is undergoing digital transformation. The FinTech Field of Engagement chart is designed to show just that.

Impetus and inspiration for the chart came from Alexander Pease, a VC at New York-based Union Square Ventures, who took his inspiration from “**Disaggregation of Craigslist**,” one of the “cool charts thrown around the startup/VC world.” Pease’s post “**Disaggregation of a Bank**,” shows a diagram of bank services and lists the startups working to provide those services piece by piece. The post appeared in January 2014, and CB Insights published a follow up to show that the FinTech startups listed in the original post had generated **investments in 2014 of nearly \$600 million**.

The comments to Pease’s post got me to thinking about the industry as a whole. Doug Nelson, a VC associate in FinTech, suggested in his comments, “the real

unbundling is not horizontal (i.e., startups picking off various services that a financial services supermarket used to provide). Rather, the unbundling is a vertical phenomenon (i.e., the separation of front and back office).” Nelson expanded on those market dynamics in a recent post, “**Financial Services Unbundling, Revisited**.”

From a practical standpoint, deal maker and entrepreneur **Gareth Wong** in his comments suggested a focus on fixing the problems in financial services, and there are many to fix, especially given that the aftermath of the financial crisis is far from complete. “Disaggregation is key but probably providing a solution that would fix the broken part(s) of the financial/capital market could very well be the lowest hanging fruit/holy grail,” he wrote.

These comments led me to envision the market as a whole, as a way to chart out the entire field of engagement.

“Disaggregation is key, but probably providing a solution that would fix the broken part(s) of the financial/capital market could very well be the lowest hanging fruit/holy grail.”

FinTech Field of Engagement

	PAYMENTS	LOANS	CREDIT	WEALTH & ASSET MANAGEMENT	TRADING	INSURANCE	BUSINESS SERVICES	TECHNOLOGY
BACK OFFICE	Processors (ACH-Card)	Credit Card Issuers	Credit Agencies	Funds	Exchanges	Health	Accounting-Tax	Infrastructure
	Aggregators	Mortgage Companies	Ratings Agencies	Investment Banks	Prime Brokers	Life	Payroll	POS
	Remittance			Asset Managers		P&C	Treasury Cash Management	Treasury
CONSUMER FACING	BANKS							
	FX Retail	Card Issuers Mortgage Brokers Currency Exchanges Payday Lenders		Financial Planners	Retail Brokers	Insurance Agents	ISOs Merchant Acquirers	
ONLINE	Bill Payment	Mortgage Lead Generators			Brokerages	Health Markets		
	Media: Business, Analysts, Associations, Recruiters, Standard Organizations							
MEDIATORS	REGULATORS							
INTERNET	Media: Tech, Investors (VCs-Banks-Angels), Accelerators							
	Digital Banks							APIs & Apps Identity CyberSecurity
	PAYMENTS	LENDING & CROWDFUNDING	CREDIT & RISK	PERSONAL FINANCIAL & WEALTH MANAGEMENT	INVESTMENT & TRADING	INSURANCE	BUSINESS SERVICES	TECHNOLOGY
	DIGITAL CURRENCY AND CRYPTOFINANCE TECHNOLOGIES							

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This initial industry diagram shows horizontal channels and functions in the left column and traditional vertical market segments across the top, with their digital FinTech analogs in the same column but on the bottom, below the Mediators. The mediators include organizations that support, enable and perhaps thwart the industry, and they include the financial industry's regulators.

It is no accident that the new FinTech categories appears below the regulatory line. This will not be the case forever, as both regulators and startups themselves shift positions.

On the consumer-facing segment, banks receive special emphasis, to show that their service delivery crosses most of the vertical markets. This is also designed to acknowledge their vulnerability to disruption, disaggregation, disintermediation or however you want to characterize it. My intent also is to show that banks could also be in a good position to cooperate, as financial services, for the most part, run on 30-40 year old systems, many running in banks.

As Nelson wrote, "(D)espite the great successes in FinTech in the past year or so, we still haven't seen the emergence of a **full stack financial services startup**. Almost every high-profile new company has an old-

guard financial institution behind it, not to mention the longstanding financial infrastructure that underlies almost every global transaction."

At the bottom of the chart, then, lies a new base of digital currency and crypto-finance technologies. This is a new base for finance and money, however long it takes to solidify in an extremely complex industry.

A future version of this chart could map companies to the categories. Many will be apparent and have been

mapped out by **VentureScanner** as well as CB Insights **Periodic Table of FinTech**.

I am sure I have forgotten important parts of the market and welcome comments to extend the model.

As this industry briefing shows, financial services and the technologies that make it run are in a tremendous

state of transformation, but not flux. All businesses and consumers need to understand the new landscape, however the players on the field of engagement shake out and partner up.

They are evolving quickly. Two banks have said they intend to become software platforms. Two software companies have filed to become banks. As Gareth Wong wrote, "Not a game for the faint-hearted."

