

GLOBAL TRENDS OF PEER TO PEER (P2P) LENDING: A
BIBLIOMETRICS REVIEW

TEH GAH MOON

BACHELOR OF INTERNATIONAL BUSINESS (HONS)

UNIVERSITI TUNKU ABDUL RAHMAN

FACULTY OF ACCOUNTANCY AND MANAGEMENT
DEPARTMENT OF INTERNATIONAL BUSINESS

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TEH GAH MOON PEER TO PEER LENDING (BIN) HONS NOVEMBER 2019

CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

This paper is to examine the current global trend of research and publication on Peer to Peer Lending (P2P) lending using bibliometric analysis on published journal articles in the Scopus database. P2P lending is currently the emerging phenomena in China and US. In the near future, P2P lending will spread more widely and become the new economy trend throughout the world. The traditional financing system such as banking industry will no longer monopolies the market. The data analyses will be done in term of the most cited articles/journal, types of publications, most productive countries, author collaborations and emerging trends in P2P research. This chapter will include the background of this research topic, the research problem, objective and question. Lastly, the contribution of this research.

1.1 Research Background

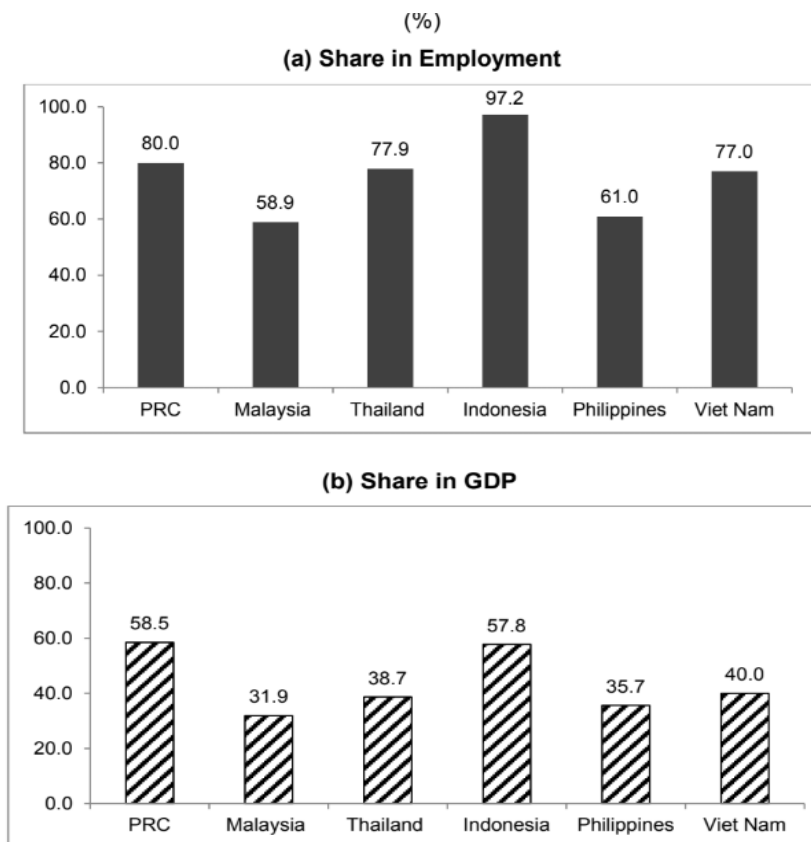
Over the past few years, peer-to-peer lending also been known as P2P lending, has emerged as a field finance innovation. P2P can be seen as a decentralized type of money lending programme, which enabling the individuals to give direct loans to other individuals in need (Gupta, 2018). P2P lending leverages a skilled internet platform from third parties as an intermediary officer that makes the money borrowing simpler and more convenient (Li, Liew and etc 2018). It is the most common crowdfunding form, with an internet platform collecting small quantities of money from people in a crowd to finance a bigger loan jointly to individuals or businesses (Lenz, 2016). It fundamentally links small and medium-sized enterprises who are seeking funding to the investors who are seeking favorable returns. The evolution of crowdfunding is from the entre-preneurial finance, enabling funds to be raised through online platforms from a crowd of investors (Climent, Grima 2018). Since many of them lack the funding standards from the bank or are unable to obtain the quantity they need to develop from standard money lenders (RAM, 2005).

1.1.1 Why SME funding is important?

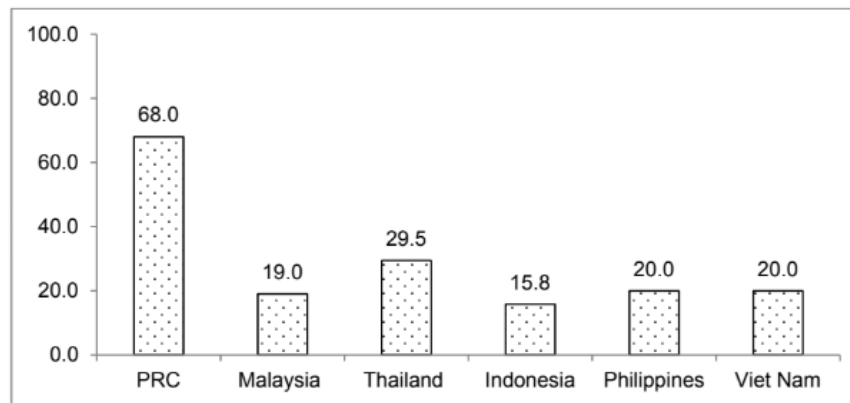
SME have significant contribution to Asian economic development and the unfolding consequences of the global financial crisis on financial access. SME are essential because 97% of Malaysia business are make up by SME and it contribute 37% of country Gross Domestic Product (GDP). According to Microdata, more than 50% of GDP in the People's Republic of China (PRC)

and Indonesia are contributed from SME, and around 30%–40% in Malaysia, Thailand, the Philippines, and Viet Nam. The biggest obstacles for SME expansion are financial inadequacies which constantly discussed in varying research and empirical evidence (Beck, Demircuc-Kunt and Maksimovic, 2004, 2005 and 2006).

Figure 1.1: The contribution of SME in different countries from the aspect of employment, GDP and Export:



(c) Share in Exports



GDP = gross domestic product, PRC = People's Republic of China.

Source: Authors' calculations.

Source: Wignaraja, G., & Jinjarak, Y. (2015). ADBI Working Paper Series Why Do SMEs Not Borrow More from Banks? Evidence from the People's Republic of China and Southeast Asia Asian Development Bank Institute.

The reason why SME faced financial inadequacy is they did not have enough capital to support on their company growth and expansion to a larger size or even to an international stage.

1.1.2 Reason why SMEs not able to get Loan

There are few reasons why SMEs loan applications are getting rejected by lending institution. First, SMEs that lack of credit history may create problems for institution to analyse their business creditworthiness. Credit score is the main assessment for institution to reduce the risk of default rate or late payment.

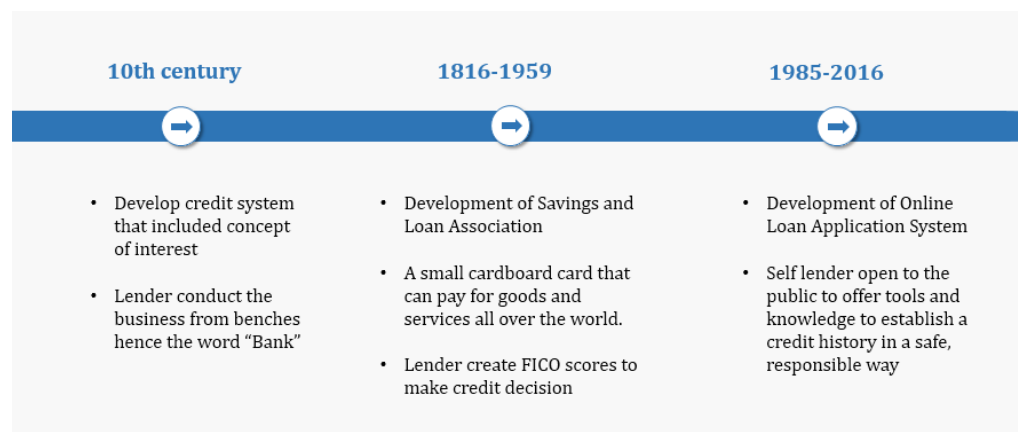
A proper financial statement with good credit score is important for SMEs to apply for a loan (Akhtaruzzaman, 2005).

Second, institutions did not have enough trust on SME and view SMEs as a high-risk group since they have limited capabilities to pay back the loan. The collateral is the only way to secure the SME loan from default (Gangata and Matavire, 2013). The collateral may be in the form of accounts receivable, property, saving account, vehicle, land and inventory. If the company did not acquire enough collateral to apply for a loan, personal assets can be used or alternative financing such as contract financing can be applied in order to get funds.

There are also some reasons why SMEs are not applying loan from financing institution even if they lack of financing. When banking institution is monopolizing the financing market, the size of the loan is set by bank which force SME to accept the heavy loan and provide collateral to bank. SME are difficult to apply long term loan and force them to accept short term loan with higher cost when the credit facilities is limited in the market (Wanjohi & Mugure, 2008). Therefore, the alternative financing for SME is only relying on their friends, relatives and so on.

1.1.3 The evolution or trend of lending/loan:

Figure 1.2: Evolution of Lending



Adapted From: ("A Brief History of Lending - Self.", 2016, August 30)

In the 10th century, the lending activity started to develop a credit system by including the concept of "interest" to secure lender with above 1% interest per month. The lending business is transformed from a bench to the word "bank". In 1816, the first money saving and loan associations "Philadelphia Saving Fund Society" launched. It is aiming to provide a place for American to save money and resource for a loan. In 1950, it exists of a small cardboard card to pay for a restaurant bill by a businessman Frank McNamara and currently it known as the "Diners Club Card". In 1959, FICO score is created for lenders to make informed credit decisions. However, due to the development and advancement of Information and Communication Technology (ICT) in 1985, an online loan application system is developed by Quicken Loans. On 27 February 2016, Self Lender open to the public to offer tools and knowledge to build credit history in safe, responsible way.

P2P lending has become popular since the financial crisis in early 2000's. UK-based Zopa was the first company that provide P2P loan. Zopa lead the P2P lending industry start to have a huge increase to 3.6 billion and continues to gain traction since 2005. However, China is the leading country when comes to P2P lending because China had started this form of lending centuries ago (Gupta, 2018).

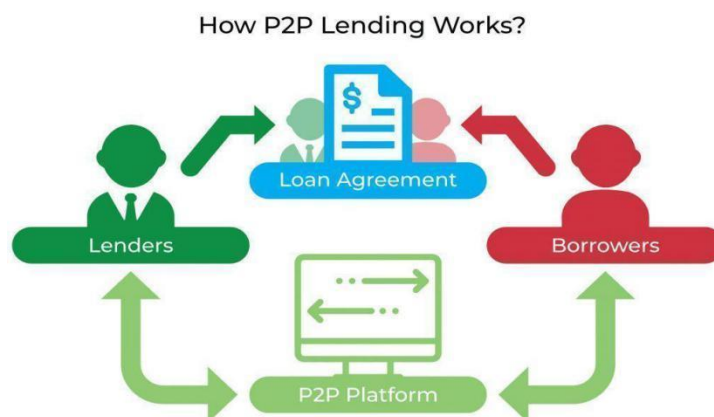
In the 18th and 19th centuries, P2P become prominence in Europe as people prefer to access quick capital. However, P2P get affected when Bank take over the financial market in 20th century. As the internet growth in the 21st century, it revives P2P lending since people in Europe shun banks and other financial institutions due to the complicated processes that need to partake in accessing a loan.

1.1.4 Forms of P2P Financing

There are three types of peer to peer financing such as Peer to Peer Lending, Peer to Peer Fundraising and Crowd-Investing.

1.1.4.1 Peer to Peer Lending/Loans

Figure 1.2: Process of P2P Lending



Source: KenResearch. (2019, September 18). Indonesia Peer to Peer Lending Market Research Report, Industry Research Report, Market Major Players, Future Outlook.

In short, P2P lending used technology to reduce the lender burden by making the cost of loan less expensive. Since P2P is operating online, they are able to enjoy low overhead cost compare to other service provider, therefore, they have the ability to offer cheaper loan. P2P bringing much higher yield since the dozens of charges and intermediaries that used to connect with old-school banks are no longer a concern. The P2P market is huge because lenders around the world can invest in loan through internet. In P2P, lender able to group together and finance a single loan with multiple investors join in. The interest rate may be different depending on the platform used and the choice of lender. P2P also offer instalment plans, early paybacks, and many other forms of traditional loans. Other than personal and commercial loan, P2P also include 2 specialty

market which is Peer to Peer Fundraising and Crowd-Investing (Eisenberg, 2018).

1.1.4.2 Peer to Peer fundraising

P2P fundraising is only used for non-profit activity. It relies on the supporter of a business or individual from their own social networks. Each donor has the opportunity to create own fundraising page, and promote it via any of the platform available which they think is suitable. The most effective method is normally through social media and QR code. Technology partner will act as a supportive role by providing page template which is easy-to-use, attractive and organize all the fund obtained from many different sources. All the funds collected will pool together and present to the receiving organization. In return, a small portion of the donations will be act as a fee for the partner. In some rare cases, the technology partner will incur the charge directly from the receiving organization.

1.1.4.3 Crowd-Investing

Crowd-Investing and equity crowdfunding is design for start-ups to raise capital in an extremely competitive venture capital environment. Crowdfunder and Microventure are companies that offer public to earn interest from the unlisted companies in early stage. People who invest capital will become the angel investors because they are putting money into fresh company before the company earning a profit. Crowd-Investing unlike lenders, investors did not expect to get a fixed amount of money back but their return are tied to the invested company's performance. If the company performs well, investor able to get multiple of the amount they invest in. If the company had very poor performance, the investment will lose.

1.1.5 Popular/famous Global P2P Lending platform:

There are some of the popular and widespread Peer to Peer Lending platform that have good brand awareness in the consumer's mind. For example, Funding Circle, Prosper Marketplace, Upstart, Lending Club, Kiva, Yirendai and many other are the global key players of Peer to Peer (P2P) Lending (ReportsnReports, 2019).

1.1.5.1 Funding Circle

Funding Circle is a leading marketplace focused solely on small business in the United States and the United Kingdom. The U.S. co-founders began this field right after they receive the 96th rejection of their own loan, the founders decided to work towards a viable alternative for tiny company owners. Funding Circle has provided around 40,000 companies worldwide with \$5 billion in loans (Bajpai, 2019). Funding Circle is a platform that is suitable for small business and big investor as they only help business have a proven grow and expand possibilities and only recruit investor that have minimum of \$250,000 US dollar. Typically for P2P lending, the origination fee will around 3.49-6.99 percent depending on the quantity of cash you fund. Business credit rates will normally begin at 4.999% and the maximum goes up to 22.99% (Delbridge, 2019).

1.1.5.2 Prosper

Prosper is the first mover of this peer to peer lending site. It started in 2005 in United State. Prosper provides a broad variety of loans include Prosper provides a broad variety of loans from debt consolidation to home renovations, short-term bridge loans, car loans, small enterprise loans, newborn and adoption loans, marriage funding, unique occasion loans, green loans, and even military loans. Since its beginnings, the platform has grown dramatically. Currently, Prosper has 810,000 members and their financed loans excess \$12 billion (Bajpai, 2019). Prosper offer fixed rate loan for 3-year and 5-year term. The interest rate would not fluctuate. They also provide a website for potential customers to identify the interest rate without affecting their credit score. Small business loan origination charges differ depending on the duration of the credit from 2.41 to 5%. Prosper is best for originalists as it give investor to decide

from 7 different risk categories which sort by the investment grade from AA (Low Risk) down to HR(High Risk) investment with expected return from 4.99% to 13.48% respectively. Their requirement for investor only as low as \$25 US dollar to start (Delbridge, 2019).

1.1.5.3 Upstart

Upstart is venture by ex-Googlers which is Giround, Paul Gu and Anna M. Counselman in 2012. It has been categories as a best educated borrower. It has own unique method to evaluate the creditworthiness of a lender. According to Upstart, “You are more than your credit score. On Upstart, your education and experience help you get the rate you deserve.” They will evaluate a person education, area of study and job history and offer a different interest rate (Delbridge, 2019). Upstart offer loan from \$1000 to \$50,000 at the Annual Percentage Rate (ARP) start from 8.85%. Upstart becoming prevalent in the younger generation among ages of 20s to 30s who have no lengthy credit history but have the ability to meet the commitment. It offers various types of loan from student, business, car, and medical loan to the boot camp loan (Bajpai, 2019).

1.1.5.4 Lending Club

Lending Club is founded by Renaud Laplanche in 2007. It is an essential player in online P2P lending platform which connect lenders and borrowers. It is best

for borrower with good credit. Lending Club is the first publicly online P2P lending company in the United States. In December 2014, its success initial public offering (IPO) on the New York Stock Exchange (NYSE). It covers a variety of loans for personal finance, business loan, patient financing and also investing (Bajpai, 2019). The origination fees are between 1% to 6%. For personal loan, it offers a range of \$1,000 to \$40,000. Business loan in the range of \$15,000 to \$300,000 in term of 1 to 5 years with fixed rate. Investors in Lending Club can invest as lower as \$1,000 and allow to open a joint and trust accounts. Lending Club provide unique investment method to investor by offering automated investment process and also a manual investment process by choosing own investment (Delbridge, 2019).

1.1.5.5 Kiva

Kiva founded in San Francisco in 2005. It is a peer to peer lending platform that not aiming for profit but helping those underserved communities thrive. It is especially for charitable investor who has the same though to create opportunity for people around the world as Kiva does (Delbridge, 2019). According to Kiva, “we envision a financially inclusive world where all people hold the power to improve their lives”. Kiva is a platform that provides financial access for people in underserved to maintain life equality. Kiva work to ensure students can afford the tuition fees, women can start their own business, farmers can own new equipment and family can afford to emergency case. It provides free-interest loans for individuals worldwide up to \$10,000. Investors can allocate as little as \$25 in Kiva to improve somebody's lives and slowly get the payback on the

sum invested. These advocates wisely spending on cash and supporting others in need (Kiva, 2019).

1.1.5.6 Yirendai

Yirendai is founded in China in March 2012. It is China's largest P2P online consumer finance marketplace. They offer technology-driven innovations service such as big data powered risk management, data driven customer acquisition and conversion, and anti-fraud technology which is their competitive advantage compared to another P2P platform. Yirendai expand their business with lower cost through utilising online channel to introduce their new loan products. They have lower sales and marketing costs by using search engine marketing, search engine optimisation, collaborating with internet companies and internet traffic acquisition from third-party online loan products marketplaces. They have new acquisition channel which 54.4% of their loan in 2017 are driven by mobile application. Besides, they also collaborate with CreditEase's nationwide service network across over 267 locations in China to acquire borrowers and get 27.1% of borrowers in 2017. Yirendai have relationship with China Guangfa Bank to proper manage investors funds to avoid spill over of Yirendai working capital with the loan principal and interest repayments. Furthermore, Yirendai wok with People's Insurance Company of China (PICC) Property and Casualty to provide insurance coverage to Yirendai loan. When default happen, this can ensure borrower pay the premium and lenders able to receive their principal and interest expected (The Asian Banker, 2018).

