



PRIVATIZATION OF TURKISH AIRPORTS

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ABSTRACT:

Starting in 1993, the General Directorate of State Airports Authority (SAA) has partially privatized the major airport terminals in Turkey by using Build-Operate-Transfer (BOT) methods. One of the main reasons for privatization was the necessity of investing in terminals, as passenger numbers increased dramatically in the last decade and terminal facilities were the initial bottleneck. In this way, the state was able to shift the burden of financing and operation to the private sector.

The selection of airports, the particular form of privatization with a BOT method for terminals and later on the associated long term leases and their economic effects raise interesting research questions.

Furthermore, a comparison of BOT method with other privatization methodologies gives an insight of advantages and drawbacks in the implementation. One question investigates if the SAA makes use of the previous experience on airport privatization in the world.

The BOT implementations are evaluated in terms of capital investment funding, contractual design and the operation period acquired by the private sector via auctions.

Moreover, the details of the Lease agreements following the expiration of BOT contracts at Istanbul Atatürk and Antalya airport are described to raise some questions on the contracts and the auctions took place.

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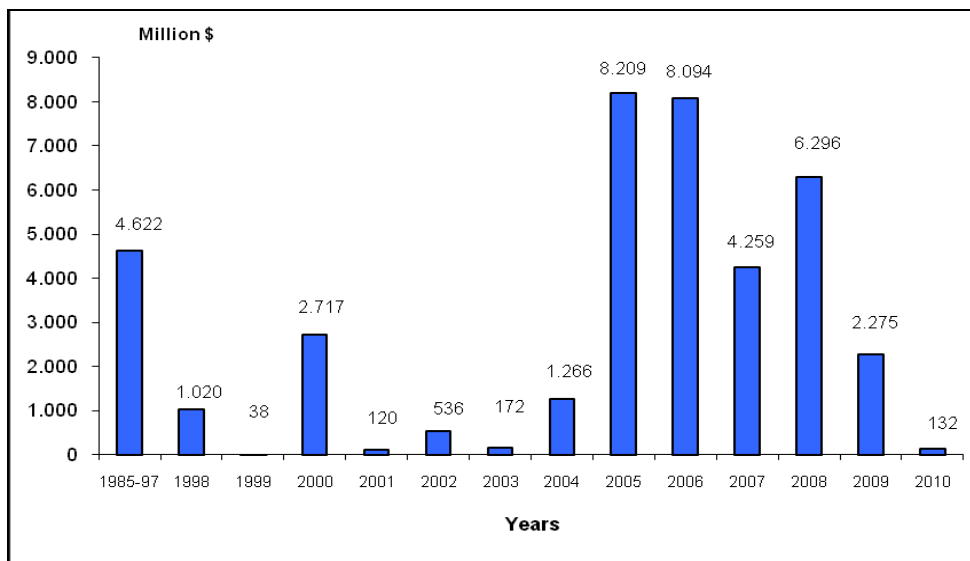
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1 Introduction

The European economy experienced a remarkable change in the 1980's with the emergence of privatization procedures, which first started in the UK under Thatcher government, both for firms in production economy, but also for infrastructure providers and public utilities. The main aim of UK privatization was reducing government involvement in industry. (Marsh, 1991) Followed by the UK, continental Europe started to privatize government companies in various sectors. As an emerging economy, Turkey was also influenced from this wave and set up the Republic of Turkey Prime Ministry Privatization Administration¹ in 1984. Since then, a number of public enterprises have been privatized in different sectors, such as energy, transportation and telecommunication.

The PA has used different privatization methods, like straight sales, leases, granting of operational rights, establishment of property rights other than ownership, profit sharing model and other legal forms, depending on the nature of the business. The receipts attained from privatization reached a peak in the middle of 2000's, as large public utilities were included in the process. Figure 1 shows the value of privatization implementations in Turkey undertaken so far.

