



APPLE PAY & DIGITAL WALLETS IN MEXICO AND THE UNITED STATES: ILLUSION OR FINANCIAL REVOLUTION?

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ABSTRACT. Apple Pay and digital wallets have gained popularity since the fall of 2014. Perceiving Apple Pay & digital wallets as a financial revolution at this moment might be a mistake. The following study shows that it is just the evolution of a payment system in Mexico and the United States of America, a system that opened the door to a possible future financial revolution. Current financial regulation in Mexico and the United States of America is not accurately applied; therefore, proper guidelines or amendments in financial regulations should be issued by financial authorities in order to mend the loopholes in the law.

KEY WORDS: Apple Pay, digital wallets, Illusion or Financial Revolution, USA and Mexico.

Resumen. Apple Pay y las Digital Wallets han ganado gran popularidad desde otoño de 2014. El concebir a Apple Pay & las Digital Wallets como una revolución financiera en este momento puede ser un error. El presente estudio muestra que estos, solamente son una evolución de un sistema de pago en México y Estados Unidos de América. Son un sistema que abrió la puerta a una posible revolución financiera en el futuro. La regulación financiera actual en México y Estados Unidos de América no se aplica de manera literal. De esta manera

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la publicación de guías o modificaciones en la regulación financiera deben ser expedidas por las autoridades financieras con el fin de subsanar las lagunas en la ley.

Palabras Clave: *Apple Pay, Digital Wallets, Ilusión o Revolución Financiera, EUA y México.*

TABLE OF CONTENTS

I. INTRODUCTION	31
II. APPLE PAY STRUCTURE AND ITS COMPETITORS.....	32
1. THE MISSING PIECE REQUIRED FOR THE EVOLUTION OF PAYMENTS	33
2. HOW DOES IT WORK?	34
3. OTHER COMPETITORS	34
A. GOOGLE WALLET	35
B. SOFTCARD	35
C. PAYPAL.....	36
D. STARBUCKS AND SUBWAY.....	36
E. SAMSUNG GALAXY.....	36
4. THE MARKETING RESPONSIBLE FOR THE ILLUSION.....	39
A. SENSORY MARKETING.....	39
B. INDIVIDUALIZATION AS A LIFESTYLE.....	40
III. LEGAL BACKGROUND IN THE UNITED STATES OF AMERICA	41
1. ELECTRONIC FUND TRANSFER ACT (REGULATION E)	42
2. DODD-FRANK WALL STREET REGULATION ACT CHAPTER X (SPECIAL CONSIDERATION FOR CFPB).....	46
3. SECONDARY SOURCES FOR THE APPLE PAY APP	47
A. THE OFFICE OF THE COMPTROLLER OF CURRENCY (OCC) AND HANDBOOK	48
B. THE QUEST FOR A PROPER TERMINOLOGY AND MONEY LAUNDERING CONSIDERATION	48
a. BITCOIN.....	49
b. MOBILE/DIGITAL WALLET	49
c. MONEY LAUNDERING	51
IV. LEGAL BACKGROUND IN MEXICO	51
1. LEGAL ALLOWANCE.....	52
2. REQUESTING ELECTRONIC BANKING SERVICES	53
A. ARTICLE 306 OF THE GENERAL DISPOSITIONS APPLIED TO THE CREDIT INSTITUTIONS LAW.....	53

APPLE PAY & DIGITAL WALLETS IN MEXICO AND THE UNITED STATES...	31
B. ARTICLE 307 OF THE GENERAL DISPOSITIONS APPLIED TO THE CREDIT INSTITUTIONS LAW	54
3. DIGITAL WALLET RACE IN MEXICO	54
A. BBVA BANCOMER.....	54
B. CITI BANAMEX AND BANCO SANTANDER MEXICO.....	55
4. OTHER STATUTORY CONSIDERATIONS IN MEXICO	56
A. CREDIT INSTITUTIONS LAW ARTICLE 52.....	56
B. GENERAL COMMERCIAL CODE	57
C. NATIONAL COMMISSION FOR THE PROTECTION AND DEFENSE OF THE USERS OF FINANCIAL SERVICES (CONDUSEF).....	58
D. DATA PRIVACY ACT.....	59
E. FEDERAL CONSUMER PROTECTION AGENCY	60
V. LITERATURE REVIEW.....	61
VI. STATUTORY AUTHORITY FOR IMPLICATIONS ON USER IDENTIFICATION IN MEXICO AND THE UNITED STATES OF AMERICA.....	65
1. OVERVIEW OF APPLE PAY USER IDENTIFICATION IN MEXICO.....	65
2. OVERVIEW OF APPLE PAY USER IDENTIFICATION IN THE UNITED STATES	66
VII. THE MISSING PIECE OF THE PUZZLE FOR A REAL FINANCIAL REVOLUTION.....	68
VIII. CONCLUSION.....	69

I. INTRODUCTION

Describing Apple Pay and digital wallets as an illusion and not a financial revolution is a complicated task. It is common to see new products with amazing creativity and innovation on the market every day. In this particular case, Apple Pay has managed to trick the minds of many. In the following analysis, it is possible to define Apple Pay as a moment of evolution of the current payment system, a payment system that has indeed opened the door to a real financial revolution. Marketing has played an important role in Apple Pay, which has used marketing techniques to further a financial evolution.

Regulations are not prepared to meet the many upcoming events. Current financial regulations leave the Dodd Frank Act, Regulation-E and the General Dispositions applied to the Credit Institutions Law exposed for Apple Inc. to freely interpret these provisions. There is uncertainty about how the payment system should be called, either Mobile Wallet or Digital Wallet, and there are even other non-financial statutes in Mexico to be considered. Therefore, it is necessary for financial authorities to issue federal guidelines or amendments to mend the loopholes in financial regulations. These guidelines are needed to properly define the name of this payment system and its rules. Current financial regulations promote interpretation when analyzing the ru-

les due to a lack of precision in concepts. After reviewing the nature of Apple Pay, the policies involved and the current laws in place, this paper indicates the loopholes in current financial regulations in Mexico and the United States of America and how they might be addressed. Due to the lack of scholarly legal research in the field, Apple Pay and digital wallets have to be analyzed from both a market and a management approach.

Understanding the general idea of Apple Pay is the first approach for suggesting proper legal guidelines. Part I discusses Apple Pay's characteristics, expansion and competitors, as well as its perception of marketing to foresee upcoming changes that would impact regulations. Part II provides an overview of the regulatory framework in the United States of America. Part III analyzes the legal framework and its evolution in Mexico. Part IV examines the available literature and the benefits of this research paper. Part V evaluates the impact of biometric user identification. Finally, Part VI explores two elements required to be able to consider Apple Pay a financial revolution.

By studying Apple Pay and the above-mentioned aspects along with monetary history, it is possible to understand Apple Pay as a development in the payment system. It has clearly opened the door for a future financial revolution, but it has not yet reached that point at the moment. In order to prepare for the future, financial authorities like the Federal Reserve and Mexican Financial Authorities need to issue guidelines or amendments to the regulations mentioned in Part II and Part III. These changes aim at not leaving any loophole or uncertainty in this type of payment system.

II. APPLE PAY STRUCTURE AND ITS COMPETITORS

In keeping with its renowned creativity, Apple Inc. came up with the idea of applying and incorporating the already existing concept of the mobile/digital wallet into their products.¹ "Digital Wallet is an application residing on an electronic device which passes user payment data to a point-of-sale device using Near-Field Communication ("NFC") technology. It does not receive the payment amount information regarding the transaction, and does not modify or edit the amount to be paid."² The mobile/digital wallet had already been used similarly by Google Inc., but it failed to gain popular acceptance.³ Apple is trying to avoid that mistake through its incredible marketing strategies, creativity and business relations while taking advantage of its corporate power. In order to understand all the implications of Apple Pay, it is important to analyze it in parts. First, since digital/mobile wallets can be seen as the evolution of payments, just like what happened when the

¹ Apple, *Apple Pay*, <https://www.apple.com/apple-pay/> (last visited Mar. 2, 2015).

² 35 R.C.N.Y. § 51-03.

³ Greg Sterling, *Has Google Wallet Already Failed?* (Jun. 7, 2013, 1:26 PM), <http://marketingland.com/has-google-wallet-failed-47441>.

Diners Club card first appeared,⁴ Apple Pay managed to forge alliances with banks. Secondly, marketing is an important aspect that the authorities should carefully examine to foresee upcoming market trends and targets because its ultimate goal is to turn Apple Pay into a way of life; notwithstanding the lack of legal research done in this field.⁵ Biometric identification is just one of the examples in which marketing and law can work together.⁶

1. *The missing piece required for the evolution of payments*

Some companies have attempted to replicate Apple Pay, but have failed by not considering alliances with financial institutions.⁷ Google Inc. and Bitcoin both tried to enter the financial world and were unsuccessful⁸ because they did not establish business alliances with other big financial companies or even the government. Even though not all of these companies focus on the concept of mobile/digital wallet, they have all tried to create its own version of this business concept.⁹ Apple Pay formed alliances and signed agreements with the main banks in the United States like “Bank of America, Wells Fargo, Capital One, Chase, Citi, American Express [and others].”¹⁰ Besides the agreements with financial institutions, the arrangements are the same as those with main credit card issuers like Master Card, Visa and American Express.¹¹ The important feature in Apple Pay is that it provides the banks certainty by using the money in the client’s bank account and credit cards.¹² This gives the financial institutions the confidence that Apple Pay is not a new competitor or a new product that aims at forcing them out of business.

Apple approaches the concept of the mobile/digital wallet in the same way the credit card was created.¹³ This approach could be understood as an evolution of the payment system. Just as Diners Club cards, Apple Pay could be a

⁴ Dinners Club International, *The Story Behind the Card*, <https://www.dinersclubus.com/home/about/dinersclub/story> (last visited Mar. 2, 2015).

⁵ BERTIL HULTEN, NIKLAS BROWEUS AND MARCUS VAN DIJK, *SENSORY MARKETING* 28-29 (Palgrave Macmillan, 2009).

⁶ *Id.* at 24.

⁷ Apple Pay, *supra* note 2.

⁸ Apple, Apple Pay, <https://www.apple.com/apple-pay/> (last visited Mar. 2, 2015); see also Edward Hadas, A Prediction: Bitcoin Is Doomed to Fail (Nov. 27, 2013, 12:28 PM), http://dealbook.nytimes.com/2013/11/27/a-prediction-bitcoin-is-doomed-to-fail/?_r=1. Accord Karen Webster.

⁹ Apple, Apple Pay, <https://www.apple.com/apple-pay/> (last visited Mar. 2, 2015); see also Edward Hadas, A Prediction: Bitcoin Is Doomed to Fail (Nov. 27, 2013, 12:28 PM), http://dealbook.nytimes.com/2013/11/27/a-prediction-bitcoin-is-doomed-to-fail/?_r=1. Accord Karen Webster.

¹⁰ Apple Pay, *supra* note 2.

¹¹ *Id.*

¹² *Id.*

¹³ Diners Club International, *supra* note 4.

good example of such changes.¹⁴ While Apple Pay does not have a history like Diners Club, the way a cardboard Diners Club card first replaced tangible currency in the past is the same case as Apple Pay.¹⁵

2. *How does it work?*

Apple Pay combines the concepts of a credit/debit card and cash in a smartphone that can perform electronic banking transactions.¹⁶

The iPhone 6 is the only Apple mobile phone to use this technology.¹⁷ Its near field communication (NFC) technology serves as a connection with a special point of sale device.¹⁸ With the iPhone, pictures must be taken of your participating credit cards, which can be “Visa, Master Card or American Express.”¹⁹ Even though it is a product especially developed for the United States of America, Apple most probably intends to spread this new way of payment around the world.²⁰

Apple Pay works with a specific point of sale device which Android phones also use.²¹ This means that every merchant must change their point of sale devices/readers or acquire new ones in order to make payments using the iPhone possible.²² “[According to Apple some stores that will have this new point of sale are]: Target, Apple Store, Baby’s R Us, Disney Store, Petco, Sephora, Walgreens, Staples, Whole Foods, Subway, Panera Bread [among others].”²³ Although there might seem to be many points of sale, you will definitely encounter some problems if you want to pay with Apple Pay since people do not usually only buy at their specific stores.²⁴

3. *Other competitors*

Apple Pay can be conceived as a payment system of its own even though there are other similar mobile/digital wallets in the market.²⁵ Mobile/digital

¹⁴ *Id.*

¹⁵ *Id.*

¹⁶ Apple Pay, *supra* note 1.