1.1.6 P2P Market in Malaysia

P2P lending emerges in Malaysia when Securities Commission Malaysia (SC) adopt a regulatory framework in 2016. SC facilitate the obligation and registration process of P2P lending operators in Malaysia. Malaysia is the first ASEAN countries that monitor P2P lending. The purpose of P2P lending in Malaysia is to provide alternative financing to SME to boost economic growth. It is also an alternative investment choice to retail investors. However, offer of personal loan is prohibited in P2P lending platform for all P2P lending operators.

Malaysia P2P lending operators' obligation is monitor by Security Commission Malaysia (SC). P2P lending operators is legally binding under Company Act 1965 with at least RM5 millions of paid-up capital. Competencies of directors of the firm is required to operate the business and they should ensure their risk scoring system is transparent and effective. Roles of operators in P2P lending platform is to assess the suitability of the issuer and facilitate the compliance of its platform rules. This involves activities such as credit assessment, background checking, disclosure of relevant information to investors and so on. Besides, before any repayment activities done by operators, the total amount deposited by investors and issuers should place in a third-party trustee account (Chee, R. T, 2019).

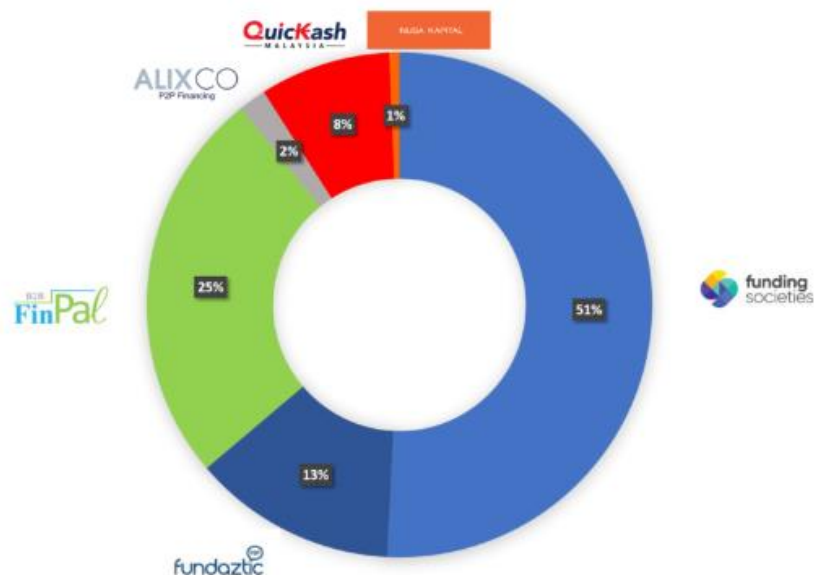
There are initially 6 P2P lending operators in Malaysia show in figure1.3.

Figure 1.3: P2P Lending Operators in Malaysia

No.	P2P Lending Platform(s)	Operated by
1	Funding Societies Malaysia	Modalku Ventures Sdn Bhd
2	Fundaztic	Peoplelender Sdn Bhd
3	QuicKash	QuicKash Malaysia Sdn Bhd
4	AlixCo	FBM Crowdtech Sdn Bhd
5	Nusa Kapital	Ethis Kapital Sdn Bhd
6	B2B FinPal	B2B Finpal Sdn Bhd

Source: Chee, R. T. (2019, November 15). A Complete Review of P2P Lending Platforms in Malaysia (2019).

Figure 1.4: The Market Share of Funds Raised by Operators in Malaysia within the period of Nov 2016 to Jan 2018



Source: FINTECH Malaysia. (2018). Peer Pressure: Malaysia's Peer to Peer Lending (P2P) Performance. (2018, January 19).

Out of the RM40,000,000 fund is raised between November 2016 to January 2018, funding societies take the share of 51% which contribute half of the overall P2P lending market loan in Malaysia.

In 17 May 2019, Security Commission Malaysia (SC) announce there will be 3 equity crowdfunding and 5 P2P lending new license issued. The new players for equity crowdfunding are 1337 Ventures, Ethis Ventures and MyStartr while new players for P2P lending are CapitalBay, Capsphere Services, Crowdsense, MicroLEAP and Money Save Capital. The license was issued by Chairman of SC, Datuk Syed Albar and witness by Finance Minister, YB Lim Guan Eng. Datuk Syed Albar mention that new licensees is intended to cover sub-segments on insurance premium financing, shariah-compliant financing and creative arts. With the new players join into Malaysia

financing industry, there are a total of 21 market-based financing platform operators registered in Malaysia. At the end of March 2019, there are nearly RM350 millions of alternative financing provided from equity crowdfunding and P2P lending market to the Malaysian micro, small and medium enterprise (FINTECH Malaysia, 2019).

1.7.1 Funding Societies Malaysia

Funding Societies was founded by 2 Harvard Business School students, Kelvin Teo and Reynold Wijaya in 2015. Currently, it is a leading P2P lending platform in Southeast Asia located in Singapore. They are targeting the markets of SMEs in Malaysia, Indonesia, and Singapore. In February 2017, it enters markets in Malaysia. Funding Societies is Malaysia's first and largest P2P lending network and the only P2P lending company to join the Emerging 50 Rising Stars Top Fintech 100 list, which is the collection for the world's best Fintech Innovator. Funding Societies had achieved RM2 billions of a total loan volume across the country since they stayed their default rate as low as 1.5 percent regionally. It is suitable for risk-averse investors as it is a P2P platform that uses an escrow to test all of its investors and issuers before carrying out transactions on their behalf.

1.7.2 Fundaztic

Fundaztic is founded by a group of prominent ex-bankers and a lawyer in July 2017. It is owned by Jeffrey Chew, the current Group CEO of Paramount Corporation Bhd.

Fundaztic is managed under Peoplender Sdn Bhd that register as a peer to peer financing platform. Fundaztic aim to enhance the access of both financing and investment with low barrier for business and individual through utilising technology in order to close the gap of need in the ecosystem. Fundaztic had disbursed nearly RM53 million loan to SME with 3% default rate. Fundaztic is suitable for new investors because it only requires low minimum investment amount and offer Fundaztic Bonus to increase the actual investment number of new investors. The investment of RM50 from new investor can boost up to RM100 when they register an account in Fundaztic during promotional periods.

1.7.3 QuicKash

QuicKash is a wholly-owned subsidiary of ManagePay Systems Berhad (ManagePay). It registers as P2P financing platform at 3 November 2016. It is an end-to-end electronic payment services provider in Malaysia for banks, financial institutions, retailers and card issuers. QuicKash provide SMEs with better access to lower-cost funding and provide investors with direct access to alternative asset classes that can bring higher returns in an environment where risk-sharing is taking place by leveraging MPay which is an end-to-end electronic payment or known as e-payment from ManagePay. QuicKash provided smarter finance solution for business owners and investors in Malaysia by creating a mobile application to make their investment portfolio access can be done anywhere at any time which is more convenient. It had disbursed nearly RM27.5 million loan to SME from the date it launches until July of 2019. QuicKash is suitable for investors that are looking for short term investment. It provides as short as one-month investment for investors and their minimum interest rate is 8%.

1.7.4 AlixCo

AlixCo is a wholly-owned subsidiary of FundedByMe Malaysia (FBM Crowdtech Sdn Bhd). FundedByMe is a Swedish-based company that also registered as equity crowdfunding platform with SC Malaysia. It consists of 250,000 investors across 196 countries and raise over 55 million Europe loan for many companies. AlixCo is aiming to be the most trustworthy P2P lending platform for Malaysian investors and SMEs. It had disbursed nearly 37 million Europe loan for 472 companies. AlixCo is suitable for investors from all over the world, as it is not restricted only for Malaysian residents to invest in their project. AlixCo also organize a new program called “Womenpreneur Movement” to help women entrepreneurs to further develop their business through their P2P financing platform. According to Angell the Chief Operating Officers (COO) of AlixCo, “When comes to spending, investing or running a business, women entrepreneurs is more cautious. Usually, they are also a good borrower who will make repayment on time or even make advance repayment”. Until now, the default rate for women borrower is still zero. Their “Women Entrepreneurs” program provides additional support on mentorship, networks, client referrals and so on (FINTECH Malaysia, 2019).

1.7.5 Nusa Kapital

Nusa Kapital (NuKap) is the world’s first regulated Shariah-compliant P2P lending platform. The founder of NuKap is Umar Munshi, the chairman of the Islamic Fintech Alliance. NuKap is owned by Ethis Kapital Sdn Bhd and it is built up with full of specialist, the team member consists of former senior executives of the World Bank

and Barclays Bank. Investment fund that are regulated by shariah law and the muslim principles are consider a shariah-complaint funds. This type of fund is considered a socially responsible investing. This fund requires an exclusion investment on products such as alcohol, pork-related products, pornography, gambling, military equipment or weapons. Shariah-compliant fund also involved a purifying process by donating on certain types of illegal income such as interest received. NuKap is particularly suitable for Muslim investors since NuKap are able to ensure their investment is fully complied with the religion's laws.

1.7.6 B2B FinPal

B2B FinPal is local subsidiaries of B2B commerce. It was founded by Dr. Lee Thean Seong. FinPal is not a new player to SMEs since its parent company B2B Commerce Sdn Bhd is a supply chain management software provider to SMEs for the past 17 years. FinPal has its own in-house risk management systems and trustworthy Credit Bureau partner to help them analyze the data better and make appropriate credit decisions in order to reduce the higher default rate risk in P2P lending. On the other hand, FinPal has a substantial minimum deposit requirement for opening an investment account. However, any surplus on deposited funds that are not invested in the projects can be withdrawn at any time without any extra fees charges. It had disbursed nearly RM90 million loan to SME with a low default rate of approximately 0.2%. FinPal is suitable for investors and borrowers that are risk-averse since they have their own risk management system and credit decision to make an analysis.

**Figure 1.5: The Basic Requirement for the 6 Initial P2P Lending Operators in
Malaysia**

P2P Platform	Minimum Deposit	Minimum Investment	Other Requirements
AlixCo	None	RM500 per campaign	At least 18 years old 1% of total repayment is charged as investment fees
B2B Finpal	RM1,000 to start an account	RM100 per campaign	At least 21 years old Malaysian residents only 30% of total interest is charged as part of an Interest Sharing Scheme
Funding Societies	RM1,000 to start an account	RM100 per campaign	At least 21 years old Either 2% of total repayment or 15% of interest payment is charged as investment fees, depending on the kind of financing they opt for
Fundaztic	None	RM50 per campaign	At least 21 years old Malaysian investors only 1% of monthly repayments as platform management fees
Nusa Kapital (NuKap)	None	RM500 per campaign	At least 18 years old A permanent address in Malaysia 10% of total returns is charged for platform management fees
QuickKash	None	RM100 per campaign	1.25% to 1.50% of total repayment is charged as service fees

Source: GoBear. (n.d.). 6 P2P Lending Players Leading the Way Forward in Malaysia.

1.8 Problem Statement

Among all of the P2P lending researcher had done previously, there are not many researches on studying the research trend. Since P2P lending is a dynamic topic, therefore, there is a need to identified the research. This can provide insight for

researcher to identified the topic can consider in their future research. It also offers a direction for researcher on a new topic of study without making a duplication study the P2P topic had done previously by other. Besides, the topic of P2P lending is also considering a fresh and new topic for Malaysia that come out recently as the Malaysia Finance Minister, YB Lim Guan Eng encourage the diversify financing ecosystem entering Malaysia market in order to help SMEs. He also mentions that Malaysia should explore further on the alternatives funding options such as LEAP Market, Equity Crowd Funding (ECF), Peer-to-Peer (P2P), Private Equity and Venture Capital (“Bernama”, 2019).

As the P2P lending bringing the economy to another trend, it is interesting to study the awareness and acceptability of the country toward the new model of the economy. Government of a country will weigh the research needs of a nation and select which research study and researcher should provide more support. Bibliometric information used by policymakers, administrators, and research directors to plan strategy and inform state-of-the-art research (SoTA) to the general public (Agarwal, Durairajanayagam, Tatagari, et al, 2016). SoTA refer to the recent accessible proof in the context and the latest information on the topic. Hence, this paper will analyze the global research trend on P2P lending to outline the current topic concern on each of the country.

Research topic of a publish journal can show the knowledge and awareness of a country better than going through a direct survey on a small part of the country residence. The research will be more accurate when there is no opportunity cost by giving up a portion of people through random sampling. Through analyzing the P2P research topic of author and university, the issue concern of the country resident can be recognized. Besides, it can also determine the factors that affect the trend on P2P lending. The outcome of all P2P related journal can explain the issue and bringing a solution which

contribute to this new economic model. A bibliometric analysis on P2P lending will be used in this research.

1.9 Research Objective

1. To identify the emerging research topic/keywords of scientific publication on P2P lending.
2. To investigate the pattern of co-authorship and research collaboration on the topic of P2P Lending includes the degree of collaboration and type of collaboration in detail.
3. To determine the top publication that support scientific publication on P2P lending.

1.10 Research Question

1. What is the top keyword of research from 2010 to 2019 regarding the topic on Peer to Peer (P2P) Lending?
2. What types and degree of the authors' collaboration in P2P lending research topic?
3. Which publication support more on the topic of P2P lending?

1.11 Term of Definition

Term	Definition
P2P Lending	A practice of lending money through online services to individuals or businesses that match lenders with borrowers. ("Australian Government Australian Securities & Investments Commission: Peer to Peer Lending", 2018)
Co-authorship	Cooperation relationship of two and more authors on a publication of journal articles (Kumar, 2018)
P2P Online Lending Platform/ Service Provider/P2P online operator	Market players of P2P lending (company or organization) that connect borrower and lender (CFI Education, 2019).
Investor/Lender	People or organization that lend money in P2P lending platform (Kagan, 2019)
Borrower	People or organization that borrow money in P2P platform (Kagan, 2019)
Authorship	People who wrote a book, journal, research paper (Cambridge English Dictionary, n.d.)
Intra-organization collaboration	Collaborate with people within the same institution (Cheng, Hen, Tan, & Fok, 2013)

Inter-organization collaboration/local collaboration	Collaborate with people in a different institution but within the domestic area (Cheng, Hen, Tan, & Fok, 2013)
International collaboration/ Global Collaboration	Collaborate with people from another country (Cheng, Hen, Tan, & Fok, 2013)
Scientific publication	Journal, articles, research paper that is published to the licensed product (www.lawinsider.com)

1.12 Significances of study

This study has an essential contribution to future researchers to use in P2P lending research. It provides better sight for government, research directors and policy makers to identify the worthiness on supporting P2P lending. This research also provides a knowledge of foundation for the public to make sense of what the current economic status and how it brings impact to the future of country economic or financial system. People can understand more clearly on the new investment type with lower risk other than just relying on the bank saving interest rate. This research provides an overview for future researcher on P2P lending publication.

1.13 Chapter Layout/ Structure of the report

Chapter 1 Introduction include the research background, research problem, objective, question and significant of study. A global research trend of P2P lending on a bibliometric review will be study. As P2P is the emerging finance innovation that will affect the usage of country traditional economic system; therefore, this chapter will explain what elements will be included in order to study the research trends.

Chapter 2 Literature review on Fintech Ecosystem, Peer to Peer lending, Crowdfunding and also review on theoretical models that are involved in the research analysis. Bibliometric and pattern of co-authorship will describe in details by including the objectives and result able to get from the analysis. From the broaden way by explaining the current economic that affected by technology followed by the subsector into the financial activity which is our research topic on the types of P2P lending available, benefit and limitation of P2P lending and the opportunity and challenge for future's country economic and how it impacts public.

Chapter 3 Methodology will describe on the method used to analysis. It includes the types of research used, sampling design, research instruments, data collection method, how the data is processing, and what analysis want to involve to achieve the objective set. A quantitative research carried on secondary data in Scopus database and Excel is the main analyzing tools used in this research analysis.

Chapter 4 Data Analysis describes how the data will be analyzed in this research. Some chart, ranking and tables will be used to clarify the analysis. The result of analysis will

explain the global research trend of P2P lending. The research objectives will be achieved under data analysis.

Chapter 5 Discussion, Implication, Conclusion. Discussion will show a prediction of future research trend on P2P lending and how it contributes to the researcher. Few recommendations for P2P institution are also suggested in this chapter based on the limitation faced currently.

1.14 Conclusion

In short, this chapter renders the objective and purpose of this research. The background of the study will be explained initially followed by problem statement, research objectives, research question and lastly the significant of study. At the end of this chapter, a chapter layout will be provided to explain the overall structure of this research.

CHAPTER 2: LITERATURE REVIEW

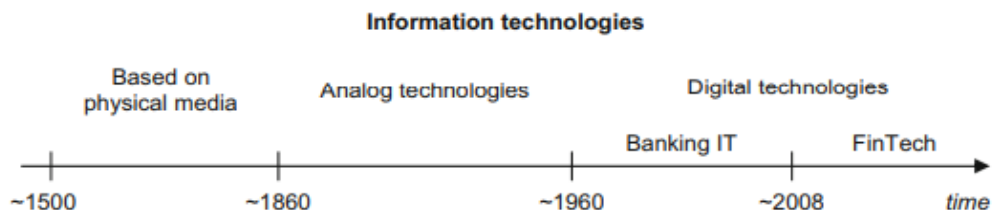
2.0 Introduction

This chapter outlines a literature to support this research. It can deliver a clearer picture of the nature of the study with all relevant research topic and area of study. This chapter is to build a foundation of knowledge related to this research topic.

2.1 Fintech

The word fintech is simple and obvious combination of the word “financial” and “technology”. Financial company also known as financial service provider that providing business support in their primary market’s operations. Over a period of time, the financial sector had shaped a secondary market and offers more services such as mortgage brokers, commercial banks, and investment bankers (Zhu et al. 2004). The second element of fintech is technology which is the key of handling the financial process (R. Alt et al, 2018). Technology is a tool that used to organize, coordinate and perform a task in a simpler way (Bouwman et al., 2005). Actually, financial technology was started a long time ago since the 1990s earlier than fintech when the Internet is introduced (Lee and Shin, 2018).

Figure 2.1: The Evolution of Financial Technology



Source: Alt, R., Beck, R., & Smits, M. T. (2018). FinTech and the transformation of the financial industry. *Electronic Markets*, 28(3), 235–243.