Fig. 1: Privatization Implementations in Turkey by Years



Source: Republic Of Turkey Prime Ministry Privatization Administration

¹The term "PA" (Republic of Turkey Prime Ministry Privatization Administration) will be used in the rest of the paper

The privatization of airports, on the other hand was carried out by the General Directorate of State Airports Authority of Turkey (SAA), which, starting in 1994, used the Build-Operate-Transfer (BOT) methodology to transfer the operating rights of airport terminals to the private companies, while keeping the airside operations under state control.

In this paper, we are mainly looking at the evolution of airport governance in Turkey. This paper is organized as follows: Section 2 takes a look the historic evolution of airport governance and then briefly discusses the trade-offs associated with each type of governance mode. In the next section, we focus on airport privatization in Turkey and analyze the privatization methodology undertaken by the SAA. Finally, we conclude by raising some questions for further research.

2 Alternative modes of airport privatization

Traditionally, airport business had been dominated by the state until 70s. Deregulation and technical change in the airline industry and rising income led to the dramatic growth of air traffic during 70s and 80s (Padova, 2007). As a consequence, airports experienced problems due to congestion, but many governments were not eager to provide large amounts of investment because pressure for reduced government spending was the main theme in late 70s and 80s in the world. Governments in developed countries were under the pressure of taxpayers and in developing countries IMF was the main pillar that encouraged reductions in government spending (Trethaway, 2001). As a consequence there was a call for private investment and innovation in order to boost productivity in airports. Another motivation behind the change in governance form of airports was the increasing move towards more commercialization and profit-orientation, away from the traditional concept of a public airport.

We observe different types of privatization methodologies when looking at the literature on airport privatization (Gillen, 2009; Carney and Mew, 2003; Vasigh and Haririan, 2003), such as;

- management contracts,
- long-term contracting (leasing) and
- full or partial privatization

2.1. Management Contracts

Management contracts are typically short term contracts that put the operational management of an entire airport in the hands of a private management firm. In this case, the state retains ownership, control of airport assets and overall long-term strategy, leaving short term tactical decisions to the private sector. Therefore, managerial skills required in the contracts are not related to expensive capital investments, but only to the successful management of a facility in the airport for a given period. They are more about productive usage of existing assets. (Carney and Mew, 2003) Thus, the motivation under such contracts is not related to needed funds, but to the efficient use of existing resources.

Williamson (1985) argues that the success of this application is tightly related to the length of the contracts and competitiveness with which they are awarded. Considering the difficulty of specification of performance criteria in the long term, tenders that are done periodically in a competitive environment lead to efficient outcomes. Longer term contracts are usually incomplete and require post contract negotiation. Following this, managers are short term oriented in these types of contracts and therefore, they have cost minimization incentives. Excessive cost minimization efforts might raise concerns for the quality of the services provided for governments (Carney and Mew, 2003), as in case of BOTs.

2.2 BOT

In developing countries, the privatization method for airports has usually been long-term franchise agreements due to the fact that these countries need new

facilities and modernization of them (Poole, 1994). The BOT method of privatization is such a long-term franchise agreement, ranging between 20 to 50 years² (Betancor and Rendeiro, 1999). BOT differs from the others in many aspects in terms of capital raising, ownership, management and operation rights.

BOT is a privatization methodology, where the governmental body gives the constructing and operating rights of a project for a pre-determined period to the private sector and after this period these rights are transferred back to the government. (Walker and Smith, 1996) Nevertheless, the planning and designing can also be implemented by the private sector according to the agreement. Since the emergence of this methodology, different variations have also been conceptually developed and used such as BOOT (Build-Own-Operate-Transfer), DBOT (Design-Build-Operate-Transfer), DBOM (Design-Build-Operate-Maintain), BOO (Build-Own-Operate) etc.³

BOT has been a popular methodology in infrastructure projects; as such projects require large sums of funds and a significant level of know-how. This methodology is used both in developing and developed countries. However, according to Dey and Ogunlana (2004) the underlying rationale differs. While BOT is used in developing countries mainly due to the financing problems, lack of liquidity of the governments and the underdeveloped infrastructure implementation to carry out such large and complex projects by the governments, it is implemented in developed countries mainly in order to increase efficiency in construction and the operations

