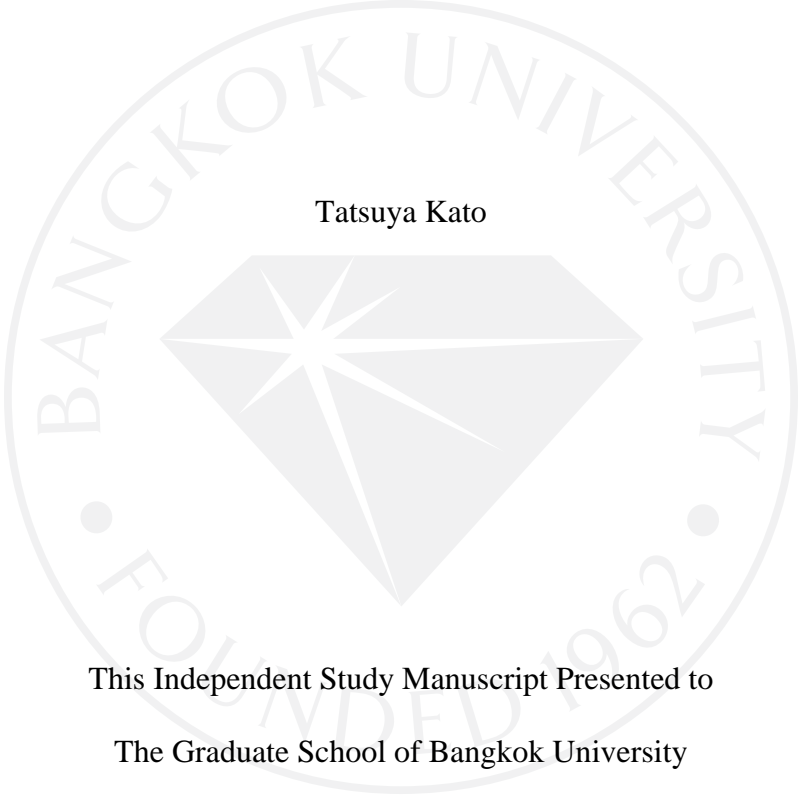


RESEARCH EFFICIENCY OF SETTLEMENT TRANSACTIONS ON CASH
MANAGEMENT SYSTEM AND ITS CONSTRUCTION FOR SOPHISTICATION OF
LIQUIDITY MANAGEMENT



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LIQUIDITY MANAGEMENT

Tatsuya Kato



This Independent Study Manuscript Presented to
The Graduate School of Bangkok University
in Partial Fulfillment
of the Requirements for the Degree
Master of Business Administration

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the Graduate School
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MANAGEMENT SYSTEM AND ITS CONSTRUCTION FOR
SOPHISTICATION OF LIQUIDITY MANAGEMENT

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Research Efficiency of Settlement Transactions on Cash Management System and Its

Construction for Sophistication of Liquidity Management (64 pp.)

Advisor: Rapeesorn Fuangkasem, Ph.D.

ABSTRACT

According to an investigation to a business company, the financial executive of any company have relatively low level of understanding about cash management system (CMS), particularly cash balance and risk exposure. Cash management could create risk and be a problem for a company in this era of cross country business environment. This concern has been continually highlighted in recent years. Even large companies which advanced of global financial operations generally have 80% visibility of their funds (Kyriba company survey). However, there is a 20% room to be improved for invisible funds in emerging countries and volatile currencies, which generate the large amount of risk. To prevent an increasing of cash management inefficiency, companies should pay more attention to the visibility of corporate funds management. The purpose of this paper is to examine the importance and benefit of CMS.

Keywords: Cash management system, TC license, IHQ and IBC, GCMS, domestic cash pooling, cross border cash pooling

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Tatsuya Kato

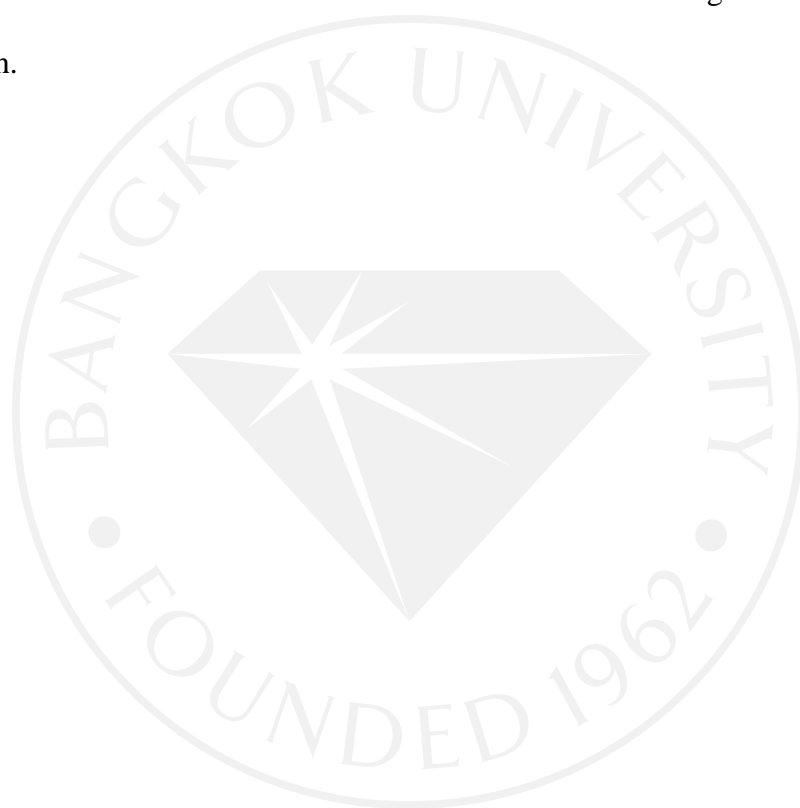


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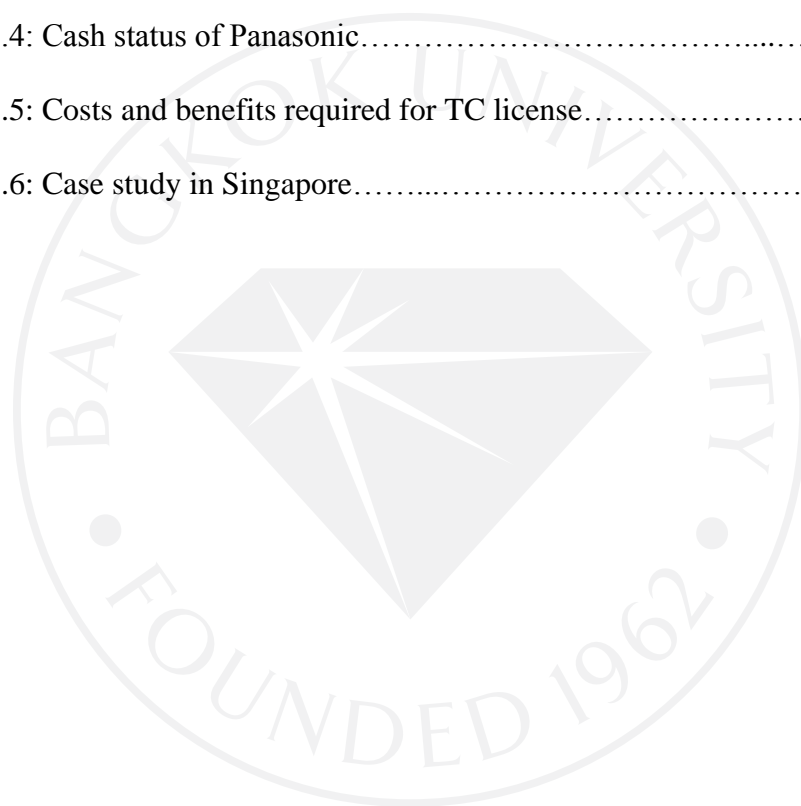
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CHAPTER 1

INTRODUCTION

This chapter 1 explains introduction as followings from background, statement of problem, purposes of study, importance of study, scope of study, focus and limitation. And at last this chapter closes outline of research.

1.1. Background

The financial executive who is at each company can't understand and manage about cash management. This thing is big risk and is an important problem for a company. Even big companies which advanced of global financial operations generally have 80% visibility of their funds only to be realized. Ordinary companies also think that the rate of visualization are lower than big companies and a big problem. So cash management system is very important for each company.

Not long ago, the finance department's priority was to increase profits and bring financial processes into compliance. In the day-to-day operations, the transaction process was mainly emphasized, and the purpose was to automate these processes. In addition to focusing on the efficiency of day-to-day operations, today's finance personnel face numerous risks and are also required to play a very strategic role in the company's long-term business plan. Corporate management is beginning

to pay more attention to the fact that financial functions have the potential to reduce
risk because of



their expertise. Its expertise is to find safe and liquid investment destinations, to assess the risks and returns in M & A, and to the endless pursuit of liquidity.

The term cash management system does not have a uniform definition. At Japanese banks, CMS (Cash Management System) is mainly used for cash pooling, group loan management, netting, payment agency, etc. to streamline settlement transactions between group companies for domestic business companies and enhance liquidity management. It is often said that similar solutions for cross-border trading are called GCMS (Global Cash Management System). On the other hand, banks in Europe and the United States are often referred to as cash management without distinguishing domestically and internationally including settlement transactions and investment procurement transactions.

1.2. Statement of Problem

However, many financial operations are not optimized to support strategic decision-making processes. Today's financiers already understand what it takes to make a strategic contribution, that is, the need for better visibility and control in global cash management. However, it is difficult to actually do it.

1.3. Purposes of Study

The first step in business optimization is to benchmark current national and international resources in people, processes and technologies.

This benchmarking work will, to some extent, focus on the finance department's workflow and system to identify opportunities to improve efficiency and improve visibility across the company's financial network.

For example, an opportunity to reduce costs and improve efficiency by consolidating trading banks and reducing the number of main banks and quasi-main banks in each region may become apparent from this evaluation.

In addition, when considering long-term overseas business development plans, a broad evaluation should be conducted to determine whether the financial network is ready for global business. For this purpose, the following important questions must be identified.

1.4. Importance of study

- How is fund management done
- Are financial transactions mainly conducted domestically or cross-border?
- What is the current banking policy when viewed globally?
- Is the company's partner a global partner or a local partner?
- Is the current trading bank network optimized to cope with the expansion to other regions of the world?
- Where is the financial staff usually engaged in work?
- Whether specific tasks require staff on site or can the process be managed from another location?

The above should be reviewed in order to make a realistic assessment of the investments needed to optimize the current business and organizational strategic needs.

1.5. Scope of study

In order to bring the next generation of strategic analysis to business management, finance personnel need complete visibility of all data in the financial network. However, in many companies, achieving this level of visualization has proven difficult. Data visualization has for many years relied on the degree of consolidation of multiple host systems managed by an overworked IT department with few other resources available. However, by incorporating the so-called ZERO FOOTPRINT SAAS solution, which does not depend on the operating system or PC, into the finance department, it is possible to remove the internal load and impediment to improvement. With the introduction of the SAAS financial workstation, the finance department is now able to connect internal staff and external business partners in a very short time and, more importantly, at a small cost. By reducing costs and removing internal hurdles such as having to involve IT, financiers now have more control over their financial management skills. There are many strong business improvements, especially in global cash management. For example, a company is looking for a staff who can work locally in Thailand, but it turns out that there is an ideal candidate in Singapore to carry out its work. In the past it was extremely difficult to secure the financial staff away from where the company was doing the management work. Nowadays, an appropriate system that can be used on a web-based basis enables such personnel to effectively carry out business operations even in the

corporate headquarters management department. This is effective not only for staffing but also for tax measures.

1.6. Focus and limitation

Global Funding Visualization:

Every organization wants to make daily, global balance checks on all banking transactions and accounts. One way to implement this visualization was to have accounting personnel in each region post banking transaction data to a spreadsheet, but with the help of technology, a simpler, more cost effective way to choose It has become SWIFT's new technology enables timely, centralized management of global balances consisting of transactions, currencies and entities in a single view. It is not uncommon for global cash management activities to be launched as a distributed function tied to the business structure of a company. This is especially common when companies enter new markets with new services. Even if the finance department itself is located in one place, the staff who are involved in the money management process and support this may be distributed around the world. Because these are inefficient, as the business expands, centralized financial arrangements will be considered. While the benefits of centralizing the financial staff at one or a few locations are clear, the technology adoption solution can achieve centralized control of information with less cost and business impact.

1.7. Outline of Research

The information on this research theme is information obtained through the Internet, global banks, accounting firms, BOI, etc., and it is credible. The scope of cash management in a company is wide-ranging, yet not fully established operations, and many challenges exist. Further penetration is necessary for corporate governance. Furthermore, in the internationalization of companies, money management is a very important issue for companies, and I think that it is necessary to work seriously and introduce an optimal money management system. In addition, the following four points become possible by introducing a cash management system.

① Visualization and Management Improvement:

Companies that optimize global banking and manage all activities on a common platform can achieve better visibility and control in managing international operations.