The banks and trading companies firstly introducing the technology is used to replace the physical flow of the value and information such as papers and coins. As the traditional method in transporting the documents and values only feasible through physical transportation modes and it only limited to regional areas. This financial sector's evolution in information and communication technology (ICT) enables the information to be transmitted faster and longer distance. Particularly, when the visual and electrical telegraphic enter. The financial consequences were essential and the telegraph was acknowledged as a factor to cause industrialization in current societies (Malone et al. 1987). The second phase of financial technology was using analog techniques and it lasted until the mid-twentieth century. E-finance is the era of digital finance technology which began from the digital information and technology (Gomber et al., 2017). Analog and digital are different forms of signals that used to carry information from one device to another. Below shows the comparison of analog and digital signals.

Table 2.1 the difference between analog and digital

	Analog Signal	Digital Signal
Basic	An analog signal is a continuous wave that changes over a time period.	A digital signal is a discrete wave that carries information in binary form.
Transmit	It transmits data in a form of waves.	It carried data in the binary forms such as “0”, “1”
Example	Human voice	Signals used for transmission in a computer

Source from (TechDifferences, 2016)

In the late 1980s, financial service has strongly relying on the digital technology as financial institutions, financial market participants and customers around the world are using electronic transactions (Arner et al., 2016). The banking value chain get impact from the technologies include customers (retail, commercial, investment), channels (broker, mobile, social), interbank providers (exchanges, networks) and financial services provider (banks, non-banks) (Bons et al., 2012). In the 21st century, FinTech appeared and it applied for the technology that used by financial institution at their back-end system. Since then, it shifts toward more consumer-oriented services and included education, retail banking, fundraising and nonprofit, and investment management in the financial technology. FinTech did include the development and use of crypto-currencies such as Bitcoin which mostly see in the headlines since the big

money that worth for multi-trillions of dollars still lies in the traditional worldwide banks industry (Kagan, 2019).

2.1.1 Fintech Ecosystem

FinTech is formally known as financial technology that used to describe the new technology that designed to enhance and automating the financial services delivery and used. The core of fintech is to assist businesses, company owners and customers to better manage their financial activities, procedures through utilizing the specialized software and algorithms that used on computers and smartphones. The word “financial technology” can apply to any innovation in the way of individual transact business from the creation of digital money to double-entry bookkeeping. Since the Internet and smartphones evolution, financial technology has risen explosively. FinTech had growth initially from a computer technology for back office of banks and trading firms and currently enhance to a broad variety of technological coverage in private and commercial finance. Fintech enables individual to carry financial activities without others assistance in making money transfers, depositing a check, apply for credit, raising cash to start a company, or even managing investments (Kagan, 2019). The customers are increasingly conscious of fintech as part of their daily life. There is one-third of customers use at least two or more fintech service to carry their financial activities (*EY FinTech Adoption Index*, 2017).

2.1.2 The Global Fintech Innovators



















































The fifth annual “fintech100” annual report was presented by H2 Ventures and KPMG which compliances a list of best fintech innovators around the world in 2018. Those fintech companies included 18 countries from UK and Europe the Middle East and Africa (EMEA), 11 countries from Asia Pacific including Australia and New Zealand and 7 countries from America. China had represented 5 from the top 10 companies in 2018 as it continuing to expand on the payments and insurance. From the sectoral breakup for the best 100 fintech innovation companies, 34 of them are payments and transactions companies, followed by 22 lending companies, 14 wealth companies, 12 insurance companies, 10 neo-banks, 3 cross-sector companies that have multiple offerings and 5 “other” companies including regtech and data analytics innovators that did not fit into traditional categories. As the analysis show the leading fintech industry in 2018 is payments and transactions and lending companies, neo-bank has also growth in fintech especially in UK and Europe countries. This 2018 list reveals a significant increase on the capital venture in fintech companies as it rises \$52 billion almost double last year's figure (Hu, Li, & Shi, 2019).

Figure 2.2: The leading 50 fintech innovation companies

Leading 50		page						
#01	Ant Financial	12	#17	Adyen	28	#34	Future Finance	45
#02	JD Finance	13	#18	Policybazaar	29	#35	Neyber	46
#03	Grab	14	#19	Klarna	30	#36	ZhongAn	47
#04	Du Xiaoman Financial (Baidu Financial)	15	#20	ACORN Oaknorth Holdings	31	#37	TransferWise	48
#05	Sofi	16	#21	Kreditech Holding	32	#38	Pushpay	49
#06	Oscar Health	17	#22	Monzo	33	#39	League Inc.	50
#07	Nubank	18	#23	WeLab	34	#40	Circle	51
#08	Robinhood	19	#24	Number26 (N26)	35	#41	Lendingkart	52
#09	Atom Bank	20	#25	WealthSimple	36	#42	Opendoor	53
#10	Lufax	21	#26	AfterPay Touch	37	#43	Metromile	54
#11	OneConnect Financial Technology	22	#27	Dianrong	38	#44	Folio	55
#12	51 Credit Card Manager	23	#28	VivaRepublica (Toss)	39	#45	Lendix	56
#13	Revolut	24	#29	QUOINE	40	#46	GuiaBolso	57
#14	Compass	25	#30	Kabbage	41	#47	Starling Bank	58
#15	Stripe	26	#31	Affirm	42	#48	Coinbase	59
#16	Clover Health	27	#32	OurCrowd	43	#49	Airwallex	60
			#33	SolarisBank	44	#50	Lemonade	61

Source: (Hu et al., 2019)

Figure 2.3: The emerging 50 fintech innovation companies

Emerging 50	<i>page</i>				
		 InstaReM	78	 Quantexa	95
 Agri Digital	62	 Konfio	79	 Recordsure	96
 Anyfin	63	 Kredivo	80	 Ripio Credit Network	97
 Aqeed Technology	64	 Kyber Network	81	 Shift Technology	98
 Bankera	65	 Liwwa	82	 Singlife	99
 Blackmoon Financial Group	66	 Look Who's Charging	83	 Tala	100
 BlockFi Lending	67	 MoMo	84	 Tally Technologies	101
 Brex	68	 Nod	85	 TenX	102
 Cashaa	69	 Omise	86	 ThisisMe	103
 Cellulant	70	 Payr	87	 Tide	104
 Cleo	71	 PaySense	88	 Tiger Brokers	105
 Coya	72	 PayTabs	89	 Tpage	106
 Crypterium	73	 Pleo	90	 Trade Ledger	107
 DAYLI Financial Group	74	 Plussimple (+Simple)	91	 Varo Money	108
 Dreams	75	 Polymath	92	 Wallet.ng	109
 Funding Societies	76	 Power Ledger	93	 Wave Money	110
 Geru	77	 Pundi X	94	 WeBank	111

presented in alphabetical order

Source: (Hu et al., 2019)

2.2 Crowdfunding & P2P Lending

Crowdfunding is an evolution form of financing. It shares a similar concept with Peer to Peer Lending because both of them collect small amount of funds from a large number of individuals via Internet (The Star, 2017). People always mix up crowdfunding with P2P lending because most of the financial activity will use the word “crowdfunding” as a catch-all-term (Marston, n.d). According to Funding Circle, the differences between crowdfunding, P2P lending is on the repayment method to your investors. Over the past few years, a variety of 'peer-to-peer' (P2P) financial services have arisen to fund on personal loans (Zopa, Prosper, Lending Club), small business loans (First Circle, Kabbage), invoice discount (Receivables Exchange, Market Invoice) and foreign exchange transfers (Currency Cloud, Currency Fair, Transferwise). The amount of P2P lending activities has expanded rapidly from a relatively low base which can be seen in UK and China market. According to the Peer-to-Peer Finance Association (2015), P2P loans in the UK have doubled each year between 2011 to 2014. The loan in 2014 had exceed 1 billion and 2 billion in 2015. Besides, among all of the P2P lending in China, there are 20 to 40 percent are come from peer-to-peer business lending. This is due to the reason that China had a very significant 'institutional' financial gap for small, medium-sized and micro-enterprises (Shi et al. 2010). Therefore, the incumbent financial institutions are now paying close attention to building their own P2P platform 'in-house' (Jenkins & Alloway, 2015).

There are specific types of crowdfunding which is equity crowdfunding (ECF), reward-based crowdfunding, donation-based crowdfunding and peer to peer lending (P2P).

Figure 2.4: The Crowdfunding Models

Crowdfunding based on financial return	Peer-to-peer lending (or lending-based crowdfunding) Extrinsic motivation through monetary reward
	Equity-based crowdfunding Extrinsic motivation through economic reward
Crowdfunding based on non-financial return	Reward-based crowdfunding Extrinsic motivation through material gain
	Donation-based crowdfunding (or patronage) Intrinsic motivation of investors (social return)

Source: (Belleflamme, Lambert, & Schwienbacher, 2014)

For example, Kickstarter is an online platform that provides reward-based crowdfunding. It is not aiming for financial return but hoping the project to success. They did not involve losing or gaining the fund in this case. It is something similar like sponsorship by getting like-minded individuals to fund and get reward back in the form of some product sample and get acknowledgement in introduction (Marston, 2017).

Equity crowdfunding (ECF) connects investors and entrepreneurs through online platform. ECF is a campaign that group of people invest in a small and medium enterprise together in exchange for shares of the company. The investor is becoming a partial owner of the enterprise and have the rights to enjoy the company profits. On the investors point of view, ECF is risky investment compared to P2P because the investment might be failed when the invested company did not perform well and the share will be worth nothing (Martínez-Climent, Costa-Climent, & Oghazi, 2019). As Funding Circle stated that, equity crowdfunding is suitable for new startup or company in early stage because they did not require to have monthly repayment on the funds from investors but only equity of the company.

Donation-based crowdfunding is aimed for social cause contribution by increasing funds or capitals to Non-government organization (NGOs). It is nonprofits earning projects but social rewards. The purpose of investors in this type of funding is to participate in the sustainable development projects. They are showing a kind of support in terms of financial (Hu et al., 2015).

According to Funding Circle, P2P lending is a quick and convenient way to get cash injection for business. It is more suitable for establishing business who have the ability to make monthly repayment on the loans applied. For investors, P2P is an investment which is lower risk than crowdfunding because it practices a lending money activity or process that connect borrowers and lenders via online platform. Investor in P2P is act like a lender which able to receive some amount of interest when the borrowers are paying back the loans (The Stars, 2017) which means that they have more secure investment by gaining the interest from loans. There are also possible to have a loss when only the default payment from the lenders.

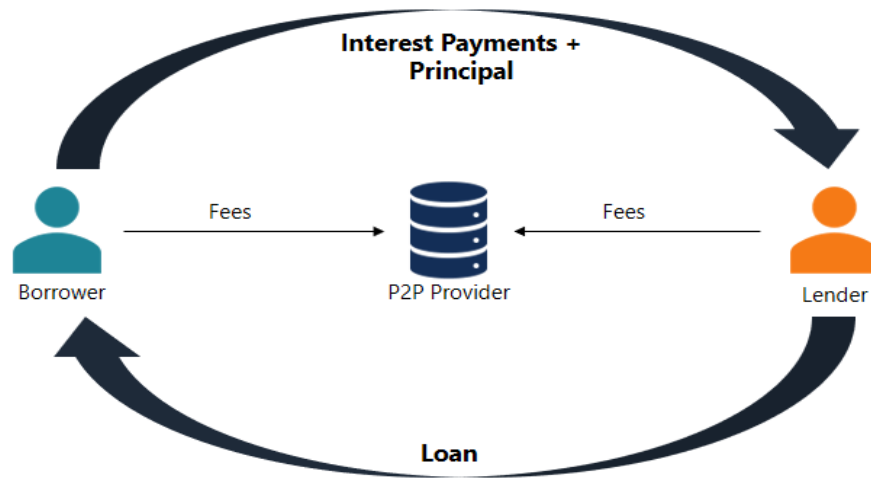
The reasons why nowadays company and individual prefer crowdfunding, peer to peer lending rather than bank loans is because those lending platforms able to provide thousand even millions of dollars with not much requirement and process to applied. P2P lending offers flexible loan repayment schedule, cash disbursement period and interest rate to each of the borrowers according to their needs (Hofmann, 2019).

Table 2.2: Difference between Traditional Financing and Online Financing

	Traditional Financing (Bank)	Online Financing (P2P lending)
Assessment time	Longer performance track records in terms of they background of business, credit score and so on	Shorter performance track record normally only based on credit score
Interest rate	Lower Interest rate	Higher Interest rate than bank
Privacy	The information of company will protect under privacy act	The information of company become public to many investors
Repayment schedule	Standardize; The repayment will set by the bank	Flexible & customize; Company may set own repayment schedule

Source: (Hofmann, 2019).

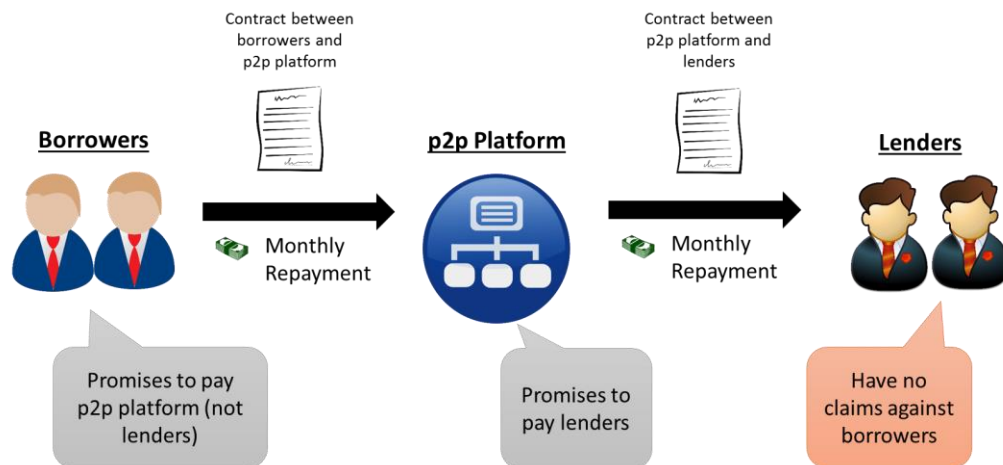
Figure 2.5: Process of P2P lending



Source: (CFI Education, 2019)

Figure 2.6: Responsibilities of parties involved in P2P lending activities

Indirect Lending



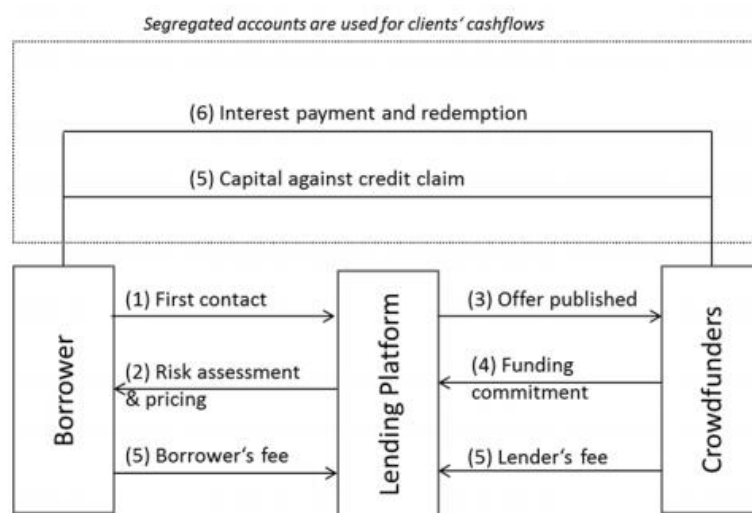
Let's Crowd Smarter. Copyright 2016.

Source: www.Quora.com

P2P lending is a straightforward process that all transaction is carried online. There are few steps included in the P2P lending process:

1. Potential borrowers on the P2P lending platform need to complete an online application.
2. The platform will evaluate the application by examining the risk of a borrower and rate the creditworthiness. The applicant will then assign an interest rate depending on the given credit score.
3. The borrower will get a list of the loan options provided by lenders with a different interest rate based on the credit score after the application is being approved.
4. An applicant can evaluate and select the best loan option.
5. The applicant will get the funds needed.
6. The repayment will start normally on a monthly basis on the interest rate and the principal amount at the maturity date.

Figure 2.7: The Detail Process for Mediation of P2P Lending



Source: (Lenz, 2017)

A lender may enjoy a higher interest rate or formally referred to deposit certificates. P2P also gives the right for lenders to choose their own borrower which they believe could get the repayment in full and on time by the borrower (Schneider, 2019). There is a win-win situation for an investor to get a favorable return with rates that agreed by borrowers which possible lower rates than traditional banks because of no overhead costs required in P2P lending. The P2P platform will act as an intermediary to control and manage the flow of funds in the projects which can avoid direct contact for both lender and borrower (LendingWorks, n.d).

Borrowers are able to enjoy similar cost advantages given by banks or credit unions compared with the rates. P2P lending has a humanitarian aspect because borrowers still have a possibility to get funds although they have a doggy financial history a sympathetic story to tell, a lender can decide whether to bear

the high risk of funding a loan without enjoying a higher return (Schneider, 2019). The online loan application process is fast and convenient because the online platform offers an automatic matching process for borrowers to a list of investors and gets the fund as soon as possible. This also allows borrowers to access funds in a short period of time. Sometimes, borrowers able to get lower rates loan than traditional banks provided because P2P lending has lower expenses in overhead. It provides a lot of alternatives for borrowers to select the best loan from a pool of lenders. It is a more flexible loan provided for borrowers that enable adjustment made on the loan repayment date to suit the borrower's finance status (LendingWorks, n.d).

A service provider is successful to create an active P2P forum by connecting borrowers and lenders to share experiences and information which deliver a sense of community in the P2P platform (Schneider, 2019).

2.2.2 Limitation for service provider, investor, borrowers

Service providers for P2P lending require some period of time, expertise and capital to develop an effective communication pipeline and also crowdfunding project. It also exists an entry barrier for many developing countries as the P2P lending platform is a web-based technology although mobile technology and Internet access are growing nowadays (Solutions & Development, 2017).