¹⁷ Apple, *Apple Pay FAQ*, <https://support.apple.com/en-us/HT201469> (last visited Mar. 3, 2015).

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ *Id.*

²¹ Apple Pay, *supra* note 1.

²² *Id.*

²³ *Id.*

²⁴ *Id.*

²⁵ Apple, *Apple Pay*, <https://www.apple.com/apple-pay/> (last visited Mar. 2, 2015); *see also* Lisa Gerstner, *Mobile Wallets: A Smart Way to Pay?* (Jan., 2015), <http://www.kiplinger.com/article/credit/T057-C000-S002-mobile-wallets-a-smart-way-to-pay.html#V6s8MX2IIFMBYo1S.99>.

wallets should be studied because they, just like Apple Pay, are taking the same legal advantage, which consists of a loophole in the law that does not regulate mobile/digital wallets. Considering the expansion of competitors in under a year, federal authorities should consider regulating the legal flaws seen in Part II and Part III of this article. Apple Pay's current competitors are: 1. Google Wallet, 2. Soft Card, 3. PayPal, 4. Starbuck and Subway, and [5. Samsung Galaxy.]²⁶ There are other smartphones offering this service,²⁷ but the creativity instilling a lifestyle, security using biometrics and the benefits obtained with financial institutions has put Apple Pay in the spotlight.²⁸ Due to the newness of the product and a lack of legal studies, the analysis should start with the product itself and its marketing to understand the legal implications.

A. *Google Wallet*

Google has its own well-known mobile/digital wallet.²⁹ Google Wallet offers similar mobility, security and utilitarian advantages as Apple Pay does.³⁰ The main concern is that it does not make life as easy as Apple Pay.³¹ When making a transaction, it is necessary to insert a PIN Code manually.³² Even though it is easy, it means extra work for the user.³³

B. *Softcard*

This product was the result of an alliance among several telephone mobile companies,³⁴ like AT&T, T-Mobile and Verizon Wireless.³⁵ This payment system only worked with phones from one of these phone companies.³⁶ The main concern was that it only worked with certain banks, such as American Express, Chase and Wells Fargo.³⁷ To give an example, if American Express was chosen, user would have been redirected to the American Express home-page to enter the required security information.³⁸

²⁶ Lisa Gerstner, *Mobile Wallets: A Smart Way to Pay?* (Jan., 2015), <http://www.kiplinger.com/article/credit/T057-C000-S002-mobile-wallets-a-smart-way-to-pay.html#V6s8MX2lIFMBYo1S.99>.

²⁷ *Id.*

²⁸ *Id.*

²⁹ *Id.*

³⁰ *Id.*

³¹ *Id.*

³² *Id.*

³³ *Id.*

³⁴ *Id.*

³⁵ *Id.*

³⁶ *Id.*

³⁷ *Id.*

³⁸ *Id.*

C. *Paypal*

PayPal is a famous Internet payment system. If the user has an existing account, it can be linked to the application.³⁹ As a mobile payment system, the problem lies in the lack of affiliated establishments.⁴⁰ The process is not so lengthy if the user's PayPal account is already linked to the user's bank account.⁴¹ The security code or PIN that PayPal uses is the password chosen when the account was created.⁴² To make a purchase in a store, the mobile phone must be linked to the account and have the matching PIN at the checkout.⁴³ The PayPal financial procedure consists of first withdrawing the amount from the PayPal balance and then from the banking account.⁴⁴

D. *Starbucks and Subway*

Other competitors are trying to replicate the idea of a mobile payment system,⁴⁵ but their designs consist of developing smartphone applications as rewards programs.⁴⁶ These establishments are trying to force customers to redeem their points only in their stores.⁴⁷ The disadvantage at the moment is not having the freedom to redeem those points elsewhere, due to deficient affiliations with banks.⁴⁸

E. *Samsung Galaxy*

The iPhone's main competitor is Samsung Galaxy.⁴⁹ Samsung is developing a mobile phone that includes a mobile payment system,⁵⁰ which will be based on LoopPay/Samsung Pay.⁵¹ It works by scanning a fingerprint or entering a

³⁹ *Id.*

⁴⁰ *Id.*

⁴¹ *Id.*

⁴² *Id.*

⁴³ *Id.*

⁴⁴ *Id.*

⁴⁵ *Id.*

⁴⁶ *Id.*

⁴⁷ *Id.*

⁴⁸ *Id.*

⁴⁹ Lisa Eadicicco, *How The iPhone 6 Compares To Its Biggest Android Rival, Samsung's Galaxy S5* (Oct. 4, 2014, 8:13 AM), <http://www.businessinsider.com/iphone-6-samsung-galaxy-s5-specs-comparison-2014-10>.

⁵⁰ Jason Del Rey, *Samsung in Talks to Launch Apple Pay Competitor* (Dec. 16, 2014), <http://recode.net/2014/12/16/samsung-in-talks-to-launch-apple-pay-competitor/>; see also, Samsung, *Samsung Pay*, <http://www.samsung.com/us/samsung-pay/> (last visited June 29, 2016).

⁵¹ *Id.*

PIN and hovering the phone over the point of sale.⁵² LoopPays/Samsung Pay uses the tokenization of a credit card as a security system.⁵³ Unfortunately, at the moment, this product requires a PIN to authorize purchases.⁵⁴

The rules of economics say that when there is demand, supply will grow.⁵⁵ This is the perfect scenario for mobile payments, especially for the mobile/digital wallets.⁵⁶ It was not until Apple Pay appeared, together with their innovation and creativity, that a boom in similar apps came from other companies.⁵⁷ It is true that many other companies could do something similar, just as Google Wallet, PayPal, SoftCard, Starbucks and Subway and Samsung Galaxy did,⁵⁸ but they will never match what Apple has put in the minds of their consumers.⁵⁹ The idea of authorizing a purchase with a fingerprint instead of a PIN Code makes people feel their phone is an extension of themselves.⁶⁰ This type of implementation is called sensory marketing.⁶¹

The case of PayPal is different.⁶² Since this payment system is dedicated to online shopping, two issues arise.⁶³ The first is that people have adopted the concept of PayPal as an online payment system for shopping on the web,⁶⁴ and not as a payment system with retailers on a daily basis.⁶⁵ The second reason is that since it was built for Internet shopping, the system configuration to setup an account and perform transactions is lengthier and more complicated.⁶⁶ Adding up all the required steps and the possibility for the system to red flag irregular sales might be a good idea,⁶⁷ but Apple Pay still holds

⁵² *Id.*

⁵³ *Id.*

⁵⁴ Nicole Lee, *Dabbling in the future of payment: A week of Apple Pay and Google Wallet* (Oct. 29, 2014, 10:00 AM), <http://www.engadget.com/2014/10/29/week-apple-pay-google-wallet/>.

⁵⁵ PARKIN MICHAEL, ET AL., *MICROECONOMÍA* 78 (Pearson, 7th ed. 2006) (trans. Ricardo Heredia Salazar).

⁵⁶ *Id.*

⁵⁷ Apple Pay, *supra* note 1.

⁵⁸ Gerstner, *supra* note 26; *see also*, Eadicicco, *supra* note 50.

⁵⁹ Apple Pay, *supra* note 1.

⁶⁰ ROBERTO MENDOZA CARAPIA, *CASES OF SUCCESS IN MARKETING*, 113 (McGraw Hill, 2007) (trans. Ricardo Heredia Salazar).

⁶¹ *Id.*

⁶² PayPal, *About PayPal*, <https://www.paypal-media.com/about> (last visited Mar. 2, 2015).

⁶³ *Id.*

⁶⁴ Albert Costill, *The 10 Most Popular Online Payment Solutions* (Dec. 8, 2013), <http://www.searchenginejournal.com/10-popular-online-payment-solutions/80025/>.

⁶⁵ *Id.*

⁶⁶ Gerstner, *supra* note 26, *see also* Albert Costill, *The 10 Most Popular Online Payment Solutions* (Dec. 8, 2013), <http://www.searchenginejournal.com/10-popular-online-payment-solutions/80025/>.

⁶⁷ Gerstner, *supra* note 26.

the lead with its fingerprint authentication, securing its position as a leading technology company.⁶⁸

SoftCard and other retailers' phone apps like Starbucks and Subway still lag behind other competitors.⁶⁹ The way SoftCard operated made it less attractive for many users since it took more time and redirected them to the credit card company's web page for authorization and authentication.⁷⁰ In the case of retailers, an app exclusively developed for their business does not have the same appeal.⁷¹ People are looking for a universal digital payment method, which helps them make transactions fast, securely and conveniently. Functioning only as a rewards payment system will not make people see it as a competitor of Apple Pay or other mobile payment systems.⁷²

The Samsung Galaxy is an appealing phone in many ways.⁷³ It has a great processor, a long battery life, a good camera, and application possibilities.⁷⁴ One good reason to buy a Galaxy instead of an iPhone would be the cost of the device.⁷⁵ For many people, there is no reason to spend several hundreds of dollars more for an iPhone, but for others, it is worth it,⁷⁶ most probably for the lifestyle it sells.⁷⁷

Establishing the specifications of each competitor for the purpose of this research makes it possible to identify the similarities of the products. These similarities are consistent with security and user identification. Each company seems to have a favorite user identification method: fingerprinting in Apple Pay,⁷⁸ linking it to a web account like PayPal,⁷⁹ redirecting to the bank's web page for SoftCard,⁸⁰ and finally inserting a PIN for the card like Galaxy.⁸¹ A fitting solution would be to introduce a uniform user identification system. Considering these user identification rules in guidelines or amendment issued by federal authorities would be of great value to unify the mobile/digital

⁶⁸ Apple Pay, *supra* note 1.

⁶⁹ Gerstner, *supra* note 26.

⁷⁰ *Id.*

⁷¹ *Id.*

⁷² *Id.*

⁷³ David Ludlow, *iPhone 6 vs Samsung Galaxy S5- which phone is best for you?* (Feb. 6, 2015), <http://www.expertreviews.co.uk/mobile-phones/1401274/iphone-6-vs-samsung-galaxy-s5-which-phone-is-best-for-you>.

⁷⁴ *Id.*

⁷⁵ *Id.*

⁷⁶ David Ludlow, *iPhone 6 vs Samsung Galaxy S5- which phone is best for you?* (Feb. 6, 2015), <http://www.expertreviews.co.uk/mobile-phones/1401274/iphone-6-vs-samsung-galaxy-s5-which-phone-is-best-for-you>; *see also* Mendoza, *supra* note 61.

⁷⁷ Hulten, *supra* note 5.

⁷⁸ Apple Pay, *supra* note 1.

⁷⁹ Gerstner, *supra* note 26.

⁸⁰ *Id.*

⁸¹ Lee, *supra* note 54.

wallet payment system. Biometric factors would be the best choice.⁸² Other countries like Mexico use it and criminologists find it very safe.⁸³ The advantages of taking user identification into account are discussed in more depth in Part V.

4. *The marketing responsible for the illusion*

Marketing and management have been two of the most important key factors in the success of Apple Pay. Due to the lack of legal doctrine and scholarly research, it is important to analyze the marketing background to understand how Apple has been working throughout its history and how it can be regulated in the future. Apple Pay's principal marketing elements are sensorial marketing and how it helps create a lifestyle.⁸⁴ These two elements are vital to the thesis of research in this field.⁸⁵ It will only be possible to understand the policy completely by understanding the minds of consumers. Only then will it be possible to predict the future of mobile/digital wallets under proper guidelines or regulations.

A. *Sensory marketing*

“Marketing as a social process is constantly buffeted by different cultural, economic, political and technological change forces.”⁸⁶ In order to understand the changes and forces in sensory marketing, it is important to know them.⁸⁷ In the 20th century society could be studied based on economic, social, and technological changes.⁸⁸

Marketing is linked to lifestyle and the conditions of a society in a specific country or period of time.⁸⁹ Marketing uses the Elliot Wave Theory to explain how a company can position their products in such a way so as to obtain astounding sales and popularity.⁹⁰ Apple Pay is situated in the third wave.⁹¹

⁸² BIR BHANU & XUEJUN TAN, COMPUTATIONAL ALGORITHMS FOR FINGERPRINT RECOGNITION 1 (Kluwer Academic Publishers, 2004).

⁸³ Interview with Dr. Rafael Moreno González, Prof. of Criminalistics and Researcher, Nat'l Inst. of Criminal Sci. INACIPE, in Distrito Federal, Mex. (Dec. 22, 2014).

⁸⁴ See Hulten, *supra* note 5 at 28-29; see Mendoza, *supra* note 60.