② Improving liquidity:

Processes are streamlined by centralization. Greater transparency through the central dashboard gives the finance department the visibility they need to find new ways to optimize and secure liquidity.

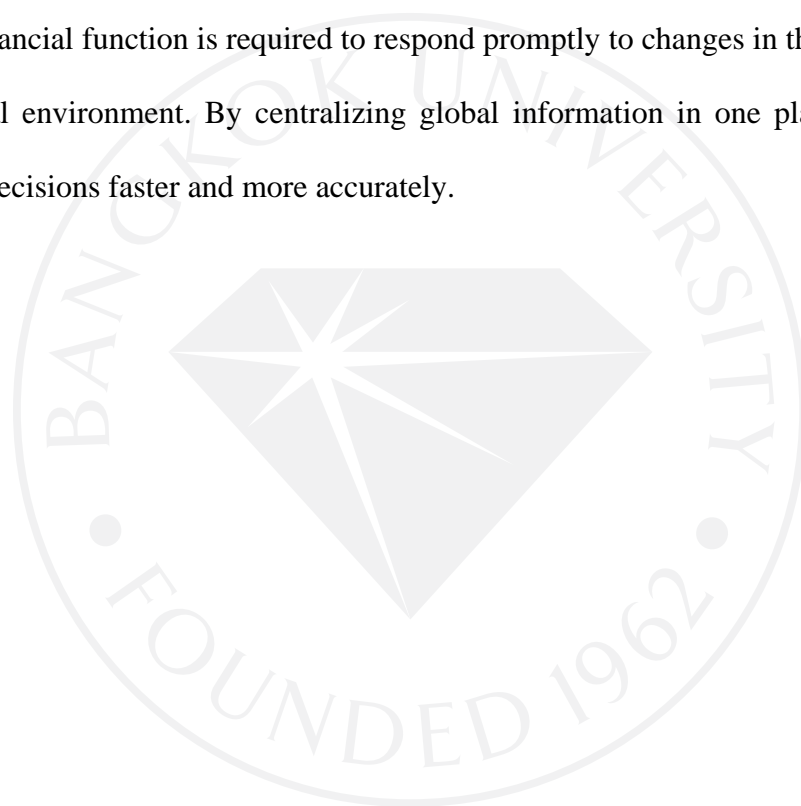
③ Realization of Optimal Risk Management:

Today's finance professionals are required to manage a wide range of risk, not only from pre-existing risks such as currency risks, but also those that have recently been

addressed such as trading partners, operations and supply chain risks. For finance officers, the inability to fully forecast cash flow is the biggest risk they face.

④ Quick response

As seen in the Eurozone today, the global market is changing at an unprecedented rate. The financial function is required to respond promptly to changes in the economic and political environment. By centralizing global information in one platform, you can make decisions faster and more accurately.



CHAPTER 2

LITERATURE REVIEW

This chapter 2 explains a literature review of research the efficiency of settlement transactions on cash management system and its construction for sophistication of liquidity management.

This chapter begins with definition of cash management system, bank list of CMS, TC license in Thailand, company list of TC license, overview of the international business center and at last this chapter includes a conclusion.

2.1 Definition of cash management system

Cash management refers to a broad area of finance involving the collection, handling, and usage of cash. It involves assessing market liquidity, cash flow, and investments. In banking, cash management, or treasury management, is a marketing term for certain services related to cash flow offered primarily to larger business customers. It may be used to describe all bank accounts (such as checking accounts) provided to businesses of a certain size, but it is more often used to describe specific services such as cash concentration, zero balance accounting, and clearing house

facilities. Sometimes, private banking customers are given cash management services. Financial instruments involved in cash management include money market funds, treasury bills, and certificates of deposit.

Common services:

The following is a list of services generally offered by banks and utilized by larger businesses and corporations.

Account reconciliation:

Balancing a cheque book can be a difficult process for a very large business, since it issues so many cheques it can take a lot of human monitoring to understand which cheques have not cleared and therefore what the company's true balance is. To address this, banks have developed a system which allows companies to upload a list of all the checks that they issue on a daily basis, so that at the end of the month the bank statement will show not only which checks have cleared, but also which have not. More recently, banks have used this system to prevent checks from being fraudulently cashed if they are not on the list, a process known as positive pay.

Advanced web services:

Most banks have an Internet-based system which is more advanced than the one available to consumers. This enables managers to create and authorize special internal logon credentials, allowing employees to send wires and access other cash management features normally not found on the consumer web site. Armored car services/cash collection large retailers who collect a great deal of cash may have the

bank pick this cash up via an armored car company, instead of asking its employees to deposit the cash.

Clearing house:

Usually offered by the cash management division of a bank. The clearing house is an electronic system used to transfer funds between banks. Companies use this to pay others, especially employees (this is how direct deposit works). Certain companies also use it to collect funds from customers (this is generally how automatic payment plans work). This system is criticized by some consumer advocacy groups, because under this system banks assume that the company initiating the debit is correct until proven otherwise.

Balance reporting:

Corporate clients who actively manage their cash balances usually subscribe to secure web-based reporting of their account and transaction information at their lead bank. These sophisticated compilations of banking activity may include balances in foreign currencies, as well as those at other banks. They include information on cash positions as well as 'float' (e.g., checks in the process of collection). Finally, they offer transaction-specific details on all forms of payment activity, including deposits, checks, wire transfers in and out, ACH (automated clearinghouse debits and credits), investments, etc.

Cash concentration services:

Large or national chain retailers often are in areas where their primary bank does not have branches. Therefore, they open bank accounts at various local banks in

the area. To prevent funds in these accounts from being idle and not earning sufficient interest, many of these companies have an agreement set with their primary bank, whereby their primary bank uses the automated clearing house to electronically "pull" the money from these banks into a single interest-bearing bank account. See also: Cash concentration.

Controlled disbursement:

This is another product offered by banks under Cash Management Services. The bank provides a daily report, typically early in the day, that provides the amount of disbursements that will be charged to the customer's account. This early knowledge of daily funds requirement allows the customer to invest any surplus in intraday investment opportunities, typically money market investments. This is different from delayed disbursements, where payments are issued through a remote branch of a bank and customer is able to delay the payment due to increased float time.

Lockbox—wholesale services:

Often companies (such as utilities) which receive a large number of payments via checks in the mail have the bank set up a post office box for them, open their mail, and deposit any checks found. This is referred to as a "lockbox" service. Lockbox—retail services are for companies with small numbers of payments, sometimes with detailed requirements for processing. This might be a company like a dentist's office or small manufacturing company.

Positive pay:

Positive pay is a service whereby the company electronically shares its check register of all written checks with the bank. The bank therefore will only pay checks listed in that register, with exactly the same specifications as listed in the register (amount, payee, serial number, etc.). This system dramatically reduces check fraud.

Reverse positive pay:

Reverse positive pay is similar to positive pay, but the process is reversed, with the company, not the bank, maintaining the list of checks issued. When checks are presented for payment and clear through the Federal Reserve System, the Federal Reserve prepares a file of the checks' account numbers, serial numbers, and dollar amounts and sends the file to the bank. In reverse positive pay, the bank sends that file to the company, where the company compares the information to its internal records. The company lets the bank know which checks match its internal information, and the bank pays those items. The bank then researches the checks that do not match, corrects any misreads or encoding errors, and determines if any items are fraudulent. The bank pays only "true" exceptions, that is, those that can be reconciled with the company's files.

Sweep accounts:

Sweep accounts are typically offered by the cash management division of a bank. Under this system, excess funds from a company's bank accounts are automatically moved into a money market mutual fund overnight, and then moved back the next morning. This allows them to earn interest overnight. The primary vehicles of sweeps are money market mutual funds and bank deposit products.

Zero balance account:

A zero balance account can be thought of as somewhat of a hack. Companies with large numbers of stores or locations can very often be confused if all those stores are depositing into a single bank account. Traditionally, it would be impossible to know which deposits were from which stores without seeking to view images of those deposits. To help correct this problem, banks developed a system where each store is given their own bank account, but all the money deposited into the individual store accounts are automatically moved or swept into the company's main bank account. This allows the company to look at individual statements for each store. U.S. banks are almost all converting their systems so that companies can tell which store made a particular deposit, even if these deposits are all deposited into a single account. Therefore, zero balance accounting is being used less frequently.

Wire transfer:

A wire transfer is an electronic transfer of funds. Wire transfers can be done by a simple bank account transfer, or by a transfer of cash at a cash office. Bank wire transfers are often the most expedient method for transferring funds between bank accounts. A bank wire transfer is a message to the receiving bank requesting them to effect payment in accordance with the instructions given. The message also includes settlement instructions. The actual wire transfer itself is virtually instantaneous, requiring no longer for transmission than a telephone call.

Automated cash handling:

Automated cash handling is the process of dispensing, counting and tracking cash in a bank, retail, check cashing, payday loan / advance, casino or other business environment through specially designed hardware and software for the purposes of loss prevention, theft deterrence and reducing management time for oversight of cash drawer until operations. In the past, other services have been offered the usefulness of which has diminished with the rise of the Internet. For example, companies could have daily faxes of their most recent transactions or be sent CD-ROMs of images of their cashed checks. Cash management services can be costly but usually the cost to a company is outweighed by the benefits: cost savings, accuracy, efficiencies, etc.

2.2 Bank list of CMS

Among the world's banks, the top 10 best CMS are:

Cash management non-financial institutions survey 2016: Which ICMs do you use most globally?^[1]

Rank by overall volume, published September 2016

2016 ranking	2015 ranking	Name	Score
1	1	 HSBC	11041
2	2	 Citi	7389
3	3	 Deutsche Bank	4238
4	4	 BNP Paribas	3448
5	6	 UniCredit	2192
6	7	 Standard Chartered	1654
7	9	 The Bank of Tokyo-Mitsubishi UFJ	1626
8	5	 Bank of America Merrill Lynch	1475
9	8	 JPMorgan	1397
10	10	 Société Générale	1217

Figure 2.1: Cash management non-financial institutions survey 2016

2.3 TC License in Thailand

In Thailand, in order for companies to conduct CMS, such as inter-company loans and cash pooling, a TC (Treasury Center) license is required with the approval of the Central Bank of Thailand. The Treasury Center is a Thai corporation that does

not engage in financial business and manages foreign currency funds for Thai companies in Thailand and group companies outside Thailand. Qualifications for TC license are as below.

1. Thai corporation not engaged in financial business
2. Companies operating as a financial center (TC) and their group companies must be affiliated companies.
3. Group companies must have the following minimum requirements:
 - Has a group company with services provided by three or more TC in Thailand, Vietnam and neighboring countries, or
 - Having at least two TC group companies in Thailand that have services provided, and having affiliated companies in two or more countries overseas (whether or not the TC provides services)
4. Group companies or holding companies that have sufficient international trade transactions or services.

2.4 Company List of TC License

▪ According to information released by the Central Bank of Thailand, 22 companies have acquired TC licenses as of May 15, 2017. Of the 22 companies, 9 are Japanese companies. Seven companies acquired after relaxation in 2015: Unicharm, Hitachi, Mitsubishi Electric, Yokohama Rubber, Toshiba, Keihin, and Ajinomoto.



Number of JCC registered companies in 2017(1748)
 *9/1748=0.5% only
 For Japanese companies

Japanese company	
No.	Local company name in Thailand
1	Panasonic Treasury Center (Thailand) Co., Ltd.
2	Sony Global Treasury Services (Thailand) Co., Ltd.
3	<u>Uni-Charm</u> (Thailand) Co., Ltd.
4	Hitachi Asia (Thailand) Co., Ltd.
5	<u>Melco</u> Thai Capital Co., Ltd.
6	Yokohama Asia Co., Ltd.
7	Toshiba Asia Pacific (Thailand) Co., Ltd.
8	Keihin Asia Bangkok Co., Ltd.
9	Ajinomoto (Thailand) <u>Co., Ltd.</u>

American and Europe company	
No.	Local company name in Thailand
1	Guardian Industries <u>Nongkhae</u> Co., Ltd.
2	<u>Vinylthai</u> Plc.
3	Nestle ROH (Thailand) Co., Ltd.

Thai company	
No.	Local company name in Thailand
1	Thai Union Group Plc.
2	PTTEP Treasury Center Co., Ltd.
3	Sea-fresh IHQ Co., Ltd.
4	Minor International Plc.
5	<u>Mitrophol</u> Treasury Center Co., Ltd.
6	Home Products Center Plc.
7	Indorama Ventures Global Services Co., Ltd.
8	<u>Thaicom</u> Public Company Limited.
9	<u>Berli Jucker</u> Plc.
10	Thai Beverage Plc.

(Ref.) Bank of Thailand issued May 15,2017.

*From BOT(Bank of Thailand) data

- List of TC license acquisition companies (all 22 companies)

Figure 2.2: List of TC license acquisition companies

*Although many companies do business in Thailand, as mentioned above, only 22 companies have TC licenses in the 2017 survey. Performing TC work in Thailand is a very difficult task because the hurdle is high and it is difficult to operate without expertise.