Borrowers which we also have known as project owners in P2P lending sometimes may need to reveal valuable company data that may possibly hamper

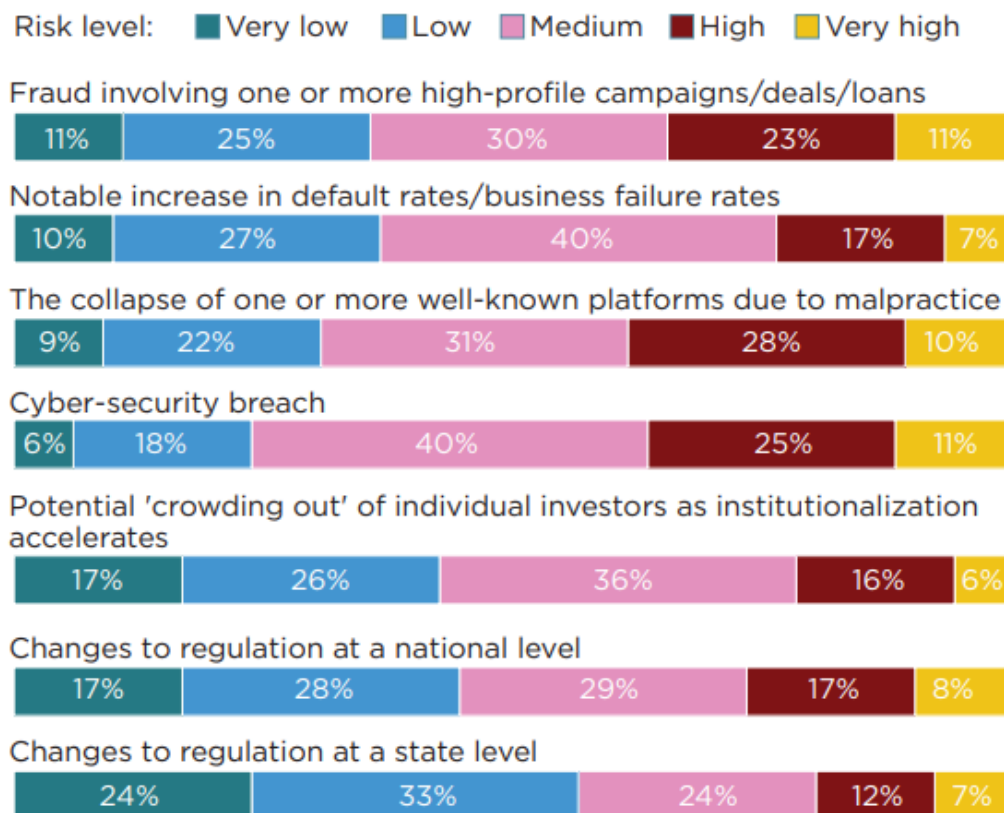
the power to safeguard intellectual property rights and business strategies of a company (Solutions & Development, 2017). There is a possibility that borrowers expose to default loans when they getting some of the uninsured funds from a lender. When the funding is going through auction, the requirement forbidding a loan can demand a certain amount of economic sophistication that many individuals do not have. There is no privacy under P2P lending online platform, all relevant financial background or story will publish online to the public (Schneider, 2019). An underwriting process is also needed for the P2P lending platform to check on the creditworthiness of borrowers and other internal checks set by the platform to secure the funds of investors. Borrowers have to work toward increasing the credit score if wanted to apply for funds. Arrangement fees will be charged as each loan matching successfully. The number of fees will depend on the loan size, loan repayment period and the credit score of borrowers (LendingWorks, n.d).

Investors in P2P lending is difficult to track the project outcome and achievement of the borrowers after the funding stages is closed. P2P lending platform did not provide a good standard to an investor on updating the result of a company after getting the funding (Solutions & Development, 2017). A lender can enjoy better yield in P2P lending but a higher rate is not certain over time by comparing to the publicly-traded index that needs to work on the purchase and hold decision. Since P2P lending is a fresh sector in a way of financing, there will be a change occur on the lender consolidation, interface or administration in P2P lending operations and the lending practice currently. It is a burden and risk for an investor to invest in the P2P lending project for the long term (Schneider, 2019).

2.2.3 Challenges & Opportunity in P2P lending

There are few challenges and risk faced by P2P lending platform which impact the public's usage intention. According to a survey done by American Alternative Finance Industry in 2017, seven factors of risk asked to rate by the platform regarding the platform operations. The potential risk is fraud, higher default rates, the collapse of well-known platforms due to malpractice, infringement of cyber-security, crowding out of individual investors, changes in national regulation, and changes in state regulation. This survey was aimed at defining how these perspectives varied across divisions of industry, areas, and nations. They collect data over 273 country-specific online platforms in the Americas which bringing more than 1400 platforms around the world as participants in their studies.

Figure 2.8: Americas Alternative Finance Platform Perceptions of Risk



Source: (CCAF, POLSKY, & CHICAGO BOOTH, 2017)

In order to get the accurate ranking of risk that rate by platform operators, the additional calculation will be used by distributing numbers 1 to 5 to each of the levels of risk such as very low is “1” and very high will be “5”. Those risk levels will be multiplied with the percentage which is the “weight” for each of the risk categories. The highest number means the highest risk from the perception of platform operators toward the financial online platform. From the result, the riskiest factors are “the collapse of one or more well-known platforms due to malpractice” and “cyber-security breach” that get overall risks of 6.27 and 6.32 respectively on the result while other factors fall below 2.98. It is a big concern for those platform operators toward the online financial platform.

On the other hand, P2P lending or we know as an online financial platform also brings a lot of opportunities and advantages. It not only enhancing economic efficiency but also assist in closing the gap between the financial world and the real economy. This is because nowadays with the advent of certain forms of investment banking, a much stronger focus on real estate and derivatives, the proliferation of speculative and high-frequency trading, and other financial activities that have become ends in themselves, this relation has become ever more tenuous. However, P2P lending is rooted through its lenders and borrowers in the real economy that can eliminate unnecessary complexity and intermediaries. In this case, P2P lending will act as a facilitator of the real economy by leading the finance and capital back to their original functions (Lenz, 2017).

2.3 Bibliometric Study

Bibliometric is a process that extracting measurable information from published research journals and leverage the knowledge of journals to carry statistical analysis (Agarwal, Durairajanayagam, Tatagari, et al, 2016). A peer-reviewed research paper acts as a medium for publishing the findings of scientific research, providing a chance to officially expose the study and deliver the published information to other academics. Other researchers can create their own studies or clinical practice by further validate or alter the hypotheses used by the published research articles. Bibliometric can be also categories as a research performance assessment for government lab, policymakers, university, research directors, research administrator, and researcher to understand the trend or help in decision making (Thomson Reuters, 2008). In the 1950s, American psychologists used bibliometrics to count the number of their publications within their discipline and this set a foundation for pioneering matric jobs in the future (Agarwal, Durairajanayagam, Tatagari, et al, 2016). Bibliometric analysis can provide an overview and quantitative point of view of a specific research subject with the support of comprehensive literature data. In general, it can explore the evolution and development of the pattern and trend of a scientific discipline. This can identify the hotspots and emerging ideas of a field and evaluate the quality and impact of various countries or journals (Kolle, Shankarappa, Arun & Manjunatha Reddy, 2017). On the other hand, bibliometric analysis consists of few limitations when researchers study the quality of a journal, discipline variation, level of researcher experiences and lastly incomplete data coverage of all areas of research journal (Libruary, 2017).

2.3.1 Keyword/ Discipline

A keyword is the main phrase that is often used as an index of a data set's contents. The researcher will usually enter a keyword into a search engine in order to make the research process easier and faster. Keywords can either be a word or a phrase. Keywords of an article are distinct as they reflect what writers perceive to be the most important words in their articles. Keywords can even shed light on the current research topics in a region (Pesta, Fuerst, & Kirkegaard, 2018). In a bibliometric analysis, keywords for publication are considered the fundamental elements of reflecting knowledge concepts and were widely used to expose the conceptual framework of research fields (Su & Lee, 2010). Keyword frequency analysis is able to address the hotspot and trend of a topic (Zhang, & Ho, 2008). Generally, the "common" keywords are considered significant and it can be analyzed on the frequency basis or measure through a centrality-based network, both methods are proven to select very similar keywords (Choi et al., 2011). Keyword frequency analysis is used to sort a fixed number of keywords or frequency thresholds in order to analyze the research foci of universal and pervasive computing (Zhao and Wang, 2011).

2.3.2 Co-authorship

Co-authorship of research papers is known as a credible proxy for research collaborations. When a paper exists more than one author than other authors will be the

corresponding author of an article. Collaboration can also define as a joint work of 2 or more of the investigators on a project by contributing resources, intellectual and physical efforts. There are a few criteria in research collaboration (Kumar, 2018):

1. There are 2 or more researchers sharing resources or intellectual expertise among each other
2. There will be a goal exist in research collaboration, either to bring a definite product in the form of an article or individual achievement in this research
3. The research is carried in a “social context”
4. The collaboration is based on personal choices

There are 2 categories of collaboration which are theoretical and technical. In theoretical collaboration, the relationship is only limit to providing advice, ideas, and feedback, whereas technical collaboration is providing practical assistance in a tangible research. In the author list of journal articles, people usually use to quote "technical" researchers, while "theoretical" researchers are mentioned in the journal's recognition section (Heffner, 1981). Therefore, co-authorship in journal articles is an easier and more accurate way to determine the collaboration.

There are a few benefits of using co-authorship in a research paper. Co-authorship in papers brings invariant and verifiable benefits since the collaboration is based on bibliometric records that allow replication of results in the same datasets provided. Besides, co-authorship able to evaluate a very large sample size. This technique can bring more significance and accurate results compared to questionnaire studies, case study and so on (Katz and Martin, 1997).

2.3.3 Publication

The word “publication” means that make content available to the public. It is usually applied to image, text, audiovisual content and paper such as newspapers, journal articles, magazines. The publication is a publishing action of a printed copy. It is legally binding and protected by copyright legislation. The publication defines anything that has been published as a book, a news article, a research paper. A research paper is describing a result or outcome of a research, when the research paper is being published in a journal or conference then consider a published research paper or known as publication (from the past IEEE Associate Editor, Konstantinides). Bibliometric analysis on publication is to identify the top publication that supports scientific publication on P2P lending research.

2.4 Pattern of Authorship and Research collaboration

Research collaboration is “human behavior between two or more scientists fostering the exchange of meaning and the accomplishment of tasks with respect to a mutually shared goal of dominance and taking place in social contexts” (Sonnenwald, 2007). It

is encouraged and highly emphasizes because it connects various pieces of knowledge and innovates in order to create fresh knowledge (Cheng, Hen, Tan, & Fok, 2013). In collaboration with the researcher, the degree of collaboration and types of collaboration will be calculated to understand the research trend in P2P lending. Degree of collaboration is defined from the number of collaboration authors appear in a paper that consists of a single author, 2 or more authors while types of collaboration are investigating the nature of countries and institutions involved in joint publications.

There are 3 types of collaboration which is an intra-organization collaboration, inter-organization collaboration (local collaboration) and international collaboration. Intra-organization is researchers collaborate with colleagues in the same institution. Inter-organization collaboration also known as local collaboration is researchers collaborate with other researchers from the different domestic institutions. Lastly, international collaboration is researchers collaborate with other researchers from different countries.

The degree of collaboration is examining the research is usually involving single authorship, two or more authorship in this research sector. This analysis is to identify the preferable degree and types of research collaboration among researchers on P2P related research topics.

2.5 Conclusion

This chapter explains all related and relevant literature on P2P lending. The literature review shows what this research cover and not cover under the detailed description of each different type of funding activity. This chapter even includes the justification of

using bibliometric study, list on the types of research collaboration, and few benefits and limitations of P2P lending toward different parties.

CHAPTER 3: RESEARCH METHODOLOGY

3.0 Introduction

This chapter illustrates the methodology adapted to fulfill the objectives of the research. The details explanation regarding the data collection method, sampling design, research instrument used, measurement construct and the information being analysed.

3.1 Research Design

This paper is a descriptive research which adopting quantitative analysis.

3.1.1 Descriptive Research

A form of studies includes two or more phenomena either identifying the features of an observed phenomenon or exploring possible connections (Leedy & Ormrod, 2001). A descriptive research is identifying the characteristics of a population without finding the causality but show how the possible linkage between few phenomena. This approach could help researcher to identify the relationship between the variables based on the numerical data.

3.1.2 Quantitative Analysis

Quantitative Research is the systematic empirical study of observable events through statistical, mathematical or computational methods. The quantitative research goal is to create and employ phenomena-related mathematical models, theories and hypotheses (Bhawna & Gobind, 2015). According to Aliaga and Gunderson (2006), Quantitative research is “explaining phenomena by collecting numerical data that are analyzed using mathematically based methods (in particular statistics)”.

3.2 Sampling Design

Scopus database is used in this bibliometric analysis on the research trends of P2P lending related topic. Scopus include Internet sources and peer-reviewed research literature, is the largest abstract and citation database. It launches in 2004 on November under Elsevier. It operates in subscription-based service and provides the most extensive overview of the world's science, technology, medicine, social sciences, and arts and humanities study output. Scopus cover all geographical regions' titles as long as there are English abstract is provided with the articles.

The strength and weakness shown in Figure 3.1. By comparing to web of science, Scopus is better off on the coverage of journal is more comprehensive, and more accuracy on the author affiliation. However, Scopus is worse off because the citation data in Scopus only extent back to 1996 which may possible undervalue those

established researchers. It also requires a payment on subscription when Scopus calculating the h-index for an author (Agarwal et al., 2016).

Figure 3.1: The Strengths and Limitations of Scopus

<i>Scopus</i>	
<i>Strengths</i>	<i>Limitations</i>
Includes more than 21,000 journal titles	Depth of coverage is not as impressive as the width, many journals are only covered for the last 5 years
Covers 50,000 books, 420 book series, 6.5 million conference proceedings, and 24 million patents	Relatively poor coverage of arts and humanities disciplines (recently improved as more journals have been added)
The “more” feature facilitates quick viewing of stray and orphan records	The citations and calculations based on them are only available from publications since 1996. This results in a very skewed <i>h</i> -index for researchers with longer careers than this
Very strong coverage of science and technology journals and full Medline coverage; wide range of subjects	Citations to pre-1996 articles in articles published after 1996 are not included in the <i>h</i> -index calculation
Contains useful tools for author disambiguation	Searches limited to after 1955
Automatically generates the <i>h</i> -index	The <i>h</i> -index and citation counts are generated based on all the publications of a given author, independent of the keyword searched
Citation tracking	Commercial database
Best indexing platform	Requires subscription (not free)

Source from (Agarwal et al., 2016)

Figure 3.2: Comparison on Scopus, Web of Science and Google scholar.

<i>Characteristics</i>	<i>Scopus</i>	<i>Web of Science</i>	<i>Google Scholar</i>
Date of official inauguration	11/2004	2004	11/2004
Content			
Number of journals	21,000 (3785 full gold open access)	8700	No data provided
Languages	English (plus 30 other languages)	English (plus 45 other languages)	English (plus any language)
Focus (field)	Physical sciences, health sciences, life sciences, social sciences	Science, technology, social sciences, arts, and humanities	Biology, life sciences and environmental sciences, business, administration, finance and economics, chemistry and materials science, engineering, pharmacology, veterinary science, social sciences, and arts and humanities
Period covered	1966-present	1900-present	Theoretically all available electronically
Databases covered	100% Medline, Embase, Compendex, World Textile Index, Fluidex, Geobase, and Biobase	Science citation index expanded, social sciences citation index, arts and humanities citation index, index chemistry, and current chemical reactions	PubMed, OCLC First Search
Number of keywords allowed	30	15	Theoretically no limit
Search			
Abstracts	(+)	(+)	(+)
Authors	(+)	(+)	(+)
Citations	(+)	(+)	(+)
Patents	(+)	(+)	(-)
Uses	Links to full text articles and other library resources	Links to full-text, links to related articles	Links to full-text articles, free full-text articles, limit to journals, links to related articles, and links to libraries
Updating	1–2 times weekly	Weekly	Monthly on average
Developer/Owner (Country)	Elsevier (the Netherlands)	Thomson Scientific and Health Care Corporation (USA)	Google Inc., (USA)
Citation Analysis	Total number of articles citing work on a topic or by an individual author	Web of Science plus the total number of articles on a topic or by an individual author cited in other articles	Next to each paper listed is a "cited by" link; this link shows the citation analysis
Website Subscription	Required	Required	Not required

Source from (Agarwal et al., 2016)

As compared to Web of Science and Google Scholar, Scopus is better because they update their database more frequently which is one to twice a week. They also allowed more keyword of an article in order to increase the opportunity of exposure toward the scientific publication which up to 30 keywords allowed. Although google scholar have no limit to the keywords, it might be possible for people to abuse by proposing irrelevant keyword. When there is a requirement for people to subscribe, it can filter out visitor that no really interested to ensure the citation analysis is only for someone who is really interested. Besides, UTAR students also have the access on Scopus database which is also one of the important factors when comes to the accessibility.

3.3 Data Collection Method

This research retrieved “peer to peer lending” related data from Scopus database. All articles, journals, books, review and conferences paper are included as data pool of this research. All data collected only limited to the English language published. As this research studies on a global trend, therefore language that understandable for people from all around the world is essential in this study in order to get a more accurate global trend without a language barrier. This is due to the reason that those excluded languages are Portuguese, French, German, Russian and Spanish which is only understood by a minor group of people compare to the English language which is the International language that uses all around the world. The past decade's data are collected from 2010 to 2019 to show bigger and clearer picture of the research trend on P2P lending with 10 years of data.

3.3.1 Secondary Data

Secondary data is analyzing the existing data that done by other researchers as their primary data for another primary purposes. Through reviewing peer

research paper, we able to investigate the knowledge or information already understand and the current gaps of research or knowledge in the specified area of research (Willey et al., 2017). Secondary data can also be used as a procedural and evaluative empirical practice, similar to primary information was collected and evaluated (Doolan, Winters, & Nouredini, 2017). Some of the information needed to conduct a secondary data analysis which the researcher needs to be familiarize with the data set:

1. Method of data collection
2. The population involves
3. The objective of the study
4. The variable of the study
5. To decide whether the weight needed to be applied for data analysis
6. To evaluate whether the clusters or stratification need to be considered for data analysis

3.4 Data Search

This study is using Scopus database as the main source for the data retrieved on P2P lending publication for the past ten years. The main reason for selecting Scopus

database because of the accessibility for UTAR students and the complete and updated information provided by Scopus on the affiliation, publisher and so on. The keyword in a bibliometric analysis is extremely important as it will impact the research finding and also result (Sweileh, 2018). Therefore, the selection of a keyword throughout the study needs to be consistency in order to deliver accurate information. The data in this paper search with the following keyword:

TITLE-ABS-KEY ("Peer to Peer Lending" OR "peer to peer lending" OR "P2P lending" OR "Peer-to-Peer Lending" OR "Peer-to-peer (P2P) lending") AND (LIMIT-TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2017) OR LIMIT-TO (PUBYEAR , 2016) OR LIMIT-TO (PUBYEAR , 2015) OR LIMIT-TO (PUBYEAR , 2014) OR LIMIT-TO (PUBYEAR , 2013) OR LIMIT-TO (PUBYEAR , 2012) OR LIMIT-TO (PUBYEAR , 2011) OR LIMIT-TO (PUBYEAR , 2010)) AND (LIMIT-TO (LANGUAGE , "English"))

3.5 Data Processing

There are a total of 450 journals, articles, reviews and books available in Scopus regarding on the “peer to peer lending”. To ensure the number of citations did not have huge variation, a time frame is set to complete the data collection. The data is collected

between 16 August 2019 to 24 October 2019 include the time for making adjustments on the data which is duplicate and updating the latest citation number. There are only 2 month of data collection period used in this paper. The discarded of publish “journal” due to the reason that no full text of article available online, article which use other than English language, article with no author and duplication of article which already exists. The data collected from Scopus will directly recorded in Microsoft Excel by separating different sheet for the master record, author affiliation and keyword/discipline. The master record will provide the based references for other 2 record by sharing the same number code for each published article.

