Is the Port Authority Underperforming?

An Operational Efficiency Analysis of Port Authority’s Divisions

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Exploring Ways to Strengthen & Develop NYC’s Transit Authorities

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**Table of Contents**

Executive Summary  
Introduction  
Research Thesis  
List of Acronyms  
Diagnosis: Part I  
Diagnosis: Part II  
Case Study: Port Authority Trans-Hudson (PATH)  
Dissection of Current Operations  

**Port Commerce**  
*Background*  
*Analysis*  
*Results*  

**Airports**  
*Background*  
*Analysis*  
*Results*  

**Bridges and Tunnels**  
*Background*  
*Analysis*  
*Results*  

Our Findings and the Future  
References
EXECUTIVE SUMMARY

The Port Authority of New York and New Jersey is a bi-state authority between New York and New Jersey that oversees much of the region’s transportation infrastructure. In response to your question of whether structural changes at the Port Authority are warranted, our research suggests that its performance is weakened by two key issues. First, political interference, combined with access to internal funding from tolls, has led the Port Authority to deviate substantially from its initial mission without significant public discussion. Second, the ability to transfer the large profits from bridges and tunnels internally and without public attention may be reducing the pressure to make each function (port operations, airports, etc.) perform at optimum economic efficiency.

The Port Authority oversees the following array of regional transit and urban infrastructure divisions: seaports, airports, heliports, bridges and tunnels, bus and rail transit, real estate, and the World Trade Center Site. Through the dissection of the Port Authority as a whole, only some of these divisions were possible to venture through our analysis in a meaningful way. The following divisions were analyzed as per our thesis: Port Commerce (which includes Port Jersey-Port Authority Marine Terminal, Brooklyn-Port Authority Marine Terminal, Elizabeth-Port Authority Marine Terminal, Howland Hook Marine Terminal, and Port Newark), John F. Kennedy International Airport, Laguardia Airport, Newark Liberty International Airport, the Port Authority Trans-Hudson (PATH), and the Bridges and Tunnels.

Overall, the Port Authority has deviated away from being a transparent and depoliticized body, and become a shared tool of the governors of the two states. This led us to conduct a detailed dissection of the operations to assess whether it is underperforming next to its peers. Port Commerce and its lack of economic superiority among competitors may suggest that the business model of the port does not allow for effective capture of revenue. We see that the airports are indeed profitable, but lack proper reinvestment and cost controls, leading to public disappointment. Without Bridges, tunnels, and airports to subsidize the operations of nearly all other Port Authority divisions, the organization would be insolvent.
INTRODUCTION

The Port of New York Authority (now the Port Authority of New York and New Jersey) was created in 1921 to overcome interstate rivalry and invest in the region’s transportation infrastructure. The agency’s design was intended to operate outside of the constraints of the political process or of the cronyism that beset many government entities in the period. Additionally, the agency’s structure included a series of checks and balances that are intended to limit the power of the Port Authority itself, as well as to guard against politicians taking advantage of it and its resources.¹

Figure 1: Geographical overview of the facilities and services of the Port Authority of New York and New Jersey.²

Since its founding, the Port Authority has grown to boast a diversified portfolio of operations that fall into four categories: bus and rail, ports, bridges and tunnels, and real estate.³ While the

¹Jameson W. Doig, Empire on the Hudson: Entrepreneurial Vision and Political Power at the Port of New York Authority.
³"History of the Port Authority." Official Website of the Port Authority of NY & NJ.
Port Authority has no power to levy taxes, it generates revenue through the collection of tolls, fees, fares, and rental income from its operations and facilities.