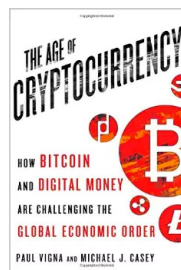
**“ This is a new base for
finance and money, however
long it takes to solidify in an
extremely complex industry “**

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Essential Reading

The following books and articles are essential to understanding the basics of financial technology as well as general trends in the digital transformation of money, banking, and finance. Additional articles are listed in the Sources section. This list is no doubt incomplete. We welcome your suggestions.



The Age of Cryptocurrency: How Bitcoin and Digital Money Are Challenging the Global Economic Order

By Paul Vigna and Michael J. Casey

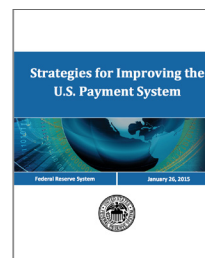
Two Wall Street Journal reporters cover Bitcoin and cryptocurrencies. These authors, too, argue for the legitimacy of digital money, also noting that they have the potential to “bring the world’s billions of “unbanked” individuals into the new global economy.”



New Private Monies: A Bit Part Player

By Kevin Dowd

A Libertarian argument for private cryptocurrencies. States should allow competition with stage-backed currencies by privately issued currencies. As the Cato Institute put it in its positive review of the book, “The intermediary-free, digital transactions characteristic of cryptocurrencies such as Bitcoin are an important step towards exchanges free of regulatory meddling. In addition, this technology should enable low-cost banking accessible to anyone with a cellphone. Indeed, cryptocurrencies should improve access to financial services in developing countries and elsewhere because they will complement existing services that now rely on standard currencies.”



“Strategies for Improving the U.S. Payment System”

By Kevin Dowd

The legitimization of digital money accelerated with a push on the gas pedal by the U.S. Federal Reserve. Without using the “B” (bitcoin) or “C” (cryptocurrency) words, the Fed presented an option to “facilitate direct clearing between financial institutions on public IP networks using common protocols and standards for sending and receiving payments.” That refers to the use of cryptocurrency protocols to clear payments over the internet. The Fed’s highly anticipated paper, which details recommendations for making payments in the United States faster and more efficient. Before its Jan. 26 release, the report often was tagged as the Fed’s “faster payments” report, in reference to systems in other countries that provide realtime payments clearance.



“2014 Pension 40: The Battle Is On”

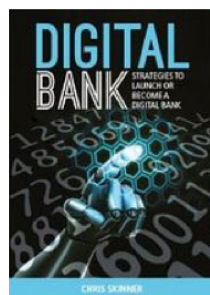
Institutional Banker

The cover line of the current issue of Institutional Investor perfectly describes the current pension crisis: The options are lousy. The politics are brutal. There’s no easy way out.

Given that we are based in Chicago, in the state of Illinois, which has the worst pension problem of any state in the country, the magazine’s **2014 Pension 40: The Battle Is On** cover story is especially relevant. Our new governor, Bruce Rauner, tops the list.

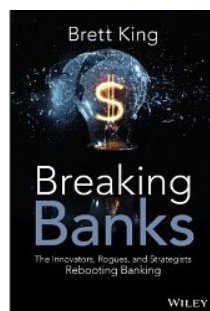
Choices over funding public pension plans will mark the rest of the year. None of them will be easy.

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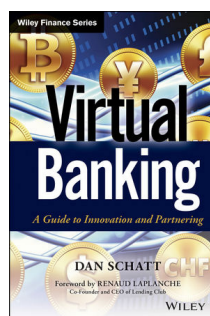
Digital Bank By Chris Skinner

Chris Skinner, the author, is one of my favorite analysts and writers on banking. Digital Bank provides a roadmap for creating the digital future of finance, including interviews with and case studies of those on the cutting edge.



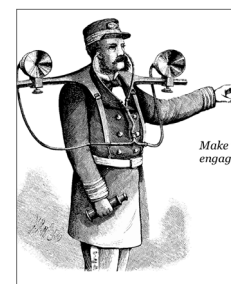
Breaking Banks: The Innovators, Rogues, and Strategists Rebooting Banking By Brett King

In the next 10 years, we'll see more disruption and changes to the banking and financial industry than we've seen in the preceding 100 years," financial technology pioneer and author Brett King says. This book collects his interviews with FinTech leaders, providing the stories, case studies, start-ups, and emerging trends that will define the digital disruption in financial services.



Virtual Banking: A Guide to Innovation and Partnering By Dan Schatt

The book provides a hands-on approach to competing in the modern banking environment. Former PayPal Head of Financial Innovation Dan Schatt explores the reasons behind the massive consumer migration away from traditional banks, and provides clear, actionable guidance on beating new banking models at their own game.



