

Apple:

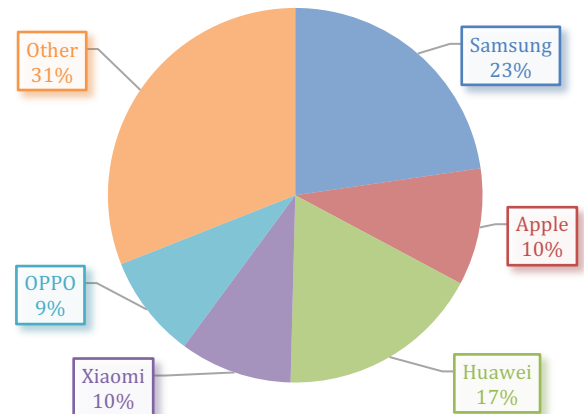
There have been dozens of articles written how iPhone sales have plateaued, as well as how Apple has lost market share in the important smartphone industry. According to recent estimates from Strategy Analytics and Counterpoint Research, Apple continues to hold 3rd place, in terms of global smartphone market share. By shipping 38 million units last quarter, Apple captured roughly 10% of the worldwide market.

There remains significant pressure and competition from numerous Chinese brands. The biggest threats to iPhone sales comes from Samsung, Huawei, Xiaomi and Oppo. In fact, both research firms believe Apple is the only Top 5 brand to have lost market share last quarter. The 2nd quarter, without a new version of its iPhone, was not going to be a terribly busy quarter for existing customer upgrades. Apple is certainly hoping that its newest version, expected the final week of the 3rd quarter (right before the holidays), could spur sales.

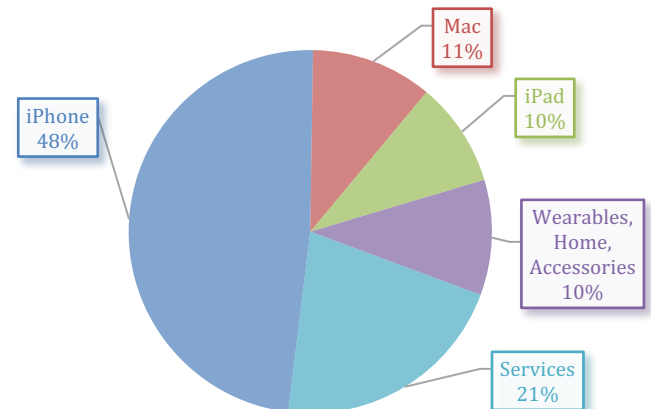
In addition, there has been much publicity concerning Apple's attempt to migrate their business from 1x hardware sales to more predictable and sustainable Services revenue. We don't blame them one bit! That's exactly what they should be doing.

However, they have had a remarkable lack of success, in our opinion. In their most recent quarter, iPhones, iPad's, Wearables, Accessories and Mac sales still represent 79% of Apple's total revenue. Services, at 21%, is growing, but we are somewhat disappointed. Why? Let us explain...

GLOBAL SMARTPHONE MARKET SHARE (2Q'19)



APPLE JUNE'19 REVENUE MIX



Services:

Let us first say that we absolutely love Apple products. Our house is filled with iPhones, iPads, Macintosh computers, AirPods and even their iWatch. When it comes to hardware, we believe Apple continues to make some of the best, easy-to-use consumer technologies. They have built a wonderful ecosystem of Apple products, with the full intention of getting us to utilize more and more of their products.

We are obliging, with iCloud storage and back-up services to protect the 60,000 photos and videos we have taken with their great phone cameras. In addition, we have been known to be a little clumsy with our phone, so all are covered with Apple Care, their insurance product. They also offer Apple music, iTunes, maps, Siri and their app store is wildly popular too.

Licensing:

However, the biggest component for Apple's Service business is licensing agreements. Apple keeps this line item intentionally opaque and the last indication of size comes from a 2014 court document. Five years ago, Apple revealed that it received \$1 billion to have Google act as its default search engine on iOS. Sell-side analysts currently estimate that Google pays Apple \$9 billion for this, making licensing the most important component of its Services business.

There are plenty of articles written, including some by us ([see here](#)), discussing turning one's mobile phone into a payment device, as opposed to traditional leather wallet with cash and plastic cards. We absolutely believe this will happen, over the next few years, but the payment landscape moves at a glacial pace. For example, the US was the last developed country to finally install chips in our plastic debit and credit cards, a full decade after Europe embraced this technology. We liken the US payment environment to more of an *evolution, than a revolution*.