Therefore, the data will get further to the data editing and coding. All the record mention above are the primary step of tidying the raw data. The data will edit further by divide into the top cited paper, the top institution that publish more within the ten year from 2010 to 2019, the top influencing author and journal articles topic, the collaboration relationship between author by country, by year and so on. The calculation of the percentage on the data analyse such as percentage for types of collaboration, publication by subject areas to see the result of particular proportion of the whole.

3.6 Research Instrument/ Data Analysis Tool

Microsoft Excel is used as the fundamental analyzing tool in this research. Since it is a quantity analysis, Excel will be a powerful instrument to support the dataset. Microsoft Excel 2016 software has been used to classify the publication year's statistical analysis,

publishing styles, a number of citations, authors, countries/regions, organizations and newspapers and their IFs (from 2017 Journal Citation Reports of Clarivate Analytics). The most popular for Excel is it can analyze a raw dataset to a pivot table. Excel formula also can aggregate data to create a more meaningful report. It can also help us to sort the data to show the highest cited paper or filter those duplicate authors in our dataset journal to show the highest P2P research author (Introduction to Data Analysis Using Excel, 2019).

3.7 Data Analysis

3.7.1 Trend Analysis: Time-series

Trend analysis (time series) is an analysis that explains the pattern and trend in the collected data overtimes. It explains the shift either upward or downward in the data. Trend analysis is basically used to predict the future movement of data from the historical data collected. Trend analysis collects multiple time interval data and visualizes the information in a horizontal line to spot the pattern of movement (“Accounting Tools: Trend Analysis”, 2018). Times series analysis on the publication trend able to provide insight on the emerging topic from time to time within the time frameset. It can review the evolution of the publication of P2P lending over time and predict the future movement of the topic. The longer the time period provided by a specific pattern, the stronger the resulting indication (“Schwab Trading Insights: Trend Analysis Methods”, n.d).

Therefore, 10 years of data coverage is adopted in this scientific publication on the P2P lending study.

3.7.2 Citation Analysis

Citation analysis is calculating the number of times which an article quotes in other work to study the impact and influence of the research publication or author in the particular industry. This can determine the level of impact of an article or can identify the “quality” articles from the database that cover a pool of different articles. By examining the top-quoted content of publications, the information on trends in particular areas with a view to progress in research is able to obtain (Kalantari et al., 2017). This analysis can assist the researcher in determining their future research topic by understanding the emerging topic in a particular field. With the citation analysis, they are able to get the “best” journal as references or support on their current research. Citation is not a scientific tool for evaluating the publication but it can use to measure the parameter of research. However, there is some drawback on the citation analysis. The high cited papers cannot consider “quality” papers because citation count also involves the negative citation that used to criticize the result of the research, self-citation on their previous research, and the citation toward the methodology used (Garfield, 1979). Therefore, this research is adopting the top 20 cited papers to identify the topic that interested in P2P lending publication.

3.7.3 Count of paper; Productivity

Productivity analysis is carried out to identify trends for potential projects to boost productivity based on historical data recorded throughout the analysis. This analysis also examines areas of productivity loss causing delays and interruptions. Productivity evaluates production over time while input against output is calculating the performance efficiency. It also offers benchmark metrics that will also generate information used to evaluate future expectations for productivity growth. Institution ranking on the number of papers published helps to compare the work production's quality and volume between different institutions (Kalantari et al., 2017). While comparing publication counts across institutions, consideration should be given to the number of researchers at an institution. Therefore, the top institution that participates in P2P lending research from the past ten years is able to identified in this study.

3.7.4 Specialization: collaboration indicator (co-authorship)

Analysis of co-authorship has still been extensively used to understand and evaluate patterns of scientific collaboration. Authors, organizations or countries represent the network of co-authorship that are connected while they share a paper's authorship (E Fonseca, Sampaio, Fonseca, & Zicker, 2016). The researchers are now seldom carried research individually as they reveal that collaboration able to gather complementary skills from the member with different knowledge background are more effective in producing

comprehensive research. This collaboration analysis able to disclose dynamic and influential collaborative points, and also the less influential ones (Kalantari et al., 2017). Through this analysis, collaboration pattern and trend overtime on P2P lending publication able to identify such as the preferable types of collaboration, the country that has high involvement in global collaboration and the preferable country to collaborate in P2P lending research.

3.7.5 Descriptive Analysis: Frequency Analysis, Mean Analysis

Descriptive statistics are brief explanatory coefficients that summarizing a set of data that can either be a representation of the entire population or a sample of a population. It is used to define the key characteristics of the study's data. It provides a quick summary of the analysis together with a simple graphic and forms a basis of almost all of the quantitative analysis data. Descriptive analysis is simply described in the data show (William, 2008). It is capable for recapturing the data gathered in a manner which is transparent to researchers and more comprehensible (Jaggi, n.d.). Descriptive analysis divided into 2 categories which are central tendency measurement and variability

measurement. Measures of central tendency usually involve mean, median, and mode analysis, while variability measurements include standard deviation, variance, minimum and maximum variables, and kurtosis and skewedness (Kenton, 2019).

3.8 Conclusion

To conclude, this chapter list the research and sampling design, data collection method, research instruments, data processing and data analysis. The following chapter will discuss further on the research outcomes that generate from Scopus database.

CHAPTER 4: DATA ANALYSIS

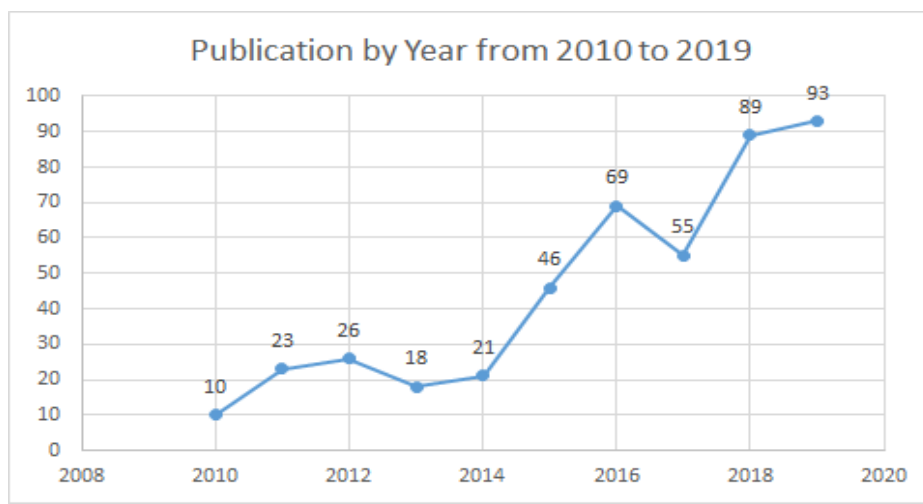
4.0 Introduction

This chapter focuses on the analysis of data that generate from Scopus regarding the scientific publication on P2P lending. The methods exercise in this bibliometric study on the research trends of P2P lending are times series analysis, citation analysis, productivity analysis and collaboration analysis.

4.1 Productivity/Publication Analysis

4.1.1 Publication by year

Chart 4.1: Scopus P2P Lending Research Publication by year



Source: Develop for the research.

From 2010 to 2019, there are a total of 450 articles being published in Scopus database regarding P2P lending. As the line chart above clearly shows the scientific publication on P2P lending are keep increasing. However, a little drop of 14 papers in 2017 and grow to 89 papers in 2018. It reaches the highest of publication of 93 articles on P2P lending in the year 2019 that up to Oct. There are estimated average 9.3 paper being published in a month in 2019 while the lowest publication of P2P lending paper is in 2010 that only publish 10 documents and get an average of 0.83 paper being published in a month. At the end of 2019, the publication is estimate will reach 112 papers. In

2020, P2P lending publication will more than 112 papers which average 9 papers published within a month.

4.1.2 Publication by Document Types

Table 4.1: P2P Lending Research Publication by Document Types

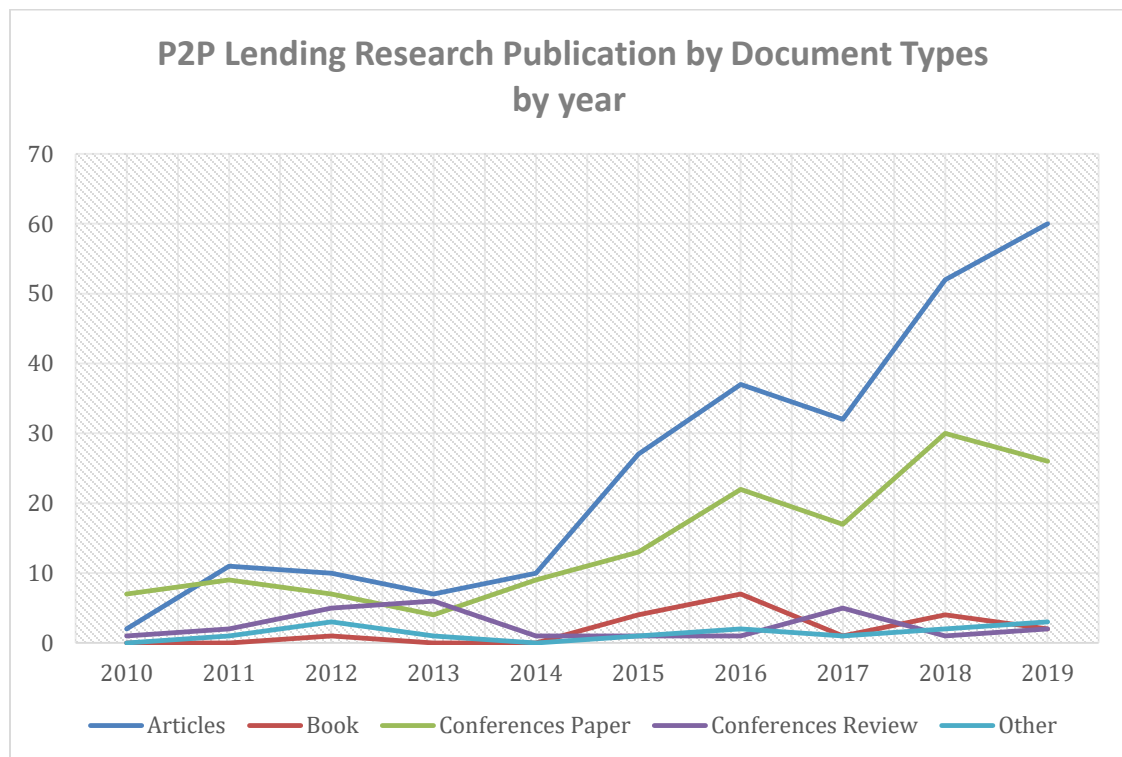
Document types	Total	Percentage (%)
Article	239	53%
Conference Paper	144	32%
Conference Review	25	6%
Book Chapter	17	4%
Other	11	2%
Review	8	2%
Undefined	6	1%

Source: Develop for the research.

In P2P lending publication, articles and conference papers is use more frequently which take up of 53% and 32% respectively throughout the decades from 2010 to 2019. The other types of document on the publication of P2P lending in Scopus database from 2010 to 2019 involve conferences review (6%), book chapter (4%), review (2%), other

(2%) and undefined (1%). The “other” documents types include Book (1%), Note (1%), Erratum (0%), Editorial (0%) and Retracted (0%). The 0% represent 2, 1 and 1 P2P lending publication on Erratum, Editorial and Retracted respectively.

Chart 4.2: P2P Lending Research Publication by Document Types by year (2010-2019)

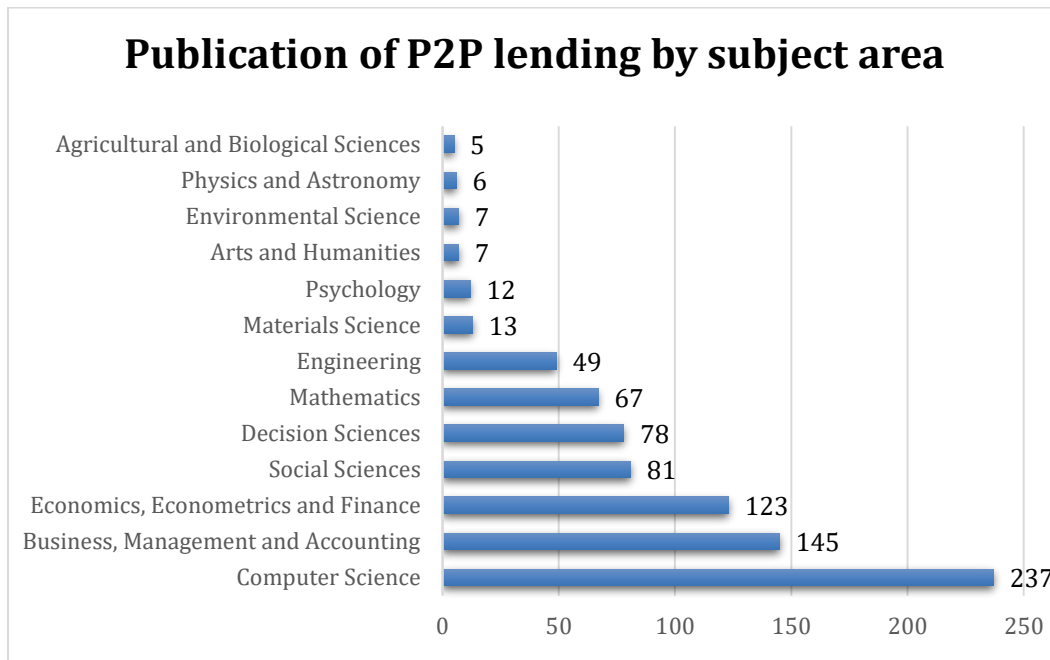


Source: Develop for the research.

The line chart above show the trend of publication on P2P lending by document types from time to time throughout the ten year that up to 2019 Oct. The publication of articles and conferences paper continue to increasing since 2010 however it has a slightly drop on conferences paper in 2019 up to October. Book, Conferences review and other document types on P2p lending publication is at the trough

4.1.3 Publication by Subject Area

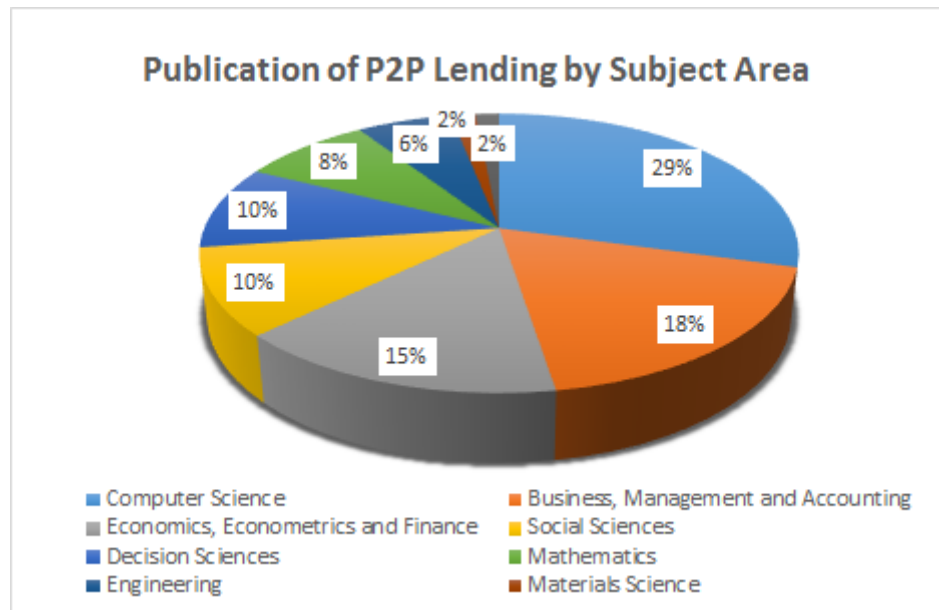
Chart 4.3: Publication of P2P Lending by subject area



Source: Develop for the research.

Chart 4.3 shows the number of publications on P2P lending by different subject area. Computer Science is leading with 237 papers throughout the decades from 2010 to 2019. It followed by Business, Management and Accounting with 145 papers, Economics, Econometrics and Finance with 123 papers, Social Sciences with 81 papers and Decision Sciences with 78 papers.

Chart 4.4: Publication of P2P Lending by subject area in percentage



Source: Develop for the research.

A total of 450 papers published under Peer to Peer lending in Scopus database from 2010 to 2019 is further divided into different subject areas. 29% of them are from Computer Science followed by Business, Management and Accounting (18%), Economic and Finance (15%), and Social Science (10%).

4.1.4 Publication by Keyword

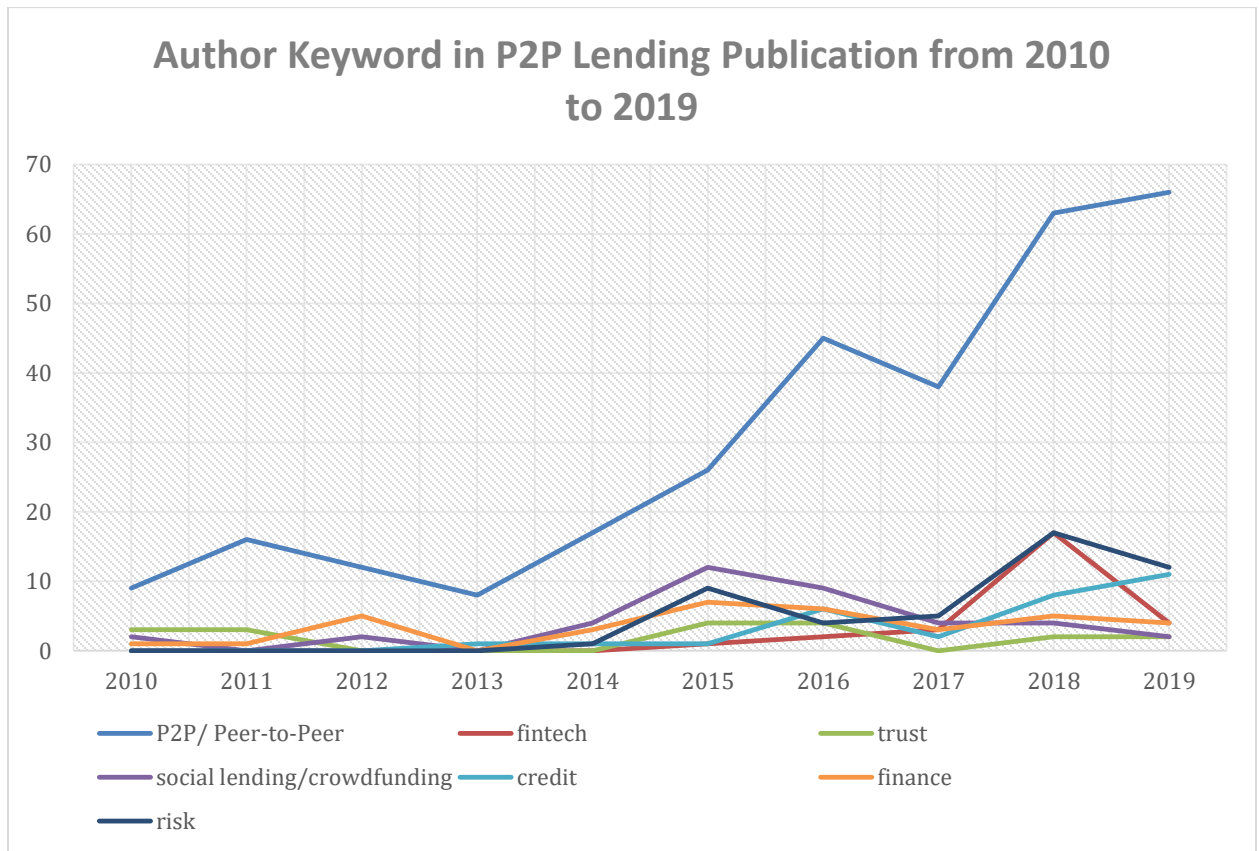
Table 4.2: Overall keyword in P2P Lending Publication from 2010 to 2019

Keyword	Total
P2P	161
Risk	39
Finance	35
Credit	30
Fintech	26
Crowdfunding	23
Trust	20
Social Lending	15
Herding	13
Default risk	9

Source: Develop for the research.