2.5 Overview of the IHQ and IBC

IHQ (International Head Quarters), which the BOI (Board of Investment) gave as an investment incentive license in 2019, was abolished and changed to IBC (international business center). Many conditions were reviewed by the change. In the past, TC operations could be easily obtained by acquiring an IHQ license, but at present it is not possible to acquire a TC license even if IBC is acquired due to the change in regulations in Thailand.

Companies that want to obtain a TC license need to apply directly to the Central Bank of Thailand, which is costly and time-consuming. Companies that have acquired a TC Business License by the time of the former IHQ can use the previously acquired license, and the company list is as follows.

- As of July 4, 2017 latest, 54 IHQ-acquired Japanese-affiliated companies (as estimated from the BOI registration name). For approval after September 26, 2016, there is no statement of investment amount.

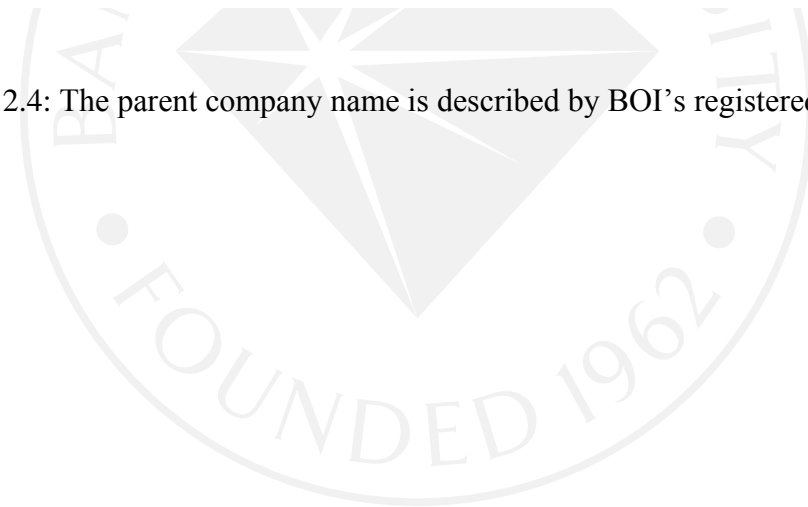
※The parent company name is described by BOI's registered name by original survey.

No.	Authorization acquisition date	Mother company	BOI registration name	Invest (M Baht)	Country of investment
1	2015年3月30日	味の素株式会社	Ajinomoto SEA Regional Headquarters <u>Co., Ltd.</u>	30	日本
2	2015年7月20日	N.A.	Mr. Masayuki Nishida	20	日本
3	2015年10月12日	コベルコ・コンプレッサ株式会社	Kobelco Compressors (Thailand) <u>Co., Ltd.</u>	5	シンガポール・日本
4	2015年10月19日	N.A.	Mr. Choku Matsukawa	10	シンガポール
5	2015年11月9日	東海ゴム工業株式会社	Tokai Rubber Compounding (Thailand) Ltd.	3.8	タイ・日本
6	2015年11月17日	三井金属アクト株式会社	Mitsui Siam Components <u>Co., Ltd.</u>	2.6	日本
7	2015年11月17日	HOYA株式会社	Hoya Optics (Thailand) <u>Co., Ltd.</u>	10	オランダ
8	2015年12月28日	東芝ライフスタイル株式会社	Toshiba Consumer Products (Thailand) <u>Co., Ltd.</u>	3.7	タイ・日本
9	2016年1月11日	日新製鋼株式会社	Nisshin-Jutha Wan Metal <u>Co., Ltd.</u>	3.5	日本
10	2016年1月11日	住友電気工業株式会社	Sumitomo Electric Sintered Components (T) <u>Co., Ltd.</u>	2.7	日本
11	2016年1月18日	三協立山株式会社	Sankyo Tateyama (Thailand) <u>Co., Ltd.</u>	10	日本
12	2016年2月1日	東レ株式会社	Toray Industries (Thailand) <u>Co., Ltd.</u>	10	日本

Figure 2.3: The parent company name is described by BOI's registered name

No.	Authorization acquisition date	Mother company	BOI registration name	Invest (M Baht)	Country of investment
25	2016年7月25日	東陽倉庫株式会社	Toyo Soko (Thailand) Co.,Ltd	10	日本
26	2016年8月8日	株式会社ミクニ	Mikuni (Thailand) Co.,Ltd.	1.2	日本
27	2016年8月22日	株式会社フコク	Siam Fukoku Co.,Ltd.	10	日本
28	2016年9月5日	富士電機株式会社	Fuji Electric Manufacturing (Thailand) Co.,Ltd.	3	日本
29	2016年9月5日	ダイキン工業株式会社	Daikin Industries (Thailand) Co.,Ltd.	12.1	日本
30	2016年9月26日	N.A.	Ms. Aitsuriya Okano	N.A	日本
31	2016年10月10日	株式会社アマダホールディング	Amada Asia Pacific Co.,Ltd.	N.A	日本
32	2016年10月25日	株式会社 樋屋	Tsuchiya (Thailand) Co.,Ltd.	N.A	日本
33	2016年11月14日	三菱日立パワーシステムズ株式会社	Mitsubishi Hitachi Power Systems (Thailand) Co.,Ltd.	N.A	タイ・シンガポール 日本
34	2016年11月21日	三菱電機株式会社	Melco Thai Capital Co.,Ltd.	N.A	日本
35	2016年11月28日	NA.	Mr. Toyoda OYODA YOSHIYUKI	N.A	日本
36	2016年12月6日	白石カルシウムタイランド株式会社	Shirashi Calcium (Thailand) Co.,Ltd.	N.A	タイ・日本

Figure 2.4: The parent company name is described by BOI's registered name



No.	Authorization acquisition date	Mother company	BOI registration name	Invest (M Baht)	Country of investment
13	2016年2月1日	N.A.	Mr. Hideyuki Sato	15	日本
14	2016年2月15日	N.A.	Mr. Hideki Morimoto	4	日本
15	2016年2月23日	株式会社高田工業所	Thai Takada <u>Co.,Ltd.</u>	4	タイ・日本
16	2016年3月7日	株式会社アデランス	World Quality <u>Co.,Ltd.</u>	2.4	タイ・日本
17	2016年3月14日	参天製薬株式会社	Santen (Thailand) <u>Co.,Ltd.</u>	2.1	日本・中国・シンガポール
18	2016年4月4日	YKK AP株式会社	YKK AP (Thailand) <u>Co.,Ltd.</u>	3.8	日本・シンガポール
19	2016年4月18日	TDK株式会社	TDK (Thailand) <u>Co.,Ltd.</u>	1.5	日本
20	2016年5月16日	株式会社ニコン	Nikon (Thailand) <u>Co.,Ltd.</u>	20	日本
21	2016年5月30日	トヨタフィナンシャルサービス株式会社	Toyota Leasing (Thailand) <u>Co.,Ltd.</u>	12	日本
22	2016年6月27日	シャープ株式会社	Sharp Manufacturing (Thailand) <u>Co.,Ltd.</u>	64.1	日本
23	2016年7月11日	住友電気工業株式会社	S.E.I. Thai Holding <u>Co.,Ltd.</u>	1.2	タイ・日本
24	2016年7月11日	N.A.	Mr. Hideyuki <u>Hamazaki</u>	10.6	日本

Figure 2.5: The parent company name is described by BOI's registered name

No.	Authorization acquisition date	Mother company	BOI registration name	Invest (M Baht)	Country of investment
37	2016年12月19日	日清食品株式会社	Nissin Foods (Thailand) <u>Co.,Ltd.</u>	N.A.	シンガポール・日本
38	2017年1月4日	株式会社 神戸製鋼所	Thai <u>Kobelco Construction Machinery Ltd.</u>	N.A.	日本
39	2017年1月4日	日本特殊陶業株式会社	<u>Sparktec (Thailand) Co.,Ltd.</u>	N.A.	日本
40	2017年1月4日	NTN株式会社	NTN Bearing-Thailand <u>Co.,Ltd.</u>	N.A.	シンガポール・中国+日本
41	2017年1月4日	株式会社エイチワン	H-One Parts (Thailand) <u>Co.,Ltd.</u>	N.A.	タイ+日本
42	2017年1月23日	郵船ロジスティクス株式会社	Yusen Air & Sea Service Management (Thailand) <u>Co.,Ltd.</u>	N.A.	タイ+日本
43	2017年2月6日	菱電商事株式会社	<u>Ryosho (Thailand) Co.,Ltd.</u>	N.A.	日本
44	2017年2月6日	株式会社東芝	TOSHIBA Pacific(Thailand) <u>Co.,Ltd.</u>	N.A.	日本
45	2017年2月20日	<u>Umemura Corp (Thailand) Ltd.</u>	U-Holdings IHQ <u>Co.,Ltd.</u>	N.A.	日本
46	2017年3月6日	株式会社ショーワ	Showa Regional Center (Thailand) <u>Co.,Ltd.</u>	N.A.	日本
47	2017年3月13日	株式会社ジェイテクト	JTEKT (Thailand) <u>Co.,Ltd.</u>	N.A.	日本
48	2017年3月13日	N.A.	<u>Mr. Goro Hokari</u>	N.A.	日本

Figure 2.6: The parent company name is described by BOI's registered name

No.	Authorization acquisition date	Mother company	BOI registration name	Invest (M Baht)	Country of investment
49	2017年3月	サントリー食品インターナショナル 株式会社	Brand SUNTORY International Co., Ltd.	N.A	日本
50	2017年5月	株式会社日立製作所	HITACHI Asia (Thailand) Co., Ltd.	N.A	日本
51	2017年6月	三井製糖株式会社 東シ株式会社	Cellulosic Biomass Technology Co., Ltd.	N.A	日本
52	2017年6月	株式会社不二越	NACHI Technology(Thailand) Co., Ltd.	N.A	日本
53	2017年6月	岩谷産業株式会社	IWATANI Corporation(Thailand) Co., Ltd.	N.A	日本
54	2017年6月	加賀電子株式会社	KAGA Electronics(Thailand) Co., Ltd.	N.A	日本

Figure 2.7: The parent company name is described by BOI's registered name

2.6 Conclusion

There are not many companies that already use CMS. In order to conduct CMS in Thailand, it is necessary to obtain a TC license, and obtaining an IBC seems to make it easier to obtain a TC license.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 About general objects of CMS

- Payment transactions (domestic and foreign remittance / payroll / tax payment to customers, wire transfer / check payment / etc.)
- Collection transaction (domestic and foreign remittance / check collection / bill collection / account transfer / cash collection, accounts receivable)
- Group transaction management (cash pooling, netting, payment agency)
- Liquidity deposits (savings accounts / current accounts / overdrafts)
- Managed products (time deposits, MMF)
- Electronic Banking

Until several years ago, "visualization" of balances and deposits and withdrawals of accounts opened in multiple banks was not included in the category of cash management, but recently, "visualization" of accounts is also cash and it is becoming one of the management solutions. The term cash management system does not have a uniform definition, nor is there any packaged software that handles all cash management solutions. For example, when sending money via Internet banking, connect to the application running on the browser to input and send the contents of the

payment, and the internal payment system related to the bank. Services are provided through coordination of various systems such as domestic remittance systems, overseas remittance systems connected to SWIFT, and foreign exchange systems. In addition, in pooling within the same bank, services are provided using a mechanism for reassignment of deposit balances and interest calculation within the bank's deposit accounting system. As such, there is no separate system called a "cash management system".

3.2 What are the purposes of starting CMS

The main objectives of cash management from the perspective of user companies are: (1) reduction of financial costs, (2) effective use of funds, (3) efficiency and rationalization of office work, and (4) risk reduction. The purpose of cash management from the perspective of banks is to introduce their own cash management products to their business partners, thereby collecting the bank's original revenue sources, such as deposit and loan transactions, remittance transactions, foreign exchange transactions, etc. To expand the revenue from these products, that is, to use cash management to hold back the transactions of the bank's original business. It also has the effect of streamlining internal affairs at the bank and reducing the risk of administrative errors. For example, looking at the remittance transaction, in the past, the bank had to submit a paper remittance request form from the customer, and then had to enter the contents of the statement into their own system, which resulted in administrative burden and administrative error with a risk. However, in Internet banking, the contents of the remittance request entered by the customer can be imported directly into the self-administered system and paperwork can be performed,

so the risk of administrative burden and administrative error can be significantly reduced. Here we will explain the purpose of cash management in more detail from the perspective of the user company.

- Reduction of financial costs

Looking at the consolidated balance sheet of the group companies, short-term borrowings and long-term borrowings in the debt account despite the fact that so-called on-hand funds such as cash and deposits accounts and short-term holding securities are recorded in large amounts in asset accounts. There are many cases in which interest-bearing debt such as corporate bonds is recorded. It is a so-called double structure. If extra hand funds and interest-bearing debt are both included in the balance sheet, the total asset will swell and the profit will be reduced at the interest rate burden, so ROA (Return on Asset) will naturally deteriorate and the total asset turnover. Other financial indicators such as rates, debt / equity ratio, debt ratio, and equity ratio also deteriorate. In some cases, may borrow funds that are not necessarily for dealing with a trading bank, but there is a strong independence of group companies, companies with excess funds and companies with insufficient funds are mixed, and firms with insufficient funds have their own locality. There are many cases in which borrow from a bank. By introducing inter-company loans and cash pooling, it is one of the main objectives of cash management to reduce interest-bearing debt and reduce interest-bearing debt by allowing funds to be transferred within the group.