⁸⁵ See Hulten, *supra* note 5 at 28-29; see Mendoza, *supra* note 60.

⁸⁶ Hulten, *supra* note 5, 74 *alteration*.

⁸⁷ *Id.*

⁸⁸ *Id.*

⁸⁹ *Id.*

⁹⁰ *Id.*

⁹¹ *Id.*

The influence of the iPhone on communication, gaming, browsing and now financial transactions has made huge changes in society.⁹²

Apple's success in sensory marketing is that by including touch screens or fingerprinting in its products, Apple creates a connection with human senses,⁹³ giving the customer a complete experience through their mobile phone, apps and biology.⁹⁴ For many people the idea of doing financial transactions and validating them with biometry is a way for them to feel they truly own their device.⁹⁵ This ownership is not simply legally possessing an iPhone,⁹⁶ but the possibility for someone to sense the instructions given to it.⁹⁷ When Apple Pay is used to make an in-store purchase, the user is the only one who can validate it with his or her fingerprint.⁹⁸ This establishes a link between the person, the iPhone and DNA.⁹⁹ Federal authorities need to realize that marketing and law are not always unrelated. In this situation, the link is clearer than ever. If the authorities take advantage of elements like sensory marketing and fingerprints as user identification,¹⁰⁰ they will be able to develop the proper guidelines for user identification. The aim would be to implement these rules to all mobile/digital wallets and perhaps to future types of electronic banking. The idea and concept of user identification is seen in more depth in Part V.

B. *Individualization as a lifestyle*

People adopt a lifestyle based on a consuming tendency.¹⁰¹ Brands are instilling a way of life and individualization in each member of the community.¹⁰² Deciding how to pay can set you apart from others. People who use American Express Cards are supposedly set apart from those using a regular Bank of America card.¹⁰³ There is now a legal or financial reason for this. Many times products like American Express have a higher annual fee, commission

⁹² *Id.*

⁹³ *Id.* at 24.

⁹⁴ *Id.*

⁹⁵ *Id.*

⁹⁶ *Id.*

⁹⁷ *Id.*

⁹⁸ *Id.*

⁹⁹ *Id.*

¹⁰⁰ *Id.*

¹⁰¹ *Id.* at 28-29.

¹⁰² *Id.*

¹⁰³ American Express, *Compare Most Popular Cards*, https://www.americanexpress.com/us/small-business/credit-cards/top-credit-cards/?inav=menu_cards_sbc_comparecards (last visited Mar. 4, 2015); Bank of America, *Credit Cards*, <https://www.bankofamerica.com/credit-cards/overview.go> (last visited Mar. 4, 2015).

or fewer benefits than a regular credit card.¹⁰⁴ Apple Pay is an ideal example of how to fashion a lifestyle.¹⁰⁵

People who use Mac products claim to be different from those that use PCs.¹⁰⁶ The reason is that lifestyle and marketing has instilled the need to create a person's self-image.¹⁰⁷ Apple Pay can do exactly the same thing as a regular Bank of America card. The difference is that using a digital payment device sets you apart from the rest and gives a different status.¹⁰⁸ Just like American Express, you have to buy a very expensive device to use Apple Pay.¹⁰⁹ This device needs to be the latest version of the iPhone 6 since Apple Pay does not work with other models.¹¹⁰ There are risks: new points of sale may not be available in every establishment, technology can always fail, there may be problems of double charging and fights in court due to loopholes in the law. With globalization, people nowadays feel the pressure to belong to a culture that makes them part of society.¹¹¹ Marketing has influenced culture, economy and technology, to a point that it has become the reason of happiness.¹¹² Government should recognize that people show a strong desire to use mobile/digital wallets. This tendency will grow in the future, leaving the financial system unprepared. Therefore, federal financial authorities need to issue proper rules or guidelines.

III. LEGAL BACKGROUND IN THE UNITED STATES OF AMERICA

Due to the novelty of Apple Pay, there is no case law dealing with it yet. Apple Pay is not a well-known regular banking product that could be easily made compatible with a regular Bank Agreement.

At this stage, a proper analysis for this type of product should focus is on public policy and less on strict regulatory analysis because there is no applicable law or regulation for Apple Pay as yet. This analysis is done by reviewing regulations from a federal perspective. Financial institutions can be incorporated as national or state institutions.¹¹³ Focusing on financial institutions chartered under state law, would be going backwards for what Apple

¹⁰⁴ *Id.*

¹⁰⁵ Hulten, *supra* note 5 at 28-29.

¹⁰⁶ *Id.*

¹⁰⁷ *Id.*

¹⁰⁸ *Id.*

¹⁰⁹ Apple, *iPhone*, <http://www.apple.com/iphone/> (last visited Apr. 13, 2015).

¹¹⁰ Apple Pay FAQ, *supra* note 17.

¹¹¹ Hulten, *supra* note 5 at 32.

¹¹² *Id.*

¹¹³ Office of the Comptroller of the Currency, *Comptroller's Licensing Manual: Charters (2009)*, <http://www.occ.gov/publications/publications-by-type/licensing-manuals/charters.pdf>; *see also* 12 C.F.R. § 5.20(f) (2) (2012).

Pay needs to accomplish are federal rules.¹¹⁴ The authorization to charter a state financial institution is given by the state banking commissioner while authorization for federal financial institution is given by the OCC.¹¹⁵ This also means that the state commissioner and OCC respectively will supervise their respective institutions.¹¹⁶ Having to focus on the laws of each state would involve a huge struggle in regulating Apple Pay.¹¹⁷ In this sense, the fact that Apple Pay and mobile/digital wallets have been taking advantage of the lack of regulation and represent a risk in the future, these payment systems should be properly regulated.¹¹⁸ The perfect means to do this would be through the federal authority and regulations.¹¹⁹ Similar competitors are taking advantage of this lack of regulation and operate in the market. The main financial regulations to be analyzed should be Regulation E and Dodd Frank Act. Here, the concepts of Access Device, electronic fund transfer, coverage and service provider are ambiguous when applied to mobile/digital wallets. Secondary sources blur the concept of Apple Pay by interspersing the names mobile wallet and digital wallet. This generates legal uncertainty and a clear definition of the concept is required to prevent this. Finally, the lack of proper regulation in the United States to identify the users in electronic transactions in Mexico for example poses a future risk for mobile/digital wallets.

1. *Electronic Fund Transfer Act (Regulation E)*¹²⁰

Regulation E is contained in one of the 50 titles published by federal government departments.¹²¹ “Regulation E was published in the Federal Registry in December 27, 2011 in volume 76, number 248.”¹²² The objective of this regulation is to set the rules of and limits on the electronic transactions that take place in everyday commerce.¹²³ Regulation E aims at protecting consumers.¹²⁴ Some of the transactions broadly mentioned are remote ban-

¹¹⁴ *Id.*

¹¹⁵ *Id.*

¹¹⁶ *Id.*

¹¹⁷ *Id.*

¹¹⁸ *Id.*

¹¹⁹ *Id.*

¹²⁰ Regulation-E implements the Act and is not the Act itself.

¹²¹ MORRIS L. COHEN & KENT C. OLSON, *LEGAL RESEARCH IN A NUTSHELL* 170 (West Academic Publishing, 11th ed. 2013).

¹²² Electronic Fund Transfers (Regulation E); Interim Final Rule, 76 Fed. Reg. 81020-81058 (Dec. 27, 2011) (to be codified at 12 CFR Part 1005) *alteration*.

¹²³ The Federal Reserve Board, *Consumer Compliance Handbook Regulation E: Electronic Fund Transfers* http://www.federalreserve.gov/boarddocs/supmanual/supervision_cch.htm (last visited Mar. 2, 2015).

¹²⁴ *Id.*

king programs and point of sale terminals, among others.¹²⁵ The authority responsible for overseeing this regulation depends on the jurisdiction and type of charter of the financial institution.¹²⁶

If Regulation E is analyzed from a purely conceptual and narrow perspective, it is difficult to find an analogy between Apple Pay and Regulation E. This regulation is structured in two parts.¹²⁷ The first part is Subpart A, which establishes the basic framework, scope, disclosures and liabilities,¹²⁸ and the second part is specifically for money transfers.¹²⁹

The main analysis for Apple Pay should be based on Subpart A.¹³⁰ 12 CFR 1005.2 gives the definition of Access Device.¹³¹ “Access device means a card, code, or other means of access to a consumer’s account, or any combination thereof, that may be used by the consumer to initiate electronic fund transfers.”¹³² Even Legislative History defines Access Device the same way it does today.¹³³

The first step to determine if Apple Pay is subject to Regulation E is by understanding if it actually is an Access Device.¹³⁴ From a practical point of view, Access Devices can be strictly understood as those that financial institutions provide for withdrawing money or performing other transactions.¹³⁵ These Access Devices are established in the contract consumers initially sign with the financial institution.¹³⁶ Apple Pay is not considered an Access Device in this Contract.¹³⁷ It is a different negotiation involving an intermediary, which must be specifically defined in regulations as a mobile wallet or digital wallet.¹³⁸ Regulation E also establishes a list of the Access Devices that are not included in this category.¹³⁹ Neither of these corresponds to Apple Pay.¹⁴⁰ The

¹²⁵ 12 C.F.R. § 1005.2 (2015).

¹²⁶ Consumer Compliance Handbook Regulation E: Electronic Fund Transfers, *supra* note 124.

¹²⁷ *Id.*

¹²⁸ *Id.*

¹²⁹ *Id.*

¹³⁰ *Id.*

¹³¹ 12 C.F.R. § 1005.2 (2015).

¹³² *Id.*

¹³³ Electronic Fund Transfers (Regulation E); Interim Final Rule, 76 Fed. Reg. 81023 (Dec. 27, 2011) (to be codified at 12 CFR Part 1005).

¹³⁴ *Id.*

¹³⁵ *Id.*

¹³⁶ *Id.*

¹³⁷ *Id.*

¹³⁸ *Id.*

¹³⁹ *Id.*

¹⁴⁰ *Id.*

only way it might be linked is by adding the concept to the financial institution agreement as an Access Device.¹⁴¹

However, according to 12 CFR 1005.3 (b) Apple Pay could be interpreted as an Electronic Fund Transfer.¹⁴²

“Electronic fund transfer. (1) Definition. The term ‘electronic fund transfer’ means any transfer of funds that is initiated through an electronic terminal, telephone, computer, or magnetic tape for the purpose of ordering, instructing, or authorizing a financial institution to debit or credit a consumer’s account. The term includes, but is not limited to: (i) Point-of-sale transfers; (ii) Automated teller machine transfers; (iii) Direct deposits or withdrawals of funds; (iv) Transfers initiated by telephone; and (v) Transfers resulting from debit card transactions, whether or not initiated through an electronic terminal.”¹⁴³

The part in the previous regulation establishing “The term includes, but is not limited to . . .”¹⁴⁴ opens up the possibility of interpreting an electronic fund transfer as something else.¹⁴⁵ This interpretation could apply to Apple Pay.¹⁴⁶ Determining that these transfers originate from an electronic terminal, which could be an iPhone, is just one possibility.¹⁴⁷ But it is still not clear enough since it should state digital wallet or mobile wallet.¹⁴⁸

Another interpretation could be that Apple Pay is not covered by this regulation.¹⁴⁹ But its scope is indistinct because it can be considered a Telephone Limited Transfer under 12 CFR 1005.3 Part 3 I (6).¹⁵⁰ Here, a transfer done over the phone is covered by Regulation E, but only if an agreement has been signed previously.¹⁵¹ The authority must determine whether a signed banking agreement and the acceptance of the terms and conditions of Apple Pay is enough to establish such a link.¹⁵² Despite the previous statement, according to 12 CFR 1005.3 Part 2. Article 4A, Apple Pay could also be considered not covered by Regulation E.¹⁵³ “Financial institutions offering telephone-initiated Fedwire payments, which encourage verification of Fedwire payment orders pursuant to a security procedure established by agreement between

¹⁴¹ *Id.*

¹⁴² 12 C.F.R. § 1005.3 (2015).