Table 4.2 shows the list of keywords used by authors on their scientific publication under P2P lending in Scopus database throughout the past decades from 2010 to Oct 2019. It clearly shows that the keyword used by authors on P2P/Peer to Peer Lending (161 times), Risk (39 times), Finance (35 times), Credit/ credit score (30 times), Fintech (26 times), Crowdfunding (23 times), Trust (20 times), Social Lending (15 times), Herding/ Herding behaviour (13 times) and Default risk (9 times). Throughout the ten-year period of time, publication on the topic of “risk”, “finance”, “credit” and “trust” in P2P lending is high.

Chart 4.5: Author Keyword in P2P Lending Publication from 2010 to 2019



Source: Develop for the research.

Table 4.3: the Author Keyword in P2P Lending Publication from 2010 to 2019

Keyword	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
----------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------

P2P/ Peer-to- Peer	9	16	12	8	17	26	45	38	63	66
fintech	0	0	0	0	0	1	2	3	17	4
trust	3	3	0	0	0	4	4	0	2	2
crowdfunding	0	0	0	0	0	10	7	2	4	1
social lending	2	0	2	0	4	2	2	2	0	1
default risk	0	0	0	0	0	3	1	2	1	1
credit	0	0	0	1	1	1	6	2	8	11
herding	1	1	2	1	0	1	0	2	2	2
finance	1	1	5	0	3	7	6	3	5	4
risk	0	0	0	0	1	6	3	3	16	11

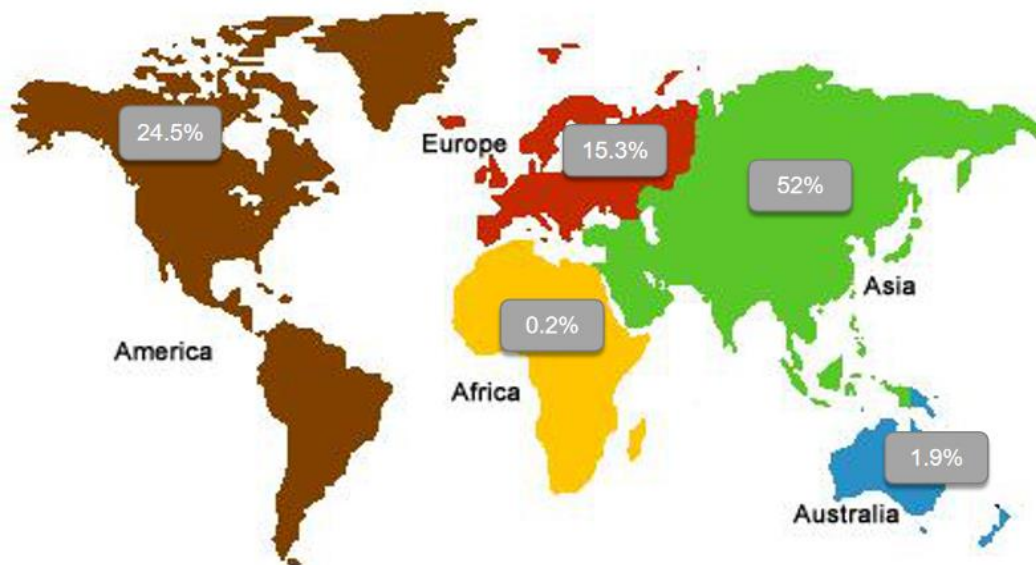
Source: Develop for the research.

Table 4.3 show the author keyword on P2P lending publication from time to time. This can illustrate the research trend for each of the year. In 2010 and 2011, P2P lending still consider a new topic for public which only 9 and 16 publication respectively that focus on P2P lending which aim on trust consideration. From 2012 to 2014, P2P lending started to analyze on the funding purpose with keyword such as “finance”, “social lending” and “herding behavior”. In 2015, the word “risk” and “crowdfunding” on the P2P lending research arise. 2016 is the year which the P2P lending publication become emerging topic which the total number of publications is double from the previous year from 26 times to 45 times mentioned in the author’s keyword. In 2017, publication on P2P lending had drop by 7 times and the publication of P2P lending revived and grow to 63 times. 2018 is the year which the keyword of “Fintech” and

“Risk” leading the trend and its contributed 17 and 16 times among the P2P lending publication respectively. In 2019, the word “P2P lending” still experiencing grow to 66 number of times mentioned among the publications. The word “credit” and “risk” exist 11 times in the year of 2019 (up to Oct). Started from 2015, the word such as “finance”, “crowdfunding”, “trust”, “default risk” has lesser appear on the authors keyword.

4.1.5 Publication by Continent

Figure 4.1: Publication of P2P Lending by continent



Source: Develop for the research.

Among the 5 continents, Asia is leading in P2P Lending publication. It followed by America (North & South), Europe, Australia and Africa. In Asia, China is the most productive country on scientific publication on P2P lending. The publication on P2P

lending throughout the past ten year, Asia occupied 52% (295 publications) of the total publication followed by America (North & South), Europe, Australia and Africa with 24.5% (139 publications), 15.3% (87 publications), 1.9% (11 publications) and 0.2% (1 publications) respectively.

4.1.6 Publication by Countries

Table 4.4: Publication of P2P Lending by Top 10 Countries in Percentage

Leading Country	Total	Percentage
China	201	35.4%
United States	126	22.2%
United Kingdom	25	4.4%
South Korea	18	3.2%
Hong Kong	17	3.0%
Indonesia	14	2.5%
Germany	13	2.3%

Singapore	12	2.1%
Australia	10	1.8%
Ireland	9	1.6%

Source: Develop for the research.

Among all of the countries that engage in the scientific publication on P2P lending from 2010 to 2019 (up to Oct), China is the leading country that had published 35.4% of the total paper published on P2P lending from 2010 to 2019. United State is the second highest productivity country on P2P lending publication with 22.2% followed by the United Kingdom (4.4%), South Korea (3.2%) and Hong Kong (3.0%). There are only two countries had over a hundred of scientific publications on P2P lending while Malaysia have no publication on P2P lending topic yet since 2010 to Oct 2019. However, Indonesia (2.5%), Germany (2.3%), Singapore (2.1%), Australia (1.8%), and Ireland (1.6%) had less than 15 publications from past ten years.

4.1.7 Publication by Journals

Table 4.5: Top 10 Journals Publication on P2P Lending Research

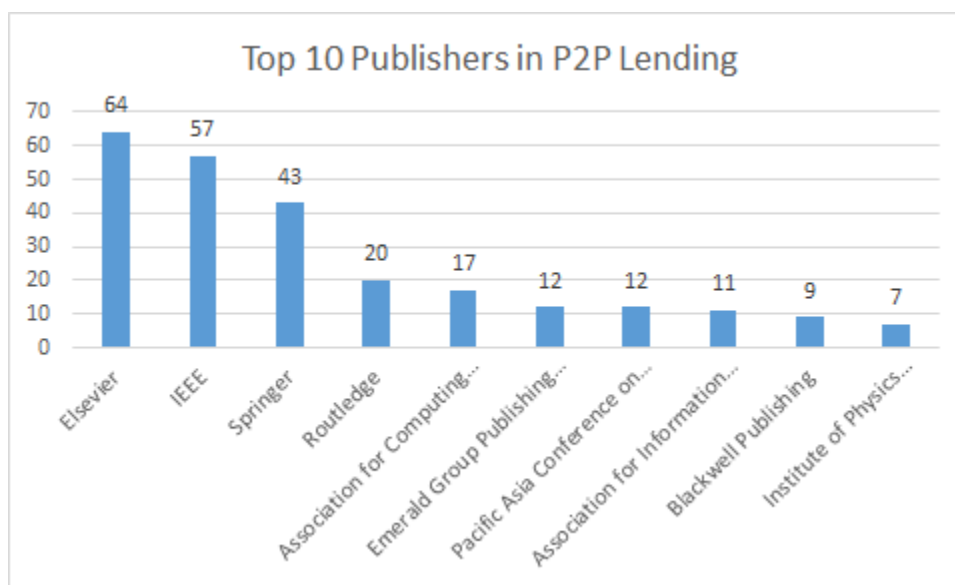
Publish in (Journal)	Total
Electronic Commerce Research And Applications	11
ACM International Conference Proceeding Series	9
Lecture Notes In Computer Science Including Subseries Lecture Notes In Artificial Intelligence And Lecture Notes In Bioinformatics	9
European Journal Of Operational Research	6
Economist United Kingdom	5
Emerging Markets Finance And Trade	5
IEEE Access	5
Iop Conference Series Materials Science And Engineering	5
Management Science	5

Source: Develop for the research.

The table above reveal the top 10 journal that publish on P2P lending topic from 2010 to 2019. The leading journal on P2P lending publication is Electronic Commerce Research and Applications that publish total of 11 papers within 2010 to 2019, followed by 9 papers published under ACM International Conference Proceeding and Lecture Notes In Computer Science Including Subseries Lecture Notes In Artificial Intelligence And Lecture Notes In Bioinformatics, 6 papers on European Journal of Operational Research and 5 papers on Economist United Kingdom, Emerging Markets Finance And Trade, IEEE Access, Iop Conference Series Materials Science And Engineering and Management Science.

4.1.8 Publication by Publisher

Chart 4.6 Top 10 Publisher in P2P Lending



Source: Develop for the research.

The leading publication that support on P2P lending research is Elsevier (n=64), followed by the Institute of Electrical and Electronics Engineers (n=57), Springer (n=43), Routledge (n=20), Association for Computing Machinery (n=17), Emerald Publishing Limited (n=12), Pacific Asia Conference on Information Systems (n=12), Association for Information System (n=11), Blackwell Publishing (n=9) and Institute of Physics Publishing (n=7). By calculating the percentage for each publisher occupied on the publication of P2P lending from 2010 to 2019, Elsevier publish 16.9% of papers

on P2P lending among all of the publisher followed by Institute of Electrical and Electronics Engineers (15.1%), Springer (11.4%), Routledge (5.3%), Association for Computing Machinery (4.5%), Emerald Publishing Limited (3.2%), Pacific Asia Conference on Information Systems (3.2%), Association for Information System (2.9%), Blackwell Publishing (2.4%) and Institute of Physics Publishing (1.9%).

4.1.9 Publication by Institutions

Table 4.6 Top 10 Institutions that Engage in P2P Lending Research

Affiliation (institution)	Country	Total
Southwest University of Finance and EcoNomics	China	22
Peking University	China	11
Hefei University of Technology	China	10
Soochow University	China	10
Central University of Finance and Economics	China	10
Texas Tech University at Lubbock	US	9
Shanghai University	China	8
Dalian University of Technology	China	7
The University of Hong Kong	Hong Kong	7
Beijing University of Posts and Telecommunications	China	7

Source: Develop for the research.

There are approximately 160 organizations had made contribution to P2P lending research within the year of 2010 to 2019. Among the top 20 productive institution in publication on P2P lending articles within the period of 2011 and 2019, China University is an institution that contributes overall of 84% of authors engagement in the top 20 productive institution and only 16% of university came from Hong Kong and the United States. Southwest University of Finance and Economics, Chengdu, China (n=22) ranked first on the number of authors participation in P2P lending research, followed by the Peking University in Beijing, China (n=18), Hefei University of Technology, China (n=10), Soochow University, China (n=10), Central University of Finance and Economics, China (n=10), Texas Tech University at Lubbock, US (n=9), Shanghai University, China (n=8), Dalian University of Technology, China (n=7), The University of Hong Kong (n=7) and Beijing University of Posts and Telecommunications, China (n=7).

4.2 Citation Analysis

4.2.1 Top Cited Journal Articles

Table 4.7: Top 20 Cited Journal Articles on P2P Lending

Ranking	Year	Title	Source title	Document Type	Cited by
1st	2013	Judging borrowers by the company they keep: Friendship networks and information asymmetry in online peer-to-peer lending	Management Science	Review	278
2nd	2012	Rational herding in microloan markets	Management Science	Article	232
3rd	2012	Trust and credit: The role of appearance in peer-to-peer lending	Review of Financial Studies	Review	185
4th	2011	What's in a picture?: Evidence of discrimination from Prosper.com	Journal of Human Resources	Article	181
5th	2015	New financial alternatives in seeding entrepreneurship: Microfinance, crowdfunding, and peer-to-peer innovations	Entrepreneurship: Theory and Practice	Article	178
6th	2011	Strategic Herding Behavior in Peer-to-Peer Loan Auctions	Journal of Interactive Marketing	Article	137

7th	2012	Herding behavior in online P2P lending: An empirical investigation	Electronic Commerce Research and Applications	Article	116
8th	2014	Cultural differences and geography as determinants of online prosocial lending	MIS Quarterly: Management Information Systems	Article	115
9th	2016	Home bias in online investments: An empirical study of an online crowdfunding market	Management Science	Article	108
10th	2011	Tell me a good story and I may lend you money: The role of narratives in peer-to-peer lending decisions	Journal of Marketing Research	Article	107
11th	2015	Evaluating credit risk and loan performance in online Peer-to-Peer (P2P) lending	Applied Economics	Article	101
12th	2015	The economics of crowdfunding platforms	Information Economics and Policy	Review	92

13th	2015	Risk assessment in social lending via random forests	Expert Systems with Applications	Article	83
14th	2015	Friendships in online peer-to-peer lending: Pipes, prisms, and relational herding	MIS Quarterly: Management Information Systems	Article	77
15th	2016	Instance-based credit risk assessment for investment decisions in P2P lending	European Journal of Operational Research	Conference Paper	72
16th	2010	Building consumer-to-consumer trust in E-finance marketplaces: An empirical analysis	International Journal of Electronic Commerce	Article	69
17th	2015	Crafting Business Architecture: the Antecedents of Business Model Design	Strategic Entrepreneurship Journal	Article	65
18th	2012	From the wisdom of crowds to my own judgment in microfinance	Electronic Commerce	Article	65

		through online peer-to-peer lending platforms	Research and Applications		
19th	2011	Peer to Peer lending: The relationship between language features, trustworthiness, and persuasion success	The Journal of Applied Communication Research	Article	65
20th	2012	Do unverifiable disclosures matter? Evidence from peer-to-peer lending	Accounting Review	Article	64

Source: Develop for the research.

From the top 20 cited articles in Table 4.1, it shows the higher level of “influenced” journal articles. The highest cited articles are entitled “Judging borrowers by the company they keep: Friendship networks and information asymmetry in online peer-to-peer lending” which cited by 278 times in Scopus database until the end of the data collection period of this paper. The “Rational herding in microloan markets” in 2012 received 232 citation up to Oct 2019 followed by “Trust and credit: The role of appearance in peer-to-peer lending” in 2012 (185 citation), “What's in a picture?: Evidence of discrimination from Prosper.com” in 2011 (181 citation), “New financial alternatives in seeding entrepreneurship: Microfinance, crowdfunding, and peer-to-peer innovations” in 2015 (178 citation), “Strategic Herding Behavior in Peer-to-Peer Loan Auctions Journal” in 2011 (137 citation), “Herding behavior in online P2P lending: An empirical investigation Electronic Commerce Research and Applications” in 2012 (116 citation), “Cultural differences and geography as determinants of online

prosocial lending” in 2014 (115 citation), “Home bias in online investments: An empirical study of an online crowdfunding market” in 2016 (108 citation), “Tell me a good story and I may lend you money: The role of narratives in peer-to-peer lending decisions” in 2011 (107 citation), “Evaluating credit risk and loan performance in online Peer-to-Peer (P2P) lending” in 2015 (101 citation), “The economics of crowdfunding platforms” in 2015 (92 citation), “Risk assessment in social lending via random forests” in 2015 (83 citation) and so on.

Among the 20 highest cited paper, 16 of them are articles followed by 3 review paper and 1 conferences paper. 3 of the top 20 cited articles are published in *management science* followed by *Electronic Commerce Research and Applications* (2 papers) and *MIS Quarterly: Management Information Systems* (2 papers). From the above top 20 articles regarding on P2P lending, papers publish on 2015 take up the most with total of 6 publication among the 20. According to the top 20 cited papers, herding behavior, bias, discrimination and trust is the most frequent research topic on P2P lending. Those are related to the behavior, perception or attitude that affect the P2P lending activities. Among the 450 papers in Scopus from 2010 to Oct 2019, the average citation per paper is 9.3 times. However, the lowest cited papers among the top 20 is 64 times which is 7 times more than the average. There is a huge variation in the citation number between the top and the lowest cited paper in P2P lending.

