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Cash Management of Multinational Airlines: A Case Study on A Turkish Airline

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Abstract

Cash is a vital resource for airline companies, which are said to be operating on a multinational level. From executing day-to-day operations to exploiting new investment opportunities, airline companies must maintain an optimal level of cash. The amount of cash level depends on a number of factors such as the company's activity level, the current conjuncture and international markets. In this study, the net cash flows and the changes in the level of cash and cash equivalents account of the flag carrier airline operating in Turkey, which can be considered as an international company, were analyzed using data of 2020, cash flows. In addition, company's relations with the IATA Clearing House were determined, evaluated and interpreted in term of cash management. The fact that there are very few studies in the national and international literature on the analysis, evaluation and interpretation of cash flows in the airline industry makes this study unique.

1. Introduction

The integration of world economy has changed the nature of the firms established as was seen from the rise in the number of multinational companies (MNC). Majority of these MNCs are seen to be located in the United States where in 2017 it was reported that almost 50% of the public companies in the country were MNCs (Erel et al., 2019). Although having similarities, these companies work differently than their national or international counterparts. Whether it is their turnover, sales, production systems or their financial management, MNCs can be referred to as unique entities. A multinational company (MNC) is referred to a company that has subsidiaries, branches or affiliates operating in different countries other than the parent country.

Operating in many different countries means that processes need to be redefined and arranged, as there is a trans-boundary movement of goods and services, issues on the availability of skilled labor and cultural differences influencing management. For this reason, a MNC is only successful if they can be able to continue its operations uninterrupted having dealt with these problems. However, this is not the only problem faced by MNCs. With each expansion in operations, these companies seek to take advantage of locally available resources, and to be able to do this; they need to provide the sufficient amount of funds. It is usually established through a flow of funds from the parent to its subsidiaries or between the subsidiaries themselves. This means that there is a cost involved depending on the frequency and volume of funds that are transferred. It is very important for MNCs to minimize this cost as much as possible to be able to compete with their rivals to stay in the game. The realization of the potential multinational companies provide to world economy, their significance as an actor within they economic system makes it important to carefully understand and manage its financial policies, especially focusing on cash management.

Working from the definition of MNCs, airlines are also referred to as one (Al-Kwifi et al., 2020) because they carry out passenger and freight transportation activities in many different countries outside their home country. They have investments, branches, sales offices and employees and customers from different nations from these countries. In addition, while airline companies want to maximize their company values, they have to comply with the regulations and rules of national and international establishments and organizations such as ICAO (International Civil Aviation Organization), IATA (International Air Transport Association), ECAC (European Civil Aviation Conference), JAA (Joint Aviation Authorities), JAR (Joint Aviation Regulations) which also points out to their multinational level. Airline companies are capital-intensive companies, and they can only meet the large amounts of resources (debt and equity) they need from international financial markets. They need international support and cooperation in issues such as technology, maintenance-repair, spare parts and expert personnel in order to ensure the sustainability of their flight activities. Therefore, they do not just compete with their international rivals but also play a major role in many partnerships and strategic alliances (Amankwah-Amoah & Debrah, 2011).

The highly competitive airline industry consists of over 1200 different airline companies travelling between more than 3500 different airports. Operating between various countries causes them to give extra care in their financial decisions. Especially after the Covid-19 pandemics, the aviation industry experienced serious problems as governments closed their borders and for a long period of time there were international ban on flights. It was reported that only in the first quarter of 2020, there was a drop of 100 million airline passengers in Europe, which translated into a loss of 2 billion Euros. This loss began to increase exponentially in following few quarters turning this situation to the worst experienced by the aviation industry so far (Deveci et al., 2022). Therefore, airlines have focused on many different financial strategies to overcome this crisis whether it is for cost control, capital budgeting, or working capital management. Among these, airlines, be it legacy carriers or low-cost carriers; have also started paying more attention on their cash management strategies. For this reason, this study aims to analyze the cash management strategies adopted by a multinational airline company through modeling its cash flows and discussing various risk issues through a case study.

The paper can be summarized as follows: Section two describes the cash management of multinational companies in general whereas Section 3 focuses on the cash management specific to an airline company. Section 4 presents an analysis of relevant literature on the topic followed by the Methodology in Section 5. However, Section 5 also provides the detailed purpose of the study explained before the relevant model, as well as a case study and findings. Section 6 concludes the study.

2. Cash Management in Multinational Companies

Journal It is known that an uncertainty experienced by businesses can translate into higher risks for them and therefore pressure them to hold more liquid assets. These assets are resources that can be readily used when needed. Cash is referred to the most liquid of them all and play a vital role in decision-making. However, businesses must hold the optimal amount of cash, as it does not generate additional earnings for the business when held as it is (Melvin & Norrbin, 2013). MNCs face additional challenges in managing these liquid resources they hold as they operate using different currencies. Therefore, it can be said that the purpose of cash management in multinational companies is to minimize their cash holdings while maintaining the smooth functioning of their processes with minimal risk exposure. MNCs treasury, usually runs these set of activities determining the level of cash balances.