¹⁴³ *Id.*

¹⁴⁴ *Id. alteration.*

¹⁴⁵ *Id.*

¹⁴⁶ *Id.*

¹⁴⁷ *Id.*

¹⁴⁸ *Id.*

¹⁴⁹ *Id.*

¹⁵⁰ *Id.*

¹⁵¹ *Id.*

¹⁵² *Id.*

¹⁵³ *Id.*

the consumer and the receiving bank. These transfers are not subject to Regulation E.¹⁵⁴ This uncertainty could be cleared up if the Federal Authority issues guidelines or rules determining whether mobile/digital wallets are covered under Regulation E or not.¹⁵⁵

If Apple Pay is considered regulated under Regulation E, it might be forced to answer for liabilities under 12 CFR 1005.6.¹⁵⁶ The problem is that Regulation E establishes the consumer as liable for the loss of the Access Device or unauthorized transfers.¹⁵⁷ Regulation E does not contemplate the implications and differences between regular Access Devices like a card and a smartphone.¹⁵⁸ As discussed further in Part V concerning user identification, one of the implications would be for Regulation E to exclude customer liability.¹⁵⁹ This exclusion would be for unauthorized transfers with Access Devices.¹⁶⁰ Since mobile/digital wallets are not defined as Access Devices, Apple Pay users could be liable in the case unauthorized purchases,¹⁶¹ under 12 CFR 1005.6.¹⁶² This regulation only places certain limitations on the fines.¹⁶³ The range of these fines depends on whether the consumer notified the financial institution.¹⁶⁴

Besides the possibilities of falling under the categories of Access Device or Electronic Fund Transfer, Apple Pay could also be considered a service provider.¹⁶⁵ “Apple Pay could be considered as a service given by a provider that does not hold a consumer account.”¹⁶⁶ Even though Regulation E does not give the exact concept of a digital wallet or mobile wallet, a description of the system could be comparable.¹⁶⁷ 12 CFR 1005.14 (b) (I) and (2) establishes the rules Apple Pay would have to follow to be considered one of these services.¹⁶⁸

Apple Pay could be considered an Access Device, an electronic fund transfer or simply an external provider as established in 12 CFR 1005.14.¹⁶⁹ The

¹⁵⁴ *Id. alteration.*

¹⁵⁵ *Id.*

¹⁵⁶ 12 C.F.R. § 1005.6 (2015).

¹⁵⁷ *Id.*

¹⁵⁸ 12 C.F.R. § 1005.2 (2015).

¹⁵⁹ 12 C.F.R. Part 1005 Supplement I (2015), *see also* Part V.

¹⁶⁰ 12 C.F.R. Part 1005 Supplement I (2015).

¹⁶¹ *Id.*

¹⁶² 12 C.F.R. § 1005.6 (2015).

¹⁶³ *Id.*

¹⁶⁴ *Id.*

¹⁶⁵ 12 C.F.R. § 1005.14 (2015); *see also* Adam Levitin, *Apple Pay and the CFPB* (Sept. 10, 2014, 10:56 PM), <http://www.creditslips.org/creditslips/2014/09/apple-pay-and-the-cfpb.html>.

¹⁶⁶ *Id.*

¹⁶⁷ *Id.*

¹⁶⁸ *Id.*

¹⁶⁹ *Id.*

company should pay close attention to avoid being categorized as an Access Device; otherwise it will be bound to comply with Regulation E.¹⁷⁰

2. *Dodd-Frank Wall Street Regulation Act Chapter X (special consideration for CFPB)*

Chapter X of the Dodd-Frank Wall Street Regulation Act contains the Consumer Federal Protection Bureau (CFPB) law.¹⁷¹ “The most significant structural response so far to the ongoing financial crisis precipitated by the failure of the subprime mortgage market.”¹⁷² The main functions of the CFPB are to supervise, analyze financial laws and products, enforce laws and protect consumers.¹⁷³ The Financial Stability Oversight Council (FSOC) is the only authority not bound to comply with the CFPB Opinion.¹⁷⁴ The FSOC is in charge of the safety and soundness of the financial system.¹⁷⁵ FSOC will look into possible future financial risks and implement ways to prevent them.¹⁷⁶

In order for a product to be subject to analysis under this regulation, it should be mentioned in one of the categories under paragraph 15.¹⁷⁷ If all categories are examined, the reader can realize that they are all meant for financial institutions, and not for a system like Apple Pay.¹⁷⁸ The only category where it could fit would be category 7.¹⁷⁹

“(vii) providing payments or other financial data processing products or services to a consumer by any technological means, including processing or storing financial or banking data for any payment instrument, or through any payments systems or network used for processing payments data, including payments made through an online banking system or mobile telecommunications network, except that a person shall not be deemed to be a covered person with respect to financial data processing solely because the person--

¹⁷⁰ *Id.*

¹⁷¹ Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111- 203, 124 Stat. 1376, 1383.

¹⁷² 1 Michael P. Malloy, *Banking Law and Regulation* §1C.10 (Wolters Kluwer, 2th ed.) see page 1C-113- 1C-114.

¹⁷³ Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111- 203, 124 Stat. 1376, 1733.

¹⁷⁴ 12 U.S.C. § 5513 (2015)

¹⁷⁵ *Id.*

¹⁷⁶ Big Bank Regulation Lecture from Prof. Lawrence Baxter, Ph.D., Fall 2014, Duke University School of Law.

¹⁷⁷ Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111- 203, 124 Stat. 1376, 1957-1960.

¹⁷⁸ *Id.*

¹⁷⁹ Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111- 203, 124 Stat. 1376, 1958-1959.

[1959] (I) is a merchant, retailer, or seller of any nonfinancial good or service who engages in financial data processing by transmitting or storing payments data about a consumer exclusively for purpose of initiating payments instructions by the consumer to pay such person for the purchase of, or to complete a commercial transaction for, such nonfinancial good or service sold directly by such person to the consumer; or (II) provides access to a host server to a person for purposes of enabling that person to establish and maintain a website.”¹⁸⁰

If Apple Pay is described as a financial product subject to this law, it enters the complicated and highly regulated field of the financial world.¹⁸¹ One of the main duties of Apple Pay would be to act towards their customers according to the terms in Category 7 since they would have to solve customer’s complaints.¹⁸² The CFPB director and the corresponding agencies or federal trade commission will have to solve public enquiries regarding any malfunction of Apple Pay Software.¹⁸³ Apple should consider if this would exclude the banks from any responsibility¹⁸⁴ because banks are obligated to abide by this regulation.¹⁸⁵

For Adam Levitine, even though Apple Pay could not be considered a product, as discussed in the above paragraphs, it could fit in the category of service provider.¹⁸⁶ If classified as a service provider and making Apple Pay subject to these regulations, this is another reason for the government to properly define Apple Pay¹⁸⁷ because at the moment there is a broad interpretation of the rule that can work in favor of Apple Pay or against it.¹⁸⁸

3. *Secondary Sources for the Apple Pay app*

Due to the newness of Apple Pay there is no main legal framework that applies. Mobile/digital wallets have not been explored by scholars and authorities. The issuance of guidelines similar to the Handbook of the Office of the Comptroller of Currency (OCC) or a more extensive publication of scholarly articles on this topic could be beneficial.

¹⁸⁰ *Id.*

¹⁸¹ *Id.*

¹⁸² Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111- 203, 124 Stat. 1376, 2008-2009.

¹⁸³ *Id.*

¹⁸⁴ *Id.*

¹⁸⁵ *Id.*

¹⁸⁶ Adam Levitin, *Apple Pay and the CFPB* (Sept. 10, 2014, 10:56 PM), <http://www.creditslips.org/creditslips/2014/09/apple-pay-and-the-cfpb.html>.

¹⁸⁷ *Id.*

¹⁸⁸ *Id.*

A. *The Office of the Comptroller of Currency (OCC) and Handbook*

The Office of the Comptroller of Currency (OCC) is an independent government bureau devoted to regulating national banks and analyzing future risks in the financial market for those banks.¹⁸⁹ For the specific purpose of Apple Pay, it is fitting to mention the Comptroller's Handbook on the "Electronic Fund Transfer Act".¹⁹⁰

There are times when a regulation is so broad that secondary regulation is needed to narrow down the issue. In the case of Apple Pay, the last resource would be such a Handbook.¹⁹¹ It serves as a guide and offers additional analysis material on Electronic Fund Transfers.¹⁹² Even though the booklet gives similar information as that in Regulation E, the regulation does not provide additional help to determine whether Apple Pay is subject to Regulation E.¹⁹³

Therefore, using the rules that Regulation E establish or using the OCC Handbook will render the same results¹⁹⁴ because the OCC handbook is uniformly applied to national banks and the analysis is made on a federal basis.¹⁹⁵ Even though the Federal Reserve is the custodian of Regulation E, the content per se in the statute will be the same federal bases as the analysis.¹⁹⁶ Therefore, as the guardians of the main Electronic Payment regulation, the Federal Reserve should issue its view on Apple Pay.¹⁹⁷

B. *The quest for a proper terminology and money laundering considerations*

Due to the evolving nature of Apple Pay as the new product it is, there is no Case Law recorded and only a few limited law reviews. There are three types of articles related to Apple Pay that should be mentioned, but neither of them applies directly to: a. Bitcoin, b. Mobile/Digital Wallets or c. Money Laundering.

¹⁸⁹ Office of the Comptroller of the Currency, *About the OCC* <http://www.occ.gov/about/what-we-do/mission/index-about.html> (last visited Mar. 2, 2015).

¹⁹⁰ Office of the Comptroller of the Currency, *Comptroller's Handbook Booklet Revision and Rescission* <http://www.occ.gov/news-issuances/bulletins/2014/bulletin-2014-43.html> (last visited Mar. 2, 2015).

¹⁹¹ *Id.*

¹⁹² *Id.*

¹⁹³ Office of the Comptroller of the Currency, *Comptroller's Handbook* www.occ.gov/publications/publications-by-type/comptrollers-handbook/file-pub-ch-cfta.pdf - 759k - 2014-12-17 (last visited Mar. 2, 2015).

¹⁹⁴ Class Lecture, *supra* note 176.

¹⁹⁵ *Id.*

¹⁹⁶ *Id.*

¹⁹⁷ *Id.*

a. Bitcoin

A pioneer in the digital currency, Bitcoin was very popular, but did not have the required element to make it successful among people. The important thing is to keep in mind the concept of mobile/digital wallet and the responsibilities in its use.¹⁹⁸ Apple may have taken certain basic elements from this product to develop Apple Pay. Bitcoin began to analyze how and what information was going to be disclosed.¹⁹⁹ It could range from consumers or transactions.²⁰⁰ What is certain is that Regulation E does not apply to it²⁰¹ because it is not a legal entity and has no Access Devices; it is just conceived as a digital wallet.²⁰²

b. Mobile/Digital Wallet

The best way to refer to Apple Pay and future electronic payment systems would be as a mobile or digital wallet.²⁰³ Although there is no case law setting rules for digital wallets, some sources use the term to refer Apple Pay²⁰⁴ while others use the term mobile wallet.²⁰⁵ Both terms can be seen as synonyms, although a single term should be determined for it to be used in regulations. It is interesting to examine what people thought about digital wallets a few years ago since it is not something new.²⁰⁶ “A survey in the year of 2000 showed that 38% of 14,000 consumers knew what a digital wallet was.”²⁰⁷ In 2012, Google Wallet started operating and used NFC, which attracted the attention of scholars publishing articles discussing this payment method.²⁰⁸ Even though

¹⁹⁸ Catherine Martin Christopher, *Whack-A-Mole: Why Prosecuting Digital Currency Exchanges Won't Stop Online Money Laundering*, 18 Lewis & Clark L. Rev. 1, 13-14 (2014).

¹⁹⁹ R. Joseph Cook, *Comment: Bitcoins: Technological Innovation Or Emerging Threat?*, 30 J. Marshall J. Computer & Info. L. 535, 538-540 (2014).

²⁰⁰ *Id.*

²⁰¹ Nikolei M. Kaplanov, *Student article: nerdy money: bitcoin, the private digital currency, and the case against its regulation*, 25 Loy. Consumer L. Rev. 111, 157-158 (2012).

²⁰² *Id.*

²⁰³ Wells Fargo Bank, *Mobile Wallet Basics* <https://www.wellsfargo.com/mobile-payments/mobile-wallet-basics/> (last visited Mar. 3, 2015).

²⁰⁴ Forrest Stroud, *Apple Pay* <http://www.webopedia.com/TERM/A/apple-pay.html> (last visited Mar. 3, 2015).

²⁰⁵ Mobile Wallet Basics, *supra* note 204.

²⁰⁶ David Goldman, *Mobile pay war: Wal-Mart and others vs. Google* (Aug. 15, 2012), <http://money.cnn.com/2012/08/15/technology/mcx-mobile-wallet/>.

²⁰⁷ Carl Felsenfeld & Genci Bilali, *The Check Clearing for the 21st Century Act--A Wrong Turn in the Road to Improvement of the U.S. Payments System*, 85 Neb. L. Rev. 52, 73 (2012) *alteration*.