4.3 Authorship Analysis

4.3.1 Top Productive Authors

Table 4.8: Top 10 Productive Authors Involved in P2P Lending Research Publication

Top 10 Authors	Affiliation	Total Paper Published
Chen, D.	School of Dongwu Business, Soochow University, Suzhou, Jiangsu, China	13
Lin, Z.	School of Finance, Southwestern University of Finance and Economics, Chengdu, 611130, China	7
Lee, B.	Department of Management Engineering, KAIST Business School, 85 Hoegiro, Dongdaemoon-gu Seoul, 130-722, South Korea	6
Chen, E.	Anhui Province Key Laboratory of Big Data Analysis and Application, School of Computer Science and Technology, University of Science and Technology of China, China	5
Cunningham, P.	School of Computer Science and Informatics, University College Dublin, Ireland	5
Liu, Q.	School of Management, Zhejiang University, Hangzhou, China	5
Qiu, J.	Chengdu University of Information and Technology, China	5
Chau, M.	The University of Hong Kong, Hong Kong	4

Lee, E.	Department of Management Engineering, KAIST Business School, 85 Hoegiro, Dongdaemoon-gu Seoul, 130-722, South Korea;	4
Li, H.	School of Computer Science, Nanjing University of Posts and Telecommunications, Nanjing, China, Institute of Computer Technology, Nanjing University of Posts and Telecommunications, Nanjing, China	4

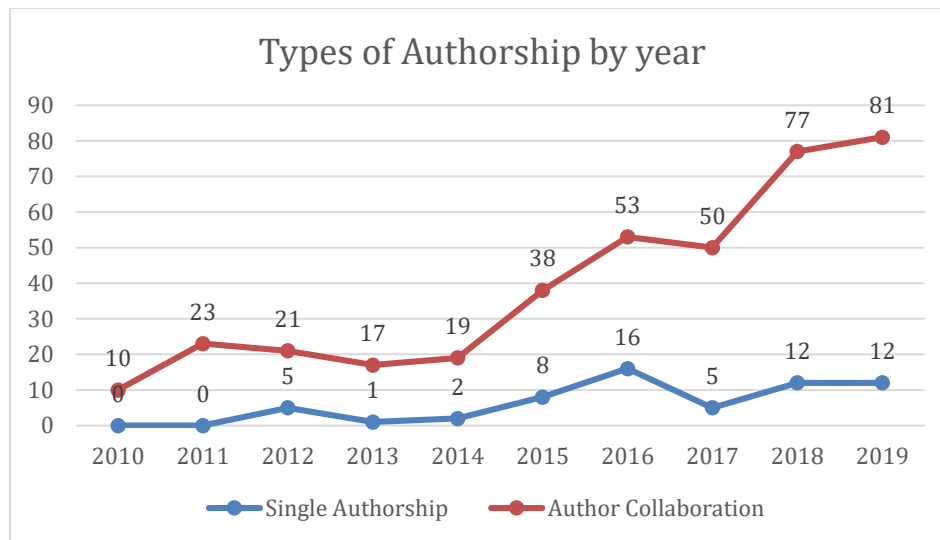
Source: Develop for the research.

A total of 159 authors contributed to the 450 papers on P2P lending exclude 32 authors that are undefined by Scopus. Out of the 450 papers published on P2P lending, 13 of them are written by *Chen, Dongyu* from Soochow University, Suzhou, China followed by *Lin, Zhangxi* (7 papers) from Southwestern University of Finance and Economics, Chengdu, China and *Lee, Bun* (6 papers) from KAIST Business School, Dongdaemoon-gu Seoul, South Korea. There is also an author that publishes less than 5 papers on P2P lending between 2010 to Oct 2019 such as *Chen, E.* from Anhui Province Key Laboratory of Big Data Analysis and Application, School of Computer Science and Technology, University of Science and Technology of China, China (5 papers), *Cunningham, P.* from School of Computer Science and Informatics, University College Dublin, Ireland (5 papers), *Liu, Q.* from School of Management, Zhejiang University, Hangzhou, China (5 papers), *Qiu, J.* from Chengdu University of Information and Technology, China (5 papers), *Chau, M.* from The University of Hong Kong, Hong Kong (4 papers), *Lee, E.* from Department of Management Engineering, KAIST Business School, 85 Hoegiro, Dongdaemoon-gu Seoul, South Korea (4 papers) and *Li, H.* from School of Computer Science, Nanjing University of Posts and Telecommunications, Nanjing, China, Institute of Computer Technology, Nanjing University of Posts and Telecommunications, Nanjing, China (4 papers). All

the total paper published by each of the authors mention above are only limited for the publication on P2P related topic in the period of 2010 to Oct 2019 under Scopus database.

4.3.2 Types of Authorship

Chart 4.7 Types of Authorship by Year



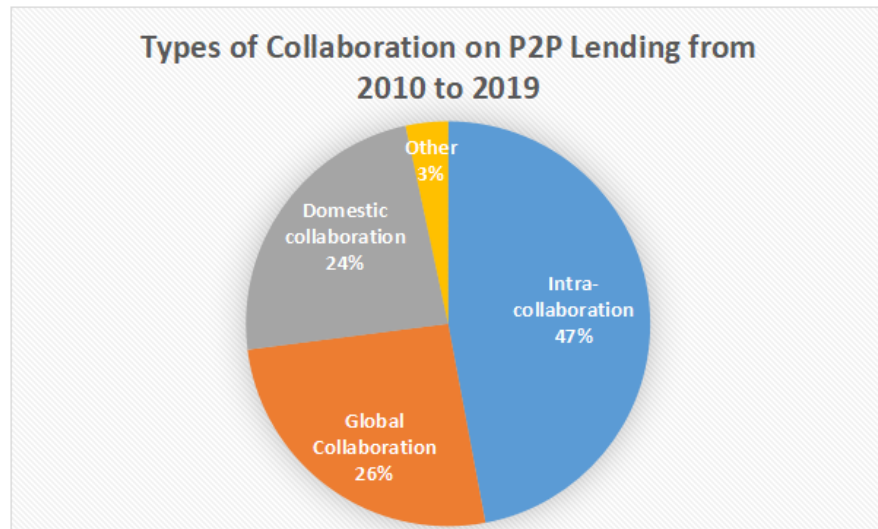
Source: Develop for the research.

In the research publication on P2P lending throughout the past decades, author collaboration is always higher than single authorship. In 2010, there are 100% of P2P lending publication is under author collaboration with the total of 10 publications. Similar as 2010, 2011 also experiencing 100% of author collaboration in P2P lending publication. In 2012, there are 5 papers published under single authorship while the author collaboration had 21 papers. In 2013 and 2014, single authorship drops to 1 and 2 papers respectively compare to 2012. Author collaboration grow gradually from 2013 but compare to 2012, it is drop by 4 and 2 papers respectively. In 2014, both single authorship and author collaboration increase and drop in 2017 to 50 publications on author collaboration relationship and 5 publications on single authorship.

This analysis reveal that the number of single authorships is decreasing from 2016 to 2019, however, author collaboration has a significant increase since 2014. Single authorship reaches the highest in 2016 and started to decline at 2017. The publication under single authorship yet increase to 12 publications in 2018 and remain constant. On the other hand, the author collaboration among the P2P lending publication had increased tremendously in 2018 by 22 publication more that the publication in 2017. It continue grow to 81 publication up to Oct 2019. Up to Oct 2019, the author collaboration is almost up to 8 times of single authorship.

4.3.3 Types of Collaboration

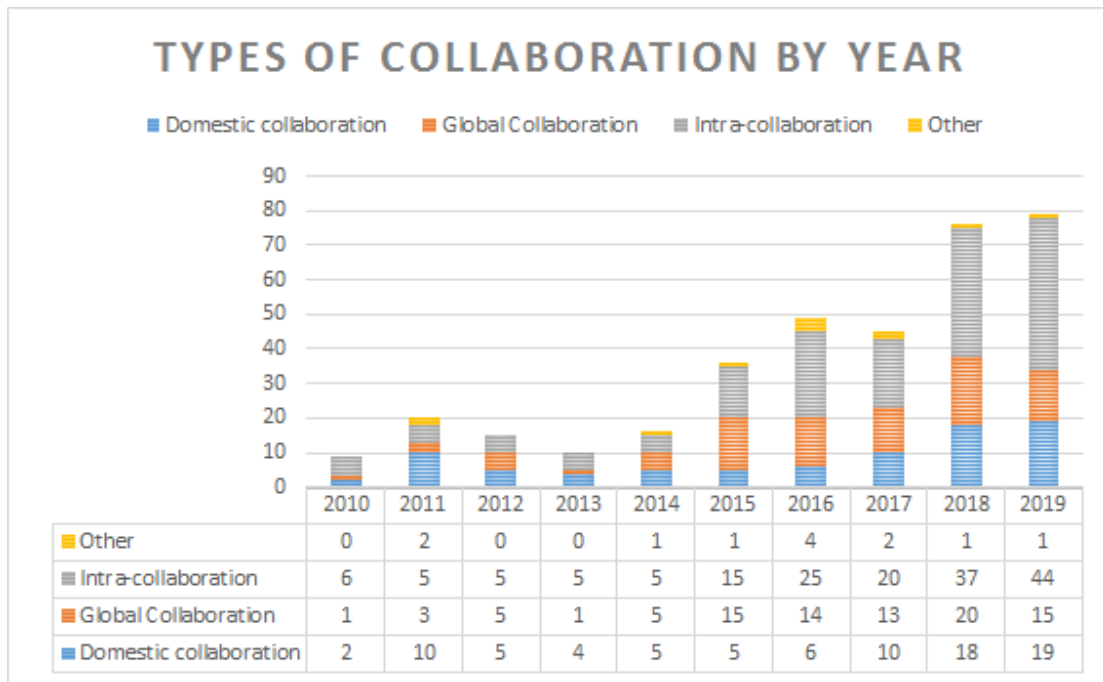
Chart 4.8: Types of Collaboration on P2P Lending Publication over the past ten years



Source: Develop for the research.

According to chart 4.8, most of the paper published in Scopus database is using Intra-collaboration (47%) means that the authors are more prefer to have collaboration with people within the same institution to complete the research articles on P2P lending. The second preferred collaboration relationship in P2P lending publication is global collaboration (26%) with authors from different institutions in different countries followed by domestic collaboration (24%) with people from different institution but within the same domestic areas and “other” (3%). The “other” collaboration is another type of collaboration with different parties which is involving collaboration between university, research agency, industry/company, government or even an individual.

Chart 4.9: Types of Collaboration by Year



Source: Develop for the research.

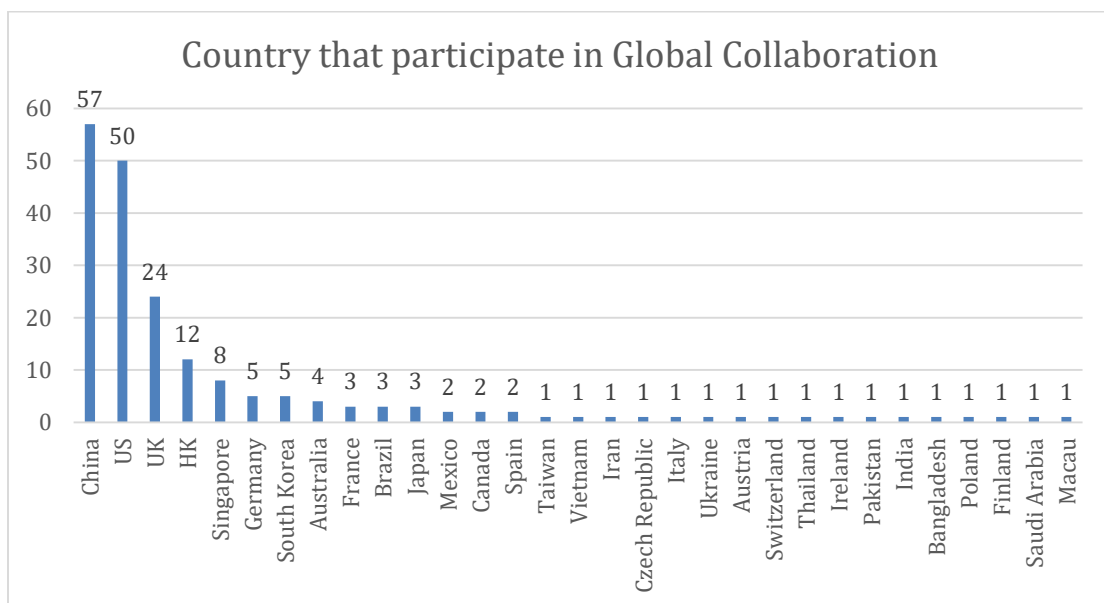
Chart above show that intra-collaboration in P2P lending publication increase gradually from 2010 to 2019. From 2010 to 2014, collaboration within the same institution (intra-collaboration) and outside institution but within the domestic area (domestic collaboration) is favourable. In 2015 is the time that global collaboration picks up but authors in P2P lending are still more prefer to collaborate internally within the same industry. In 2015, intra-collaboration and global collaboration had increased tremendously and maintain slowly until 2019. Throughout the past ten years, collaboration within the same country is more preferable until 2014, global collaboration and same institution collaboration is favourable in 2015 onwards.

From 2010 to 2019, intra-collaboration generates 47% of the total publication with the authors' collaboration. Intra-collaboration is always taken up the highest number in P2P lending research publications since 2010 except 2011 prefer on domestic collaboration.

From 2015, global collaboration became the alternative choice for authors in P2P lending publication.

4.3.4 Global Collaboration by Country

Chart 4.10: Countries that participate in Global Collaboration



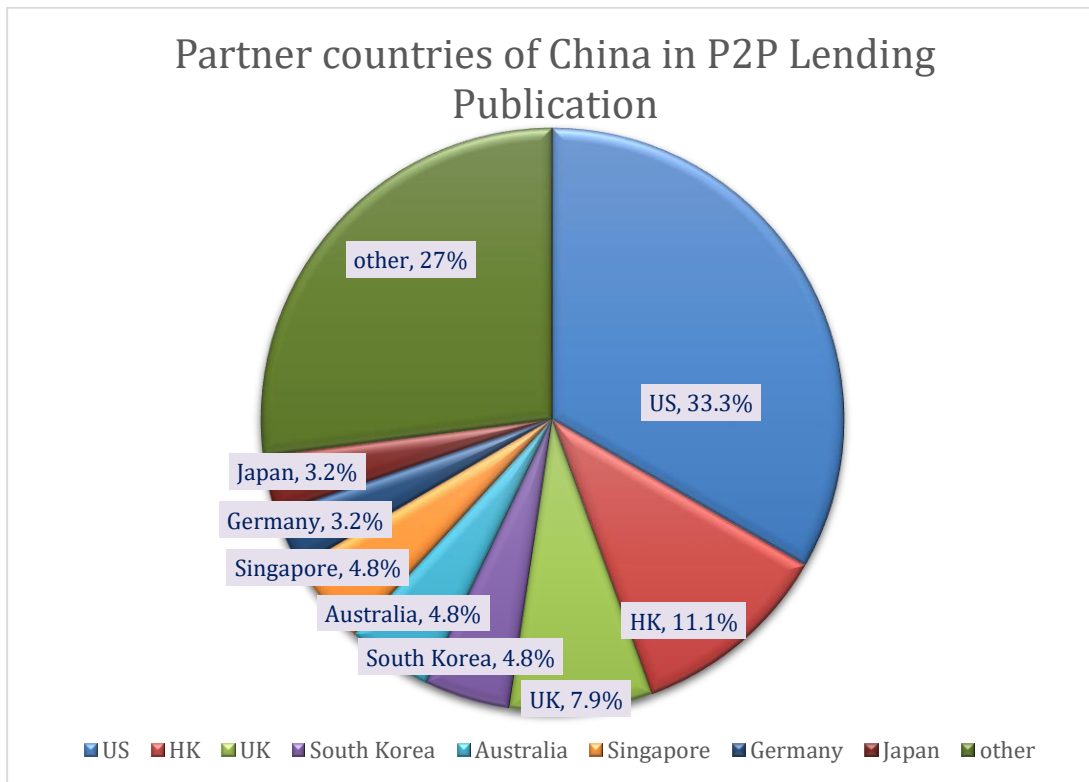
Source: Develop for the research.

There are total of 32 countries involve in the global collaboration on the publication of P2P lending from 2010 to 2019 (up to Oct). Chart above show China and US is the leading country in having global collaboration in their research publication. There are 57 of authors are come from China with different publication on P2P lending have global collaboration with other country followed by United States (n=50), United Kingdom (n=24), Hong Kong (n=12), Singapore (n=8), Germany (n=5), South Korea (n=5), Australia (n=4). France, Brazil, Japan have 3 authors in global collaboration on P2P lending publication and country that have 2 authors participate in global collaboration are Mexico, Canada, and Spain. Country that have only 1 author participate in the global collaboration are Taiwan, Vietnam, Iran, Czech Republic, Italy, Ukraine, Austria, Switzerland, Thailand, Ireland, Pakistan, India, Bangladesh, Poland, Finland, Saudi Arabia, and Macau.

In order to identify the most favourable country for people to conduct global collaboration in P2P lending publication, China will act as a representative country or centre point to find the country they often collaborate with. This is because China are the leading country of research publication on P2P lending.

4.3.5 Global Collaboration of China

Chart 4.11 Partner countries of China in P2P Lending Publication



Source: Develop for the research.

In the total P2P lending publication from 2010 up to Oct 2019, China's leading partners are United States (33.3%), followed by Hong Kong (11.1%), United Kingdom (7.9%), South Korea (4.8%), Australia (4.8%), Singapore (4.8%), Germany and Japan (3.2%) are the top collaboration country that have joint publication with China. The other countries such as Thailand, Canada, Ireland, Pakistan, France, India, Bangladesh, Poland, Finland, Mexico ,Saudi Arabia ,Macau ,Spain ,Japan, Canada and Austria is only occupy 1.6% from the total country that have joint publication with China.

4.4 Conclusion

All the analyses carried out were discussed extensively in this chapter. This chapter involved times series analysis, citation analysis, productivity analysis and collaboration analysis. Those analysis is to identify the emerging research trend on P2P lending and provide a clearer picture for future research topic. A further discussion on those finding will be carried out in the following chapter.

CHAPTER 5: DISCUSSION, CONCLUSION AND IMPLICATIONS

5.0 Introduction

This chapter will illustrate the overall study with research background, research objectives and method for conducting the research analysis. In addition, it also includes a detailed discussion of the three analyzes from the previous chapter, accompanied by the drawbacks of this study with some suggestions to be made in order to carry out a more accurate analysis in the future.

5.1 Discussion of Major Study/Findings

As mentioned in chapter 1, there are 3 research objectives in conducting this study.

5.1.1 Identify the emerging topic and trend of scientific publications on P2P lending.

5.1.1.1 Publication by Year

By analyzing the publication by year, it can reveal the research trend on P2P lending for the past ten years. The publication on P2P lending is continuing to grow since 2010. At the end of 2019, scientific publications on P2P lending will reach 112 papers with an average of 9 papers published in a month since the current publication had reach 83 papers up to 24 Oct 2019. According to the Internet Network Information Center's data in China on 30 June 2014, due to the advancement of science and technology, Internet technology has become a trend and the number of Internet users in China has reached 532 million. This also made the financial information spread very quickly because on the low cost provided by Internet (Wen, Zhang, & Wu, 2017). Therefore, the Internet users increase and the trend is going toward online platform lending can explained why research publication on P2P Lending increase tremendously since 2014 and reach the peak at 2016 with total of 69 papers. The journal publication on P2P lending drop in 2017 and continue grow until now.