- Bank fees reduction

If there are complex receivables and payables among group companies, netting can be used to reduce the remittance charge, exchange charge, lifting charge, etc. generated by both the sender and receiver of the remittance. You In addition, the establishment of in-house banks, the in-house bank in-house settlement and exchange transactions, investment and loan transactions, and integration of external transactions into transactions via in-house banks, financial costs It is also possible to reduce significantly. When introducing cash management, the group-wide banking transactions are reviewed globally, and it is often seen that the transactions are consolidated to banks that offer various banking services at cheaper costs. There are few cases in which the parent company is aware of the detailed bank commissions of group companies overseas, and when surveyed, cases where overseas subsidiaries are paying high remittance commissions and foreign exchange commissions to surprise banks are Japanese firms, it is not uncommon for both foreign companies. In the process of consolidation of group company transactions, “visualization” is realized, unintended and inefficient transactions are uncovered in unexpected places, process efficiency and cost reduction are realized, and by-products that are not the original purpose are realized which is often obtained. In addition, it is more advantageous to request the bank to present the fee structure and other transaction conditions by presenting the number of transactions and the amount of transactions for a large number of transactions of multiple subsidiaries rather than having the subsidiaries individually negotiate with the bank individually. Conditions can be derived. There are many companies that are reviewing banking transactions simultaneously with the introduction of cash management and achieving significant cost savings.

- Effective use of funds

Recently, in order to keep a lot of funds that the head office can flexibly use, more and more companies are trying to concentrate on the head office that reduces the funds of group companies. For example, looking at the financial results of fiscal 2014 for the two companies listed on the Toho Evidence List, as shown in the table, the group as a whole has abundant funds but the parent company does not have about 20% to 30% of the total funds It may be said. In this case, when the parent company needs a large amount of money, such as factory construction and acquisition, there may be cases where the group as a whole can not but rely on external procurement despite abundant funds. If the cash flow of the entire group including overseas subsidiaries is accurately grasped on a daily basis and the surplus funds of group companies are concentrated on the parent company in the form of pooling, inter-company loans, dividends etc., wasted debt is repaid In addition, you can have more money at your fingertips. In addition, by reducing surplus funds accumulated overseas, it can also be expected to reduce the country risk of that country and the counterparty risk to foreign banks or foreign exchange risk.

● **Funds from two Japanese manufacturing companies in fiscal 2014**

Table 3.1: Funds from two Japanese manufacturing companies in fiscal 2014

	Consolidated funds on hand	Parent company cash on hand	parent company cash ratio
Company A	5,400 Billion yen	1,100 Billion yen	21%
Company B	950 Billion yen	320 Billion yen	33%

* Listed on the first section of the Tokyo Stock Exchange surveyed by KYRIBA

Japan

① Consolidation of payment operations

In many cases, the Payment Shared Service Center has been established within the group, and remittance operations that have been conducted by multiple group companies are consolidated at one location for paperwork. Such forms are sometimes called payment agency or payment factory. Information system package that supports the basic operations of the company called ERP system (Enterprise Resource Planning system), detailed data of payment occurring at each company Financial accounting, management accounting, human resource management, production management, purchasing and inventory It integrates into a payment shared service center through a system for integrated management of enterprise-wide operations such as management and sales management, and a financial management system (Treasure Management System = TMS), and performs actual payment operations there. For example, assuming that three people at 20 group companies are involved in payment-related operations, 60 people in total are in charge of payment-related operations. By consolidating payment operations into a single payment shared service center, you can significantly reduce the number of people involved in payment related operations. In addition, by unifying the window for bank negotiations and negotiating the terms and conditions based on the number of transactions for 20 companies, it is possible to draw out better conditions and conduct transactions under company-wide conditions. Both internal labor costs and bank payment fees can be reduced. In addition, it has

been repeatedly pointed out that there is a high risk that a small number of same staff members are engaged in cash-out operations for a long time in various situations. Not only is the risk of misappropriation due to fraud, but also the risk of non-malicious negligence such as continuation of a misconception-based misstep. By centralizing payment operations into a payment shared service center and documenting and standardizing processes, you can reduce the risk of such fraud and errors. Since cash flow data of payment can be aggregated together with payment item data, there are cases where cash flow, investment management and foreign exchange transactions are also concentrated at the same time as aggregation of payment business. In addition, by introducing netting to significantly reduce the number of remittances among group companies, it is also possible to significantly reduce the bank fees associated with remittances. As a result of the introduction of netting, rationalization effects can also be expected by automating manual payment processing, accounts receivable clearing processing, bill / check issuance, etc.

② Risk reduction

There are various risks associated with corporate finance operations. Market risks such as foreign exchange risk and interest rate risk, risks related to counterparties such as country risk and credit risk of trading financial institutions, risks related to business processes such as operational risk and fraud risks, system risk and settlement risk etc. It is exposed to a wide range of risks, such as the risk to payment service providers. On the other hand, there are not many companies that are able to analyze and understand the amount of risk for each risk looking at the entire group. In order to formulate and implement appropriate risk reduction measures, it is essential to

identify risks across the group, formulate policies, and monitor the status of compliance with policies. Respond quickly when there is a sudden exchange rate change, when a disaster occurs, or when geopolitical risk materializes, by grasping which group company holds which bank balance in which bank in which country will be possible to take. It is important that banks in high risk countries do not place deposits as much as possible. You can also reduce operational risk and fraud risk by automating payment processing and monitoring deposit balances.

3.3 Main scheme of CMS object

1 . What is pooling?

With pooling, funds are automatically transferred between multiple accounts based on predetermined rules (actual pooling), or interest is calculated by calculating interest on the total balance of multiple accounts (It is a solution that is notional pooling. Usually, pooling is performed between accounts of the same company, or between accounts of multiple companies belonging to the same business group.

- **Actual pooling**

It automatically transfers funds between multiple accounts, sometimes referred to as cash concentration, physical pooling, or concentrated funding. Generally, it consists of one master account and one or more participant accounts. As a representative of actual pooling, there are zero balance and target balance. Zero Balance moves all positive balances in the participant account to the master account to zero. We will also transfer funds from the master account to zero balance accounts with negative balances. In Target Balance, a target balance is preset for each account,

and funds are automatically transferred to and from the master account so that the actual balance becomes the target balance. When performing actual pooling among multiple companies, the transfer of funds by pooling is regarded as an inter-company loan. In Japan, if the parent company holds a majority of the voting rights of a subsidiary, or if it holds 40% to 50% of the voting rights of a subsidiary, and controls the financial and business policy decisions. Although actual pooling is excluded from the application of the money lending regulations, companies that do not fall under this standard will need to be registered as a lending business if they are to be included in the pooling structure.

- The purpose for actual pooling

Deposit balances change daily, and it is possible for unplanned expenses to occur and for not having received deposits. For this reason, it is necessary to keep extra funds in the deposit account in order not to cause a fund short. If actual pooling is introduced among multiple group companies, the account balance of each participant will be minimized, and in the event of an unexpected event, the master account will automatically replenish funds to make up for the shortage. As a result, it is possible to improve financial balance by reducing external procurement and realizing efficient fund management. In the example in the table below, the net cash amount (= deposit balance) of the parent company and subsidiaries A and B is 5 billion yen, 3 billion yen and 2 billion yen, respectively, while the subsidiary C has a debt status of 6 billion yen. If the deposit interest rate is 0.01% and the borrowing rate is 1.25%, the annual financial balance will be -74 million yen.

Table 3.2: Before using pooling

	Parent company	Subsidiary A	Subsidiary B	Subsidiary C	Total
Deposit Balance	5 Billion yen	3 Billion yen	2 Billion yen	-6 Billion yen	4 Billion yen
Interest Rate	0.01%	0.01%	0.01%	1.25%	-
Interest Amount	0.5 Million yen	0.3 Million yen	0.2 Million yen	-75 Million yen	-74 Million yen

●Before using pooling

In this group of companies, we introduce Actual Pooling with the parent * Listed on the first section of the Tokyo Stock Exchange surveyed by KYRIBA Japan account as the master account, the subsidiary's positive balance is automatically transferred to the master account, and the negative balance is automatically transferred by the transfer from the master account. The parent company's balance will be 4 billion yen, the subsidiaries A, B and C will have zero balance, and the annual financial balance will be + 400,000 yen. In other words, the introduction of Actual Pooling improved the annual financial balance by 74.4 million yen.

	Parent company	Subsidiary A	Subsidiary B	Subsidiary C	Total
Deposit Balance	4 Billion yen	0 Billion yen	0 Billion yen	0 Billion yen	4 Billion yen
Interest Rate	0.01%	-	-	-	-
Interest Amount	0.4 Million yen	0 Million yen	0 Million yen	0 Million yen	0.4 Million yen

Table 3.3: After using pooling

●After using pooling

* Listed on the first section of the Tokyo Stock Exchange surveyed by KYRIBA Japan

●Maximizing "usable funds":

Among large companies with overseas subsidiaries, there are few places where the parent company can immediately use most of the cash and deposits accounts on the consolidated financial statements. It is not uncommon for companies to have around 10% of the funds held by the parent company of cash and deposits on consolidated financial statements. In many companies, a large amount of cash is stored in an overseas deposit account held by an overseas subsidiary, and it takes

more time and effort than expected to bring in funds to the parent company through dividends and inter-company loans. The pooling structure is established in advance by clearing issues such as tax, legal affairs, and regulations of each country concerning the transfer of funds by actual pooling, and the surplus funds held by group companies are concentrated on the parent company, allowing the parent company to use freely. Having more money is also one of the goals of practical pooling. By concentrating surplus funds on a global basis on the parent company, it will be possible to flexibly support financially important business strategies such as capital investment and M & A.

- Risk management:

Actual pooling is also effective as a risk reduction measure. To reduce geopolitical risk and counterparty risk by introducing zero balance into countries with high country risk and banks with high credit risk as much as possible, and to reduce counterparty risk. It is possible to introduce financial pooling as much as possible without putting funds in place where there is risk, such as by keeping deposits as low as possible to reduce internal fraud risks. Thus, effective pooling is also an effective means of risk reduction.

2. Points to consider when introducing pooling

① Regulation of country where participating company is located

There are various regulations on pooling in different countries. The main actions that may be subject to regulation are as follows, but the action itself may be prohibited or it may be necessary to apply for permission to the authorities, to notify

in advance, to report, etc. Procedures such as application for permission to the authorities, notification, and reporting may also take several months, so care must be taken.

② Tax issues

When carrying out actual pooling between multiple companies, the transfer of funds between companies is regarded as an inter-company loan, so it is necessary to clear the points of consideration of the inter-company loan.

3. what is intercompany loan?

An intercompany loan generally refers to a loan between companies (between parent and subsidiary companies and between siblings) belonging to one business group. When multiple local corporations located in different countries borrow from local banks, the conditions (interest rate, amount, collateral, guarantee conditions, etc.) presented by the bank are not necessarily good if the size of the local corporation is not large. Therefore, the parent company as a whole group funds by grasping the excess and deficiency of funds of the whole group, collectively procuring necessary funds from banks and capital markets under good conditions, and lending to group companies with insufficient funds. You can reduce the cost of procurement. In addition, when group company A in country X holds surplus funds, but group company B in country Y needs funding such as equipment funds and working capital, loan from company A to company B. If you look at the group as a whole, you do not

have to pay the procurement costs to the outside. In addition, there are cases in which inter-company loans are used to reduce the tax costs of the entire group, as corporate tax rates and withholding taxes differ from country to country.

4. What is netting?

Netting is a method of eliminating bonds and debts between multiple parties, and clearing the difference between them to extinguish the relationship between debts and debts. Bilateral netting is the process of offsetting debts and debts between two parties, and multilateral netting is the process of offsetting three or more parties. In the case of multi-lateral netting, a central counterparty (netting center) is generally established to offset the debts between the netting participants after replacing them with debts with the central counterparty. In the example in the figure below, although A, B, and C originally generate bonds and debts, if this is replaced with bonds and debts with the central counterparty X and then offset, A, B, and C will be X respectively. There will be a simple debt-debt relationship, with which a single receipt or payment will occur.

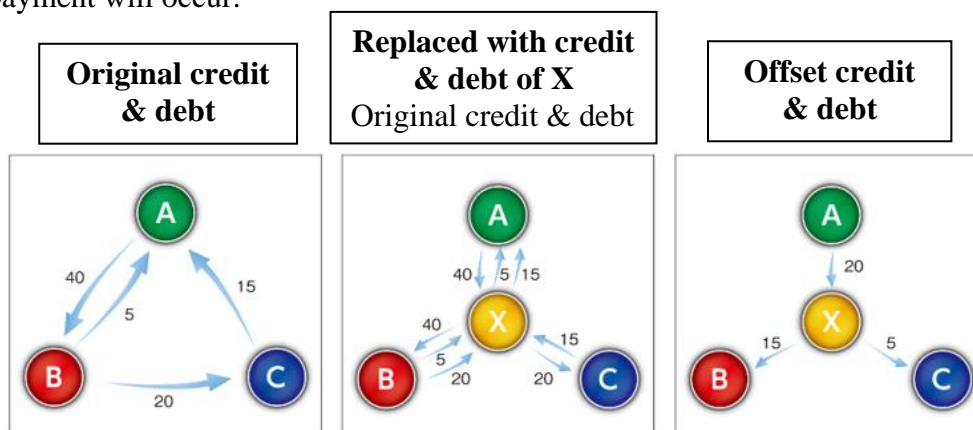


Figure 3.1 What is netting?