Apple Pay:



Let's head back five years, to the time when Apple began to hint at its payment and wallet app. In early 2014, many investors worried that the largest company in the world (i.e. Apple) was about to compete with the dominant payment networks (i.e. Visa & Mastercard).

Looking at this chart, one can see how both Visa and Mastercard dramatically underperformed the overall market (indicated by the S&P 500) by as much as 12% a month before Apple Pay's announcement.

Then, on April 24th, 2014 Apple held its launch event for its iPhone 6, 6 Plus and iWatch. After revealing those beautiful new devices, Apple announced its newest technological advancement - Apple Pay.



Apple Pay is Apple's overarching payments system. It can handle payments inside an app, on a website or in a retail store. In addition, Apple Pay has the capability to send money, similar to Paypal's popular Venmo system. The Apple Pay functionality was supposed to revolutionize how we pay for everyday goods, like our daily Starbucks coffee to our subway fare. After five years, this revolution has not necessarily occurred.

A Hungry, Alligator-Filled Moat:

We like to highlight that our investing philosophy takes several key tenets from the legendary Warren Buffett. He has articulated trying to identify businesses with large and imposing "moats around their franchise". We believe this Apple event perfectly captures this point. Instead of launching Apple Pay and trying to replace the payment networks, Apple chose to specifically build their product around the networks capabilities and strengths. Apple recognized that it could not replace the ubiquity of the payment

networks (wonderful and trusted brands, accepted in over 200 countries around the world). Instead, Apple decided to leverage its ecosystem and create a “walled garden”.

We imagine, if Apple could, it would have loved to kick out the existing payment networks and dominate payments. Instead, Apple chose to partner with the payment networks and create a unique niche for themselves, revolving around security. We strongly believe that the payment networks have a strong “moat”. More on this a little bit later...

The Apple Card:

So...what is Apple up to in payments? Well, we have to admit we are less than thrilled with their credit card product. One August 21st, 2019, Apple officially launched the Apple Card with Goldman Sachs (GS) as their card issuer. We were disappointed with the grandiose announcement (back several months ago) and believe that Steve Jobs never would have bothered with this type of fanfare for a “me too” credit card. Jobs saved his salesmanship for beautiful products, that were advancements or improvements. The Apple Card, to us, is a disappointment.



HOW APPLE CARD STACKS UP				
	Apple Card	Citi Double Cash	Chase Freedom Unlimited	Capital One Quicksilver
Fees	No annual, late, or international fees	• No annual fee • \$0 first late fee, up to \$39 after • No foreign transaction fee	• No annual fee • Up to \$38 late fee • 3% of each foreign transaction in USD	• No annual fee • Up to \$38 late fee • No foreign transaction fee
Sign up bonus	N/A	N/A	3% cash back on everything for the first year up to \$20,000	\$150 after spending \$500 in the first 3 months of account opening
Rewards structure	1% cash back on everything, 2% cash back on Apple Pay, 3% cash back on Apple purchases	2% cash back: 1% cash back on all purchases and 1% cash back when balance is paid off	1.5% cash back on everything	1.5% cash back on everything
Digital features	• Apple Maps • PFM functionality (i.e. spending categories)	Set spending limits and expiration dates on a virtual card	Credit Journey: credit scores updated weekly	CreditWise: access to TransUnion credit score
Rewards redemption	• Cash back redeemed daily to Apple Cash Card in Wallet • Users can apply to balance, transfer with Apple Pay Cash, or spend using Apple Pay	• Points redeemed monthly through check, direct deposit into Citi account, or account used to pay Citi bill at least twice • Redemption has a \$25 minimum	• Points redeemed monthly through Chase digital platforms • Transferred to another card or delivered as cash back, travel, or gift cards	Monthly through Capital One digital platforms
Account opening	Apply online	Apply online	Apply online	Apply online
Card controls and security	• No numbers on physical card • One-time dynamic CVV • Touch/Face ID authentication	• Citi Quick Lock allows card locking and unlocking through Citi website and mobile app	• Lock and unlock card using the Chase Mobile app	• Lock and unlock card using Capital One website and mobile app
<p>SOURCE: APPLE, CHASE, MACWORLD, NERDWallet</p> <p>BUSINESS INSIDER INTELLIGENCE</p>				

Yes, the Apple Card has some nice features. It has a quick application and opening process, as well as some nice tracking features (spending habits, etc). Looking at this Business Insider chart, one can compare Apple Card to similar offers from Citi, Chase and Capital One.