Sometimes conflicts can arise while trying to pursue the objectives of international cash management making it even more complex. To give an example, in order to eliminate the possible political risk, a MNC would need to convert all its receipts to the currency used in its home country. While, on one hand, this would minimize political risk, on the other hand, its subsidiaries, affiliates may experience problems. Affiliates of an MNC located in different countries also have obligations to meet their operational requirements and hence, would need to hold some amount in their local currencies for working capital purposes.

The level of cash held by MNC subsidiaries, which are held independently of their working capital management decisions, are partly to ensure normal daily cash payments are provided for and partly to provide protection against unexpected changes in the flow of cash to and from the company. First of these motives are referred to as the transaction motive whereas the latter is the precautionary motive of MNCs (Eitman, et al., 2011). Besides the transaction and precaution motives, da Costa Moraes and Nagano (2014) also mentions about the speculative and bank reciprocity motives for holding cash. In other words, companies holding cash to meet bank requirements as well as to take advantage of the opportunities as they present themselves.

The importance of cash management was seen to have led researchers focus on different aspects of cash management policies for many years. The possible advantages and disadvantages of companies holding cash were among the main area researched in earlier literature (Keynes, 1936; Myers, 1984; Jensen, 1986). More recent studies were referred to as being more focused on the variables affecting the level of cash held by corporations whether these are located in the US or in different countries (Kusnadi & Wei, 2011). Thus, defining the amount of cash resources to be held and the variables influencing it is widely studied yet still uncertain in its application.

There are many directions the funds can flow in a MNC. These can be from the parent to the subsidiary, from the subsidiary to the parent, or between different subsidiaries. In terms of cash flows, and hence, cash management between their subsidiaries, these companies can perform International Cash Clearing and Processing, and wire transfers. The complexity in cash flows and making payments between different businesses, whether they are related or not, have led to a number of different methods to develop. Methods such as; bank transfers, cash pooling and payment network applications all exist to minimize costs related to cross-border payments and to simplify the processes. Regarding wire transfers, the Clearing House Interbank Payment System (CHIPS) and the Society for Worldwide Interbank Financial Telecommunication (SWIFT) are the two main computer-based networks that are seen to be preferred by MNCs to process their transactions and payments in the international arena. CHIPS was established in 1970 and was referred to as the first step in computer-based networks to digitize interbank transactions on an international level. At the time the reason for introducing such a system was to make settlements faster and more efficient by replacing physical checks given by banks with bookkeeping entries that were digitized (Kalra, 2019). Since banks are still the primary financial services provider for MNCs, they use CHIPS to process intercompany payment transfers globally. SWIFT is also a cooperative which functions as a communication system, which aims to provide a secure, fast and cost-efficient transfer of information between financial institutions. While CHIPS acts as an intermediary in financial transactions, SWIFT provides the instructions for the fund transfer (Baker & Aggarwal, 1994). This is one of the differences between the two systems.

There are also certain techniques to optimize the flow of cash for MNCs. One of them is to generate and quicken the cash inflows. Secondly, cash transfers between subsidiaries needs to be carefully managed, especially on leading and lagging strategies. Another way is to focus on currency conversion and hence to employ techniques to minimize the costs associated with currency conversion. Netting system is one of them. In order to minimize the transaction costs incurred due to fund movements, netting transactions are made between the companies or branches affiliated to MNCs by international finance managers. The cash management netting system is based on the netting of mutual debts and receivables (Yalçıner, 2012). On this basis, the payment obligation and the receivable position between the branches are determined with the help of a matrix. Intra-group payments will be reduced through elimination of counter payments. With netting transactions, both the number of fund transfers and the transaction cost will be reduced.

Usually there are three types of netting systems, which are the bilateral, multilateral, and lastly, the centralized systems for settlement. The first system, bilateral netting, functions between two parties, whether it is between the two subsidiaries or between the parent and subsidiary. However, the multilateral system is more complex and the fund exchange is between parent as well as the subsidiaries. In the centralized system, fund transfers take place through the parent, there is a centralized pool (Srinivasan & Kim, 1986). Among these the multilateral netting system is highly used by MNCs. Considering that there are usually many companies or branches affiliated to the MNC; multilateral netting is carried out between affiliated branches.

MNC subsidiaries or branches can manage their own minimum cash needs and surpluses based on their cash positions in certain periods and the cash inflow and outflow forecasts they obtain, apart from netting out their debt-receivable relations among themselves. For example, these subsidiaries or branches will be able to minimize the financing costs that can arise from fund inflows and outflows by not sending the cash surplus immediately to the parent and instead holding it to meet the cash shortages they may have estimated for the following few days.

In addition, MNC affiliations will decide according to the returns they are earning from the financial markets of the country in which they have the excess cash, and also to the risks they are exposed to (exchange rate risk and rate of return) in relation to the currency. Generally, if the local currency of the country in which it is located is predicted to be valuable in the future relative to the currency of the home country, the excess cash will be held in that local currency. In some cases, the subsidiary will send the excess cash to the parent company, but if cash outflows are not allowed to a foreign country outside the country of operation, rational investment strategies in favor of both the subsidiary and the parent company will need to be followed. For example, by investing in the country of operation the subsidiary company will gain profitability from exporting the goods produced by themselves to other subsidiaries abroad

3. Cash Management in Airline

As previously mentioned, because of its ready to use form, cash becomes a vital tool for businesses to have for their day-to-day operations. Because it is such an important asset, with its alternative uses and costs, it must be ensured that it is neither too little nor too much at any given time, that is, it must be in the optimum amount. Therefore, just as any other business airlines must also appropriately manage their cash holdings. While a strong cash position can allow airlines to finance new aircraft purchases internally and reduce interest costs, a shortage of cash on the other hand can even cause them to file for bankruptcy.