However, despite its original anti-political purpose, the recent Bridgegate scandal has highlighted the fact that the Port Authority has in fact become an extraordinarily political entity, driven largely by its huge revenues and the extent to which its decisions are shielded from standard political oversight. Our analysis focuses on two issues. First, the agency has fundamentally become an operation shared by two individuals, the governors of the two states; aside from the well-publicized Bridgegate malfeasance, this has more seriously led to the Port Authority’s taking on functions that are unrelated to its original mission but which are politically convenient to those two governors. Perhaps more importantly, its easy access to revenues and lack of oversight seems to have allowed it to underperform as an operator of each of its assets to an extent that would not be acceptable politically if each function’s actual performance were visible to the public and funded through standard appropriations.
Our initial research, spurred by recent political scandals, highlighted the Port Authority’s financial and governance troubles. An issue that our team identified with the Port Authority was the large-scale cross subsidization, between the profitable bridges, tunnels and airports, and the other divisions that are operating at heavy losses. The Port Authority’s financial mismanagement and cross-subsidization suggest to us that its divisions might be operating inefficiently, be it due to complacent management or the lack of cost control.

Therefore, we decided to test if the operations of Port Authority’s divisions, when benchmarked to similar organizations within the United States, are operationally efficient. Comparing each of the Port Authority’s divisions with comparable organizations of similar size and structures allowed us to use fair metrics that evaluate the operational efficiency of the Port Authority’s divisions. Our research ultimately aims to examine operational efficiency and determine whether or not the Port Authority underperforms in comparison to other organizations. Evaluating the operational efficiency of the Port Authority’s divisions allows us to conclude if the Port Authority is indeed an exemplary efficient entity that facilitates economic growth and synergistic coordination in the Port of New York and New Jersey region. Our analysis will provide crucial insights necessary to determine what financial and operational issues each divisions face and subsequently, how to fix the identified problems.
LIST OF ACRONYMS

PANYNJ/PA - Port Authority of New York and New Jersey
PATH - Port Authority Trans-Hudson
ARC - Access to the Region’s Core
PATCO - Port Authority Transit Corporation Speedline
SEPTA - Southeastern Pennsylvania Transportation Authority
POLB - Port of Long Beach
POLA - Port of Los Angeles
POS - Port of Seattle
POVIRG - Port of Virginia
JAXPORT - Jacksonville Port Authority
CYA - Container Yard per Acre
TEU - Twenty-foot Equivalent Unit
CFC - Cargo Facility Charges
JFK - John F. Kennedy International Airport
EWR - Newark Liberty International Airport
LGA - LaGuardia Airport
ATL - Hartsfield-Jackson Atlanta International Airport
ORD - Chicago O’Hare International Airport
IAD - Washington Dulles International Airport
SFO - San Francisco International Airport
PHL - Philadelphia International Airport
BOS - Boston Logan International Airport
DIAGNOSIS OF THE PROBLEM WITH THE PORT AUTHORITY: PART I
Deviation from Mission due to Political Interference and Lack of Effective Oversight

The Bridgegate scandal – which needs no detailed discussion here – is, in many ways, only the most egregious demonstration of the extent to which the Port Authority has evolved from an independent agency into a shared tool of the two governors.

In some ways, the moment at which this happened was in 1995, when New York Governor George Pataki moved to install an investment banker with no prior experience in transportation to the role of Executive Director. New Jersey Governor Christine Todd Whitman of New Jersey objected to the appointment, but eventually agreed to a deal to allow Pataki’s choice for Executive Director in exchange for the ability to select a deputy director under the incoming Executive Director.4 (It had been traditional for New York to appoint the Executive Director and New Jersey to appoint the Chairman.) Designed originally as a professional, technocratic organization, intended to operate out of reach of political sway, this moment seems to have reduced the agency’s independence and stature. Since 2001, there have been six different Executive Directors.5 It has been suggested that the present Governor of New Jersey, Chris Christie, has, over the course of his leadership, selected as many as 80 political appointees at the Port Authority.6 It is questionable whether these political appointees have the ability to run the authority effectively, since they may lack the expertise, commitment, and vision the positions require. Ultimately, it is evident that the legal governance structure is ignored, and instead the Port Authority is run by two individuals – the respective governors – with limited public oversight and, in effect, a board of commissioners that merely execute decisions determined by the governors.