Offering “Daily cash” instead of points or annual cash back program (ex: Discover has done this for years, right?), does not seem like a monumental advancement. Launching a credit card without annual fees or hidden fees isn’t terribly new either. In fact, one could argue it

just puts more risk onto the card issuer economics. Once again, we do not consider The Apple Card to be revolutionary, in the traditional Apple sense.

By pre-installing the card app on all iPhones, potential users can easily open an account. If they want a traditional plastic card, it can be shipped right away within the app. This is nice, but we don’t believe making credit available even quicker is terribly advanced.

The card issuer, GS, will ultimately be “on the hook” if these accounts go delinquent or default. Early indications have stated that GS has been granting credit to “less than desirable customers”, to drive significant usage and volume. If GS is granting lines of credit to low FICO scores, and that is just the market

rumor, then it is playing a dangerous game of chicken. At this point in the cycle, we would not think it wise to pursue this tactic.

However, GS is probably getting pressure from Apple to open as many accounts as possible. Other banks reportedly declined the opportunity to issue Apple Cards, based on profitability concerns (comments made by Barclays, Citi, JP Morgan, Synchrony all articulate this). The initial negotiation between Apple and GS probably had some language that specifically stated that GS was to support widespread usage and possible permit easier account opening terms. This is GS's first foray into personal credit lines and they were probably very quick to agree to Apple's terms. To better understand the risks a card issuer takes, maybe GS should read our note titled ["Are You Swimming Naked"? \(click here\).](#)

If there is one thing that isn't needed in today's society, we could argue it is making more credit available to the US consumer. As we have stated, we do not believe quickly providing credit is terribly earth shattering. Making it as easy as pairing a Bluetooth device doesn't excite us either.

We believe the Apple Card is somewhat of a "trojan horse", to spur Apple Pay adoption and drive future usage of their mobile wallet. Despite claims by management that it is satisfied with the transactions occurring on Apple Pay each quarter, this is a far cry from what many were expecting.

Merchant Perspective:

Fraud, despite putting chips in our plastic cards, is still a big issue for merchants, especially in eCommerce transactions. Since merchants bear the bulk of responsibility and costs of fraud, they will be thrilled if mobile phone transactions are valid. If card issuers can increase payment acceptance and lower fraud, they too will be willing to "pay up" to guarantee that these transactions are valid.

Commissioned by Visa, Forrester Research issued a report in August 2019 titled "Understanding the Evolving Payments Landscape". 61% of merchant's surveyed said that new payment technology will make them more susceptible to fraud. The note specifically said that "one downside of this advancement in payment technologies is that as payments get more innovative, so do fraudsters" and that "businesses are acutely aware of the new fraud risks that come with the adoption of new payment technologies."

The research note then went on to highlight that adopting artificial intelligence, machine learning and embracing tokenization would lead to lowering potential fraud. Its other recommendations were to use advanced authentication techniques and to treat fraud management as a process and not as a single project. We couldn't agree more!

The payment networks (i.e. Visa & Mastercard) have listened to merchants complain for decades about the high cost of card acceptance. To assist merchants identify fraud and lower this embedded cost, they are attempting to add layers of protection into the transaction. Both Visa and Mastercard have made numerous acquisitions in fraud protection companies, as well as invested heavily in digital identity protections and standards. After all is vetted, we believe that Apple will be in an enviable position of being the best and most secure consumer identification and protections.

Identity:

As any iPhone user knows, one's identity has changed from thumb or finger print verification to facial recognition with the iPhone X. Maybe the next wave will be retinas or something else, but this layer of security is leaps and bounds better than most. We continue to chuckle that some US merchants still require signatures at the POS, as if any cashier is comparing that signature to the back of a card, right?

The biggest trend gaining widespread attention and focus is tokenization. We view it as an additional layer of security, but it is worth explaining and discussing. Quite simply, the process of tokenizing a transaction is just applying additional data to a transaction to improve security. To dive a little deeper, tokenizing a transaction is the process of substituting sensitive data (i.e. your card numbers) with a non-sensitive equivalent (i.e. a token). On its own, this token has no extrinsic or exploitable meaning or value. The token is a reference or totally random identifier, that then gets mapped back to your sensitive data.