By highlighting the incident happen between 2016 and 2018 which made the dramatic rise and fall on P2P lending, China can show a clearer picture as it is the world's largest P2P lending market that are leading the trend. The publication on P2P lending reach the peak in 2016 because 2015 is the year which 25% of P2P lending platform in China facing difficulty in returning

capital to investors. This posted a negative effect on public trust toward the P2P lending platform. In order to recapture the trust from public, China had made a series of announcement since mid-2015 and set the first regulatory instrument for online lending in August 2016 “Interim Measures on Administration of Business Activities of Online Lending Information Intermediaries”. Violation on the regulation can lead to administrative or even criminal penalties. A custody accounts with commercial banks is require for all platform in China in order to reduce the risks that platform owners abscond with funds (Liu, 2018). In 2017, P2P lending market in China facing an transformation stage which it is not in a scharcondition as most of the online lending platform are trying to adapt and cope with the new regulation practice in August 2016. However, China’s first online lending platform, PPDAl Group had successfully enter into the New York Stock Exchange in late 2017. In 2018, P2P lending market in China revive as the professor of law at the Chinese University of Hong Kong, Robin Hui Huang stated that China have 56% of internet penetration rate in 2018, huge supply of funds from investors and many of SMEs company are not applicable for the existing bank loan. According to Provincial government agencies, P2P lending platform in China need to be officially register latest by June 2018 (Liu, 2018). Therefore, P2P lending publication after June 2018 are predict to increase as people will be curios on the progress and achievement of P2P market under the new regulation guidance.

5.1.1.2 Publication by Document Types

The review on the publication of P2P lending by document types can give an idea toward the researcher on the publication of P2P lending is usually on which document types and provide an suggestion on their future publication on P2P lending. P2P lending publication usually exists in articles and conferences papers that contribute nearly 85% among the total papers published from 2010 to 2019. The number of conferences papers and articles are increase steadily since 2010, drop little in 2017 and recapture back to normal in 2018. This is because lending market experience a growth in 2017, with 3 billion amount of loans which double the amount of loan in 2016 (“2017 Recap: Marketplace lending movement, New Highs in Securitization volumes, Big Players Enter P2P space”, 2018). A creation of a new journals is reflecting a scientific specialization that cover narrower and specialize topic from the existing broad journals. According to Kuhn (1970), a growth of specialized journal publication represents an improvement in scientific thinking. He also stated that formation of a specialize journals with new development of specialize society and role in the curriculum for the new concepts shows adoption of new science’s movement.

5.1.1.3 Publication by Subject Area

By analyzing the subject area, researcher able to spot the ideal area of study in P2P lending. Among all P2P lending publications, 29% of them are under computer science subject that calculating the risk involve in the project and the formation of new calculations to identify the credibility of borrowers. According to School of Nottingham, computer science is learning how the computer and computer system work. It involves store and process of information in computer and how computer interact with people. For example, numerical analysis, networks, security, database systems, software engineering and human computer interaction. Among all the P2P lending publication within 2010 to 2019, most of the paper are investigate on the the risk, credit score with mathematic calculation such as algorithm to identify the total risk involve in each of the investment project which most of the people are concern about.

5.1.1.4 Publication by Keyword

The frequency of a word appears in different journals or articles determine the current trend of research on a particular topic. The higher the appearance of an author keyword in different article will lead the trend of research in particular period. The keyword will analyze in ten-year basis from 2010 to 2019 and by time series basis on each year. This can show the big picture on P2P lending research trend over the time. From the keyword analysis, publication on “risk”, “finance”, “credit” is the top 3 topics of scientific publication in P2P lending throughout the ten decades in Scopus. In consumer perception, P2P lending is still a risky finance alternative that lack of consumer confidence in this time.

When there is a solution on reducing the risk of P2P lending, it might be an official finance alternative for people in the world. The “risk” topic on P2P lending had the opportunity to grow further as shown in chapter 4 that it is a sudden pick up topic since 2018 and up to Oct 2019, it had already higher number of publication compare to 2018.

In 2015, research on crowdfunding had started and people are concerning on the risk arise on P2P lending. This is due to the reason that P2P lending in China happen a serious issue on P2P lending market. Investors are unable to withdraw their money from Ezubao platform which is the China biggest Ponzi scheme ever in Chinese history involving \$7.6 billion and 900,000 investors (“The Future of P2P Lending in China: Is There a Time After the Great Cleanup?”, 2019). After that, Chinese authorities started to tighten the regulation in P2P lending industry in order to reduce the financial risk and fraud cases. This gave a significant impact on P2P market. It conducts 10 measures in P2P industry to secure the social and stability of finance with China’s social credit rating system that record the creditability of borrowers and so on. Therefore, research on P2P lending are more focusing on the fintech, credit scoring system and risk because it already exists a set of regulation that monitor the P2P industry.

5.1.1.5 Publication by Continent

Among the 5 continents, Asia contributes 52% of publication on P2P lending followed by America (24.5%) that drove from the market size and lending platform available. This is because China has world's largest P2P lending market (also known as marketplace lending or crowdlending) and currently has over 2,600 platforms nationwide, with the total market size of US\$ 67 billion approximately (show in figure 4.1). In 2015, Zhou Xiaochuan (the former Governor of the People's Bank of China) and Li Keqiang (Premier of China) both support the innovation of financial in China toward P2P lending. As the increasing middle-class skepticism on the investment project on China's volatile stock markets or speculative real estate markets, P2P lending in China is growing in a very good condition. ("The Future of P2P Lending in China: Is There a Time After the Great Cleanup?", 2019).

However, United States is the second largest markets in P2P lending because it entering the market initially is to provide alternative financial solution toward poor countries, reduce the bad experience from bank due to the lack accessibility and long waiting time in the bank.

Figure 5.1 P2P Lending Platform around the World



Source: Kunlanit. (2018, August 3). *What is Peer-to-Peer Lending*. Peer Power's Blog. Retrieved from <https://www.peerpower.co.th/blog/en/peerpower/peer-to-peer-lending/>.

5.1.1.5 Publication by Countries

By analyzing the publication by country, it able to show the which country that participate more in the P2P lending research and thus further study on the driver that made the publication on the area of P2P lending high. This can provide a comprehensive information for researcher on the opportunity of their future study on P2P lending.

China is the top country to participate in P2P lending publication and the second countries is the United States. . This is due to the reason that China and the

United States had already exist very organized P2P lending platform. According to (Song, Chen, Zhou and Wu, 2018) they compare Peer-to-Peer Online Lending Platforms in China with the largest online platform in United States (Lending Club) as they faced difficulties in getting a detailed information of the entire P2P industry of any other countries. This can explain why most of the P2P lending research publication is basically done in US and China.

5.1.1.6 Publication by Journals

Journal address the particular research topic or limited research field of a scientific publication. The primary objective of a journal will affect the choices of research topic publications. For example, Electronic Commerce Research and Applications aims to deliver sustainable knowledge for the rapidly changing e-commerce environment Therefore, they are the leading journal that have major contribution on P2P lending research within 2010 to 2019. Besides, strategies adapt by a journal will also affect the number of paper published. For example, ACM International Conference Proceeding Series (ICPS) program is offering low cost alternatives for authors in scientific publication. It is the second highest on P2P lending publication.

5.1.1.7 Publication by Publisher

Publisher is playing a very important role in the publication of scientific journal. They are the person who make decision on the types of content of their publication and offering it to their audience (Linton, 2016). Therefore, top publisher under P2P lending publication is the one who provide huge support and they are quite concerning on the P2P lending research which aiming for delivery the latest financing information toward public.

From the analysis in chapter 4, Elsevier is the top publisher among all papers publish under the Scopus database from 2010 to 2019 as it provides better service compared to other publishers. According to Elsevier, they will publish the articles to ScienceDirect and Scopus and reach 15 over million people around the world. They also have a organize monitoring system for authors to track and analyse the online activity of your article with Altimetric data. Besides, Elsevier also provide peer review rating system and with enhance the improvement of manuscript and research with suggestion from expert. This may be the reason that Elsevier is the main choices of article publication. Therefore, Elsevier is a good choice of publisher that are interested in producing P2P lending research publication.

5.1.1.8 Publication by Institutions

This analysis can help researcher to identify the leader among institution in the P2P lending publication. Through identifying the top institution in the P2P lending publication, researcher may consider to collaborate with some of these institution or get some advice or carry out their survey in those institution as they have more comprehensive knowledge regarding toward the P2P lending compare to other institution.

Southwestern University of Finance and Economics is the leading institution that support in P2P lending publication. It named itself as a "top university specialized in finance, economics and business" and "known for its entrepreneurial character" since 1985. It ranked 6th in the applied economics, 12th in management and 13th in theoretical economics in the Ministry of Education rankings in 2019. Since 2010, it is the host of the Chinese Household Finance Survey and it is the home for 26 research centres and six thinktanks. Therefore, the P2P lending publication is always leading the other institution.

Peking University in Beijing, China is a leading university of research in Beijing, China. It is also one of the member in the elite C9 League of Chinese universities. According to The World University Rankings (n.d), Peking University often ranked in the top higher education institution among the China institution.

5.1.2 Determine the Top Publication that Support Scientific Publication on P2P Lending.

5.1.2.1 Top Cited Journal Articles

Top cited journal able to provide an overview on the most “influence” and concern topic on P2P lending among the researcher. This can give a direction on the future research topic under P2P lending without carrying research that are not significant to the P2P market. From the top cited journal articles, the preferable journal used by the top cited paper can also be reviewed.

The leading or also known as “quality” papers published on P2P lending is on management science. There is a total of 6 papers in the top 20 cited journals within the year 2010 to 2019 is published in 2015 which can consider as “quality publication year”. From the top 20 cited articles, the topic is surrounded by the word of “herding behavior”, “bias”, “discrimination” and “trust”. The average of total papers publish under P2P lending in the Scopus database throughout the decades is at an average of 9.3times while the average citation of the top 20 cited journals is at 122.4 times. This shows a huge variation among the top-cited and the lowest cited papers in P2P lending publication. Therefore, the topic listed in top 20 able to provide a clear direction for on the interest topic in the field of P2P lending.

5.1.3 Investigates the pattern of co-authorship and research collaboration on the topic of P2P lending

5.1.3.1 Top Productive Authors

A “productive” author can be known as an author that have a lot of publication on P2P lending in this study. The word productive is used because they have made a significant contribution on the P2P lending research publication. However, it is only limit to the scientific publication of P2P lending between 2010 to Oct 2019 in Scopus database.

The most productive authors involved in P2P lending research publication are Chen, Dongyu from Soochow University, Suzhou, China. He is good in Computer Science, Business, Management and Accounting, Engineering, Decision Sciences Economics, Econometrics and Finance, Social Sciences and Psychology He had done 13 publication for the past ten years from 2010 to 2019 and he also one of the high cited paper with 77 times citation on the paper that published in 2015 entitled “Friendships in online peer-to-peer lending: Pipes, prisms, and relational herding”. His research is always kept up with the current trend, he papers included the comparison of P2P lending market between China and US, online lending intention, topic of trust under P2P platform, and gender and appearance discrimination study in judging borrowers’ creditability.

Lin, Zhangxi is ranked as 2nd authors that contribute the most toward P2P lending journal publication with total of 7 papers published within 2010 to 2019. He is more particular in Computer Science, Business, Management and Accounting, Engineering, Decision Sciences, Social Sciences, Mathematics Economics, Econometrics and Finance, Arts and Humanities, Psychology Earth and Planetary Sciences. His study is more focus on the herd behavior, social media, social capital and trust that affecting P2P lending. Herd behavior is a behavior of individual that always follow the crowd without a centralize direction.

Lee Bun is ranked at 3rd productive authors in P2P lending publication. He is main at the area of Physics and Astronomy, Materials Science, Engineering and Computer Science. The 6 papers of *Lee,B* regarding on P2P lending is about human behavior and perception toward P2P lending activities.

5.1.3.2 Types of Authorship

By analysing the preferable types of authorship using in P2P lending throughout the past ten years, this provide an advice for the future researcher on deciding their choice of authorship on P2P lending publication.

In the research publication on P2P lending, author collaboration is always the most preferable relationship throughout the past ten years. Single authorship reaches the highest and started to decline at 2017 which supported by Garsten et al's (2015) that stated that single author are currently an exterminated race and they are encouraging people in scientific community to complete the

research in a solo basis. They claim that single authorship able to create more quality paper with more create though and opinion without compromising. However, Hartley and Cabanac (2017) stated that author collaboration can gather different skill and knowledge from each of the people in a research.

5.1.3.3 Types of Collaboration

There are 3 different types of collaboration such as Intra-collaboration, Inter-collaboration (domestic/local collaboration) and International collaboration (global collaboration). By determining the types of collaboration mostly adopt in the publication of P2P lending research, researcher able to understand the most beneficial types of collaboration in the P2P lending study.

Between 2010 and 2014, Intra-collaboration and domestic collaboration is often used in P2P lending publication; while in 2015 to 2019, intra collaboration and global collaboration is often used by researcher.

In 2015 is the time that global collaboration started to picks up but authors in P2P lending are still more prefer to collaborate internally within the same industry as it is much easier to conduct the research without the barrier such as cultural differences on working environment, distance and language that may lead to misunderstanding. There are also disadvantage in conducting collaboration such as high cost of collaboration, incidence of group think, roles, responsibility that are possible to have ambiguous and extra time taken for decision making (Nataliajones, 2018). When collaborate with different institution may arise conflict of interest because of the cultural differences with different philosophies that may clash with each other (George, 2019).

5.1.3.3 Global Collaboration of China

Throughout the past ten years, there are 32 country that had participated in global collaboration on the publication of P2P lending. China is the leading country that had the highest publication among the country that had involve in the international collaboration. Therefore, this study also further analyze the preferable country that China (the top publication country) are more frequent to collaborate.

The result show that China is the country that bringing global collaboration and they are more prefer to collaborate with those develop countries such as US, UK, Japan, Germany, Australia and the 3 of the “Four Asian Tiger” which is Hong Kong, South Korea, and Singapore. These 4 Asian countries have developed into a high-income economic country which they have competitive advantage in specialization of international financial centres and manufacturing electronic components and devices (Vallanti, 2015). A research had support the collaboration between developed and developing countries can improve information sharing and heightened learning (Syed et al., 2012).

5.2 Implications of the Study

This research provides an insight on the publication of P2P lending topic from time to time and made a prediction on the future movement of research publication on P2P lending. According to chapter 4, there is a potential in P2P lending publication as the result of P2P lending from the past ten years show a positive increase. Country that have limited study on this area can conduct this research with country that had experiences such as China and United States to get some advice by leveraging the knowledge and market experiences on P2P lending.

Besides, this research also provide an overview on the collaboration pattern and trend overtime on P2P lending publication. The result on the authorship of the P2P lending publication show P2P lending publication had conduct more in the form of authors collaboration compare to single authorship. Intra-collaboration and Global collaboration (International collaboration) is more preferable in P2P lending study that prove from the past decades data that retrieve from Scopus database Therefore, researcher that are interested in this topic could consider to have a collaboration relationship in the study of P2P lending.

Furthermore, the study on high cited papers also give some useful information on the possible relationship or connection between the top 20 journal articles. Researcher able to understand the level of impact of an article and get “quality” articles from the database as research references on the particular area of the topic. The output of chapter 4 show there are higher cited on the topic of “herding behaviour”, “trust” and “risk” among the top 20 cited papers throughout the ten years article from 2010 to 2019. The choice of journal publish that most preferable among the top cited articles are Management Science, Electronic Commerce Research and Applications, and MIS Quarterly: Management Information Systems.

This study does not only benefit to the researcher for getting a direction on their future research, but it also brings significant information toward a publisher, an institution on deciding the area of their publication. This study shows an opportunity of carrying P2P lending-related topics in the future as it is an emerging topic that grows rapidly recently from countries with largest P2P lending market such as China, US, UK toward the other developed country such as Australia, South Korea.

5.3 Limitations of the Study

In this study of scientific publication on P2P lending, there are some limitations throughout the research process including the formation of research objectives, choice of sample and method of data analysis.

In the P2P lending industry, there is limited information available. As it is an emerging topic that carried up only a few years ago and in Malaysia, no similar study had done previously. The information on P2P market is only boomed in China and the United States which is the largest P2P lending market in the world. As the geographical areas and cultural differences, the issue stated in their geographical market may not be an issue for other areas.

In this study, the Scopus database is the only source for data analysis. This is also one of the limitations that may affect the research output. Scopus may not cover all journal articles available which may cause the analysis not accurate on the “top author”, “top institution”, “top publisher” and so on. Some of the authors may not publish their

research papers in Scopus. Therefore, the analysis may not represent the whole picture for publication of P2P lending around the world.

In addition, due to limited language proficiency, the data collected in Scopus only limited to the English language. This also brings a huge impact on the final analysis result as there are many other P2P lending publications in different languages such as Portuguese, French, German, Russian and Spanish. To avoid misinterpretation in this research, only research papers in the English language are collected. This may be unfair for some researcher that publish their paper, not in the English language.

Last but not least, the research objectives of this study may not be useful for the researcher. Lack of expertise in P2P lending publication and the fast-changing in e-commerce environment will lead to different perceptions on the topic of P2P lending study. On the other hand, the secondary data analysis may not be the best way to conduct this research as there will exist the variation of data on different databases such as the number of citations, author's affiliation and so on.

5.4 Recommendations for Future Research

There is some recommendation for a future researcher based on the limitation of this study mentioned above. First, data collection is recommended to be done within a few

databases which ensure most of the P2P lending publication is covered in the study. However, the collection of duplicate research papers should be taken into consideration.

Besides, scientific publications in different languages should be included in the study. As there is much other publication that did not have English language version. However, make sure the accuracy of interpretation in different languages and no duplicate of the same studies that exist in different language versions. Therefore, the reliability of the result will increase.

A short interview or research collaboration with the expertise in the P2P lending field is recommended in order to get the most contributed research in the future. An advice from expertise may bring the research in the right path and keep up with the latest trend on the P2P markets. Therefore, the formation of the research objective may suit the current interest issue for authors around the world.

For future research, different methods of data analysis and data collection can be considered. For example, primary data collection such as online and offline questionnaires, face-to-face interview session and observation in order to get more precise information from all previous P2P lending researcher.

5.5 Conclusion

This paper reviewed the global trends of peer-to-peer (P2P) lending through a bibliometric study. In chapter 1, a research background had included the reason why

the P2P lending concept exists and the largest P2P platform around the world. In chapter 2, the process flow of the P2P lending platform is mentioned. Chapter 3,4 and 5 will describe the methodology, data analysis and discussion, implication and conclusion. In brief, this study is reviewing the peer research papers (secondary data) as the data collection. There are total of 450 papers published in Scopus from 2010 to 2019 (up to Oct) under Peer to Peer Lending. It covers variety of document types such as articles, conferences papers, book, review and so on. A descriptive and quantitative analysis is used in this study on the trend analysis, citation analysis, productive analysis and co-authorship analysis.

Throughout this chapter, an overview of the study is provided. A brief discussion of major findings is presented that includes the trend of scientific publication on P2P lending from past decades, top-cited journal articles in P2P lending and pattern of co-authorship and research collaboration. Besides, the limitation of this study is listed with some recommendations for the future researchers that interested to conduct a P2P lending study and lastly a short conclusion for the overall study.

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