Airline companies, like other companies, hold cash for three main reasons: transaction, precautionary, and speculative motives. For airlines, the transaction motive relates to the use of cash to pay for daily operating expenses such as employee salaries, aircraft fuel and for maintenance. The holding of cash for the transaction motive is proportionally related to the level of business activity of the company, and the larger the airline, the greater the need for cash. Airlines may also hold cash to properly deal with seasonal trends, economic downturns or emergencies (precautionary reason).

The situation is further complicated with the increase in prices of fuel and the economy taking a downturn. For this reason, airline companies need to be prepared for unexpected movements in cash flows and keep an optimum amount of cash in their reserves. This cash that is held for precautionary purposes acts as a protection for the company if faced with financial difficulty. The speculative reason for holding the cash is to be able to utilize profitable investment opportunities. Having cash for the speculative cause is usually not an important factor for airlines with very expensive capital projects, but for airlines faced with short-term profit-making opportunities, it can be a viable factor allowing rapid exploitation. The challenges faced by airline companies in terms of managing their cash can be classified under four headings. These are problems caused by cash shortages, having excess cash, fluctuations in the cash flow and lastly, the exchange rate fluctuations.

In general, cash deposits do not provide a great return to companies, but many airlines view cash as a buffer against possible future bankruptcies, as they are vulnerable to cash flow problems. The industry is large, complex and capital-intensive. An airline may face potential bankruptcy if the cash on hand does not meet its ability to pay current debts, and therefore a shortage of cash is a potential bankruptcy signal. Even under financial distress, cash availability is important in helping a company become stronger and coping with the distress itself. For airlines, the main aim of managing cash is for the company to have a sufficient amount to be able to pay their short-term liabilities and any interest payment that they incur, as well as to use it for investments (Brigham & Houston, 2009). There are methods like forecasting cash or establishing strong relationships with stakeholders or checking credits that can be employed by managers to ensure that a company does not run out of cash.

Not having enough cash is a big problem for all businesses, including airlines, while too much cash can also be a potential problem. Having more cash than necessary for a company's current liabilities and keeping this excess cash idle will reduce the profits that the company can make. However, it is called “cash burn” when a company spends the cash it has earned in the previous period in the current period or when it finances its expenditures with debt due to its lack of cash. According to IATA, more than $77 billion in cash was burned globally in the airline industry in 2020, that is, airline companies consumed their cash reserves to meet their fixed costs during the Covid-19 pandemic (https://www.iata.org/en/pressroom/pr/2021- 24-02-01/, Accessed 03.01.2022).

While cash can be used to invest in long-term projects and activities, it is also used to invest in securities as short-term investments. Securities can be defined as types of investments that are short-term can be turned to cash quickly, and most of the time, generate small returns when compared to longer-term financial instruments (Block et al., 2014). The reason for investors to choose marketable securities is to generate some amount of return from the idle cash. The company can sell marketable securities providing themselves both a high degree of liquidity as well as cash to pay its current debts. Given that a company should not have too little or too much cash, different industries use a wide variety of cash management models to determine the optimal level of cash to hold. These can be referred to as Baumol-Tobin and Miller-Orr models. Among them, the Miller-Orr model is a more realistic model because it assumes that cash inflows and outflows are irregular over time, that the company intervenes in cash inflows and outflows at a specified lower and upper cash level, and also because it optimizes cash holdings and opportunity costs.

An important organization that assists cash management in the airline industry worldwide is the IATA Clearing House (ICH). IATA Clearing Services (ICS) is the department within IATA that deals with financial transactions between airline companies. The main service provided is, however, the ICH. According to IATA, the purpose of ICH is to “provide means for payment of all invoiced items shipped to and from airlines around the world” (IATA, 2014). Between airlines and their Travel Partners there needs to be an efficient closing of accounts and it must be done in the most time effective way as possible. This is probably where IATA Clearing House comes into the picture. They reduce the vast amount of multicurrency transactions taking place into a single transaction, to single payables account. IATA Clearing House uses a netting process to settle majority of the multi-billion transactions. This process enables them to reduce movement of funds to an absolute minimum and at the same time give both credit and currency protection to companies that uses it (IATA, 2014).