The payment networks (i.e. Visa, MasterCard) are installing, standardizing and controlling the tokenization system. Acting as TSPs or token service providers, the networks are ensuring their moat is impregnable and filled with those hungry alligators. This, in our opinion, guarantees that they cannot be bypassed in a mobile payment transaction.

To continue with the example above, with a credit card and Apple Pay transaction, tokenization is used to replace the PAN (Primary Account Number). Tokenization replaces the original card number from being used during transactions and instead creates a 1x usage code. Tokens have no meaning by themselves and are worthless to criminals, in the event they are stolen. There is no algorithm for fraudsters to use to derive the PAN and tokenization makes the card transaction impossible for criminals to reverse engineer. Tokens guarantee that a mobile transaction can be fraud free and secure.

Technical Specs:

The inside of your iPhone is a really interesting place. Upon each new iPhone launch, there are dozens of analysts that immediately break it apart and attempt to understand all of the companies involved in building this device.

Starting with the iPhone 6 release, also with the Apple Pay launch, each iPhone has a NFC chip, embedded with a SEI (secure element identifier). This capability allows Apple to verify and identify you to that phone.

NFC stands for near field communication it is a set of protocols that enable electronic devices to communicate with each other. NFC is utilized for social networking, sharing contacts, photos and videos, but its primary advantage can be revealed with mobile payments.



Security:

Let's return to Apple and how they have positioned themselves in the future of payments. If they have a loyal customer base (which they do) and a strong ecosystem (which they do), Apple should be attempting to earn more revenue from these customers. That's obvious, but how does Apple begin to earn some of that desirable recurring revenue? In our opinion, Apple's goal is to monetize the security layer within its devices. That valuable "real estate" is inside their devices in embedded in the NFC technology, SE chip. What do we mean?

The SE is an embedded microprocessor chip inside the NFC chip and it stores sensitive data and runs secure apps, like Apple Pay. Once again, the SE acts similar to a vault and it can properly verify a transaction between a mobile phone and the terminal. By embedding the SE into the NFC chip, it has become a tamper-resistant Apple specific design. Quite simply, the SE hosts applications (like Apple Pay)

and it permits transactions to occur with cryptographic security. In fact, during a payment transaction, the SE actually emulates a plastic payment card.

Contactless Payments:

The NFC chip facilitates communication between a POS (point of sale) device or terminal and the SE. Software on the SE then imitates your card permitting a transaction to occur. The SE provides a secure storage and execution environment for the payment application, which Apple now fully controls. By embedded this technology inside the phone, which Apple does not want its consumers to open, creates an inherent advantage for Apple.

By placing your smartphone within 1.5 inches of a POS device, a mobile phone and terminal can interact. This proximity technology allows for contactless or “tap and pay” payments.



Mobile Wallet Apps = “Real Estate”:



So this leads us to where Apple has leveraged its position with the iPhone and worked itself into the complex and multi-layered payment model. In addition to its NFC & SE chip, Apple Pay is really valuable “real estate”.

To load a debit, credit or pre-paid card into this wallet, one needs to do the following steps. To remind our readers what each acronym stands for, we will include their meaning in parenthesis again.

- A card is loaded onto Apple Pay, using the camera to scan the card #'s
- This information is submitted to Apple servers
- Apple then sends the card data to the relevant card network (V, MA, AXP)
- The card network validates the card information with the issuing bank
- After bank validation, the network acts as TSP (token service provider)
- A token is issued by the TSP called a DAN (device account number)
- The DAN is a secure token, not the actual card number
- Apple receives the DAN and sends this information to your device
- This information is then saved onto your device's SE (secure element)



Other Wallets:

Initially, Google tried a different tactic with Android Pay. Since Google owns and controls the Android operating system, it tried to install its wallet app on the SIM (subscriber identity module) card, with the SE. Unfortunately for Google, Verizon, AT&T and T-Mobile all quickly refused. Why? All the carriers had their own payment app and wallet they were pushing.

Eventually, Android decided to utilize HCE (host card emulation) technology for its payments. This is a special form of NFC, but it does not use an embedded SE in the phone. HCE uses token data and stores personal credentials in the cloud. This was Google's response, since Android phones do not have access to that physical secure chip inside the phone. They push tokenized transactions to the cloud, through HCE technology. This cloud-based system is different from Apple's SE process and shows how valuable that real estate inside those devices can be. Carriers, operating systems, hardware manufacturers aren't the only entities trying to capture payment economics. The banks, as card issuers, are trying to stay relevant in this ever changing payment landscape.