There are a number of aspects, which should be mentioned when we refer to the BOT methodology. First of all, BOT agreements provide the necessary funds for planned infrastructure investments via the private firms. BOTs seem to work well, when the governments are not in a good condition in terms of liquidity. Private firms bring the funds and also the technology for building and operation, and allowing for shorter period of project completion. The owner, i.e. government, foregoes the revenues it would have earned, if it had operated the facility by itself, but saves on financing and administrative expenditures. Hence,

² However, there are examples, where the contracts are relatively short-term.

³ For more examples, see Dey and Ogunlana (2004)

a detailed analysis with respect to costs, (including transaction costs), revenues and operation period is necessary to evaluate BOT contracts.

As these contracts are based on the operation period but not on the price (in the case of Turkish airports), the amount the government foregoes for the whole period can be regarded as the price of the contract for the government, when discounted to present value. For the operator, the difference between the construction, financing and operational cost on the one hand and expected revenues on the other are the profits he can earn in the process.

Secondly, risk allocation between the government and the private firms for the BOT contracts are crucial, because it influences the operating period the parties agree on, the profitability of the project during this period and how efficient the operation is undertaken by the private firm. Baker (1986) classifies these risks as political, construction completion, operation, finance and legal risks.

One of the problems linked with risk allocation on BOT projects is the typical principal agent problem. We observe the government acting as a principal and the private company as an agent. The conflict arises from the fact that once the private companies make the investment, they have a limited time to operate. Hence, they orient themselves to make profit in this limited period with the detailed forecast analyses and expectations. At this point, the question is if a BOT contract is attractive for both the governments and the private firms, especially in the worst-case scenarios. It has been argued that, one of the best solutions to the principal-agent problem is to give such incentives to the agent, so that he acts in the interest of the principal, when maximizing his own utility. (Brandes et al., 2000) Besides, the importance of ownership on the degree of principal-agent problem has also been discussed. Agents, who actively own shares on the firm, tend to work more efficiently. Less or no ownership of the agent could lead to information asymmetries between the parties, i.e. the owner and the manager, hence in less efficient operation and management. BOT agreements do not transfer any ownership rights to the agents, which leads us to the question if there are conflicts of interests between the government and the private firms and if yes, which action should be taken in order to solve such conflicts.

Thirdly, the way contracts are awarded to the private firms is crucial. BOT is a concession agreement providing private companies monopoly franchise. There

are open questions in designing such contracts and awarding them to private parties. In general, as well as the government, there are many parties such as banks, engineering firms and management experts that take part in such concessions as subcontractors. Unquestionably, this situation becomes one of the obstacles in designing contracts. Furthermore, Tiong and Alum (1997) argues that defining performance specifications as well as incentive and risk-sharing parameters in order to achieve high levels of performance and minimize post-award negotiation are all crucial. In addition, unless there are special requirements of speed, innovation or excessive transaction costs, concession award has to be competitive. At this point, the way bids are constructed becomes critical. In the world, competitive concession award is made by first price sealed bids mostly. However, it is argued that open auctions also should be considered (Klein, 1998).

2.3. Full or Partial Privatization

In this type of governance practice, ownership- and therefore strategic control over productive assets are partially or fully transferred to the private sector. Full or partial privatization can take place via public offering, capital markets, trade sale or a combination of those. (Juan, 1996) While one of the main advantages of full or partial privatization, especially in developing countries, is the generation of fiscal revenues through commercialization, the major advantages are the long-term effects on productivity and the more commercial operation of the airports. Tretheway (2001) sees important changes in the governance structure following full or partial privatization, like the participation of private shareholders in Board of Directors, more strictness on reporting and disclosure agreements and the much more commercial orientation of the airport business. He argues that both for costs and revenue management private airport show more efficient management practices. In addition to that, state intervention is limited following privatization and requires less bureaucratic resources.