²⁰⁸ Yochai Benkler, *Open wireless vs. licensed spectrum: evidence from market adoption*, 26 Harv. J. Law & Tec 69, 120-122 (2012).

they did not foresee a future in mobile phone payments, they attributed some reasons to the wired point of sales and complicated agreements with phone companies.²⁰⁹ It is clear that at that time an iPad could not be conceived as a point of sale.²¹⁰

On the other hand, Google Wallet was something that offered many possibilities to perform daily activities²¹¹ many people would adopt it instead of a regular cash transaction.²¹² The problem was in the limited availability of phone models, limited usage of credit cards and limited number of merchants accepting it.²¹³

Another issue that the mobile/digital wallet has faced for a long time is anonymity.²¹⁴ There should be ways to identify a user to give security to consumers and better ways to store information about the transactions made²¹⁵ to prevent future disputes among users.²¹⁶

One law review does begin to mention rumors about Apple's mobile/digital wallet.²¹⁷ This law review pays particular attention to partnerships with credit cards.²¹⁸ It particularly refers to Discover and PayPal.²¹⁹ Here it is important to note that the law review detects an area of expansion in mobile banking,²²⁰ based on which company manages to offer banking services to unbanked people.²²¹ The lack of user identification requirements has allowed the industry to start signing partnership agreements.²²² To this respect, the partnership between Discover Network and PayPal to expand their services is especially important.²²³ Therefore, it is most likely that Apple Pay took the idea of bank alliances from partnerships like Discover and Pay Pal.²²⁴

²⁰⁹ *Id.*

²¹⁰ ShoeKeep, *How it works* <http://www.shopkeep.com/ipad-pos> (last visited Mar. 3, 2015).

²¹¹ Meena Aharam Rajan, *The Future Of Wallets: A Look At The Privacy Implications Of Mobile Payments*, 20 *CommLaw Conspectus* 445, 465-466 (2012).

²¹² *Id.*

²¹³ *Id.*

²¹⁴ A. Michael Froomkin, *Regulation and Computing and Information Technology: Flood Control on the Information Ocean: Living with Anonymity, Digital Cash, and Distributed Databases*, 15 *J.L. & Com.* 395, 506 (1996).

²¹⁵ *Id.*

²¹⁶ *Id.*

²¹⁷ Erin F. Fonté, *Mobile Money In Developing Countries: Financial Inclusion and Financial Integrity: Mobile Payments In the United States: How Disintermediation May Affect Delivery of Payment Functions, Financial Inclusion and Anti-Money Laundering Issues*, 8 *Wash. J.L. Tech. & Arts* 419, 430-431 (2013).

²¹⁸ *Id.*

²¹⁹ *Id.*

²²⁰ *Id.*

²²¹ *Id.*

²²² *Id.*

²²³ *Id.*

²²⁴ *Id.*

c. Money Laundering

One of the most important aspects Apple Pay and future competitors should pay heed to is anticorruption and money laundering. Due to the uncertainty in regulations for mobile banking, it was determined that²²⁵ financial services and regulations apply to mobile banking²²⁶ and that they should be treated like any other type of payment.²²⁷ Mobile payment systems are regulated by existing laws; if not, any liability is linked to the corresponding financial institutions.²²⁸ The problem is that Apple Pay is not a mobile payment system *per se*, but a mobile/digital wallet.²²⁹

Banking has unlimited creativity in developing new products.²³⁰ Authorities and companies like Apple Pay should consider defense mechanisms in case of a possible attack on or hacking of iPhones.²³¹ These new products represent a new channel of access for criminals dealing in terrorism or other types of attacks.²³² Criminals could just steal an iPhone, create fake bank apps or do smishing attacks.²³³ A “Smishing attack consists of a message sent to a mobile phone stating Notice: Issues Found On Your Shazam MasterCard. Please Call 13035780902. When the smishing victim calls the number, they reach an automated recording demanding the entry of the Personal Account Number (PAN) and additional confidential information.”²³⁴ Criminal creativity can go beyond this, even to the point of using a mobile/digital wallet for casinos.²³⁵ Imagine going to Las Vegas and gambling with the help of an iPhone.²³⁶

IV. LEGAL BACKGROUND IN MEXICO

Like many other countries, Mexico adapts to technological developments that come from the United States. Sometimes these inventions are simple products without any significant legal impact on society, such as iPods, computers, iPod accessories, iPads, and so on. Concern arises when software or a product has

²²⁵ *Id.* at 419, 431-437.

²²⁶ *Id.*

²²⁷ *Id.*

²²⁸ *Id.*

²²⁹ *Id.*

²³⁰ *Id.* at 419, 437-438.

²³¹ *Id.*

²³² *Id.*

²³³ *Id.*

²³⁴ *Id.*

²³⁵ Gerd Alexander, *Article: The U.S. on tilt: Why the unlawful internet gambling enforcement act is a bad bet*, *Duke L. & Tech. Rev.* 6 (2008).

²³⁶ *Id.*

an impact that goes beyond society's simple use of the product as in the case of Apple Pay in Mexico. Apple Pay in the United States is very recent and the financial laws regarding it are uncertain; therefore, Mexican legislation has no specific provision on it at the moment, but possible legal allowances for Apple Pay, user identification mechanisms and suggested changes for similar technologies might be made along with other legal statutes applicable involving areas like data privacy, commercial transactions, consumer and financial user protection in the future.

1. *Legal allowances for Apple Pay*

Based on general banking principles in Mexico, banks are only allowed to do that permitted by law and regulations.²³⁷ The general statutory framework to consider the possibility of Apple Pay in Mexico is found in the General Dispositions of the Credit Institutions Law. A complete analysis should be made of two particular aspects: definitions and Chapter X on the request of banking products and services from financial users.²³⁸

The first part of the General Dispositions of the Credit Institutions Law establishes a definition section for certain terminology.²³⁹ Similar related terms are defined such as: Point of Sale Devices (devices to access electronic bank services, phones, computers etc.; to perform the payment of goods and services), Mobile Banking (electronic banking system in which an account is linked to a phone), Online Banking (electronic banking system based in the internet), Telephone Banking (electronic banking system in which the user gives instructions by phone), Access Devices (device that allows a user to access the electronic banking system), Mobile Payment (access device linked to a mobile phone) and authentication factor (tangible or intangible means to identify a user in electronic banking).²⁴⁰

Some of these terms could be easily interpreted applying to Apple Pay, having as a result the same legal uncertainty as in United States. Mexican legal system most of the times is very clear and every law tries to define every possible term used in practice to avoid misconceptions. Therefore, if every described term is analyzed textually and carefully directly from the statute, the reader will distinguish that technically, a specific term for digital wallet would be required.

²³⁷ Legal Framework of Banks Lecture from Prof. Eduardo Preciado Briseño, Ph.D., 2013, Universidad Panamericana.

²³⁸ Ley de Instituciones de Crédito LIC (Credit Institutions Laws); The Law authorizes the Minister of Finance to regulate the use of electronic banking transaction; *see* Disposiciones de Carácter General Aplicables a las Instituciones de Crédito (General Dispositions applied to the Credit Institutions Law); *see* Article 1, (trans. Ricardo Heredia Salazar).

²³⁹ *Id.*

²⁴⁰ *Id.*

It is possible having a misconception through an interpretation of the following terms: Access Device, Mobile Banking System, Telephone Banking and Mobile Payment.²⁴¹ Nevertheless, first an access device faces the same problem as in United States. It is not defined in the services bank agreement to use a phone as a digital wallet. Secondly a mobile banking system, in practice relates only to a deposit account linked to a phone, not credit cards as Apple Pay. Thirdly telephone banking works only to call the bank and instruct several banking transactions with your voice by phone. Finally Mobile Payment, even if it is an account linked to a phone; it is limited to the accounts from one bank linked to the phone. Another consideration is that mobile payment is limited in checking an account balance and transferring only a limited amount of money to another account. All of the above would require a proper definition for digital wallet.

2. *Requesting Electronic Banking Products and Services*

As any other banking product and service, there is a list of requirements to fulfill which are required by law. Most of them are established in the General Dispositions applied to the Credit Institutions Law, while others represent newness and are not considered by the law.²⁴² Even though, in order to avoid a fine by the Mexican Financial Authorities and complying with the purpose of this Law, an implementation of the term digital wallet should be considered.²⁴³ The main sources for the legal possibility are mentioned in articles 306 and 307.²⁴⁴

A. *Article 306 of the General Dispositions applied to the Credit Institutions Law*

This article describes the rules of banks to allow customers use electronic banking.²⁴⁵ These requirements are the following: describe the services intended, type and monetary limit of operations that could be provided by these electronic services, means to identify users, how a transaction is registered, cancellation procedures, restrictions, let the users know the risks of the services and provide covenants to customers.²⁴⁶

²⁴¹ *Id.*

²⁴² Ley de Instituciones de Crédito LIC (Credit Institutions Law); The Law authorizes the Minister of Finance to regulate the use of electronic banking transaction; *see* Disposiciones de Carácter General Aplicables a las Instituciones de Crédito (General Dispositions applied to the Credit Institutions Law); *see* Chapter X, Article 306, (trans. Ricardo Heredia Salazar).

²⁴³ *Id.*

²⁴⁴ *Id.*

²⁴⁵ *Id.*

²⁴⁶ *Id.*

B. *Article 307 of the General Dispositions applied to the Credit Institutions Law*

This article establishes additional requirements from the previous article 306 in order to request banking products and services.²⁴⁷ There is a mandatory requirement to obtain the signed consent of the customer for every banking service except: mobile payment and ATM related products such as prepaid cards and point of sale devices.²⁴⁸ Finally the article allows the users to subscribe new non listed banking products and services, if they give their consent through a third or fourth user identification means as described in Part V.²⁴⁹

Both articles 306 and 307 could be applicable in a parallel way to banks in Mexico that want to be part of Apple Pay. Even though there could be a challenge from the banks trying to implement Apple Pay as a banking product or service due to a legal uncertainty from a loophole; it could be a good alternative. Notwithstanding, in case the Banks wanted to enforce this provision in an electronic way, it could be possible, since Apple Pay accepts fingerprinting as a fourth factor identification.

Therefore, there is a loophole in Mexico for the regulation of digital wallets, just as in United States. A possible application in Mexico could be done, interpreting the previous legal framework. Even though due to a legal banking principle and a reality that law is always changing and adapting to new ways of living, an amendment in the law should be done. Understanding Apple Pay in Mexico as an evolution of other ways of payment and not a financial revolution is a must. Mexican Financial Authorities should define in the mentioned regulation or issue a secondary statute specifically for digital wallets.

3. *Digital wallet race in Mexico*

Influenced by other countries using digital wallets, Mexico is beginning to modernize its systems to implement this type of payment method. Since March 27, 2015, Mexican banks, like BBVA Bancomer, Citi Banamex and Banco Santander México, have begun to operate digital wallets.²⁵⁰

A. *BBVA Bancomer*

BBVA Bancomer Bank developed a smartphone app that offers several online banking functions and the possibility of digital payment through a

²⁴⁷ Ley de Instituciones de Crédito LIC (Credit Institutions Laws); *supra* note 242; see Chapter X, Article 307, (trans. Ricardo Heredia Salazar).

²⁴⁸ *Id.*

²⁴⁹ *Id.*

²⁵⁰ Sánchez Onofre Julio, *Arranca la carrera de e-wallets en México* (Mar. 27, 2015, 7:37 AM), <http://eleconomista.com.mx/tecnociencia/2015/03/27/arranca-carrera-e-wallets-mexico>.

contactless point of sale device.²⁵¹ In order to use BBVA Wallet, the client must be subscribed to the banking product²⁵² by logging into the smartphone app with the client's digital signature.²⁵³ It should be noted that only BBVA Bancomer clients can use this particular digital wallet.²⁵⁴

B. Citi Banamex and Banco Santander México

Both of these banks, Mexico's other "Big Banks", also started evaluating the possibility of developing digital wallet software for its clients.²⁵⁵ Even though The Economist states that this method of payment is actually only expected from Banamex since Banco Santander México will most likely implement the same platform the company uses in Spain.²⁵⁶ Currently, both institutions are running trials to evaluate its effective legal and commercial application in the Mexican market.²⁵⁷

Preliminary negotiations have probably taken place between Apple Inc. and Mexican domestic banks to implement a digital wallet and Apple Pay in the country. Due to statutory loopholes and the legal complications described in this legal research, Mexican banks will start creating a legal framework for digital wallets. The Mexican Bank Association will play an important role in trying to make the implementation of digital wallets possible in Mexico.²⁵⁸ The Mexican Bank Association represents the main banks in Mexico before government authorities²⁵⁹ regarding issues like banking/credit services and products, as well as the modernization of payment systems in the country.²⁶⁰

Since digital wallets are simply an updated version of a payment system and not a financial revolution, creating a legal roadmap in other countries with the help of domestic banks and associations is a good strategy for private companies like Apple. Once Mexican regulations have been adapted for digital wallets and Apple Pay, the next issue will be to upgrade point of sale devices for Apple Pay and other companies with near-field communication ("NFC") technology. This might be an issue, but one that was overcome in the

²⁵¹ BBVA Bancomer, *BBVA Wallet*, <https://www.bbva.es/esticos/micros/wallet/index.html> (last visited Dec. 31, 2015).