Bank Wallets:



On 8/21/19, Chase announced that it was closing its Chase Pay mobile app in early 2020. When it debuted, many thought that Chase Pay could become a formidable challenger to the other "Pay" wallets, from the likes of Apple, Google and Samsung.

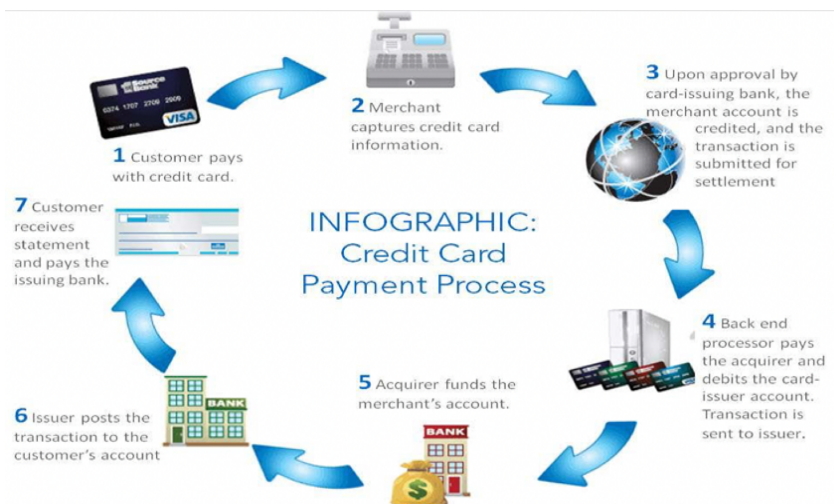
Chase has nearly 100 million Visa cardholders and it has excellent merchant acceptance through its ownership of one of the leading processors - Paymentech. With Chase Pay's launch, they tied in with large merchants, like Starbucks and Best Buy, to try to drive adoption and payment volumes. In addition, Chase Pay integrated QR (quick response) codes for POS payments. This was an attempt to mimic the success of mobile payments in China, which all utilize QR codes. The QR angle was Chase's attempt to drive usage, since it could not replicate the NFC, security angle. As we just discussed, that can only be accomplished by the hardware manufacturer or software / operating system operator.

According to estimates, Chase failed to get more than 1 in 10 of its users to download its wallet / app. Without widespread US adoption of QR readers at the POS, Chase failed to attract its user base to its mobile app. Chase isn't alone, as Wells Fargo, Capital One and other card issuers have failed to garner much attention with their app's. However, the real culprit to Chase's failure comes back to this concept of "real estate".

The Chase Pay announcement reveals the struggles that banks face trying to get their card at the top of that mobile wallet on your phone. Chase tried to leverage its significant customer base and name brand to drive mobile phone wallet downloads. Visa and Mastercard have also tried, but have not succeeded either. Consumers will download a few different apps, but they are not likely to download hundreds of apps, for 1x usage at one specific merchant. It may work for Starbucks and Dunkin' Donuts, but that is because we are all thoroughly addicted to coffee and caffeine. Chase tried with Chase Pay, but it was simply dealt a bad hand. Chase Pay is now another example of a failed payment initiative, in an industry littered with failed attempts.

Fast forward a quarter or two and the card that acts as the default payment option, will likely get the most usage. This is what Apple is hoping, with its Apple Card. All the card brands will have to fight to make it to the top of that mobile wallet, in order to get the most transactions and usage. In our opinion, the dominant mobile wallets will come from the operating systems of Apple, Samsung and Google. By making it easy and straightforward to load cards onto your mobile wallet, the operating systems have a structural and inherent advantage. Quite simply, they control the valuable “real estate” inside your phone, as well as on your phone. Cards won’t control your mobile wallet and they will have to fiercely compete for loyalty, via points, rewards, etc.