On the other, public offering might not be that efficient, if the capital markets are not well developed so that the privatization process is flawed and prone to corruption.

Table 1 gives an overview of some recent privatization experiences and the type of privatization instruments used, but does not your detailed analysis of the performance differences.

TABLE 1: Airport Privatization in the World

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3 Airport privatization in Turkey

In Turkey, air transport has gained more and more importance in the last decades. From 1988 to 1993, number of passengers served by Turkish airports doubled. As a result, the existing capacity not only became inadequate, but also started to suffer from the bad quality. Especially terminals in main airports were insufficient, which required enlargements or replacement with high levels of investment. This, together with the privatization wave in the Turkish economy led to the first airport privatization in 1993, which was the tender of BOT for Antalya Airport Terminal 1, prepared and implemented by the SAA independent of the PA. (Özenen, 2003) Similar contracts followed over the next decade, as can be seen from Table 2, which summarizes the BOT implementations for Turkish airports. It is interesting to see that the operating period granted for BOT contracts varied significantly, depending on the income that could be received from the operation and the cost of the terminal construction according to predetermined plans by the SAA.

We see that BOT was one of the interesting options pursued, since the investments are financed by the private sector, but in the long term the government remains the owner. Especially in developing countries as in Turkey, it is controversial to transfer the ownership of strategic infrastructure to the private sector; therefore it may be one of the motivations behind BOT implementations.

TABLE 2: BOT Implementations for Turkish Airports

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The airport privatization in Turkey that has been undertaken by the SAA,, can be summarized as a two stage process.

In the first phase BOT implementations have taken place, in which the winning operating company is required to build a terminal⁴ according to the contract and gets the operating rights for that period. At the end of this period, the operating company is obliged to give all the rights back to the SAA⁵.

However, since significant efficiency gains are not only observed in the construction process, but also in the operation of the terminals, it was natural to continue operating them in private hands at the end of the contract period. It is for this reason that we observe a second phase in the privatization process. In this second phase, the SAA agreed to transfer the operating rights of the newly acquired terminals via long-term leasing back to the private sector. The interested companies were asked to submit their bids in price auctions. The one with the highest bid obtained the operating rights for a predetermined period. In Antalya and Istanbul Atatürk airports, the BOT period has already come to an end, followed by a long-term lease agreement.

3.1. The characteristics of the BOT implementation at Turkish airports

SAA defines the framework of the contract in advance, where they determine;

- i) *for the building phase*; the content what is to be built, the amount of investment;
- ii) *for the operating phase*; the revenue sources for the operating company and the proportion of the revenues for both parties;
- iii) a guaranteed number of annual passengers over the contract period (in most of the cases).

In the BOT applications in Turkey, the sealed bid auctions have been used, where the bidder with the shortest operation period wins the auction. However, in order to take part in the auction, the participants⁶ should fulfill some criteria in

⁴ In some cases, also additional facilities such as car parking, retail stores and so on.

⁵ This policy has been implemented already at Antalya (Terminal 1 and 2 separately), Istanbul Atatürk, Dalaman, Ankara, Izmir and Milas-Bodrum airports

⁶ In the form of consortia.

terms of technical proficiency, experience in this area and financial situation in a pre qualification process.

The revenue sources for the private operating company vary from airport to airport, however they mainly cover the following activities; passenger fee; loading bridge fee; space assignment, rent and advertising revenues; revenue share and endorsement revenues; counter fee; CIP and meeting room revenues; ticket office, restaurant, bank, office, luggage revenues; car parking rents; electricity-water revenues etc. (Özenen, 2003)

3.2. Assessment of the BOT implementations at Turkish airports

3.2.1 Regarding the Investment Funding

The largest amount spent for BOT investment was at Istanbul Atatürk airport with 306 million USD. It was followed by Ankara Airport by 188 million USD and Antalya (Terminal 1 and 2) by 136.6 million USD. Keeping these huge amounts in mind, one can argue that it is one of the biggest advantages of BOTs, that the governments can easily get access to large funding sources and at the same time operational knowhow. Furthermore, foreign debt of the treasury is not affected negatively. (Imre, 2001)