²⁵² *Id.*

²⁵³ *Id.*

²⁵⁴ *Id.*

²⁵⁵ Sánchez, *supra* note 250 alteration.

²⁵⁶ Banco Santander, *Santander Wallet* <https://www.bancosantander.es/es/particulares/banca-online/banca-online/santander-wallet> (last visited Dec. 31, 2015).

²⁵⁷ *Id.*

²⁵⁸ Asociación de Bancos de México, *¿Qué es la ABM?* <http://www.abm.org.mx/quienes-somos/> (last visited Jan. 4, 2016).

²⁵⁹ *Id.*

²⁶⁰ *Id.*

United States. Therefore, the last step could take time, but would not bring out any legal issues.

4. *Other Statutory Considerations in Mexico*

Apart from the US and Mexican regulations applied specifically to digital wallets and Apple Pay, as stated above, Mexico has other related statutes. The Credit Institutions Law permits financial institutions the use of electronic technology. The General Commercial Code allows commercial transactions to be performed electronically. The Federal Consumer Protection Agency and the National Commission for the Protection and Defense of the Users of Financial Services oversee the rights of users of the products against errors or fraud. It is not yet clear which of the mentioned agencies would oversee Apple Pay and digital wallets. The Personal Data Protection Act must also be considered since digital wallet and Apple Pay software stores personal data and sensitive personal data, which imply special considerations.

A. *Credit Institutions Law Article 52*

From a broad analysis from the Credit Institutions Law, financial institutions may perform operations using electronic or optical equipment or that of any other technology, automated data processing systems and network telecommunications.²⁶¹ This type of operations might be established in financial institution contracts if such agreements cover: i) operations and services which are agreed upon, ii) the means of user identification and liabilities, and iii) the means for the creation, transmission, modification or termination of rights and obligations inherent to the corresponding operations and services.²⁶² It is possible to use other means of identification other than a handwritten signature for electronic transactions.²⁶³ In order to make this electronic identification procedure possible, financial institutions must comply with the rules established by the Central Bank of Mexico and the National Banking and Securities Commission (*Comisión Nacional Bancaria y de Valores*).²⁶⁴

From a legal point of view, Apple Pay and digital wallets can be used in Mexico. The fact that the main banking law in the country allows financial institutions to perform services like digital wallets is good for the advancement of payment systems in Mexico even though as seen in Part III, proper guidelines or laws are needed. The main concern Apple Pay would face at

²⁶¹ Ley de Instituciones de Crédito LIC (Credit Institutions Laws); see Article 52, (trans. Ricardo Heredia Salazar).

²⁶² *Id.*

²⁶³ *Id.*

²⁶⁴ *Id.*

this moment is that the Credit Institutions Law only allows financial institutions to offer this service, and not any other legal entity. Apple should have a legal strategy if it wants to implement this service by forging alliances with banks, incorporating a non-bank financial institution or waiting for a reform to be made to financial regulations. Otherwise, the considerations of Section III.D.2 could apply. In this sense, Mexico is using a brilliant strategy for this payment method. Mexican banks BBVA's, Banamex's and Santander's implementation of digital wallets as one of their products, as described in section C, are drawing the roadmap for foreign companies and technologies. Therefore, it is possible for foreign companies that are non-financial entities like Apple Pay will participate in this payment system in the future. Its commercial and marketing strategy, along with a biometric identification system, will create a revolutionary payment system in the country.

B. *General Commercial Code*

In matters of electronic commerce in Mexico, all the applicable rules shall be interpreted based on technological possibility, neutrality and international compatibility, in matters regarding its application to electronic signatures.²⁶⁵

“An electronic signature will be deemed Advanced or Secure if it at least meets the following requirements: i) the information on the creation of the signature, in the context in which [the signature] is used, corresponds exclusively to the Signer; ii) the information on the creation of the signature were, at the time of signing, under the exclusive control of the Signer; iii) it is possible to detect any alteration made to the electronic signature after moment of signing, and iv) regarding the reliability of the information in a Data Message, it is possible to detect any alteration after the moment of signing.”²⁶⁶

These considerations under Mexican law establish the fact that an electronic signature is reliable and is allowed in commerce. Even then, it may be proven otherwise by presenting the corresponding evidence.²⁶⁷

The General Commercial Code is the main statute that applies to every commercial transaction in Mexico. Even when financial and banking aspects are involved, the General Commercial Code will be considered a secondary legal source,²⁶⁸ due to the applicability of the Credit Institutions Law

²⁶⁵ Código de Comercio (CCo.) (Commercial Code), as amended, Diario Oficial de la Federación (DO), 13 de junio de 2014 (Mex.); see Articles 89 and 97 (trans. Ricardo Heredia Salazar).

²⁶⁶ *Id.*

²⁶⁷ *Id.*

²⁶⁸ Ley de Instituciones de Crédito LIC (Credit Institutions Laws); see Article 6 (trans. Ricardo Heredia Salazar).

for this type of transactions. Under this code, digital wallets and Apple Pay can be considered operational in Mexico. The technological capabilities of the system, the day-to-day use given to it from an international standpoint, and the elements used for biometric identification meet the requirements for electronic commerce. Therefore, from an interpretation of the previous law together with the General Dispositions applied to the Credit Institutions Law, Apple Pay should be a viable option to be used in Mexican commerce, but Apple needs to take into account the following aspects of biometric identification: It being possible to identify: i) how the transaction was used and have a database to identify biometric information of the users; ii) that the user owner of the biometrics in fact performed the transaction; iii) possibility of detecting alterations to the biometrics; and iv) been able to prove the used biometrics in the case of trial.²⁶⁹ Even though Apple might technologically meet these four requirements, it could be hard to prove them materially since all the information is stored on the user's iPhone.²⁷⁰ Apple uses this type of information storage globally under a very strict policy regarding the disclosure of the information stored on said device.²⁷¹ This might be the only deterrence of implementing the use of Apple Pay in Mexico.

C. National Commission for the Protection and Defense of the Users of Financial Services (Condusef)

Condusef is a financial agency in charge of protecting users of financial services.²⁷² Its functions include regulating and authorizing banking products, as well as registering banking contracts.²⁷³ In view of the legal uncertainty present in the law, a careful examination of Condusef statutes reveal elements that would affect the spread of the use of digital wallets and Apple Pay in Mexico: the main statute of the agency, the Single Provision of the Condusef (repealed) and the Financial Services Transparency and Regulation Law.²⁷⁴

²⁶⁹ Código de Comercio (CCo.) (Commercial Code), as amended, Diario Oficial de la Federación (DO), 13 de junio de 2014 (Mex.); see Article 89 and Article 97 (trans. Ricardo Heredia Salazar); see also Disposiciones de Carácter General Aplicables a las Instituciones de Crédito (General Dispositions applied to the Credit Institutions Law).

²⁷⁰ David W Opderbeck & Justin Hurwitz, *Apple v. FBI: Brief in Support of Neither Party in San Bernardino iPhone Case* (March 10, 2016), <http://ssrn.com/abstract=2746100>.

²⁷¹ *Id.*

²⁷² Ley de Protección y Defensa al Usuario de Servicios Financieros (Law for the Protection and Defense of Users of Financial Services); see Articles 1 and 11 (trans. Ricardo Heredia Salazar).

²⁷³ *Id.*

²⁷⁴ Condusef, *Marco Jurídico*, (Mar. 29, 2016) <http://www.condusef.gob.mx/index.php/conoces-la-condusef/marco-juridico> (trans. Ricardo Heredia Salazar).

Since the Condusef only regulates financial entities²⁷⁵ there is no legal impediment at this point that might restrict the implementation of such a system. Because Apple Inc. is a regular corporation, these provisions do not apply *per se*. Even then, the strategy of financial institutions is to introduce mobile wallets as a banking product. In doing this, a precedent will be set with the Condusef, reasserting the possibility for Apple Pay to one day operate in Mexico and urging authorities to start evaluating new financial technology products and their effects on the Mexican people.

D. *Personal Data Protection Act*

Apple Pay and other potential digital wallets store personal data and sensitive personal data. Therefore, Apple Inc. and other companies must comply with the Mexican Personal Data Protection Act.

Every company that processes personal data and sensitive personal data must have a Privacy Notice that complies with certain requirements, such as:²⁷⁶ i) the identity and address of the person responsible for collecting personal data; ii) purposes for which the data will be handled; iii) the options and means the person responsible offers to the owners of said information to limit the use and disclosure of the data; iv) the means to exercise the rights of access, correction, cancelation or opposition; v) if necessary, the any transfer of information; and vi) the procedure and means by which the person responsible will inform the owners of the information of changes to the privacy notice, as stipulated by law.²⁷⁷ Sensitive personal data is defined as any personal information affecting the most intimate sphere of the owner of such information, or that which the misuse of can lead to discrimination or pose a serious risk to said owner – *namely anything involving racial or ethnic origin, present or future health conditions, genetic information, religious, philosophical or moral beliefs, union membership, political views and sexual preference*. The Mexican Data Protection Act also protects personal data, defined as any piece of information regarding and identified or identifiable individual.²⁷⁸ When handling an individual's sensitive personal data, the individual's express consent for the handling of

²⁷⁵ Ley de Protección y Defensa al Usuario de Servicios Financieros (Law for the Protection and Defense of Users of Financial Services); see Articles 2 and 5 (trans. Ricardo Heredia Salazar).

²⁷⁶ Ley Federal De Protección De Datos Personales En Posesión De Los Particulares (LFPDPPP) (Personal Data Protection Act); see Article 16, Diario Oficial de la Federación (DO), 5 de julio de 2010 (Mex.) (trans. Ricardo Heredia Salazar).

²⁷⁷ *Id.* at Article 16.

²⁷⁸ *Id.* at Article 3; see also Reglamento de la Ley Federal De Protección De Datos Personales En Posesión De Los Particulares (RLFPDPPP) (Personal Data Protection Regulations); see Article 15, Diario Oficial de la Federación (DO), 21 de diciembre de 2011 (Mex.) (trans. Ricardo Heredia Salazar).

said information is required.²⁷⁹ In the case of an individual's personal data, only tacit consent is required from the individual.²⁸⁰ Any transfer of information can only be done to the parties and for the purposes stated in the Privacy Notice.²⁸¹

Personal data protection must be taken into account when introducing a digital wallet or Apple Pay in Mexico. The main personal data protection authority, the National Institute for Transparency and Access to Information and Protection of Personal Data (INAI), is in charge of overseeing the compliance of Apple Pay and digital wallets with the Personal Data Protection Act. Digital wallet software requires the user's personal information, such as the user's name, as well as sensitive personal data, such as the user's biometrics for identification and a picture of the user's credit or debit card, which is also considered part of the user's financial information. The best practice for these companies is to add the Privacy Notice as part of the terms and conditions of software use. This notice should clearly establish all the personal data and sensitive personal data to be obtained, as well as to whom the information may be transferred –*such as financial institutions*. Since the Personal Data Protection Act requires the user's express consent to obtain sensitive personal data, this consent may be granted electronically on a smartphone under special legal consideration, requiring the user to accept the terms and conditions of use and give express consent for the data to be processed. Therefore, in addition to revising the apparent workability of several financial laws for the product to operate in Mexico, there are other important fields as Personal Data Protection that apply and must be considered.

E. Federal Consumer Protection Agency (Profeco)

The Federal Consumer Protection Law establishes the protection of the rights of both consumers and suppliers,²⁸² authorizing transactions in a business environment using electronic devices or any other technology.²⁸³ There are several elements the provider and consumer must comply with: i) the information

²⁷⁹ Ley Federal De Protección De Datos Personales En Posesión De Los Particulares (LFPDPPP) (Personal Data Protection Act); see Articles 8-10, Diario Oficial de la Federación (DO), 5 de julio de 2010 (Mex.); see also Reglamento de la Ley Federal De Protección De Datos Personales En Posesión De Los Particulares (RLFPDPPP) (Personal Data Protection Regulations); see Article 15, Diario Oficial de la Federación (DO), 21 de diciembre de 2011 (Mex.) (trans. Ricardo Heredia Salazar).