One recent example of this effect has been brought under increased scrutiny as a result of Bridgegate. In 2010, NJ Governor Chris Christie cancelled a $9B Port Authority project, the Access to the Region’s Core (ARC), would have increased rail capacity under the Hudson River to provide for an additional 25 NJ Transit trains per hour during peak hours, relieving a system that is currently at capacity. Christie claimed that cost overruns made the project unfeasible, electing to forego the 3 billion dollars of federal support and other proposals to keep the project afloat. Opponents, however, accused Christie of cancelling ARC in order to redirect the money to the Transportation Trust Fund, which was nearly out of money, in order to fund New Jersey projects without requiring an increase in the gas tax. Indeed, subsequently, the Port Authority has

6 Ibid.
funded significant New Jersey road construction, improvements to the Pulaski Skyway, and purchase of an army terminal near the Bayonne Bridge – projects that had not previously been under the jurisdiction of the Port Authority, have no revenue sources, and otherwise would have had to be funded by New Jersey state funds.

The agency’s profitability, lack of financial oversight, and control by the governors has similarly gotten it involved with capital projects and investments that may not benefit or has no relevance with the Port area as a whole, but which are politically important but financially difficult for the state governments to undertake. For example, the 2007 acquisition of the Stewart International Airport, a minor airport in Orange County, was justified as a strategy to relieve stress on the Port Authority’s airports, but falls outside the Port Authority’s regional boundaries and seems primarily to be important to the politics of New York State. More recently, in 2013, the Port Authority took over the operations of the Atlantic City International Airport, even further removed from any relevance to the Port Authority’s objectives. In each case, it does seem that state politics and the interests of the relevant governor were more important to the Port Authority’s actions than the region’s infrastructure needs. Many with insider understanding of the agency describe these decision-making processes as a “horse trade” between the two governors.
DIAGNOSIS OF THE PROBLEM WITH THE PORT AUTHORITY: PART I
Cross Subsidization of Facilities Masks Operational Flaws

Beyond political interference, however, there is reason to believe that the Port Authority’s lack of detailed oversight facilitates underperformance in the operation of its individual functions. The Port Authority is really a conglomerate, operating massive facilities – airports, a transit line, the port facilities, the bridges and tunnels, and several real estate developments – that in other regions are organized as stand-alone entities. While the argument is made that this facilitates intermodal planning, the main connection among these various functions seems to be the massive internal cross-subsidization that takes place internally to the Port Authority and thus without significant outside scrutiny. A cursory look at its operating performance suggests that this may be facilitating poor performance. This is highlighted in the case study regarding the financial performance of the Port Authority Trans-Hudson (PATH).

At its core, the Port Authority operates as a part transit authority/part development corporation to operate various public goods and facilities that support the economic health of the metro New York-Northern New Jersey area. However, the services of the Port Authority that are profitable are limited to real estate, bridges and tunnels, and airports. These services in turn subsidize the other remaining operations of the Port Authority such as the PATH, ferries, ports, and bus terminals, which run yearly operational losses (Figure 2)\(^7\).

![Figure 2. Comparison of 2014 and 2013 Budget Net Income/(Loss) From Operations (in Millions)](image)

\(^7\) *Ibid.*
Furthermore, the Port Authority’s over-reliance on fees from tolls, airports, and rent from properties may ultimately prove an unstable strategy in the long-term. Fluctuations in the value of real estate or changing patterns in usage of roads and airports may erode profits in what are assumed to be long-term cash cows. Evidence of such a scenario occurring can be observed after the financial market failures and recession in 2008, where the Port Authority saw a decline in revenues due to the weakening of the real estate market. For example, in 2011 Port Authority revenues were 2.6 billion dollars short of projections mainly due to decreases in tolls and fees collected at airports and bridges, coupled with increasing security costs and commitments to the World Trade Center project. Rather than increasing fares for the unprofitable buses or PATH trains, tolls on bridges and tunnels were raised by 30 to 40 percent.