On the other hand, it can be also argued that governments have cheaper access to capital than the private firms. In terms of total welfare one can question the efficiency of BOT financing, where the amount paid back to the creditors with corresponding interest rates is investigated in detail. For example, the BOT process at Istanbul Atatürk airport was financed by five different banks. (Kaya et. al., 2007) The alternative would then be for the government to finance the construction and only after completion turn it over to private sector. It is the option which was pursued in the process of the privatization of the new airport BBI in Berlin, since the originally considered privatization option was rejected because of the higher cost of capital associated with the original BOT concept.

3.2.2 Regarding the Passenger Fees- Contractual Design

The business plan of a BOT tender depends on the cost of construction and of financing and the expected operating revenues during the concession period.

There are different revenue sources for the operating company: Table 3 shows the revenue breakdown of the terminal operating company TAV, One of the main revenues source for the operating company is the revenue generated from retailing; another is aviation income (which reflects the passenger fees).

TABLE 3: Revenue Shares of TAV in 2007 and 2008

(€ million)	2008	2007	Change	2008* (Adj)	2007* (Adj)	Change
Total revenues	597.7	479.0	25%	627.3	507.5	24%
Sales of duty free goods	148.7	135.5	10%	148.7	135.5	10%
Aviation income	129.1	98.9	31%	158.7	127.4	25%
Ground handling income	106.4	63.5	67%	106.4	63.5	67%
Commission from sales of duty free goods	72.7	60.8	19%	72.7	60.8	19%
Catering service income	36.4	31.7	15%	36.4	31.7	15%
Other operating income	104.4	88.6	18%	104.4	88.6	18%

* Adjusted figures include guaranteed passenger fee revenues from airports in Ankara and Izmir

Source: <http://ir.tav.aero>, 2009

Operating income is very much dependent on traffic volume, so as a minimum the SAA guarantees a number of passengers to the operating company, thereby reducing the possible downside risk for the bidders. If the passenger numbers stay below the guaranteed volume, the SAA will have to make extra payments. If the volume turns out to be larger than guaranteed, the SAA receives a larger revenue share by being also involved on the upside.

TABLE 4: Guaranteed and Actual Int'l Passenger Numbers, Istanbul Atatürk Airport

Year	Guaranteed Int'l PAX	Int'l PAX
2000	4.000.000	4.851.487
2001	4.120.000	4.346.810
2002	4.243.600	8.506.204
2003	4.370.908	8.908.268
2004	4.502.035	10.169.676

Source: Özenen (2003), SAA

TABLE 5: Guaranteed and Actual Int'l Passenger Numbers, Antalya Airport

Year	Guaranteed Int'l PAX	Int'l PAX
1996	1.322.400	N/A

1997	1.430.004	N/A
1998	1.537.559	2.840.402
1999	1.645.115	2.133.660
2000	1.752.670	3.416.036
2001	1.860.226	4.359.090
2002	2.023.505	9.750.874
2003	2.084.210	9.756.180
2004	2.146.736	12.563.195
2005	2.211.138	14.256.114
2006	2.277.472	12.235.417
2007	2.345.796	15.159.989
2008	2.416.171	16.201.203
2009	2.488.556	15.210.554

Source: Özenen (2003), SAA

Therefore, the risk allocation between the parties is an interesting question to analyze. For instance, at Istanbul Atatürk airport, the SAA guarantees the revenue from passenger fees for 4 million international passengers, with a 3% increase each year. The SAA then receives the excess revenue after the guaranteed number is achieved at this airport while at Antalya airport; the parties have different shares on the revenue of excess passengers. (Özenen, 2003)

These examples show that although the general framework is the same for BOT contracts, the details have been established according to the specific nature of each airport.