²⁸⁰ Ley Federal De Protección De Datos Personales En Posesión De Los Particulares (LFPDPPP) (Personal Data Protection Act); see Articles 8-10, Diario Oficial de la Federación (DO), 5 de julio de 2010 (Mex.) (trans. Ricardo Heredia Salazar).

²⁸¹ *Id.* at Article 36.

²⁸² Ley Federal de Protección al Consumidor (Federal Consumer Protection Law) LFPC; see Article 76 bis, (trans. Ricardo Heredia Salazar).

²⁸³ *Id.*

is used on a confidential basis; ii) the supplier must offer safety and confidentiality; iii) the supplier must provide its personal information to the user; iv) the supplier must avoid deceptive trade practices; v) the user is entitled to know all the terms and conditions; vi) the supplier must abide by the consumer's decision on the quantity and quality of the products the consumer wishes to receive and vii) the supplier must abstain from misleading advertising practices.²⁸⁴

Mexican legislation has a loophole that Apple Pay and digital wallets can make use of. While the Condusef is the protection agency in charge of financial institutions, the Profeco is the agency in charge of supervising regular corporations. There is legal uncertainty regarding which authority Apple Pay should follow. On one hand, it is unknown whether it will be incorporated as a financial entity or will continue to work as a regular corporation. This is important in the event of a program malfunction or a fraud while using the payment system. With whom should consumers file a claim, Profeco or Condusef? The truth is that Apple Inc. should be cautious when complying with Profeco since it involves transactions using electronic devices. From what can be inferred, as a provider, Apple Inc. will comply with the following elements contained in the Federal Consumer Protection Law: i) with the use of biometrics and the Apple data protection, information is held confidential; ii) the specific security criterion would be the use of biometrics to verify and authenticate the user; iii) due to the nature of Apple Inc., it is assumed that no deceptive or misleading decision practices will be employed and the personal data provided will comply with the Personal Data Protection Act; and iv) the consumer will read and approve the terms and conditions of the software electronically before using it.²⁸⁵ Therefore, a preliminary analysis of the Federal Consumer Protection of Digital Wallets and Apple Pay, the project is viable.

V. LITERATURE REVIEW

Financial products can have a wide range of options, innovations and creativity. However, any product, as revolutionary as it may be, must always comply with the laws of the country. In the case of Apple Pay and digital wallets, the topic can sometimes be misunderstood and confused with Bitcoin or digital currency. In this section, the difference between digital wallets and digital currency (Bitcoin) are established, as well as the importance of this research paper for the future development of financial products.

Due to the lack of research in this field, there is little information since this topic might be confused with digital currency or Bitcoin. Therefore, it

²⁸⁴ *Id.*

²⁸⁵ *Id.*, see also Disposiciones de Carácter General Aplicables a las Instituciones de Crédito (General Dispositions applied to the Credit Institutions Law)

is important to explain the differences between digital currency and a digital wallet (Bitcoin and Apple Pay).

In view of the rapidly changing technology, the government should enforce consumer protection regulation, as well as its banking regulation.²⁸⁶ Prof. Mark Edwin Burge has properly defined Apple Pay as mobile payment, and Bitcoin as cryptocurrency.²⁸⁷ In the United States, it can be seen a trend in the evolution of methods of payment.²⁸⁸ First, personal checks have almost been eliminated and secondly, plastic payments with debit or credit cards are in decline.²⁸⁹ At this point, new developers are trying to introduce a new culture of payment in society.²⁹⁰ Some tried by creating a new payment system like Apple Pay, while others tried to substitute cash for digital tokens.²⁹¹ The difficulty lies in analyzing the legality of one product with the uncertainty that the other represents. There are even some authors that claim it is possible to make a universal currency²⁹² based on electronic money called as quantum money.²⁹³ Electronic money can be conceived as storing a monetary value on a device that serves as a payment system.²⁹⁴

Apple Pay and digital wallets should be considered an element of its own, different from digital currency. The applicability and nature of digital wallets as a mobile payment method eventually involve government and financial institutions. In fact, there has been an evolution in the payment system and monetary law; the problem is when technology tries to avoid legality or government protection, as in the case of Bitcoin. It is important to use technology in a way that benefits society and complies with regulation. Bitcoin blockchain technology has been used by companies and financial institutions because of its underlying technology.²⁹⁵ The benefit of a ledger, which helps one party keeps track of the events, makes it valuable.²⁹⁶ With this system, smart contracts are possible to make it possible for one party to make a payment by only meeting their requirements.²⁹⁷

²⁸⁶ Mark Edwin Burge, *Apple Pay, Bitcoin, And Consumers: The ABCs of Future Public Payments Law*, 67 *Hastings L.J.* 1 (2016).

²⁸⁷ *Id.*

²⁸⁸ *Id.* at 2-3.

²⁸⁹ *Id.* at 3-5.

²⁹⁰ *Id.* at 3-5.

²⁹¹ *Id.* at 3-5.

²⁹² Dimitri O. Ledenyov & Viktor O. Ledenyov, *Quantum Money*, James Cook University, (Nov. 19, 2015) at 5, <http://ssrn.com/abstract=2693128>.

²⁹³ *Id.* at 1-3.

²⁹⁴ *Id.*

²⁹⁵ Victor Li, *Bitcoin's Useful Backbone*, 102 *A.B.A.J.* 31, 31 (2016) (discussing the benefits of blockchain).

²⁹⁶ *Id.*

²⁹⁷ *Id.*

Bitcoin is used to purchase goods and to speculate on the market.²⁹⁸ Instead of having a central bank or an authority regulating the use of Bitcoin, it is based on and operates according to a protocol of its own.²⁹⁹ One of the risks of Bitcoin is its inability to provide the people with the legal certainty that the currency is backed by the government or a commodity.³⁰⁰ It intends to function entirely on the trust of its users and among a network of people, which eventually opens up the possibility of being hacked.³⁰¹ This network can be described as a blockchain, which is not operated by a financial institution.³⁰² Profits are made through commissions acquired through every transaction.³⁰³ Due to these particularities, Bitcoin can be the best mechanism for tax evasion³⁰⁴ because electronic transfers can be made without meeting in person.³⁰⁵ Cryptocurrencies have certain advantages for some people,³⁰⁶ which range from not operating under a particular jurisdiction or being subject to sources of taxation.³⁰⁷ Finally, the possibility of users to have several accounts without the need for any formal identification increases the possibility of tax evasion.³⁰⁸ “This virtual or digital money has been defined by the U.S. Financial Crimes Network as those currencies that operate like a currency in some environments, but do not have a legal tender status in any jurisdiction”.³⁰⁹ Therefore, governments should strictly regulate digital currencies and even ban them in some countries. One of the goals of cryptocurrencies is to decentralize financial intermediaries.³¹⁰ It is inevitable that technology and financial expansion will reach a point where international financial authorities will need to take into account every update in the financial arena.³¹¹ It began with the age of mortar banking, later internet banking and finally mobile banking.³¹² Maybe the next step will be electronic wallets,

²⁹⁸ Misha Tsukerman, *The Block Is Hot: A Survey Of The State Of Bitcoin Regulation And Suggestions For The Future*, 30 Berkeley Tech. L.J. 1127 (2015).

²⁹⁹ *Id.*

³⁰⁰ *Id.*

³⁰¹ *Id.* at 1127-1128, 1147.

³⁰² *Id.* at 1128.

³⁰³ *Id.*

³⁰⁴ *Id.* at 1147.

³⁰⁵ *Id.*

³⁰⁶ *Id.* at 1151.

³⁰⁷ *Id.*

³⁰⁸ *Id.*

³⁰⁹ Lawrence J. Trautman & Alvin C. Harrell, *Bitcoin Versus Regulated Payment Systems: What Gives?* (Feb. 10, 2016), <http://ssrn.com/abstract=2730983>.

³¹⁰ Massimo Morini, *Inv/Sav Wallets And The Role Of Financial Intermediaries In A Digital Currency*, (July. 21, 2014) at 1, <http://ssrn.com/abstract=2458890>.

³¹¹ *Id.*

³¹² Dimpy Handa & Gaurav Schraat, *Banking System In India: From Bricks to Clicks to What Next?*, (Mar. 2014) at 334, <http://ssrn.com/abstract=2703525>.

virtual cards, plastic money or the use of biometrics.³¹³ This could be the case of Bitcoin or Apple Pay and digital wallets.

Even though Bitcoin and digital currencies are not central to this research paper, this concept and that of digital wallets must be clarified. Although digital wallets work with its software and protocols, they differ from digital currency by complying with state and international laws. In this way, digital wallets provide people and users legal certainty that the credit cards used in the digital wallet software will not be used to commit fraud, thus making it a payment system authorized by the government. Digital wallets do not use blockchains because a financial institution is involved at some point. The main advantage of a digital wallet will evolve into a regular payment system and create a lifestyle for marketing purposes. This evolution is made possible by developing digital wallets in every country based on each country's laws and tax regulations. Just as digital currency aims at preparing society for the future in terms of monetary law, but due to its legal uncertainty, it has completely failed. Digital wallets are preparing the society an evolution in the payment system. This evolution should go hand-in-hand with user biometrical identification because of its potential security. The greatest differences between digital currency and digital wallets are that digital wallets must comply with state laws, have legal certainty and involve a financial institution while digital currency does not.

Due to the novelty of digital wallets, Apple Pay and the use of biometrics as a way to identify users in electronic banking transactions, there is a lack of doctrine and information published in law journals.³¹⁴ This scarcity was witnessed in the research carried out for this paper, which might help guide proper applicable regulations in the future.

Nowadays, with a need to interpret the law and a concept that legal doctrine and legal scholars have not analyzed, there is a need for a pioneer on the subject. This pioneer should make a comprehensive analysis, covering not only legal aspects but also the essence of the invention, which usually derive from business or marketing strategies.

In publishing this research paper, Mexico will be one of the few countries in which legal scholars provide doctrine regarding digital wallets, Apple Pay and the use of biometrics as a way to identify users in electronic banking transactions. It will be a cornerstone for future analysis for financial product developments, together with an analysis of their legal viability.

³¹³ *Id.* at 339.

³¹⁴ This can be proved by the small number of law journals and legal doctrine books published and referred to in this research paper.

VI. STATUTORY AUTHORITIES FOR IMPLICATIONS ON USER IDENTIFICATION
IN MEXICO AND THE UNITED STATES OF AMERICA

Property has been one of the most important elements of people from centuries ago, such as in Roman history and law.³¹⁵ Fingerprinting has been used since ancient cultures as a way of identifying property and therefore protects it from thieves.³¹⁶ Even then, as Mexican criminologist Dr. Luis Rafael Moreno González states, criminal creativity and inventions will always be one step ahead of the law.³¹⁷ For some countries, protection could develop a statute that regulates and enforces user identification.³¹⁸ Meanwhile, other countries prefer not to limit commercial expansion by enforcing user identification contained in a statute.³¹⁹

Nowadays biometry has so many applications that it has spread to the financial world.³²⁰ Financial institutions all over the world have been using fingerprinting as a safer way to prevent frauds in financial transactions. One example of this is Apple Pay, which stands out as an advanced payment method.³²¹ Since Apple Pay works through a screen and it is possible to share the device or have it stolen, Apple Inc. incorporated fingerprinting as a way to validate a financial transaction.³²² Unfortunately nothing is 100% safe. There might be some possibilities for frauds to take place, such as loopholes in the law, especially in civil law nations. In such countries, criminals can kidnap a person in order to use his or her biometry or in a worst scenario cut off his or her finger. To analyze the relevance of user identification, a comparison between statutes in Mexico and the United States should be made, since US federal authorities are contemplating the benefits of implementing a similar security system.

1. *Overview of Apple Pay User Identification in Mexico*

In Mexico, a fingerprint system works differently than in United States in a legal manner. As a civil law country, Mexico is based in statutes and has a very important one, the General Dispositions Applied to the Credit Institutions Law. This law technically regulates banking transactions and Chapter X establishes what banks should use to identify customers in electronic banking transactions.³²³ Their classification ranges from a set of personal questions

³¹⁵ Bhanu, *supra* note 83.

³¹⁶ *Id.*

³¹⁷ Interview Dr. Moreno, *supra* note 84.

³¹⁸ *Id.*

³¹⁹ *Id.*

³²⁰ Bhanu, *supra* note 83.

³²¹ Apple Pay, *supra* note 2.