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8 “Faced with constrained capacity due to historic economic recession, coupled with billions in WTC and post-911 security costs, and unprecedented need for infrastructure overhaul, Port Authority proposes toll and fare increase” PANYNJ Press Release – 08/05/11. <http://www.panynj.gov/press-room/press-item.cfm?headLine_id=1401>
CASE STUDY: THE PORT AUTHORITY TRANS-HUDSON (PATH)

While internal cross subsidization of facilities in the Port Authority can be an effective way to fund public goods which would otherwise require tax money from state or local governments, it may disguise larger financial problems in the Port Authority’s other operations. For example, the PATH is intended to serve as a transit alternative for commuters into and out of NYC and New Jersey. Currently, the effective cost for taking the PATH ranges between $1.90 and $2.50 (depending on the type of fare used), while taking the bridge or tunnel currently costs between $10 and $13 for each eastbound trip. Breakeven fare for the PATH would be roughly $4.50 – this is lower than fees associated with driving and similar to fees for buses into New York City. There are many more considerations than simply breakeven fare when deciding these numbers – equity and governance need to be taken into account when setting the PATH fare, and it is arguable that the PATH remains a proper investment for the Port Authority as it services a major purpose for the public good. However, we cannot ignore the questioning of the fare structure and the system’s financial rationale of running the PATH at such a steep discount in comparison to alternative modes of commuter transit.

![Figure 3: Comparison of fares of PATH and comparable modes of transportation between NY and NJ.](http://www.panynj.gov/corporate-information/pdf/2014-budget.pdf)

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Pricing issues aside, the PATH appears to have much lower operational efficiencies compared to similar transit operations. According to the Federal National Transit Database, the operational cost of the PATH is $0.92 per passenger mile and $511.12 per vehicle revenue hour. Keeping in mind rider fares, this statistic is concerning when compared to that of the NYC Subway, SEPTA Subway, and PATCO Speedline, whose current numbers run between $0.35-$0.53 per passenger mile and $200 to $350 per vehicle revenue hour.\(^{10}\) Though we recognize that this may be due to the fact that PATH is an FRA regulated railroad, therefore subjecting it to additional regulation, the Port Authority still elects to use money from other sources to artificially reduce the cost to ride far more than comparable operations. While the this movement of money may well be justified by public policy and supported by the public, it does not receive the same kind of scrutiny that it would if each function’s performance were evaluated separately and each transfer of funding was subject to standard appropriations processes.

\(^{10}\) 2012 National Transit Database Profiles on PATH, MTA, NYCT, SEPTA, and PATCO. Accessible at http://www.ntdprogram.gov/ntdprogram/profiles.htm
DISSECTION OF CURRENT OPERATIONS:
Port Commerce

Background
One of the larger divisions of Port Authority’s operations is Port Commerce. Port Commerce is responsible for overseeing management of the large shipping port facilities located in the New York Metropolitan area. In our analysis we compare financial and operational metrics for the Port Commerce division of the Port Authority to ports of similar size on the west coast, Port of Long Beach and Port of Los Angeles, and Seattle, as well as east coast competitor ports, mainly Georgia Ports Authority and Port of Virginia and Port of Jacksonville. By doing this it is possible to gauge how efficiently the port is run in comparison to similar ports and competitors throughout the country. Data is taken from publicly available documents released by port authorities, government regulators, and industry analysts\(^\text{11}\). All information available is presented in our charts - any port omitted from a metric or graph is due to lack of available information.

![Income per TEU](attachment:image.png)

Figure 5: Operating Income per TEU for six ports and Port Commerce (PANYNJ) between 2009 and 2012.

\(^{11}\) See References for documents consulted
Figure 6: Expenses and revenues per TEU for six ports and Port Commerce (PANYNJ) between 2009 and 2012 (left-hand Y-axis). Triangles represent TEUs handled on average in millions (right-hand Y-axis).