It is not clear what happened to the consequence of the negative external shocks. For instance, during the investment and operating phases of Istanbul Atatürk airport and Antalya airport Terminal 1, three significant external shocks took place that affected the economy and air transport in Turkey. First one was the earthquake in 1999 in Istanbul and its surrounding, which resulted in a delay of 13.5 months in the construction at Istanbul Atatürk airport. Second one was the financial crisis on February 2001, which affected the economic situation in Turkey dramatically. Also the 9/11 terror attacks in the US led to a significant decrease in air traffic around the world. In 1999, air traffic passenger volume in Turkey fell by 12.2 %, in 2001 by 3.9% and stayed almost the same during 2002 and 2003, which was below of the forecasted yearly growth rate of almost 20% between 1989 and 1999. (Özenen, 2003)

Moreover, the shortness of the franchise contracts may increase the risk for the enterprise. If for some reason the air traffic is adversely affected for a period of time, the enterprise will not have enough time to recover his revenue loss. (Kaya et al. 2007)

3.2.3. Regarding the tender preparation and the length of the franchise period

The tender preparation period is significant in a sense that it can affect the number of bidders and the quality of the BOT projects offered. Kaya has argued that the tender preparation period in the Turkish airport privatization was not long enough to reach the sufficient number of bidders and for a qualified project offer from the private sector (Kaya et al 2007, p. 23).

Generally, the period for the BOT agreements range between 20 to 50 years⁷. In Turkey, the BOT agreements are remarkably shorter, ranging between 3 to 15 years. For instance, the operational period of the BOT contract implemented for a new terminal at Ataturk International Airport was 3 years and 9 months, whereas in many countries, such as Chile, Gabon, Uruguay and Greece, this range is between 15 to 30 years of contracts⁸.

The difference is related to the way the contracts have been designed. Normally in a BOT contract the bidder will obtain a surplus over time, once the construction costs have been recovered. He is therefore willing to pay a price for such an operating right associated with the longer-term contract. On the other hand, in Turkey the BOT contracts were awarded to companies who could recoup their investment in the shortest time.

The shortness of the franchise period may have some negative impacts on the efficiency of operation and the quality of the service supplied. For instance, Kaya et. al. (2007) argues that the enterprises may not be willing to train their workforce in the same way as over a longer contract period.

⁷ Betancor/Rendeiro ,1999 p...,Asian Development Bank 2000, appendix 1, p. 2

⁸ ibid

3.3 Long term leases at Turkish airports

The operation period for the BOT contract at Istanbul Atatürk airport terminal expired in June 2005. Instead of taking the operating rights back from the operator TAV, which had won the BOT tender, the SAA started to pursue a policy of long-term leasing. It quickly completed the legal applications in order to lease the operating rights to the private sector via tenders. (SAA, 2008)

For Istanbul Atatürk airport, the lease period was set at 15.5 years. Four consortia originally considered taking place in the tender. However, ADP-SNC Lavalin dropped out before the auction started. Alsim-Alarko & Corporation America was not allowed to take part in the auction, as they did not fulfill the requirements set by the SAA. Only Malaysia Airports and TAV participated in the sealed bid auction and bid 1.59 billion USD and 2.1 billion USD respectively. Following this, separate price negotiations between the parties and the SAA determined the winner TAV with a lease amount of 3 billion USD⁹.

The situation for Antalya airport was slightly different, as the two international terminals were operated by two different private firms following the original BOT implementation. In 2007 the SAA prepared a tender for the two international and one domestic terminal. The tender followed the same two-stage process as in Istanbul Atatürk with sealed bid auction and subsequent price negotiations. Celebi Holding was not allowed to participate in the auction, as they did not fulfill the requirements set by the SAA. Newly established consortia Fraport-IC Ictas Holding¹⁰ (shortly ICF Airports) overbid TAV with 3.2 billion USD and it was given the operating rights of those three terminals until 2024.¹¹ (SAA, 2008)

This change in policy with a move to lease agreements, as illustrated by these two examples, raises a number of interesting questions that are worth being investigated in greater detail;

⁹ www.dhmi.gov.tr

¹⁰ IC Ictas is a Turkish construction company and Fraport is a German airport operating company, which also operates many airports in Germany and around the world.