³²² *Id.*

³²³ Ley de Instituciones de Crédito LIC (Credit Institutions Laws); The Law authorizes the

to biometric factors.³²⁴ These regulations state that for a customer to have a complete freedom to perform any electronic banking transaction a biometric factor will be requested.³²⁵ What banks have implemented in smartphones is voice identification software.³²⁶

When Apple Pay was launched in the fall of 2014, it said that entering the Mexican market was very hard at that moment.³²⁷ Mexico's complicated banking law is so overregulated that for Apple Pay to work, the principal banking regulations would have to be amended.³²⁸ The General Dispositions Applied to the Credit Institutions Law has a very strict procedure on how clients should be identified for each type of financial transaction.³²⁹ To check a balance, make a purchase, withdraw or a money transfer,³³⁰ the client should always check whether answering simple questions from the bank is enough, or if a password or a signature is required.³³¹ The only way to avoid complications is by using biometrical identification.³³² Banks are starting to use it, but have not obtained much acceptance because of the high costs. The problem in Mexico with Apple Pay is that the General Dispositions Applied to the Credit Institutions Law strictly applies to banks.³³³ Mexico's financial authorities need to examine Apple Pay in order to give the authorization to use such a system, change the law and avoid fining the company.

2. Overview of Apple Pay User Identification in the United States

The United States does not have compelling regulations that enforce identification methods in banking transactions the way Mexico does.³³⁴ Regulation E only establishes that financial institutions can choose whatever method

Minister of Finance to regulate the use of electronic banking transaction; *see* Disposiciones de Carácter General Aplicables a las Instituciones de Crédito (General Dispositions applied to the Credit Institutions Law); at Chapter Chapter X, (trans. Ricardo Heredia Salazar).

³²⁴ *Id.*

³²⁵ *Id.*

³²⁶ *Id.*

³²⁷ CNN Expansión, *México queda excluido del sistema de pagos Apple Pay* (Feb. 27, 2015), <http://www.cnnexpansion.com/tecnologia/2014/09/16/mexico-queda-excluido-de-apple-pay>, (Mex.), (trans. Ricardo Heredia Salazar).

³²⁸ Ley de Instituciones de Crédito LIC (Credit Institutions Laws); The Law authorizes the Minister of Finance to regulate the use of electronic banking transaction; *see* Disposiciones de Carácter General Aplicables a las Instituciones de Crédito (General Dispositions applied to the Credit Institutions Law); at Chapter Chapter X, (trans. Ricardo Heredia Salazar).

³²⁹ *Id.*

³³⁰ *Id.*

³³¹ *Id.*

³³² *Id.*

³³³ *Id.*

³³⁴ Class lecture, *supra* note 176.

they prefer to identify clients using access devices.³³⁵ These methods could be a PIN, a signature, fingerprints or a photograph.³³⁶ By choosing one of these identification methods, the user is not liable for unauthorized transfers in the access device.³³⁷ The main problem is the uncertainty of whether mobile/digital wallets qualify as access devices.³³⁸ Therefore, the federal authority needs to clarify this issue through guidelines or amendments to regulations.³³⁹

Due to the capitalist nature of the United States, each bank is willing to absorb the losses in the event of fraud.³⁴⁰ Apple Inc. has considered disclosing information requested from a user's device to the government.³⁴¹ The company is only willing to do so, however, if they have a search warrant and are compelled by law.³⁴² Apple Inc. will inform iPhone users of this legal requirement of providing certain personal information.³⁴³ In the new iOS software, messages, photographs and mail are impossible to provide because they are encrypted by the user's password.³⁴⁴ It would be interesting to know the limit of this encrypted data since Apple Pay also works with the user's password and fingerprint.³⁴⁵

Even if US law does not enforce minimum criteria to identify users in financial transactions, Apple does it brilliantly.³⁴⁶ It is not known whether this is due to identification problems or a desire to standardize the system, but the government has admitted to this flaw and is contemplating the possibility of collaborating with the stakeholders to fix it.³⁴⁷ The Federal Financial Institutions Examination Council published guidelines in 2001 on user identification for online banking.³⁴⁸ The guidelines classify the types of identification in a similar way as Mexico does: passwords, a token and biometrics.³⁴⁹ The problem flaw is that is not enforceable on the level of statutes as it is in Mexico.³⁵⁰

³³⁵ 12 C.F.R Part 1005 (2015) Supplement I.

³³⁶ *Id.*

³³⁷ *Id.*

³³⁸ *See.* Part II. A.

³³⁹ *Id.*

³⁴⁰ Class lecture, *supra* note 176.

³⁴¹ Apple, *Privacy* <https://www.apple.com/privacy/government-information-requests> (last visited Mar. 3, 2015).

³⁴² *Id.*

³⁴³ *Id.*

³⁴⁴ *Id.*

³⁴⁵ *Id.*

³⁴⁶ Class lecture, *supra* note 176.

³⁴⁷ Federal Reserve System, *Strategies for Improving the U.S. Payment System* (Jan. 26, 2015), <https://fedpaymentsimprovement.org/wp-content/uploads/strategies-improving-us-payment-system.pdf>

³⁴⁸ Federal Financial Institutions Examination Council, *Authentication in an Internet Banking Environment* http://www.ffiec.gov/pdf/authentication_guidelines.pdf (last visited Mar. 3, 2015).

³⁴⁹ *Id.*

³⁵⁰ Ley de Instituciones de Crédito LIC (Credit Institutions Laws); The Law authorizes the Minister of Finance to regulate the use of electronic banking transaction; *see* Disposiciones de

The idea of using biological data that is very hard to replicate is not only a big legal improvement, but also a great marketing tool.³⁵¹ Even with the significance of this product, the company should not lose track of the fact that the government is very powerful. Under Rule 26 of the Federal Rules of Civil Procedure “parties may obtain discovery regarding any nonprivileged matter that is relevant to any party’s claim or defense... including the existence, description, nature, custody, condition, and location of any documents or other tangible things and the identity and location of persons who know of any discoverable matter.”³⁵² This ties in with international law because Apple Inc. could be requested the same in other jurisdictions.

“As it is demonstrated biometric factors are very safe since will not naturally change after one year of his birth and are entirely unique, not even twin biometric factors are the same.”³⁵³ When fingerprinting was first used many years ago in Egypt as a form of identification, it was very primitive and since then it has been improved and used in criminalistics; formerly it was used by Tang dynasty in China to identify mummies.³⁵⁴

The fact that forensic teams use fingerprinting in murder scenes has made it necessary to improve technology.³⁵⁵ When it comes to a product development like Apple Pay and other software, engineers try to improve image processing.³⁵⁶ Another advantage of improved quality of algorithms is its acceptance for use in trials; better images could help in bringing about better and fair rulings.³⁵⁷ In Apple Pay, the technical process used to retrieve fingerprints is through a sensor like an iPhone screen,³⁵⁸ which explains just how much fingerprinting as a means of identification has evolved and is applied on a digital device.

VII. THE MISSING PIECE OF THE PUZZLE FOR A REAL FINANCIAL REVOLUTION

Since the launching of Apple Pay there has been a media debate about Apple’s attempts to enter the financial market. In a business panel Paul Percival revealed a key element,³⁵⁹ which could trigger the digital revolution in a

Carácter General Aplicables a las Instituciones de Crédito (General Dispositions applied to the Credit Institutions Law); at Chapter Chapter X, (trans. Ricardo Heredia Salazar).

³⁵¹ Apple Pay, *supra* note 1.

³⁵² Fed. R. Civ. P. R 26.

³⁵³ Bhanu, *supra* note 82, at 8 *alteration*.

³⁵⁴ *Id.* at 1

³⁵⁵ Nikolaos V. Boulgouris, Konstantinos N. Plataniotis, Evangelia Micheli-Tzanakou, *Biometrics, Theory, Methods and Applications* 339 (IEEE Press, 2010).

³⁵⁶ *Id.*

³⁵⁷ *Id.*

³⁵⁸ *Id.* at 340

³⁵⁹ Biz Carson, *Why Apple Pay may be the gateway drug bitcoin needs* (Dec. 2, 2014, 2:31 PM), <https://gigaom.com/2014/12/02/why-apple-pay-may-be-the-gateway-drug-bitcoin-needs/>.

way that Bitcoin did not:³⁶⁰ the confidence Apple Inc. transmitted to consumers.³⁶¹ This confidence made people more comfortable in doing electronic transactions.³⁶² “But what Apple managed to obtain was a moment which is what Bitcoin needs.”³⁶³ Even though Apple probably will never make an alliance with Bitcoin, introducing the digital payment system idea to new generations is key.³⁶⁴ If Apple Pay or other similar companies continue shaping the minds of these generations, instilling in them the idea that currency can be digital, it will be open the door for a real financial revolution.³⁶⁵

There is still room for more creativity. People and companies will continue to find new ways to enter the financial world.³⁶⁶ Even though Apple Inc. has clearly not created an astonishing breakthrough for a financial revolution, it has indeed contributed its start³⁶⁷ by offering the possibility of presenting Apple Pay as square cash.³⁶⁸ Upgrading software to transfer money between accounts is an area for Apple Inc. to expand.³⁶⁹ Due to the legal uncertainty discussed in Parts II and Part III and the possibilities of expansion by upgrading the software,³⁷⁰ Apple Inc. might find new Banking functions that apply in the future and upgrade Apple Pay software.³⁷¹ These possible upgrades could be potential threats if the authorities do not start regulating its basic element, mobile/digital wallets.

VIII. CONCLUSION

Apple Pay and digital wallets have had huge effects on daily life in the United States. The repercussions can be summarized in three parts. The first would be to consider Apple Pay and digital wallets illusions and not a financial revolution; the second covers the public policies involved for its success and the last touches on the loopholes in the law.

Many things and products already exist in daily life. People and companies are always searching for new business opportunities. Sometimes, these opportunities are novel and represent a big change, sparking a revolution.

³⁶⁰ *Id.*

³⁶¹ *Id.*

³⁶² *Id.*

³⁶³ *Id.*

³⁶⁴ *Id.*

³⁶⁵ *Id.*

³⁶⁶ *Id.*

³⁶⁷ *Id.*

³⁶⁸ Dan Moren, *Wish List: Apple Pay your friends* (Dec. 4, 2014, 12:34 PM), <http://sixcolors.com/post/2014/12/wish-list-apple-pay-your-friends/>.

³⁶⁹ *Id.*

³⁷⁰ *Id.*

³⁷¹ *Id.*

Apple Pay, however, simply adapts methods of payment to the digital era. Money has evolved throughout history; it all started as barter. Later people gave a value to gold coins and later transferred this value to paper (bills) with a number representing its worth and the power to settle debts. After bills, other methods of payment like credit cards have emerged. The digital era now requires another phase in the evolution of money. Apple Pay might lead the way in this as it has just introduced the next level of payments, opening the door to future competitors and inventions. If Apple Pay manages to gain people's trust and the government establishes a way to regulate it, a real financial revolution could take place in the upcoming years.

Due to the lack of legal research in the field, marketing is key to understanding the policy and evolution of Apple Pay. Other predecessors tried to introduce the concept of mobile/digital wallets, but failed. The corporate image of the brand, management techniques to create alliances with banks, uniqueness of their products and the way Apple Inc. has left an imprint on people are creating a new lifestyle in terms of payment systems.

In the regulatory aspect, amendments, guidelines or an official document is needed to define the rights and obligations of mobile/digital wallets. Regulation E, the Dodd-Frank Wall Street Reform and the Consumer Protection Act, case law, law reviews, General Dispositions applied to the Credit Institutions Law, Credit Institutions Law, related legal statutes on data privacy, commercial transactions, consumer and financial user protection, as well as any other regulation, do not provide a proper framework or guidelines for mobile/digital wallets. While the law cannot define mobile/digital wallets for the sole purpose of allowing future competitors, the simple act of defining the concept as either a mobile wallet, a digital wallet or any other name would show some progress. If a definition is not given, the authorities should issue an opinion to determine whether it is an access device, a mobile banking system, telephone banking, mobile payment, a service provider or an electronic fund transfer or if it is covered by regulations.

Just as crime will always be one step ahead of the law, technology is starting to expand at such a speed that unfortunately the law cannot keep up with it. Understating that law and business go hand in hand is a must. A capitalist system that is not willing to be overregulated has its benefits as well as its flaws. In this case the FSOC, the Federal Reserve, Mexican financial authorities and other members of government should keep in mind how much they are willing to sacrifice. Would it be better to have a limit in some cases? And could the lack of security and regulations for electronic transactions make this problem too big to manage?

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