IATA Clearing Services are used by more than 475 airlines on a weekly basis, and the amount of these transactions is around $49.5 billion annually (IATA, 2014). The fact that its customer base includes a large number of non-IATA airlines is a sign of ICH's importance. Therefore, they provide the setting to allow airlines to do business with one another, reducing transactions, as mentioned previously. ICH provides a relatively safe and secure environment while reducing costs and providing minimal risk to the individual airline. It would not be exaggerations to say that international air transport would operate much less efficiently and potentially come to a standstill without the service provided by ICH. Airlines in North America primarily use the Airline Clearing House (ACH) for intra-American billing, but agreements between ACH and ICH allow for "intermediate clearing" between the two entities, ensuring smooth transactions. However, a significant majority of the world's scheduled airlines use the IATA Clearing Services system for international flights. In the year 2019, reports indicated that the high number of transactions belonging to airlines and their related companies as well as travel partners were realized successfully at a rate of 99.96% (https://www.iata.org/contentassets/c81222d96c9a4e0bb4ff6ced0126f0bb/iata- annual-review-2020.pdf, Accessed 14.12.2021).

In addition to the clearing house, IATA also provides the services such as IATA Financial Settlement Services (IFSS), Billing and Settlement Plan (BSP), Cargo Account Settlement System (CASS), IATA Currency Clearing Services (ICCS), Simplified Invoicing and Settlement System (SIS), and IATA's Enhancement and Financing (E and F). These services assist in: facilitating payments; simplifying processes such as sales, reporting, and remittance; invoicing and closing of accounts; global cash management; and solving disputes. Let's take the three members of the OneWorld alliance as an example: British Airways, American Airlines and Qantas. Due to extensive international code-sharing and revenue-sharing networks, large amounts of money will need to be exchanged between carriers when passengers book through the British Airways’ reservation system but fly on an American or Qantas-operated flight. Subsequent financial transactions will be accumulated by ICH before being sent to the appropriate airline, as opposed to each carrier having to manage and maintain international accounts with each of its partners. Interlining is the purchase of tickets for a flight using more than one airline, unlike intralining, which is the purchase of tickets for more than one connecting flight operated by the same airline. Thus, a passenger in New York can book a trip between New York and London using American Airlines, London to Dubai by British Airways and Dubai to Delhi using Emirates Airlines. The passenger will have a single eligible ticket with several coupons (or more likely an E-ticket these days), one for each sector of their journey. Each of the three airlines involved will willingly accept the reservation as they know they will be paid via ICH to carry the passenger. Thus, without ICH, thousands of bilateral agreements would have to be made between airlines that would not actually be enforceable. The total revenue the passenger pays for the New York-Delhi journey will be split between the airlines involved according to what are known as "proportionating principles", which in itself can be quite complex. Major airlines will have entire departments dealing only with interlining and proportioning.

The key to ICH's success is that airlines pay their bills on time. The inability of even a large airline to meet its obligations on deadlines can quickly cause cash flow problems for the entire industry. If carrier companies in financial difficulties are unable to pay their bills, they are likely to be expelled from the ICH. Often such an issuance is followed by the airline declaring bankruptcy and ceasing operations, as it is extremely difficult for most international carriers to operate without access to ICH. This highlights once again the importance of the ICH system for the efficient functioning of the international aviation network.

In addition to cost savings through net transfer of funds, ICH also simplifies the currency conversion process. While many airlines choose to hold a limited amount of international currency to cover regular expenses incurred abroad, a significant majority of international fund transfers will involve large foreign currency exchanges. However, even with the services provided by ICH, airlines face currency risk to currency fluctuations and valuations.

4. Literature Review

Cash is of great importance for companies to run their operations and ensure the necessary growth over time. Companies that have sufficient cash in their hands will be able to act more flexibly in their management and operational decisions. On the contrary, if there is not enough cash, the profitability of the companies may be affected; they may fail and even face the risk of bankruptcy. Therefore, the correct execution, use and control of cash management is of great importance for businesses today, because the value of the money held decreases over time, and they are faced with changing inflation figures. According to Yılmaz (1999), companies should aim to prevent unnecessary attachment of this cash to assets by keeping cash at the optimum level, and at the same time, they need to raise funds by increasing their non-operating income in order to utilize the cash they have. These are stated as priorities for effective cash management (Yılmaz, 1999).

Manoel and Moraes (2022), in their study, compared the cash policies of MNCs with those of non-MNCs in the Latin American environment (Argentina, Brazil, Chile, Colombia, Mexico and Peru) and found that multinational companies have higher cash levels to take advantage of greater growth opportunities abroad.

However, the level of sufficient cash that companies must hold varies under different circumstances. The sector in which the companies are located, their credibility, supply chain management, buying and selling policies, receivables management, debts in foreign currency and macroeconomic factors are some of the important factors in determining the cash levels of the companies and regulating the cash flow (Galimidi, 2010). There are many studies in the literature on these factors. In their study, Fernandes and Gonenc (2016) investigated the relationship between the cash holdings of companies in 40 different countries and both geographical and industrial diversification, in line with the data covering the years from 1990 to 2011. As a result of the study, a negative relationship was found between both dimensions of diversification (multinational and industrial diversification level) and cash holding at the company level. The results indicate that MNCs can lower the average cash that they hold if they focus on achieving economies of scale when managing their cash holdings and expand/diversify into different areas. In addition, the results show that industrial diversification has a negative impact on cash assets.