"Content Marketing for Banks" By Ron Shevlin

Ron Shevlin's Snarketing 2.0 blog always has a good read on what works and what doesn't. In the post "Content Marketing for Banks," Mr. Shevlin suggests banks likely do not understand the difference between content designed to engage and audience and content that is valuable in and of itself. In an industry already bursting with good content, he asks, "Why not simply curate the overwhelming volume of content already out there for well-defined customer segments within the bank?"



The Rise and Rise of Bitcoin Directed By Nicholas Mross

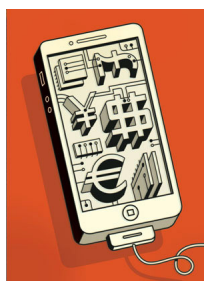
This documentary gives a history of bitcoin—from its invention and early adoption to its volatility and regulatory acceptance (sort of). We live in a highly regulated financial environment, which makes it difficult for unregulated forms of money, as most of the movie's protagonists learned, some harshly. The star, one of the more articulate tech guys, gives a good understanding of bitcoin technology and a fascinating look at bitcoin culture.



Bank Busters: Reinventing Money Bloomberg

The November issue of Bloomberg Markets, which contains a series of articles on the transformation of money and how it moves and is managed. As the title suggests, companies are developing apps for peer-to-peer lending to cut out the bank in the middle. Needless to say, articles on the cryptocurrency (Bitcoin) revolution feature prominently in the mag. Get a digital version [here](#).

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The Future of Money

IEEE Spectrum

IEEE Spectrum, a publication of the Institute of Electrical and Electronics Engineers, has put together a website called, **“The Last Days of Cash: How e-money technology is plugging us into the digital economy.”** The site contains a number of thoughtful posts on the history and future of cash, credit cards, virtual currencies, and, yes, counterfeiting.



Four 2014 Payments Studies

The consulting firms and banks tracking payments, both from a total market and bank perspective, release their annual studies.

BNY Mellon, Global Payments 2020: Transformation and Convergence

Boston Consulting Group, Global Payments 2014: Capturing the Next Level of Value

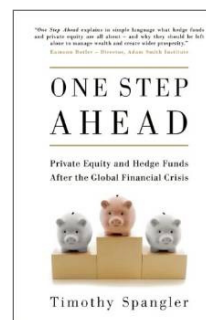
McKinsey & Company, Global Payments Report

CapGemini, 10th Annual World Payments Report

One Step Ahead: Private Equity and Hedge Funds after the Global Financial Crisis

By Timothy Spangler

Published late last year, this is a timely explanation and analysis of the hedge fund and private equity industry, collectively known as alternative investments. It's both a defense of a widely misunderstood industry and a detailed look at how these funds operate; the roles they played in the financial crisis; how they are and are not regulated in its aftermath; and what contribution they make to capital markets, institutional investors, and pension plans in general.



“Bretton Woods Turns 70”

In its July 4 issue *The Economist* summed up the anniversary in its headline, “The global monetary system: Not floating, but flailing”. The article covers the agreement’s history from the talks to piece together a monetary system in shambles to the effective scuppering (that’s an Economist word) of the agreement by the Nixon Administration, to the agreement’s influence today. The Economist’s online archive features its (1947) leader arguing that Britain should adopt Bretton Woods, complete with a picture of economist John Maynard Keynes speaking to the delegates.

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FinTech and Payments Predictions: 15 Articles about 2015

Fintech is coming of age

The Rise of Fintech

The Boom in Global Fintech Investment

The Periodic Table of Fin Tech

What is ‘fintech’?

Bitcoin and the Digital-Currency Revolution

Bitcoin & the Blockchain

Mastering Bitcoin: Unlocking Digital Cryptocurrencies

Despite Falling Price, Bitcoin Startup Investment Continues to Hit New Records

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The Legitimation of Bitcoin	9	The Money of The Future Will Look More Like Bitcoin Than The Paper We Carry Around Today	Federal Reserve Board Staff Comment Letter to NACHA
The Fed Drives Forward on the Payments Innovation	10	What does the internationalisation of the RMB mean for you?	McKinsey&Company 2014 global payments report
CryptoFinance	12	The Future of the Renminbi	The digital battle that banks must win
What is Bitcoin?	14	Rise of RMB trading shows little sign of slowing in 2015	Merchant Customer Exchange
The Internationalization of the RMB	15	Offshore Chinese Renminbi Market	The Apple Pay effect is real — in-store mobile payments volume will top \$800 billion in 2019
The Resilience of Existing Payments Systems	17	Strategies for Improving the U.S. Payment System	Mobile Payments are Ready and Primed to Explode in 2015
Federal Reserve Faster Payment Initiative	18	The Cryptocurrency that Dare Not Speak Its Name	Yet another sign that Apple Pay is the breakthrough mobile payments hit we needed
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Let's talk. Let's see what we can create together.



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