In some countries, regulations may prohibit cross-border netting, or require regulatory approval, approval, notification and reporting procedures. In addition, when there are restrictions on the transactions subject to netting, and netting of debts and debts is prohibited, countries that can receive and pay all debts and debts together (Gross in-Gross out method) are possible There are complex regulations around emerging countries, such as When implementing netting, it is necessary to carefully investigate the regulations of participating countries in advance.

- Effects of netting introduction

If there is a large number of two-way bonds and debts among group companies, introducing netting may have significant cost savings. However, if the commercial flow is one way and the debts and liabilities also occur only in one way, there is no trade to be offset, and the netting introduction effect can not be expected so much.

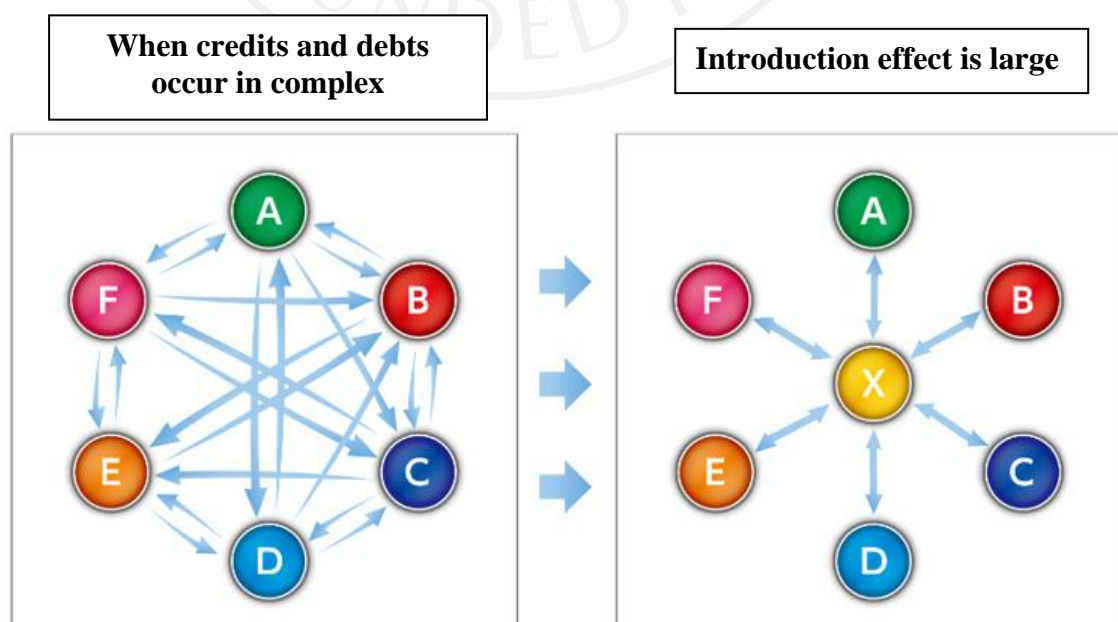


Figure 3.2: Effects of netting introduction

- Remittance charge reduction

Introducing netting within a group can significantly reduce the number of payments between group companies. In the case of settlements between residents who are usually located in Japan, a settlement fee of about several tens of yen to several hundred yen per case, for settlement between domestic residents and non-residents or settlement with a foreign party. You have to pay a settlement fee of several hundred yen to several hundred thousand yen to the bank. By introducing netting and reducing the number of payments, you can significantly reduce these bank charges.

- Forex fee reduction

When making a cross-border settlement, the sender or remittee often exchanges the remittance currency with the local currency with the bank. In this case, you will pay the bank a foreign exchange fee (= foreign exchange spread, for example 1 yen per US dollar, 1.5 yen per euro for euro, 4 yen per British pound for British pound etc.) When it comes to large companies, it is not uncommon to pay hundreds of millions of yen exchange commissions annually. By introducing netting, the amount of money transferred can be reduced significantly, so exchange fees can also be reduced significantly.

3.4 Four Steps to Achieving Corporate Funding Visualization

To achieve 100% visualization of this global funding I will explain by four steps as below.

- ① Step 1: Connection
- ② Step 2: Integrate information
- ③ Step 3: Turn data into decision
- ④ Step 4: Look ahead with confidence

● **Step 1: Connection**

The first challenge is to figure out how much money is held in your bank account for the countries and currencies in which you trade. In some companies, the finance department manages only specific accounts, such as accounts for financial transactions or accounts owned by a subsidiary directly controlled by the financial control base. As a result, locally-managed accounts may not be within the management scope of the corporate finance department. Even if the finance department does not manage all of the accounts, it is essential to be able to aggregate and view the funds of all the accounts in order to check the liquidity and risk position of the group. Many companies operating internationally are diversifying risk, raising business funds and trading with multiple banks to use best-in-class money management services in their respective countries and regions. However, the result is that banks have different ways of providing funds and transaction information to businesses in different ways. Most banks offer host-to-host connectivity with banking systems and often ERP (Integrated Enterprise Systems) and Financial Management Systems (TMS), but each bank has different security tools, and ID and password. It is also different. The format is also different. In addition, some markets, especially emerging markets, require specific local solutions. For example, in Europe, several countries use regional standards such as EBI CS, and in Japan the Zengin system is

used. Many financial professionals need to connect only the main account on an end of day or intraday basis because it takes money and effort to link with ERP and TMS using these systems and services. As a result, it is at the expense of the goal of 100% visualization of funds. Fortunately, there are three technologies available to overcome these problems. SWIFT, XML ISO20022, and Connection Hub. SWIFT's network, financiers and CFOs can securely achieve multiple bank connections, and in theory do not need to access multiple systems.

- **Step 2: Integrate information**

The next step should, in theory, be easier, but in practice it does not. It combine bank account data with cash positioning and cash flow forecasting information, but if you do this with spreadsheets and manually, you will have different sources of forecasting data and different formats for each. It also costs money.

- **Step 3: Turn data into decision**

Consolidating data is not enough. The financier must use this forecast in decision making. Predictive data should be displayed so that meaningful decisions are made properly and quickly with confidence. Finance personnel need to be sure of the liquidity needs of the entire entity, the exposure of each currency, and where the excess funds are located.

- **Step 4: Look ahead with confidence**

Day-to-day money management can often be difficult if the data is incomplete and inaccurate. The problem gets even more complicated when it comes to looking a few days ahead, weeks ahead, months ahead. Inaccurate forecasts are one of the biggest obstacles to effective liquidity and risk management. If head office and subsidiary finance personnel try to buffer liquidity, borrowing costs will increase, capital efficiency will fall below optimal levels, the effectiveness of the hedging strategy will be undermined, and the ability to invest in growth will weaken. In reality, depending on the industry, the finance department can not manage all the factors that affect the accuracy of the cash flow forecast.

3.5 What is GCMS

- Global cash management

The overseas business development of each company continues to increase, and corporate profits and the overseas ratio in cash flow is also increasing year by year. Companies are new customers, suppliers, and business partners.

We are seeking entry into foreign markets in search of companies.

As a corollary, today's treasurer is responsible for managing global funds

In addition, I am doing a very complicated task.

1. From transaction office work to strategic business
2. Technology that drives business
(Unified management by visualization of funds)
3. Fund visualization that leads to fund management
4. Summary

- From transaction office work to strategic business

A priority matter of a financial department increases the profit to the front a little, financial process. As daily business a process of dealings is esteemed and is automation of these processes mainly. It was said to be the purpose. Today's financial executive makes focus the efficiency of the daily business and is also faced with a large number of risk. It's also more very strategic roles in long-term management plan of an enterprise. It's desired to kill. The financial function is the specialty for the management of the enterprise, therefore have begun to pay attention to have value which can reduce risk further. The specialty is the thing which finds a fluid high investment destination safely, risk in M & A and the thing which estimates return and also the pursuit without the ends of fluidity of funds. But much financial business isn't optimized so that strategic decision making process is supported. Or improvement of visualization and control in global cash management understand what today's financial executive needs to contribute strategically already about a necessary thing. But, when try to carry out actually, it's difficult. The first step of optimization of business is that a staff does benchmark measurement of the present country overseas resource in a process and technology. A focus will make some degrees a workflow of a financial department and a system for this benchmark work to cross a financial network of a company, improve the efficiency and specify the chance to improve the legibility. For example a correspondent bank is concentrated, main financing bank in all part area and the one from the associate main financing bank. Maybe the chance to reduce the cost by reducing the number and improve the efficiency becomes clearer than this evaluation. It should be estimated widely to observe whether a financial network is the situation that you're prepared for global

business when considering a long-term overseas business development plan. The following important question has to be confirmed for it.

- * How is cash management performed?
- * Whether it's mainly only the country or are financial dealings performed by cross boarder?
- * Being global and when seeing, what is a bank policy at present?
- * Whether a partner of a company is a partner by global or local partner?
- * In expansion to the other area where the present correspondent bank network is the world, it can correspond, Is it optimized?
- * Where is a financial staff usually engaged in business?
- * Whether a staff is necessary to a site on specific business or, is it possible to manage the process from a different place?

The above are the contents which should be checked to estimate realistically about a necessary investment to optimize present business and strategic needs of organization.

3.6 Conclusion

In practice, the centralization level is the content and amount of financial flows in each region, and its legal environment, such as: It can be tailored to the specific needs of each region, such as regional concerns and considerations. Multi-currency trading, netting, domestic cash pooling, central management of funds, independence. There are tools to achieve various levels of centralization, such as the

establishment of a finance company. There are many in making these decisions, it is important to consider how they contribute to the visualization and management of funds. Rather, you need to consider the benefits of each tool.

CHAPTER 4

RESULTS AND ANALYSIS

There is cash pooling as a main scheme to do CMS in Thailand. Cash pooling includes domestic pooling and cross-border pooling. In order to perform this pooling, CMS operations can be performed by acquiring a TC license or acquiring an IBC license recommended by BOI.

4.1 Domestic Cash Pooling Service in Thailand

• Basis of Cash Pooling

- Cash pooling is a liquidity management service to automatically concentrate and distribute the group's cash between the Master and Participants on a daily basis.
- Cash pooling enables the Master to automatically lend cash to or borrow cash from Participants depending on Participants' cash positions.

- By consolidating group’s cash positions, the Master will be able to negotiate better banking conditions compared to individual Participants. The efficient use of group company’s cash will minimize external debts.
- By consolidating group’s idle cash and, thus, investment and funding, use of cash is optimized.

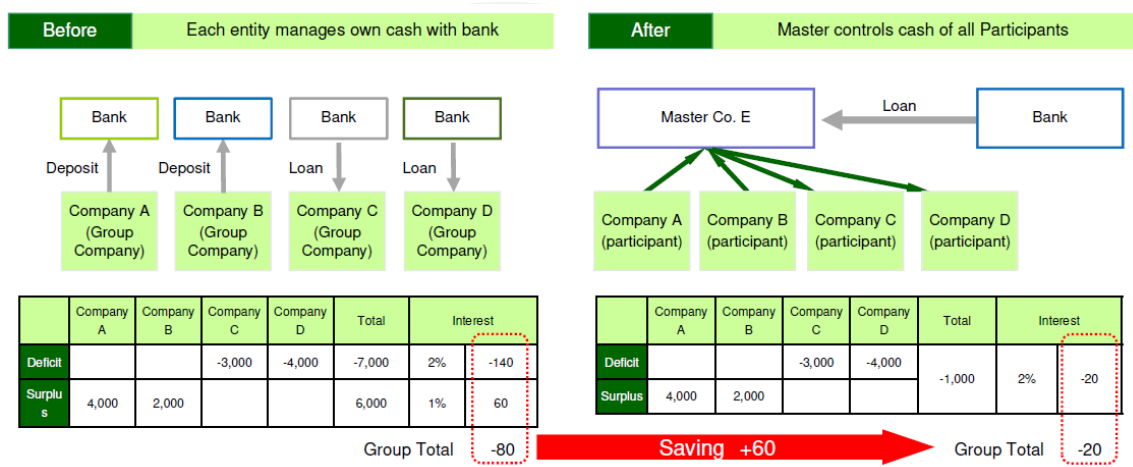
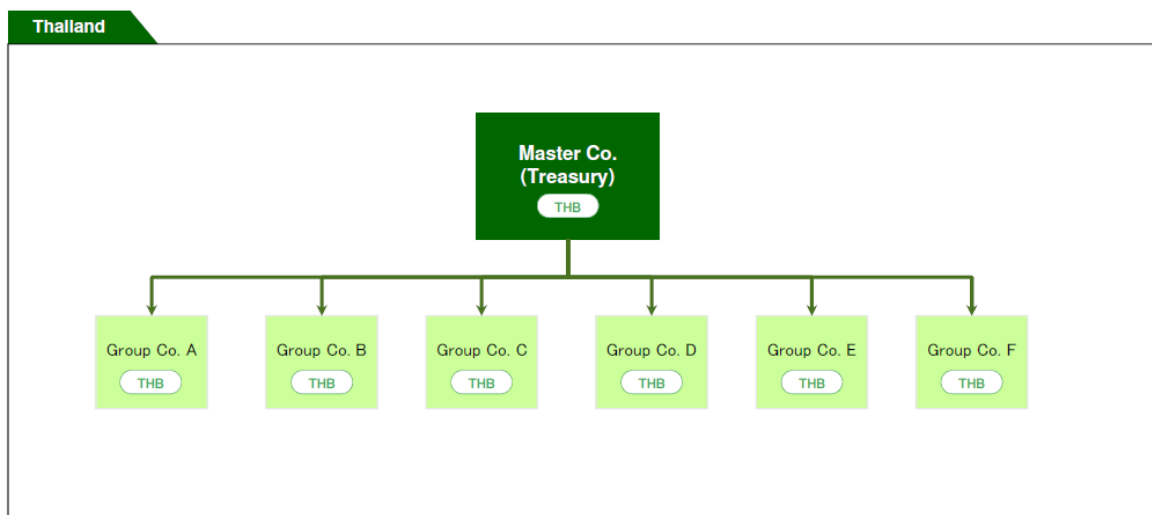