¹¹ Terminal 1 and Domestic Terminal for 17 years, Terminal 2 for 15 years (see <http://www.aytport.com/en/page.aspx?k=36>)

- Why did the SAA prefer leasing the terminals instead of operating them by themselves?
- How did the SAA determine the length of operating period of the terminals?
- What kind of requirements did the SAA have for participating in the auctions? Did the auctions take place in a competitive environment?
- Which criteria helped the SAA on the choice of the (2-stage) auction methodology?
- What kind of contract design was used (i.e to distribute the risk between and the bidder)
- What incentive properties do the leases have?

3. Conclusion

In this paper, first, we presented an overview of alternative models of airport privatization. Second, we focused on the airport privatization in Turkey and the BOT model used there. As we are still in the data collection phase, we can not yet assess the effects of these arrangements on the Turkish airports, but we are able to raise a number of interesting research questions. They relate to the contract design, the distribution of the risk and the move from short-term contracts to long-term leases.

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<http://ir.tav.aero>

http://www.ydk.gov.tr/seminerler/turkiyede_vid_modeli.htm#t4

<http://www.dhmi.gov.tr/dosyalar/annualreport/2008/Build%20Operate%20Transfer%20Projects.html>

TABLE 1: Airport Privatization in the World **(to be updated asap)**

BOT	Long-Term Lease	Management Contracts	Full Privatization		Partial Privatization
			IPO	Trade Sales	
Toronto	Bolivia	US airports (Burbank, Indianapolis, Westchester New York)	BAA	Sydney	Athens
Turkey	Argentina		Frankfurt	Auckland	Rome
	JFK New York T-4		Vienna	Naples	Hamburg
	Macao		Copenhagen		Belfast
					Brussels
					Budapest
					Dusseldorf

Source: Gillen (2009), Carney and Mew (2003)

TABLE 2: BOT Implementations for Turkish Airports

Airport	Year of Tender	Winner	Operation Period	Operation Until	Investment Period	Investment Amount	Number of Firms in the Tender	Notes
Istanbul Atatürk	1997	TAV	3 y 8 m		30 m	306 mill USD	12	1) Prolonged in 2001 with additional 13,5 months due to the earthquake.
Antalya Terminal 1	1994	Fraport (+Bayindir)	9 y	01.09.2007	2 y	65,5 million USD	2	Fraport took over 50% in 2001, and 100% in 2005 of the operating company Bayindir
Antalya Terminal 2	2004	Celebi-ICTAS	3 y, 5 m, 26 d	24.09.2009	N/A	71,1 million USD	N/A	
Ankara Esenboga	2004	TAV	15 y, 8 m	Mid 2023	36 m	188 million USD	2	1) TAV offered 15y8m, ICTAS offered 17y6m for operating rights.
Izmir Adnan Menderes	2004	Havas-Bayindir	6 y, 7 m, 29 d	January 2015	2 y	125 million USD	6	1) Participants: Havaş-Bayındır, Gama-Casa-Riva, Teknotes-Manas, Çelebi-Fraport (7y8m), Tepe-Akfen and İçtaş-Constain. 2) TAV took over Havas in 2005
Dalaman	2003	ATM(Aksa-Turkuaz-Manas)	6 y, 5 m, 20 d		2 y	72,4 million USD	4	Participants: ATM (6y5m), Bilkent Holding-Regional Airport(9y5m), Cakir Yapi, Makyol(8y6m)
Milas-Bodrum	2006	Teknotes-Aerodrom Beograde	3 y, 9 m		N/A	N/A	8	Participants: Teknotes-Aerodrom Beograde (winner), Global/ERS/Borsy Pil(4y10m), Makyol(5y8m), Celebi, Ictas, Alsim, Aksa/YDA, TAV

Source: Own compilation using Kaya et.al.(2007), Özenen (2003), the SAA