When the literature is examined, it is seen that most of the studies on the cash holding tendencies of multinational companies include American multinational companies (Foley et al. 2007; Pinkowitz et al. 2012; Gu 2017, Campbell et al. 2018). In general, it is stated that American multinational companies hold more cash compared to those established in other countries and there is an increase in the amount of cash held over time (Bates et al. 2006; Foley et al. 2007; Gu 2017). Wu et al. (2017), when they conducted research on multinational companies in China, have stated that MNCs hold more cash due to globalization, but as long as sales to foreign countries are similar, it was found that there were no significant differences in cash holdings between multinational and national companies in the country. Ramirez and Tadesse (2009), on the other hand, obtained the opposite result and stated as a result of their studies that multinational companies hold more cash than national companies.

However, it should not be forgotten that the two issues are different from each other, even though the terms between holding cash and cash management are basically the same and there is a connection between them. Companies may have different reasons for holding cash, but the two major reasons can be firstly to use it for making investments or to cover their losses. These reasons will determine the dynamics of the company’s cash management (Jiang and Wu 2022). These dynamics may vary depending on whether the companies are national, international or multinational, and there are also objectives adopted by all companies related to cash management.

As Kabakçı (2011) stated, the points desired to be aimed with cash management at the national and international level do not differ from each other. It is based on accelerating the supply of receivables, extending the duration of payments, providing cash transfer between branches according to needs and directing excess cash to investments that will bring profit. The same is true for international and multinational businesses. One of the most important differences between multinational companies and international companies is that they produce and/or provide services in more than one country, as stated in the previous section.

Although international companies need cash management mechanisms to reduce the volume and number of transactions on exchange rate-related transaction costs by considering the cash flows of their subsidiaries, a managerial decision that needs to be taken in multinational enterprises is cash management. It is about whether it will be centralized or not (Ünlü 2010). Doing business in different countries, being subject to different laws and volatility in exchange rates make cash management of multinational enterprises more complicated. However, although it is observed that necessary studies have been carried out to understand this complex structure, it is seen that the literature on the subject is quite limited.

One of the comprehensive studies on the subject was made by Wündisch (1973), and in this study, the techniques used by multinational companies which were developed to minimize the opportunity cost of idle or misplaced cash were mentioned. At the same time, the changes in the attitudes of multinational banks were examined and an Optimum Decision Model was defined for these companies to manage their cash effectively. This proposed Multicurrency model was designed to detect misdirected and/or positioned funds within the system and to minimize idle cash.

Masson (1983), like Wündisch (1973), has focused on cash management activities in multinational companies and developed a model to simulate these activities. In his work, he explains the use of the model on a hypothetical company. The developed model was seen to have focused on concentration banking and total cash position management. These areas primarily include the problems experienced in the movement of cash from a company's subsidiaries or sales points to a central account, as well as effective cash management.

Another study which focuses on the cash management of multinational companies was conducted by von Eije and Westerman (2002). Discussing the effects of liberalization, the use of single currency, as well as how deregulation affected the cash management of multinational companies in the Eurozone, von Eije and Westerman (2002) state that developments in the region facilitate cash transfer and reduce the need to hold local cash. As a result of the study, it is stated that institutional changes in the euro area reduce the imperfections in the market and may eventually trigger centralization and disintermediation. Therefore, it is suggested that the removal of intermediaries after centralization may improve the internal financing function in MNCs. This can ultimately lead to an increase in the value of the multinational company.

In another study by Westerman and von Eije (2005), it was stated that the liberalization of financial markets, low exchange rate volatility and the establishment of the single currency lowered costs relating to transactions and bankruptcies of multinational companies in Europe. They also state that it makes cash transfers in Inner Europe easier and cheaper, and that this makes it possible to centralize cash management activities. Therefore, they stated that centralization and disintermediation at the headquarters of multinational companies provide cost savings in working capital, bank accounts, funding and bank relations.

Tsamenyi and Skliarova (2005), in their study, have investigated how different or similar cash management practices in multinational companies in Russia and the Commonwealth of Independent States were, as well as observing the differences in their cash management practices. As a result of the study, they stated that there were difficulties in international finance and cash management practices in companies in both Russia and other countries under the Commonwealth of Independent States due to the bureaucracy, banking system and the volatility of the currencies used in these countries.

So and Zhang (2022) investigated the impact of cultural heterogeneity on corporate cash holdings, focusing on multinational companies, and showed that the level of corporate cash holding is positively correlated with the degree of national cultural differences within a multinational company, in general, cultural heterogeneity of multinational management in the context of global operations. stated that it is important to take them into account.

5. Methodology

5.1. Purpose and Scope of the Study

In the study, the aim is to model the cash inflows and outflows from the activities of a multinational airline company that has its headquarters located in Turkey. Also, part of the aim is to evaluate and interpret the risks arising from these cash movements by examining the subject within the framework of a case study.