Figure 4.1: Basis of cash pooling

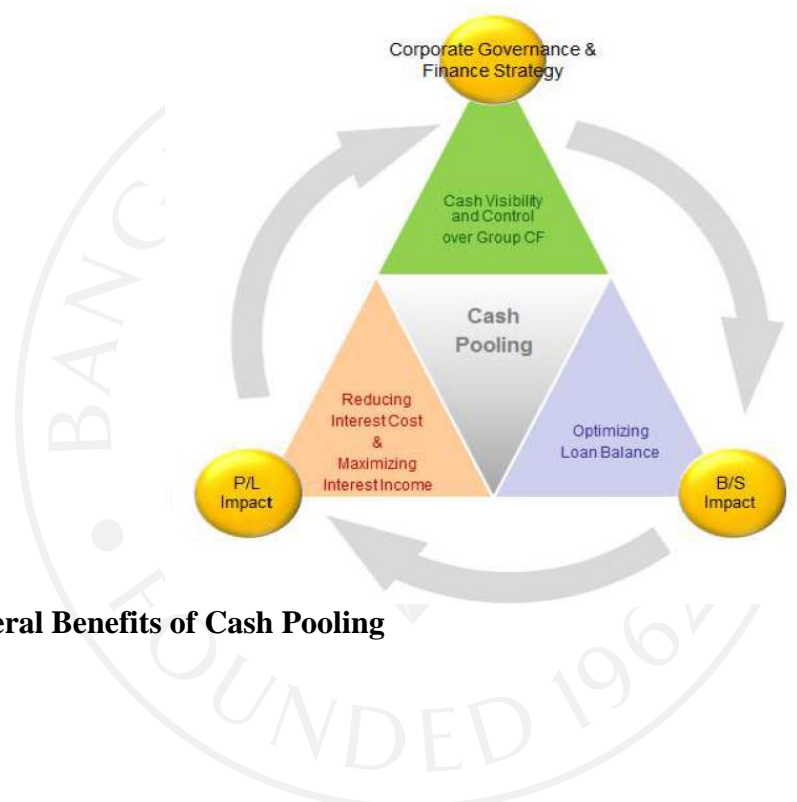
• **Domestic cash pooling**

- Cash movements within cash pooling automatically takes place on a daily basis.
- The available pooling logics include “zero-balancing”, which brings Participant



accounts balances zero, “target-balancing”, which adjusts them to pre-determined amount, and “2 way sweep”, which resumes the previous day’s closing balances back on them at the start of the day.

Figure 4.2: Domestic cash polling



- **General Benefits of Cash Pooling**

Figure 4.3: General benefits of cash polling

- **Corporate Governance & Finance Strategy**

A cash pool structure provides group with more cash visibility to exercise mid-and-long-term financial plans strategically. If the balance of cash pool is net positive, pooled cash can be invested more aggressively. A subsidiary experiencing unexpected cash shortfalls can be funded from the master account.

- **B/S Impact by Reducing Unnecessary Debts**

Pooling allows company to net the balances, both positive and negative, which eventually allows group to reduce third party loans balance.

- **P/L Impact by Optimizing Interest Cost/Income**

Reduction of third party loan balance results group to minimize loan interest cost. The net balance in the master account is available for overnight investment at savings account after aggregating all group surplus in each current account. Master may increase its bargaining power against financial institution by proposing aggregated business centrally rather than arranging locally.

- **Main Concerns for Cash Pooling**

Fund transfer via cash pooling is generally regarded as inter-company loan between master and participants. It is required for Foreign companies (the major share is owned by non-Thai entities) to obtain lending business license or certificate from MOC (Ministry Of Commerce) according to Foreign Business Act 2000/3/3:Section 45.

- **Taxation Cost**

Interest income from inter-company loan is subject to withholding tax (WHT; 1%) and special business tax (SBT; 3.3%). (SBT will be exempt if lender holds 25% or more share of borrower.

- **Inter-Company Loan Agreement**

Since cash pooling is regarded as inter-company loan, it is required to sign inter-company loan agreement setting terms and conditions. (e.g. Lending/Borrowing facility, interest base rate, settlement method)

● Application to Ministry of Commerce

The authorities controlling the financing activities of general business company

Ministry of Commerce	Controls the financing activities of non-financial institutions, including inter-company loan activities.
Bank of Thailand	Controls the financing activities of financial institutions.

License from Ministry of Commerce

Foreign companies (the majority is owned by non-Thai entities) need to apply to MOC (Ministry Of Commerce) for the license because of the requirement of Foreign Business Act 2000/3/3:Section 45.

Estimated cost	THB5 is incurred for every THB1,000 capital per company. (Min 20,000, Max 250,000) Approximately additional THB200,000 is incurred if the documentation of such application is outsourced to lawyers	
Location of reception desk and application timing	The approval application counter of MOC offices in Bangkok (Every 2nd Thursday: Sub-Committee, Every 4th Thursday: Committee TEL 02-547-4419-20)	
Necessary document to be submitted to the Ministry of Commerce to request the license	<ul style="list-style-type: none"> ① Copy of certificate of incorporation ② Affidavit ③ Memorandum & article of association ④ List of shareholders ⑤ Annual report ⑥ Catalogue of products ⑦ Details of business conducting in Thailand ⑧ Details of business plan in Thailand together with the budget for next 3 years ⑨ Details of result of work or reputation ⑩ Details of business process/ Flow chart 	<ul style="list-style-type: none"> ⑪ Details of employment/ Number of employees for both Thai & foreign/ Salary ⑫ Organization chart ⑬ Address and map ⑭ Copy of passport of the authorized directors ⑮ Power of attorney ⑯ Loan agreement (if any) ⑰ Name of borrowers <p>and other documents that may be required by MOC from time to time.</p>

Figure 4.4: Application to Ministry of Commerce

● Tax regulation and The Lending / Borrowing Limits

Tax relating to cash pooling

	Withholding Tax	Specific Business Tax
Payer	Borrower	Lender
Tax rate	1% of the interest payment of Borrower	3.3% of the interest revenue of Lender
Payment timing	within 7 days of the month following the month of such interest settlement.	Either of the two options below ① Cash basis method: within 15 days of the end of the month in which the interest was settled. ② Accrual basis method: within 15 days of the following month for interest accrued in the previous month.
Tax payment form	PND.53	Phor.Thor 40 SBT can be exempted when the lender and the borrower are in the relationship of related parties (the share of 25% or more of one is held by the other) for more than 6 months before the commencement of such lending/borrowing activities.

The lending / borrowing limits for cash pooling scheme

When a lender company conducts lending activities based on the license obtained from MOC, such company cannot borrow funds that exceed 7 times its capital.

(Foreign Business Act 1999 Section 18-1, which restricts the proportion of the borrowings and the capital of the licensed company, stipulates "the amount of borrowings shall not exceed the 7 times larger than its registered capital" (, which is also referred in MOC ordinance Section 281-8 as "1 to 7 rule")

Figure 4.5: Tax regulation and the lending/borrowing limits

● Considering Pooling base rate

- Pooling base rate between Master and Participants can be considered by the Master based on policy rate, BIBOR and Bank's loan/ deposit rates.
- By setting better rate than bank's loan/ deposit rates, Participants can benefit from them.

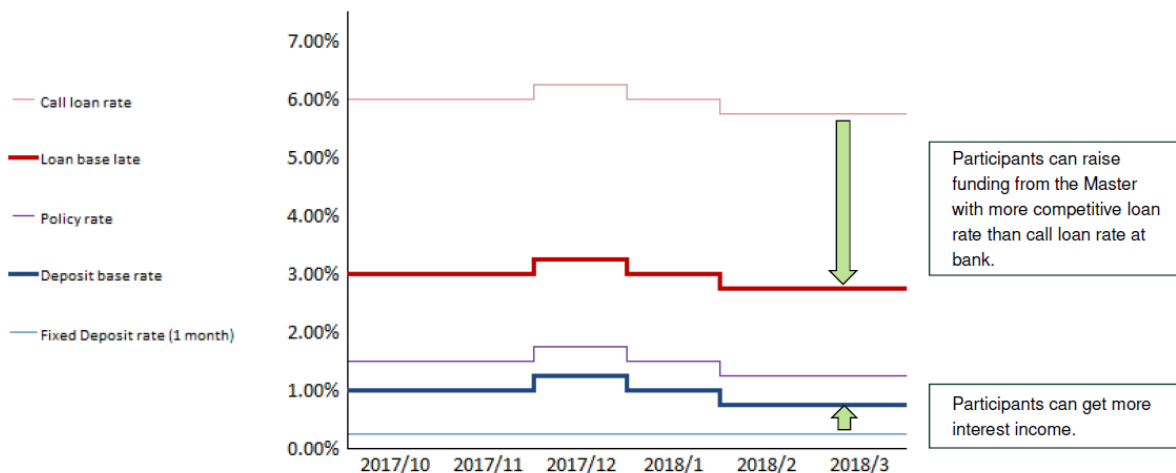


Figure 4.6: Considering pooling base rate

● Example of Pooling : 2 Way Zero Balancing

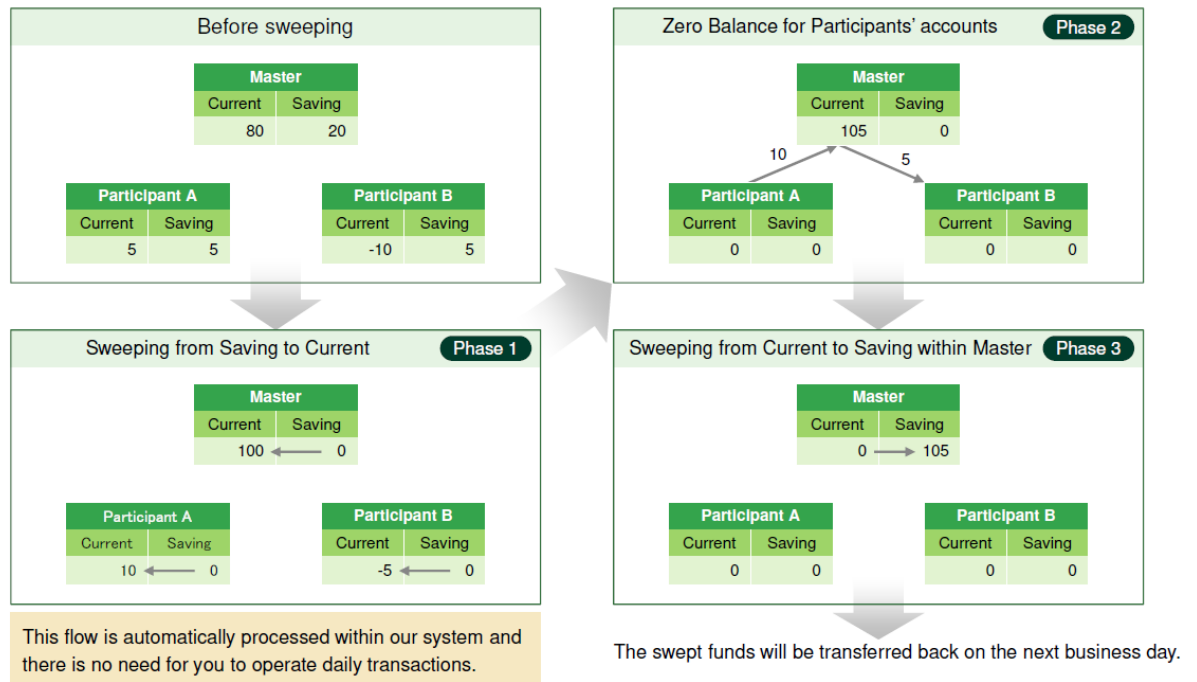


Figure 4.7: Example of polling 2 way zero balancing

● **Variation of Pooling**

Balancing -Types of determining sweeping amount-	
Target Balancing	<ul style="list-style-type: none"> Balancing where all subsidiary accounts are left with pre-determined balance ("Target") after pooling sweep. Surplus balance against Target in Participant accounts will be aggregated to master account. Negative balance against Target in Participant accounts will be covered by master account.
Zero Balancing	<ul style="list-style-type: none"> Balancing which "Target" is set at the balance of zero.
1 Way / 2 Way -Types of reversing in next business day (T+1) morning-	
1 way	<ul style="list-style-type: none"> Swept amount will NOT be reversed to original account in the next business day (T+1) morning. Consequently, Participant account will start at Target balance in T+1. (If Zero balance, it starts at balance of zero.)
2 way	<ul style="list-style-type: none"> Swept amount will be reversed to original account in the next business day (T+1) morning before banking hours. Participant account reverts to its original balance in T+1.
Lending / Borrowing -Types of restricting sweeping direction -	
Borrowing ONLY	<ul style="list-style-type: none"> Pooling sweep will run ONLY when Participant account is negative against Target. Pooling sweep will NOT run even if Participant account is surplus against Target. → This will help Participant to ensure "not to lend" in the pooling scheme in case that Participant does not have lending license.
Lending ONLY	<ul style="list-style-type: none"> Pooling sweep will run ONLY when Participant account is surplus against Target. Pooling sweep will NOT run even if Participant account is negative against Target.
BOTH Lending and Borrowing	<ul style="list-style-type: none"> Pooling sweep will run BOTH when Participant account is surplus and negative against Target.
Lending / Borrowing Limit (r1)	
	<ul style="list-style-type: none"> Amount limit can be set for both lending and borrowing. Amount exceeding limit will not be aggregated to or cover by master account.