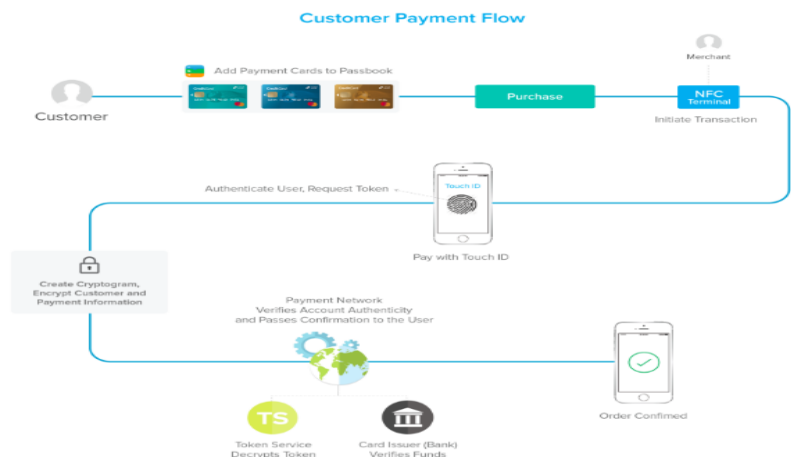
Payment Details:



We have written numerous articles on how a card payment occurs, but we always come back to having a simple chart explain this detailed process.

Despite the fact that a transaction gets approved in just a few brief seconds, it touches numerous players. This chart shows the various players involved in a typical card transaction.

In addition, we thought it would be helpful to show how a mobile transaction occurs. Here is a chart from ymedialabs.com showing customer payment flow, with an iPhone authenticating the mobile phone transaction.

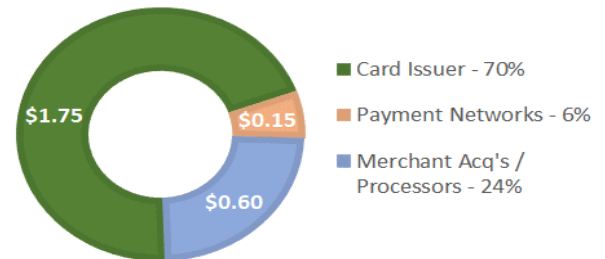


If that chart doesn’t provide you clarity, we have laid out the steps in a typical Apple Pay transaction, using a token. In a contactless transaction at the POS, your iPhone or Apple device communicates with the terminal. The SE in the device generates something called a “dynamic cryptogram”. This has the token, token key, amount and some other transaction details. This dynamic cryptogram is then sent to the payment processor along with some other required information to process the transaction. When the card network receives the transaction request, it identifies whether an actual card number or a tokenized card number is trying to get used. The payment networks, acting as TSP, are following their strict rules and enforcing the tight security requirements that they built. If it is token, the card network validates the

cryptogram using their copy of the token key. The card network de-tokenizes the DAN and obtains the original PAN. This transaction then gets sent to the network, processor, acquirer and device confirming whether or not the consumer is allowed to transact. We realize this sounds quite complex and detailed, but transactions can occur in fractions of a second.

Payment Economics:

The economics vary depending on what critical component of the payment process an entity handles. In a traditional US credit card transaction, in the \$100 range, the typical merchant fee is in the \$2.50 range. This fee is called the MDR or merchant discount rate. After that \$100 transaction, the merchant will receive roughly \$97.50 tomorrow morning, in their bank account.



As our pie chart shows, that \$2.50 fee gets divided up by several distinct payment players. Card issuers earn the bulk of the fee, for providing that critical line of credit. Both payment networks and merchant acquirers / processors earn much smaller recurring revenue per transaction economics, but do not take on credit sensitivity. These payment players handle the complicated authorization, clearing and settling of a card transaction.

Since this research note is on Apple and Apple Pay, we will now discuss how Apple has inserted itself into the process.

Apple Takes Security Seriously:

Apple's security layer (discussed above) works to ensure the transaction is valid. Apple works with the merchant acquirers, the merchant processors, the networks and the card issuers to validate the consumer is who he/she says he/she is. By providing identify verification, Apple vets the transaction and confirms it is not fraudulent.

Apple guards and controls all aspects of its ecosystem, almost fanatically. Apple safeguards the identity of its users, as evidenced by their lawsuit against the FBI in March of 2016. If you recall, the FBI was trying to unlock the iPhone of Syed Rizwan Farook, the shooter in the San Bernardino killing. Apple agreed that the mass shooting was atrocious, but it refused to grant access to the FBI. This simply shows how much Apple believes in protecting the privacy of their iPhone users. Security and protection is just one of Steve Job's lasting legacies and it remains pervasive inside of Apple today. We do not expect this will change.