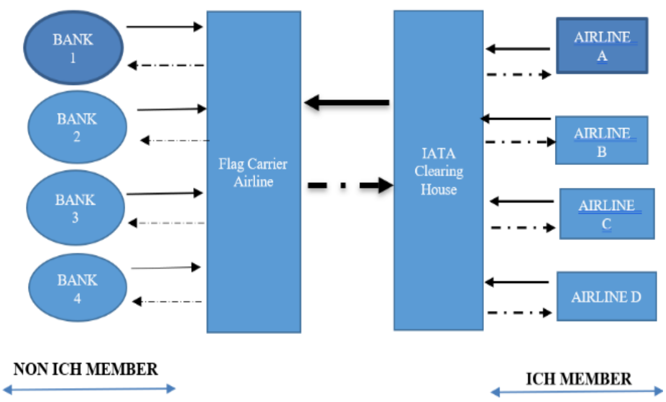

Figure 1. Cash Inflows and Outflows of the International Airline Company
Source: Author's own creation

Turkey's flag carrier airline company examined in the study has representative offices and ticket sales offices in various airports and cities in 128 countries, including Europe, America, Africa, the Middle East, and the Far East regions, apart from Turkey. In addition, it has flights to 330 destinations in the world, and while it receives goods and services such as fuel and maintenance support from these flight points, it also provides direct or indirect similar support to foreign airline companies in Turkey.

5.2. Model

The airline company examined within the scope of the developed model provides cash inflows and outflows with banks via ICH, SWIFT and CHIPS systems. The model is given in Figure-1 below. The solid arrows in the figure show the cash inflow, the dashed lines the cash outflows.

In Figure 1, cash inflows and outflows of an airline operating on a multinational scale is modeled. According to the model, the airline company in question is a member of IATA and benefits from the clearing services offered by the ICH. The cash inflows and outflows shown on the right side of Figure-1 are realized within this scope. On the left side, the cash inflows and cash outflows of the airline company using the CHIPS and SWIFT networks of non-ICH companies and organizations and banks are shown. All these cash inflows and outflows are controlled and managed by the accounting department at the airline company's headquarters.

According to this model, the equations created for an airline company can be stated as follows:

Net Cash Amount=Cash Inflows-Cash Outflows (1)

Cash Inflows = [Entries from ICH + Entries from Other Banks] (2)

Cash Outflows = [Withdrawals from ICH + Payments via Other Banks] (3)

In this study, cash inflows and outflows of a flag carrier airline operating in Turkey, as modeled above, are correlated with the balance sheet and cash flow statement given in the company's 2020 annual report and in Figure 2, comments and evaluations about cash changes are made.

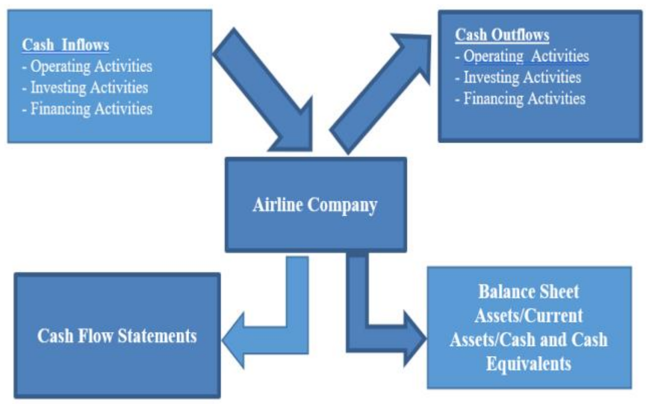

Figure 2. Airline Cash Flows and Financial Statements
Source: Author's own creation

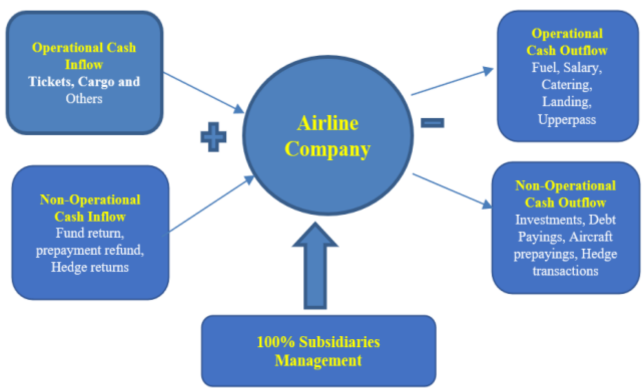

Figure 3. Airline Cash Flows
Source: Author's own creation

Cash inflows and outflows of a company in a certain accounting period are taken from its cash flow statement and can be classified under three sub-headings as operating activities, investment activities and financing activities. The cash inflows and outflows from ICH and banks to the airline company shown in Figure 1 are considered to be cash flows from operating activities, which are the net profit or loss for the period, and changes in working capital. Cash flows from investing activities arise from the purchase or sale of property, plant and equipment (aircraft), cash advances and debts. Cash flows from financing activities are mainly due to loan repayments and rent payments.

Table 1. Cash Flow Statements (Million USD)

Accounts	2020	2019
Begining Balance	2.075	1.636
Cash Flow from Operating Activities	389	2,111
Net Income	(836)	
Cash Flow from Investing Activities	(369)	(1,016)
Cash Flow from Financing Activities	(284)	(656)
Net Change in Cash and Cash Equivalents	(264)	439
Ending Cash and Cash Equivalents Balance	1.811	2,075

Source: Company's 2020 Operating Reports.