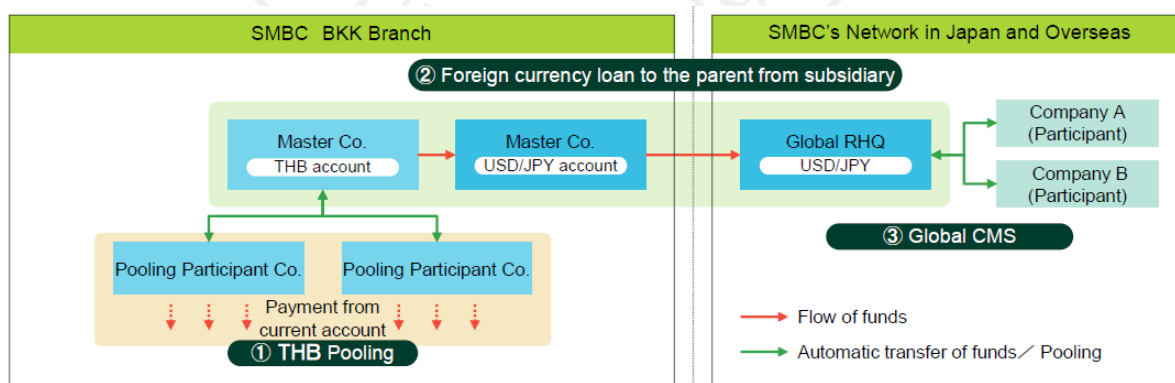
Figure 4.8: Variation of polling

4.2 Cross border Cash Pooling Service in Thailand

There are foreign currency control and other restrictions on foreign currency pooling and cross-border pooling in Thailand.

- Only foreign currency funds are allowed for cross-border lending. Cross-border pooling entails FX costs to do cross-border lending.

- Need to submit evidence to the handling bank for funds transfer to overseas, domestic funds transfer in foreign currencies and pooling in Thailand. Convert THB surplus funds to foreign currencies (USD, JPY, etc.) and lend it to the global RHQ. It's a common way of managing cash for companies who want to avoid the administrative burden caused by the evidence submission for every transaction they do. Eased foreign currency control for companies who had obtained Treasury Center license from the Thai central bank. Foreign currency pooling outside Thailand and



① THB pooling in Thailand

② Convert THB surplus funds to foreign currencies (USD, JPY, etc.) and lend it to the global RHQ.

③ The global RHQ will be able to utilize the cash more effectively to support the group's global operations.

cross-border pooling can be an option with this TC license.

Figure 4.9: Cross border cash polling service in Thailand

4.3 Overview of International Business Center (IBC)

The BOI (Board of Investment) was designated as International Headquarters (IHQ) in December 2018 and International Business Center (ITC) is integrated into one announced the introduction of the International Business Center: IBC. Newly announced IHQ and ITC regulation application acceptance has been notified.

The Board of Investment: BOI is a government agency under the umbrella of the Thai Prime Minister's Office. The conditions for employment of employees are added this time, and applications for international trade business alone are not permitted. Application conditions have become stricter than IHQ and ITC.

- **BOI project approval criteria (excerpt)**

Minimum investment amount per project (new fixed assets etc.) is over 1 million THB (land cost and operation excluding funds)

Liabilities: Registered capital ratio = 3: 1 or less (only at the time of application)

(Note 1) Confirmed from BOI that “information only” concerning procurement of raw materials and parts was confirmed by BOI (not stated in the investment committee declaration)

(Note 2) Prior approval from the Central Bank of Thailand is required

(Note 3) Confirmed from BOI that the counterparty includes a third party (not stated in the Investment Committee's declaration)

(Note 4) Confirmed from BOI that the same conditions as the former system IHQ are required (not stated in the investment committee declaration)

● **Scope of business**

- (1) General management, business planning, Business coordination.
- (2) Procurement of raw materials and parts. (3) Product R & D.
- (4) Technical support. (5) Marketing and Promotion.
- (6) HR management, training. (7) Financial Advice (Concerned to run CMS)
- (8) Analysis and Research of Economy and Investment
- (9) Loan Management / Control (Concerned to run CMS)
- (10) Treasury Center Financial Management Services (Concerned to run CMS)
- (11) International Trade

● **Application conditions**

Paid-in capital: More than 10 million THB. Overseas bases: Head office or branch office located in one or more countries. Employee: 10 or more employees who possess the necessary knowledge and skills for IBC business. More than 5 people in case of IBC providing only financial management services to related companies.

● **Benefits of BOI**

- 100% foreign ownership of foreign capital
- Import duty exemption of machinery (machines for R & D and training only)

- Land Ownership Permit (to conduct an incentive business)
- Entry of foreign technicians / experts and work permit
- E Use One Start One Stop Investment Center (OSOS)
- E No conditions for employment of 4 Thai per foreigner
- **Tax benefits (Revenue Bureau):**

Revenue Department (RD), the existing tax on IHQ and ITC in October 2018 Announcing the end of the new application for benefits, the IBC system was officially introduced at the Decree on Dec. 29. Conditions such as addition of employment conditions for employees became stricter than IHQ. Application and approval required to the Revenue Bureau. Conditions of IBC application to BOI and conditions applicable to Revenue Bureau tax benefits are different.

4.4 CMS of Panasonic Corporation

Panasonic announced that it will establish an overseas financial company within the group in Amsterdam, the Netherlands in May, and operations in September.

The new company is Panasonic Global Treasury Center B.V. Capitalized at US \$ 500 million, the investment is 100% owned by Panasonic Holding Netherlands B.V., a wholly owned subsidiary of Panasonic headquarters.

This company is “in-house banking function” that handles funds on a global basis in response to the globalization of business in the Panasonic Group.

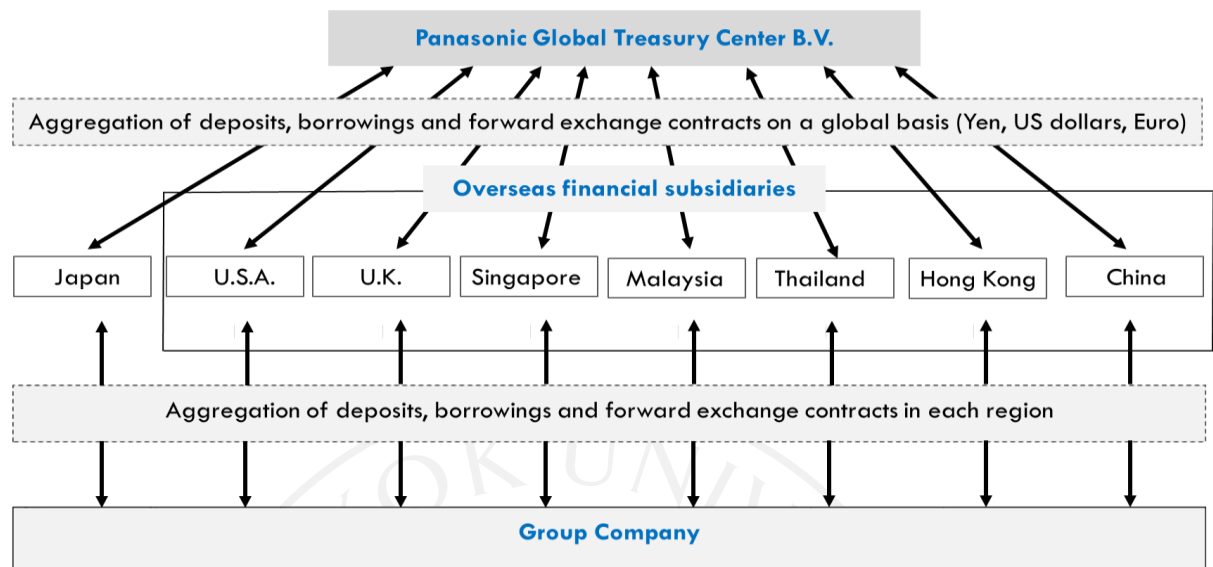


Figure 4.10: Panasonic global treasury center B.V.

1. TC License of Panasonic in Thailand

● Mother company : Panasonic Corporation(Japan)

● Consolidation data as below :

Capital Amount : 258.7 billion yen, Group companies : 582

Number of employee : 271,869 person(in Asia 22%)

Sales amount(Y 2018) : 8,002.7 billion yen(Consolidated)

Overseas companies : **22 countries, 54 subsidiaries**

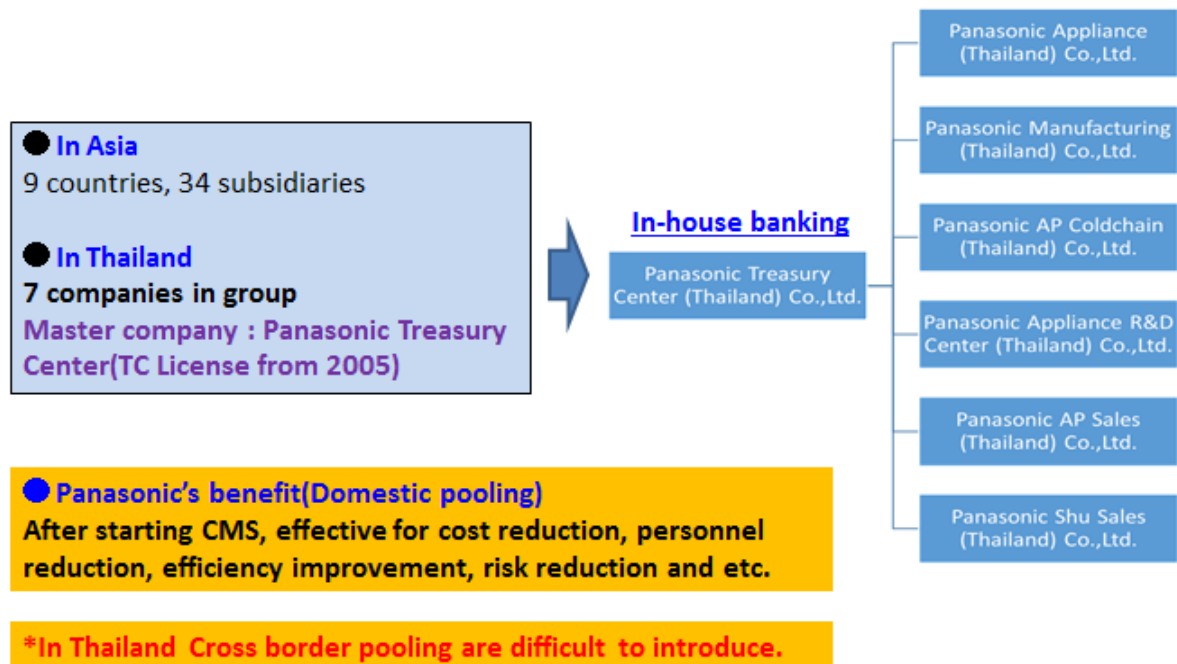


Figure 4.11: Panasonic treasury in Thailand

2. Cash status of Panasonic(Consolidated & Mother)

● **Comparison of parent company's cash and consolidated subsidiaries' total cash in Panasonic**

	Consolidated funds on hand(Million yen)	Parent company cash on hand(Million yen)	Parent company cash ratio
2018	1,089,585	23,250	2.1%
2019	772,264	24,426	3.2%

The parent company's cash ratio in 2018 and 2019 is extremely low at 2.1% and 3.2%.