Instead of replacing the payment networks, which many feared in March of 2014, Apple simply inserted themselves into the process. They took advantage of their position with the consumer (who loves their iPhone) and added a valuable security function. For this service, Apple is now earning a small, recurring revenue stream.

Apple's Revenue:

In the event an iPhone and Apple Pay is used for payment, Apple earns a slice (sorry for our pun) of the card issuer's fee (the \$1.75 or 70% in the example above). Back in 2014, Apple stated it earned roughly \$0.15 per \$100 credit card transaction. For adding this secure layer, Apple receives a fee per transaction. Apple claims that it does not charge "users, merchants, or developers" to use Apple Pay. We have not seen

their legal agreements, but we imagine Apple claims to provide a secure environment for these transactions to occur. Essentially, for using its NFC and SE, Apple is providing fraud protection and identity verification. If Apple can then get its Apple Card to become the default card in its mobile wallet, Apple has an opportunity to earn more revenue. We imagine that this is Apple's long-term intention.

What Apple *SHOULD HAVE* Done:

Several years ago, Apple had an opportunity to significantly get into the payment business. They mistakenly felt that simply launching Apple Pay and wallet technology would spur the industry. They failed to appreciate how complicated payments were and that the payment business was not desperately seeking their "enhancements".

We believe that Apple should have used its iPad as a "lost leader". If they essentially flooded the small business community with "free" iPads and some basic software, it could have acquired millions of accounts. It would have become a merchant acquirer and then it could have passed off the authorization, clearing and settlement of these transactions to a merchant processor. It could have leveraged its trusted name brand, and its wonderful iPads to become a real player in the payment landscape.

It might have been easier to acquire a payment acquirer, to reach those small businesses, but this would not have been terribly challenging to do. At that time, these payment players were fairly inexpensive, but that ship has sailed. Especially with the Fiserv for First Data, the Fidelity National for Vantiv Worldpay and the Global Payments for Total Systems deals in the 1st half of 2019.

Apple might have missed that initial opportunity, but as we have just laid out, it still can capture payment business by leveraging its valuable "real estate", both inside of their iPhones and iWatches (i.e. the SE) and with its mobile wallet. We believe that Apple's new payment angle is to become a "security or privacy play". If we are right, Apple can continue to grow its payment revenue inside of its Services business.

It is too early to understand the Apple Card angle, but we believe that it was created to attempt to drive additional transactions to its mobile wallet and push all the credit sensitivity and risk onto GS. If Apple still wishes to become a merchant acquirer, it could start by essentially giving away some iPad's. This might be a difficult immediate negative to margins, but it holds the potential to garner significant merchant acquiring market share. The tougher ask, for Apple, would be to deliver some valuable software to load onto those iPad. We have written about ISVs (independent software vendor) and how Global Payments altered the payments business, in our note from August 2017. [Click here](#) to better understand how Global Payment's push into software, back in 2012, altered the entire payment landscape.

We have laid out a thesis about where Apple is going and where it erred. It isn't too late for Apple to become an integral component of the mobile payment ecosystem. The opportunity is not over for Apple, especially because (as we have highlighted) trends move at a glacial pace in payments land. We believe Apple may need to take some short-term pain (on the iPad front), to deliver long-term Services revenue. The payment revenue stream Apple could generate is predictable, sustainable and is earned per "per swipe" or per transaction. This is much better than a 1x sale of an iPad device for \$249.99, in our opinion.

Adoption:

Since the first mobile phone payment in the US occurred a decade ago, there seems to have been nothing but hype and unmet promises. Even our Gen Z survey, that focused on their spending patterns, trends and behaviors, indicated that there was no need for us to throw away our leather wallets. [Click here, to read that survey.](#)

Could mobile payment adoption be on the verge of delivering its long rumored breakthrough? Could Apple Card spur Apple Pay and finally bring about a much needed boost for mobile payments? We believe the marketing and launch of Apple Card might help increase the use of mobile based payments, but we believe New York City could be the tipping point for widespread US adoption of mobile payments.

The Tipping Point?



The best example is the subway system in New York City. On May 31st, 16 of its 472 subway stations (along with some of its buses) began to accept contactless fare payment. NYC isn't the first to adopt better transit technology, as Chicago and Portland have already deployed this technology. However, NYC's subway system is the largest in the world, so it essentially is a proof of concept for the technology.