Table 2. Balance Sheet 2020 (Related Acconts- Mil. USD)

Assets		Liabilities & Stockholder's Equity	
Current Asset		Liabilities	
		Stockholder's Equity	
Cash and Cash Equivalents	1811	Net Income	(836)

Source: Company's 2020 Operating Reports

5.3. Case Study and Findings

The relevant account items in the cash flow statement and balance sheet for the years 2019 and 2020 are given above. According to the cash flow statement given in Table-1; 438 Million USD was created in 2019, TL -264 million USD was created in 2020, and the cash balance at the end of 2020 was 1,811 million USD. The amount of cash generated decreased by 160 % compared to 2019. While the most important reason for the decrease in the amount of cash created was the Covid-19 pandemic experienced. While a net profit of 788 million USD was recorded for the period in 2019 it was followed by a loss of 836 million USD. in 2020. If the cash flow statement is analyzed in terms of cash inflows and outflows;

Cash Inflows = (from Operating Activities + from Investment Activities + from Financing Activities) = (2,699+784+3,963)= 7446 million USD

Cash Outflows = (from Operating Activities + from Investment Activities + from Financing Activities) = (2,310+1,153+4,247) = 7,710 Million USD

Net Cash Flows = Cash Inflows - Cash Outflows = 7,446 Million USD – 7,710 Million USD = -264 Million USD

Cash inflows and cash outflows in 2020 are given in Table-3 below. According to this table, the difference between cash inflows and outflows was – 234 million USD. In 2020, 53,2% of cash inflows and 55% of cash outflows were from financing activities. While cash inflows are derived from loans provided, cash outflows are from loan repayments and rent (leasing) payments.

It is aimed that the inconsistencies that may occur in the short, medium and long-term cash inflows and outflows of the airline company will not disrupt the operational activity flow. In 2020, the airline company's cash inflows were 7,446 million USD, its outflows were 7,710 million USD and its daily average cash flow (2*7,746+7,710)/360= 65 million USD. Projections related to basic parameters are provided from the units of the company. Parameters that are the basis of cash flow in the airline company are fleet, capacity, flight frequencies, fuel consumption, number of personnel, occupancy rate, unit income, etc. can be specified as. Similarly, basic exchange rates, fuel prices, interest rates, inflation, etc. are used in cash flow forecasting. factors will also be influential. In this way, income, expenses, net cash flow and cash stock are estimated in the light of the above-mentioned parameters. Forecasts can be made in 1 or 1.5 year periods with a monthly frequency. It is aimed to minimize the difference by analyzing the estimation in detail. The minimum liquidity procedure has been accepted at the airline company, and critical thresholds have been determined for the amount of cash. In the event that cash is predicted to fall below the threshold level in the estimation study, necessary actions are taken to procure external resources.

Figure 4 below shows the modeling of the airline company according to the Miller-Orr model, in which the optimal cash balance and the lower and upper limits of the cash level are shown. According to the Miller-Orr model, the minimum cash level (L) is 50 Million USD, the target cash level (Z) as 65 Million USD., and the maximum cash level (H) as 100 Million USD.

The minimum cash level determined by the airline company is determined as, 50 Million USD and when the cash level reaches the upper limit of 100 Million USD, the company will invest in securities of 100-65 = 35 Million USD and reduce the cash level by target or average amount. When the cash level of the company reaches the lower limit of 50 Million USD, the company will sell securities worth TL 15 Million USD (65-50) in order to reach the target capital level and increase the amount of cash at this level.

The airline company examined in the case study followed some strategies for the cash flow problems it experienced during the pandemic period. While foreign airlines received intense government support and reduced their personnel numbers during this period, this company managed to deal with the crisis using its own resources. After the short working practices employed and the agreement reached with the union, 800 million USD were saved in personnel expenses. By reducing the planned advertising and marketing activities, a savings of 100 million USD was also achieved in this period. Approximately 100 million USD was saved due to the simplification of in-flight catering services, strong bargaining with suppliers, and discounts on airport payments. Together with the savings of 100 million US$ in other fixed and operational expenses, a total of approximately 1.1 billion USD was saved within the year. On the other hand, approximately 300 million USD was cut in non-aircraft investment expenditures. As a result of flight cancellations and delays, the financing need for the 2021-2023 period was reduced by 7 billion USD, contributing to short-term cash management planning.