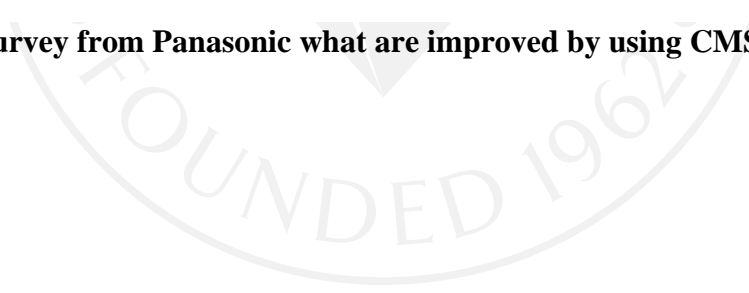
But they has established overseas financial company(TC center) in each country. And has pooled in the Netherlands which are pooling cash all over the world.

● **As a result, each country's risks can be hedged, and the efficiency of global fund management has been completed now.**

Table 3.4: Cash status of Panasonic

- Established company and set up Treasury, Accounting and Admins
- Introduce and conduct "PATRES" company treasury system to associated companies
- To cope with Bank of Thailand for maintains Treasury operation under the regulations.
- To cope with associated group companies of Panasonic in Thailand for getting "Lending License" from Ministry of commerce to operate funding with Treasury center.
- To Introduce associated group companies for Foreign Exchange Scheme , Hedging policy and Fund management , Settlement system of Treasury Center in Thailand how linkage to Global .
- To seek the special approval from Bank of Thailand for appropriating the new scheme of Treasury operation assigned from Head Quarter such Sweeping (Pooling) , Oversea THB lending,
- Set up yearly Business Plan , budgeting, Cash Flow Forecast
- To manage FX (Forex) booking for associated group companies and analyze FX position report for checking /monitoring hedging coverage ratio and advise to group companies.
- To manage and advise other necessary internal (Netting) and external payment (Electronic banking payment on behalf of Treasury Center) to group companies in Thailand
- Maintain Banks relationship
- To manage monthly Bank of Thailand report
- To manage Funding day to day of associated group companies
- SOX matter

3. Survey from Panasonic what are improved by using CMS



4.5 Costs and benefits for TC License in Thailand

1. SURVEY OF **SMBC BANK** IN THAILAND For Domestic Pooling for 22 companies

Cost			Benefit				
1	TC License (1 time)	consulting fee(*)	350,000	1	Bank loan to Inhouse banking	Less interest 6.87%⇒1.75%	5.12%×original amount
		government fee	252,000			MOR⇒Inhouse rate(Min.)	
		Sub Total	602,000	No need to pay interest to bank	within a same group		
2	Bank charge (running)	A/C open charge	0	2	Other	governance effect	corporate governance
		EB contract charge	12,000Baht/Year			easy management	easy to control
		Pooling system charge	0			risk reduction	fraud prevention
		Sub Total	12,000			personnel reduction	labor saving
Total	614,000	special business tax)	cost reduction				

- **22 companies which has TC License**(as explained in the previous page) are using pooling service mostly.

*The consulting fee for obtaining a TC license is an **estimated amount by PricewaterhouseCoopers** (major accounting firm in the world).

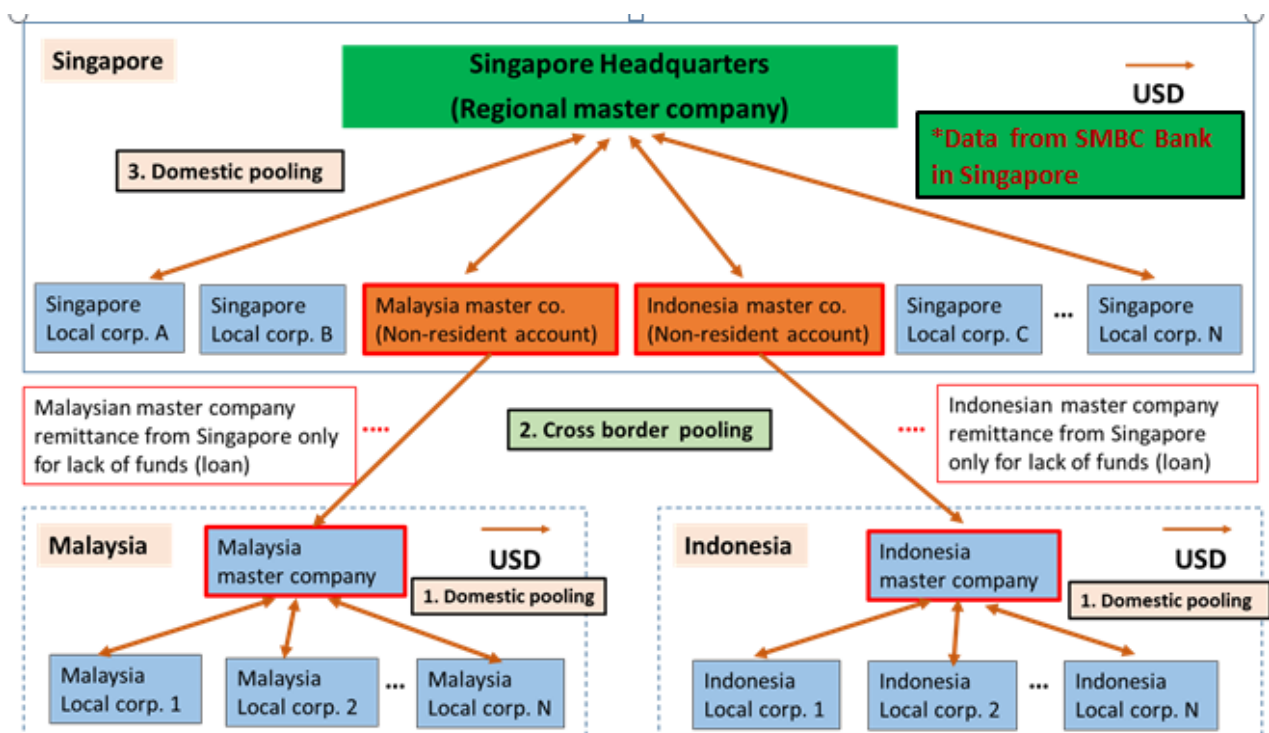
The effect of pooling is high compared to the cost, governance, risk reduction and etc.

Table 3.5: Costs and benefits required for TC license

1. Introduce pooling in the fund management and build a system that can complete cash flow in the country.
2. Only the surplus funds or shortage funds on the domestic net will lend and lend funds to Singapore master company. ***Domestic & Cross border pooling are widely used by USD.**

4.6 Case study in Singapore (CMS by USD)

Table 3.6: Case study in Singapore



Singapore :

- In Singapore, CMS has been used for many years.

And since many laws and regulations are used, many companies use CMS. Singapore is the country where **CMS is most used in Southeast Asia.**

- **Domestic pooling** within Singapore and **cross-border pooling** across countries (Indonesia, Malaysia and Thailand) are also **widely used.**



Thailand :

- However, recently Thailand has been attracting attention as CMS regulations have been gradually relaxed. However, there are still many problems that need to be cleared, and I guess it will take time. **So CMS in Singapore is still more easier than Thailand.**

4.7 Comparing CMS in Thailand & Singapore

4.8 Conclusion

Although domestic pooling can be implemented because the regulation of the Central Bank of Thailand is not severe but cross-border pooling which can be carried out Thailand and other countries is very difficult. It is necessary to examine changes in the regulations of both countries and to construct an optimal method in the future.

In addition, in order to perform pooling, it is necessary to apply to the Central Bank of Thailand to obtain a license. The acquisition is costly, time consuming and not easy. Another way is to obtain an IBC license, which seems to be easier to obtain than to apply directly to the Central Bank of Thailand, but the IBC release has only been released last year and is not still clear. It is also necessary to examine the deregulation of the Central Bank of Thailand.

And comparing Singapore and Thailand, Singapore is more widely used than Thailand because of easy regulation in Singapore and long experiences for CMS.

CHAPTER 5

DISCUSSION & CONCLUSION

5.1 Summary of Research

Building a CMS is very important for all companies. A company whose CMS has been completed means that it can effectively use internal funds, and it means that it manages funds without waste. In addition, CMS is also effective for governance, and it is possible to check the funds of the local corporation of each company operating globally, and at one place, it is possible to manage fraud prevention and the reduction for number of employee.

However, CMS is not completely systematized, it requires systemization specific to each company, and installation will require a lot of hard work, research in each country's regulation and law, and too much cost. It is not very difficult to introduce it if it is only domestic, but since it becomes related to regulations of each country if it becomes cross-border, it is very difficult to introduce CMS, and most companies still can't build CMS to be done.

5.2 Summary of Research Findings and Discussion

CMS is to make it possible to check the financial situation of domestic companies in one place first. In addition, it is necessary to grasp the funds of each base so that funds can be transferred from a place where funds are surplus to a base where funds are insufficient, and in-house lending (in-house bank) can be performed. In the past, banks with insufficient funds had borrowed money from banks, but by

effectively using internal funds, it is possible to reduce the interest rates paid to banks. The effective use of funds requires the introduction of pooling, which involves using the system of a bank or the system of a CMS company selling CMS. Also, if you have trading accounts with many banks, you will need to consolidate bank accounts to reduce the number of banks connected and the number of accounts.

Furthermore, in order for each company to conduct CMS in Thailand, as described above, it is necessary to apply to the Central Bank of Thailand and obtain a TC license. This acquisition is time-consuming and costly, and often it can't be acquired without clear explanations and documentation. Acquisition requires the use of a credible consulting firm and requires firm reasons and documentation.

In the case of cross-border crossing the country, it will be very difficult. That is because the laws and regulations of each country are involved. In the case of cross-border also, CMS steps are the same as domestic CMS, but there are major problems and obstacles in crossing countries. Furthermore, because the currency differs from country to country, this currency is one of the difficult things at the time of CMS introduction.

However, cross-border CMS deployment can be very effective for the company. For example, since it is possible to control everything at one place, it is not necessary to spend money on a business trip to confirm, and it is possible to enjoy many merits such as staff reduction at overseas bases, enhancement of governance functions, fraud prevention, etc.

5.3 Recommendation for Future Research

CMS is the least developed system in each company, and it is necessary for each company to work on CMS construction seriously in the future. We expect that CMS system companies will increase more and more in the future, to reduce the implementation cost and to build a simple CMS system in the future. In addition, the banking system will be further advanced, and it is thought that it will contribute to the construction of CMS.

5.4 Conclusion of this Research

I hope that CMS will be introduced to every company in the future, eliminate waste, and make the most effective use of funds in the group. Moreover, it is thought that it will change to the corporate environment where an optimal CMS system can be easily built.

I will continue to pursue the ideal form of CMS and confirm what kind of systems will be built in the company. Regarding CMS, I would like to confirm the latest situation from banks and CMS consulting companies and so on, and research CMS of what is the best form.

This concludes my research on CMS. I would like to research again and check how much CMS are spread year by year in Thailand.

BIBLIOGRAPHY

- SMBC Bangkok Branch CMS Department Materials. (2018). *Cash management system, International headquarters, International business center, Pooling system (Domestic & Cross-border), Global cash management system*
- Retrieved from <http://www.smbc.co.jp>
- Sumitomo Mitsui Banking Corp. Bangkok Branch .(2019). *CMS seminar materials & data in Thailand*
- Retrieved from <http://www.smbc.co.jp>
- Mitsubishi UFJ Bank, ltd. Bangkok Branch .(2017). *CMS seminar materials & data in Thailand*
- Retrieved from <http://www.bk.mufg.jp>
- KPMG Phoomchai Tax Ltd. Thailand .(2018). *CMS seminar materials & data in Thailand*
- Retrieved from <http://www.home.kpmg/th>
- PRICEWATERHOUSECOOPERS ABAS Ltd. Thailand .(2019). *CMS seminar materials & data in Thailand*
- Retrieved from <http://www.pwc.com/th>

Bank of Ayudhya PCL. Thailand. (2019). *CMS explanations with details in Thailand*

Retrieved from <http://www.krungsri.com/bank>

SMBC Japan .(2019). *CMS explanations*

Retrieved from <http://www.smbc.co.jp>

Mitsubishi UFJ Bank Japan. (2019). *CMS explanations*

Retrieved from <http://www.bk.mufg.jp>

Kyriba Japan .(2019). *CMS explanations*

Retrieved from <http://www.kyriba.jp>

Diva Japan . (2019). *CMS explanations*

Retrieved from <http://www.diva.co.jp>

BOT Thailand Treasury Center .(2019). *Treasury center materials in Thailand*

Retrieved from <http://www.bot.or.th>

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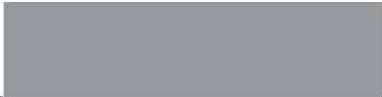
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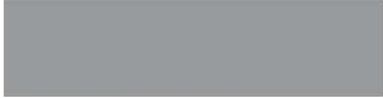
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