Analysis
Analyzing operating income at similar west coast ports and competitor ports on the east coast, the Port Authority is earning as little between a \( \frac{1}{2} \) to \( \frac{1}{3} \) as much income per TEU handled at the port facilities. Further analysis of this trend shows that the cause of this issue is that the Port Authority revenues per TEU are lower than competitors, while costs per container are also slightly higher than other ports. On a per TEU basis, the Port Authority earns significantly less than their west coast competitors while costs per TEU are comparable or slightly higher than these competitors. Ports of Virginia and Georgia Ports Authority have much higher revenues and costs, because these ports own and operate the ports themselves, rather than lease terminals at the port to be operated by private companies. As a result, they have much higher costs, but also higher revenues.
Another metric important to gauge efficiencies of port operations is operating income earned per Container Yard Acre. Since many U.S. ports (including POLA, POLB, and PANYNJ) are “landlord ports”, meaning they do not actually handle or earn money on port operations but instead lease port space to terminal operators for rent, income per acre of container handling area is also an important metric to consider. In this metric, the Port Authority remains the lowest of all ports for which necessary data could be collected. This may indicates that the Port Authority is unable, or unwilling, to effectively collect revenue for the use of its facilities in a way comparable to its competitors. Interestingly, throughput (TEU handled per CYA) and TEU handled at the Port Authority are high for east coast ports, indicating the low volumes at the port should not be a source of loss.
Figure 8: Capital Asset per TEU for six ports and Port Commerce (PANYNJ) between 2009 and 2012. * Refers to ports without usable data.

Figure 9: Depreciation per CYA for six ports and Port Commerce (PANYNJ) between 2009 and 2012. * Refers to ports without usable data.

Depreciation per CYA was compared between 4 ports for which depreciation data could be obtained. While depreciation costs at POVIRG exceeded those at the Port Authority, the latters
depreciation costs were significantly higher per CYA than either POLA or POLB, which are more similar in terms of size and number of containers handled. Simple depreciation costs are also higher at the Port Authority than any other the other 3 ports it has been compared to. While reasons for high depreciation are many, including higher utilization of limited port space and extensive capital improvement undertaken by the Port Authority, the dense nature of the port, the outcome is that the Port Authority is not able to earn income after depreciation costs are accounted for.

Capital asset size per TEU was also compared between ports. New York is in the middle for this metric, with numbers similar to Long Beach or Los Angeles. Capital Asset size per teu may be linked to depreciation per TEU and CYA since it represents the value of facilities etc. the port has built up to support movement of containers. It may also show how efficient the port is as using it facilities. High capital assets per TEU may indicate that while port facilities are very build up, the move relatively little cargo, or that too much investment has been undertaken in respect to current container movements. Capital assets per TEU are currently similar to POLA and POLB, raising questions about why depreciation costs are significantly high.

Results
Income per TEU and income per CYA represent two of the most straightforward metrics with which we can judge how effectively a port is run. The number of TEUs a port handles allows us to understand the size of the operations at the port while the container yard area allows us to understand the size of the port facilities. Dividing income by either the TEU or CYA gives us a way to judge how effective different ports are in making money off of their operations and facilities.

Income per TEU is lowest at the Port Authority among any of the ports for which the appropriate data could be collected. Not only is income per TEU lower than ports of similar size on the west coast, but income per TEU is also lower than other east coast ports. Interestingly, containers handled are much higher than other east coast ports, indicating that low volumes should not be driving this problem. For the Port Authority, revenues earned per TEU are lower than any other port, while expenses per TEU are also slightly higher than any other port sampled. While the higher expenses per TEU at the port may be related to higher labor and supply costs in the New York City area, the low earnings per TEU is of concern. The critical location of New York to the northeast corridor and rail lines should allow the Port Authority ports to command a premium as an offloading port, yet revenue earned per TEU is lower than every other port sampled. The very low revenues per TEU indicate that the port may be not be setting lease rates, remittances, or fees paid for cargo handling at a competitive rate. This may also indicate their is a greater structural flaw in the revenue streams at the Port Authority, which come mainly from fixed leases with port operators with a lesser opportunity to gather income from actual cargo movements.
Similarly, income per CYA is lowest at the Port Authority among any of the ports sampled. Low income per CYA means that the Port Authority facilities do not earn them as much money as their competitors do on a per acre basis. Again, this is not due to some structural issue such as the NY ports being tremendously larger than west coast ports and therefore diluting earnings per acre: NYC ports are smaller than both POLB and POLA. Similarly, low volumes of cargo at the port should not be the cause of low revenues as the port handles a very large volume of cargo in a more constrained space than similar west coast ports. Furthermore, the amount of capital assets for each TEU is similar between PANYNJ, POLB, and POLA, indicating that lower revenues at the port are most likely not due to more complex facilities or high capital expenditures for each container moved. Earnings at the Port Authority come mainly from fixed leases to operators along with much smaller revenues from Cargo Facility Charges (CFCs), remittances, and percentages paid by operators to the port on a cargo handled basis. Thus, low income per CYA indicates that the Port Authority may not be appropriately pricing leases for use of their space or may not be capturing enough revenue in the form of remittances or percentage payments from port operators in comparison to similar ports and competitors. While the reasons for this could be many including a desire to remain competitive with other east coast ports or a conscious to put jobs and a busy port over making money, the result is that the ports ultimately need to be internally subsidized pay for balance their books.