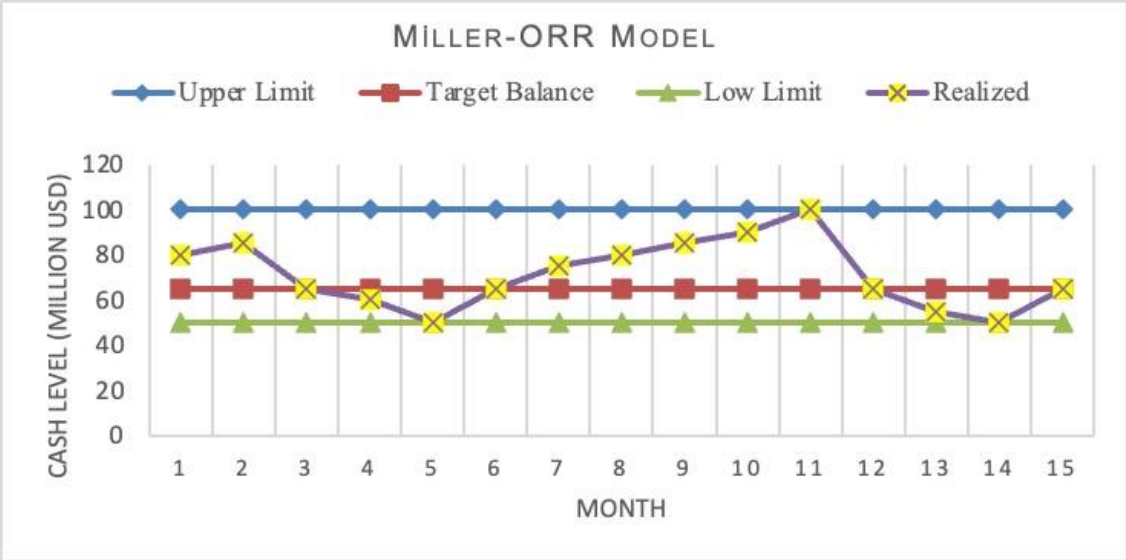

Figure 4. Optimal Cash Balance According to the Miller-Orr Model
Source: Author's own creation

Due to flight cancellations within the scope of the measures taken during the epidemic period, approximately 1 billion USD worth of ticket refunds were made. As a result of the actions taken, the cash level at the end of 2019 was relatively preserved. Cash was generated in passenger operations with dynamic capacity management, higher occupancy compared to competitors and a positive contribution margin. The EBITDA figure, which indicates the cash generation potential of the partnership, was seen to have decreased by 40% in 2020 compared to 2019, and stood at 1.9 billion USD, while the EBITDA margin was realized as 27.7%. Despite the decrease in the EBITDA amount, the aviation industry, which entered

2020 with growth expectations despite the negative commercial and political developments that took effect in 2019 due to the pandemic, faced an unprecedented crisis in its history due to the pandemic.

Despite this, according to IATA expectations, due to the continuing cash burning in the first half of 2021, it is expected that support requests from the markets, banks and governments will continue in order to ensure the income-expenditure balance of airlines throughout the year. Airlines, which need more flexibility in their costs and cannot receive sufficient financial support, are expected to focus on industry consolidation.

In terms of cash flow risk management, the airline pays attention to the establishment and implementation of an effective cash management policy. In order to manage cash flow risk effectively, forward-looking company cash flow estimation studies are carried out on a monthly basis. In addition, in order to ensure the continuity of the company, the minimum level of cash to be kept has also been determined. Current and future cash amounts are monitored according to this level and it is stated that necessary actions are taken to ensure that the minimum cash level is not dropped (THY Annual Report 2020).

6. Conclusion

Cash is vital for airlines operating globally, as it is in other industries. From executing day-to-day operations to exploiting new investment opportunities, airline companies must maintain an optimal level of cash. The amount of the cash level depends on a number of factors such as the company's activity level, alternative rate of return, the current conjuncture and international markets.

There are few common points in previous studies on the topic by Ünlü (2010), Wündisch (1973), Masson (1983), von Eije and Westerman (2002), Westerman and von Eije (2005). These points are first to minimize the cash holding and transaction costs of multinational companies, to keep sufficient amount of cash in the company to evaluate the investment opportunities, to facilitate cash transfer between the multinational company and its sub-units, and to develop appropriate mechanisms and a central and intermediary cash management system. Within the framework of these approaches, in this research, it has been determined that the central system and mechanisms established for cash management in an airline company, which is a multinational company, are compatible with the literature and even this mechanism has been established within the body of IATA all over the world and clearing services are provided to member airline companies.

The IATA Clearing House in the airline sector and technological developments in the banking sector offer airline companies important opportunities that can facilitate and safely carry out their international and national activities. With these opportunities, companies can reduce risks in cash management and operations and increase company values.

The net cash flow and cash levels created by the companies can be monitored in the cash flow statements and balance sheets, and in this way, they can control from which sources the cash flows are obtained and where they are used. They aim is to be able to predict future cash levels for airline companies and to reduce cash flow risk by using methods such as models and forecasting techniques that are used to create a cash budget and determine the cash level.

Due to the Covid-19 pandemic, many airline companies have taken some precautions against cash flow crises. These are precautions such as achieving savings in personnel expenses by reducing the number of personnel, cancellation and postponement of aircraft purchases, cooperation and mergers with other airline companies and government supports are the main measures. However, companies that cannot manage the process and are financially weak should terminate their activities. However, companies that could not manage the process and were financially weak had to terminate their activities or go bankrupt. Today, airline companies both in Turkey and in other countries are considered to be in the recovery process.

In this study, the net cash flows and the changes in the level of cash and cash equivalents account of the flag carrier airline operating in Turkey, which can be considered as an international company, were analyzed 2020. Cash flows and their relations with the IATA Clearing House were determined, evaluated and interpreted. The fact that there are very few studies in the national and international literature on the analysis, evaluation and interpretation of cash flows in the airline industry makes this study unique

Ethical Approval

Not applicable.

Conflicts of Interest

The authors declare that tere is no conflict of interest regarding the publication of this paper.

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