Whether a transaction comes from your iPhone, an Android phone or even a Fitbit, "strap-hangers" can ditch their MetroCard and simply pay via their phone or wearable device.

In addition, if your credit or debit card has the wifi logo on it, contactless card usage will properly work. So, transactions can be completed by simply placing your card within a few inches of the readers. The ultimate goal is to allow for convenient mobile payment transactions to occur, replacing that leather wallet.

Starting with the 4-5-6 subway line, riders can use their mobile phones to quickly take a ride. After this initial testing, NYC's entire system should be enabled by October of 2020.



Back To The Merchants:

If consumers can begin to see daily uses for the mobile phone as a payment mechanism, they just might begin to leave their leather wallets at home. To drive this growth, more merchants will need to decide to accept mobile and contactless payments at the POS.

Over the last few years, merchants have spent a considerable amount of money retrofitting their POS devices. This was mandated through EMV standards, to ensure their devices were capable of accepting chip cards.

Why did merchants and banks follow EMV standards? It comes back to fraud. The weaker link, between the card issuer or the retailer, was liable for fraudulent transactions. So, if a merchants couldn't accept a chip transactions on their devices, they were responsible for any fraudulent transactions. If a bank or card issuers did not insert a security chip into their plastic cards, they were liable for the fraud.



The other issue is that merchants need to allow for contactless transactions embedded into their new POS devices. The capability exists for these merchants to accept contactless transactions, but their software and internal systems are not ready to handle them. Following the costly hardware costs, many merchants just don't want to spend additional money to integrate this new functionality.

78 of the top 100 merchants in the US now accept contactless cards at their POS registers and the number continues to grow. In addition, several large card issuing banks like JP Morgan, Bank of America and Wells

Fargo are beginning to transition their customers to contactless cards. Go ahead and check your plastic cards for the logo that looks like the old wifi logo.

So it returns to the old “chicken and egg” scenario. No merchants were going to spend the money, if their customers weren’t clamoring to use contactless payments. No banks were going to re-send cards that enabled contactless payments, if no merchant devices accepted it.

Now that merchants have upgraded their terminals to accept chip cards and most banks have mailed plastic cards with security chips embedded inside, we just might be at the tipping point.



We believe the rollout of contactless payments at major transit systems (like NYC) will drive transactions and might push merchants to upgrade the software on their capable POS terminals. Consumers driving traffic, having “fast, easy and secure” transactions on their transit systems, might just be the catalyst to spur adoption.

Conclusion:

Over the next 2 to 3 years, we believe that mobile phone payments will become significantly more prevalent. If Apple takes advantage of its position, it can begin to dramatically earn more and more payment (and Service) revenue.

Wall Street is expecting this line item to grow from its 1/5th of total Apple sales. We doubt that Apple will want to release its specific payment component, inside of Apple Pay, which is then bundled inside of Services revenue. This is especially true, if licensing remains such a large and juicy component of that Services pie. One can only hope, right?

Apple will likely just lump payments in with storage, cloud, search and other service line items, to keep this opportunity a secret. If it ever gets big enough, sell-side analysts will begin to do sum-of-the-parts analysis stating that this payment business deserves to trade a valuation multiples similar to Visa, Mastercard, Paypal and Square. With a 2020 P/E valuation of only 15x, Apple management (and especially its shareholders) would love that kind of multiple expansion.

Does anyone expect Apple to open up its infrastructure and technology? Remember, Apple is playing the long game. It would love to migrate more of its business towards beautiful recurring revenue versus 1x hardware sales. We aren’t holding our breath, expecting Apple to open up this secure layer of technology to banks or payment players. Apple will likely claim that this is in the best interest of their loyal customers and only they can be trusted to protect the privacy of their base. This was the subtle jab CEO Cook made at Facebook during his Congressional testimony last fall. Cook was very clear in differentiating between Apple’s approach to privacy versus his social and technology peers.

As Apple monetizes the identity of its consumers, it will claim that it is just protecting the security and privacy of their valued customers. Apple will keep NFC technology and that SE microprocessor locked inside of their iPhones, iPads, Macintoshes and iWatches. Who could blame them, right? Does this approach the line of impropriety, similar to Microsoft pre-installing Windows on computers in the 1990s? Quite possibly, but it will be up to our government to step-in. Based on the relationships CEO Cook is making in Washington DC, we doubt this long game plan can be stopped.

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