Finally, looking at depreciation per CYA, the Port Authority is much higher than at POLB or POLA, although lower than at POVIRG. Although the Port Authority ports make an income on a purely operational basis, high depreciation costs at the port mean that the port loses money after depreciation costs are accounted for. Interestingly, capital asset per TEU is very similar between PANYNJ, POLB, and POLA raising the question of why depreciation costs are so much higher at the Port Authority if assets on a per TEU basis are very similar. Whatever the reason behind higher depreciation costs at Port Commerce, the result is that the Port Authority does not turn a profit after depreciation is accounted for. This may indicate that the port is investing high amounts of capital into Port Commerce, which then show up as depreciation costs as capital purchases depreciate, that it cannot recoup under its current business model.
DISSECTION OF CURRENT OPERATIONS:

Airports

Background
Airport operations are one of the Port Authority’s major responsibilities. The Port Authority operates six airports in total - three large airport hubs of John F. Kennedy International (JFK), Newark Liberty International Airport (EWR) and LaGuardia Airport (LGA), and three smaller hubs of Atlantic City, Teterboro and Stewart Airport. In our analysis, we focused on the financial and operational performance of the three large airports as they account for most of the revenues and expenditures of the airport division under the Port Authority. The three large airports of the Port Authority were benchmarked with six other similar large airports around the United States, Hartsfield-Jackson Atlanta International Airport (ATL), Chicago O’Hare International Airport (ORD), Washington Dulles International Airport (IAD), San Francisco International Airport (SFO), Philadelphia International Airport (PHL), and Boston Logan International Airport (BOS) (Figure 9). To accommodate for potential fluctuations between years due to differentiating political and economic climates, numbers were averaged over a 4-year period (2009-2012). Fluctuations may be a trend within the Port Authority regarding specific investments, but we chose to average the numbers in order to achieve consistency. Data from 2009 to 2012 was obtained from the financial government payment report, Form 127 from the Federal Aviation Authority, and the airports were analyzed based on total operational revenue per enplanement, operating expenses before depreciation per enplanement, operating profits per enplanement, contractual services expense per enplanement, investment-depreciation per enplanement, as well as investment as percent of operating profits.12 In this analysis, enplanement refers to the number of passengers boarding aircraft and does not include the number of passengers disembarking aircraft.

Analysis

In terms of total operating revenue per enplanement, the Port Authority airports are collecting relatively higher operating revenue per enplanement. In comparison to airports operating at similar enplanement capacity, such as SFO, PHL and BOS, the Port Authority airports are earning about 1.5 to 2 times the revenue per enplanement passenger (Figure 10). JFK and EWR gains about USD45 in operating revenue per enplanement compared to USD32 in the case of SFO and USD17 in PHL. Similar trends are observed for operating profits per enplanement (Figure 12.) Hence the Port Authority airports are earning more than its peers per passengers in terms of operating revenue and profits from passenger, baggage, cargo, parking and facilities fees.

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While the Port Authority airports receive more revenue per enplanement than its peers, they also incur larger operating expenses than the other airports. In the benchmarking comparison among the nine airports, JFK and EWR have the highest operating expenses before depreciation per enplanement, at USD28.90 and USD24.59 respectively, which is much higher than the average of USD18.20 (Figure 11). Hence the higher than average yearly expenses incurred by the Port Authority suggest that they might not be actively improving its financial performance by lowering expenses. With its high revenue per enplanement, the Port Authority could be gaining higher operating profits if operating expenses were lower.
Figure 11. Operating expense before depreciation per enplanement of PANYNJ airports and other airports

Figure 12. Operating profits per enplanement for PANYNJ airports and other airports
The components of operating expenses were broken down and analyzed to determine if specific areas of the Port Authority airports were causing the higher than average expenses per enplanement. We found that contractual services expense per enplanement contributed greatly to JFK and EWR’s high operating expenses, which suggests operational inefficiency in these areas of airport management (Figure 13.). In addition, EWR has exceptionally high contractual expenses that contribute to about 50% of its total expenses, much higher than the average 30% of other airports (Figure 14).

**Contractual oversight**

An audit carried out by the Office of the New York State Comptroller that reviewed the Port Authority’s operations in 2011 concluded that the Port Authority could not provide supporting documentation to justify 57 of the contracts for services out of 75 of the contracts that were made.¹⁴ These contracts were for construction management, janitors and security, and were worth $1.2 billion. Unlike the MTA, which requires departments requesting contracting of services to justify their actions, the Port Authority does not require its staff to perform an assessment of the contracts made based on cost, workload, or the nature of services. Our analysis from the airport expenditure data suggests that existing contracts are not operationally efficient, which may have arisen from a lack of accountability in the contracting process.

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¹⁴ Office of the State of New York Comptroller. “Contracts for Personal and Miscellaneous Services.”  
[http://osc.state.ny.us/audits/allaudits/093011/09s54.pdf]
In order to identify potential issues with investments into the Port Authority-controlled airports, the same airports were analyzed by investment, depreciation, and the difference between investment and depreciation, on a per enplanement basis from 2009 through 2012.

As shown in Figure 15, the Port Authority-managed airports had the least investment per enplanement of the 9 airports, with LaGuardia at only USD6.85 compared to Dulles’ USD18.
Figure 15: Investment (capital expenditures and construction in progress) per enplanement of PANYNJ airports in comparison to other airports

The low investments in Port Authority airports are compounded by high depreciation. While LaGuardia is on the lower end of the spectrum, JFK and Newark are above the USD7.64 average, with USD8.36 and USD8.67, respectively (Figure 16).
Using this information, it is possible to determine whether or not airports are maintaining investment levels, which exceed the depreciation of their assets. As shown below, the Port Authority-managed airports are not matching investment levels of their peers. Of the 9 airports analyzed, Newark and JFK are the only airports that demonstrate marked disinvestment, such that average depreciation exceeded investment (Figure 17). LaGuardia also falls just below the group’s average of USD3.02.
In order to delve further into the issue of investment, the amount of operating profit that is invested back into each airport was calculated. In this case, values for investment per enplanement and operating profit per enplanement were used to determine investment as a percent of operating revenue, averaged from 2009 to 2012 since capital expenditures are not necessarily represented adequately on a year-to-year basis. From among these 9 airports, Newark and JFK are again underperforming compared to their peers, with 49.22 and 38.15 percent, respectively (Figure 18).

Figure 17: Difference between investment (capital expenditures and ongoing construction) and depreciation of PANYNJ airports in comparison to other airports averaged from 2009 to 2012.
To conclude the analysis of the airports, a more qualitative indicator representing how well the airports perform their primary function was selected: customer satisfaction. Data was collected from the 2010 North America Airport Satisfaction Study conducted by J.D. Power and Associates. The survey included more than 24,200 evaluations from approximately 12,100 passengers who traveled between January and December 2009. The results for the benchmark airports in this survey are shown below, with a possible score of 1000. Of the 9 airports, the Port Authority airports were all in the lower half, with Newark and LaGuardia falling in the lowest rankings (Figure 19). In this study, LaGuardia was included in the “medium” airport category, which had a category average of 683. With a score of 604, LaGuardia falls far below this average. Similarly, JFK and Newark scored below the “large” airports average of 665, with 635 and 609, respectively. While not a perfect correlation, the amount of investment is closely aligned with overall customer satisfaction.

Results
The profitability of the airport division of the Port Authority masks the shortcomings of the three major airports in other indicators. For one, if the Port Authority airports had costs that were more in line with other large airports, their profits will be higher than what they currently are, given their high revenues. We also found that the area where the Port Authority’s costs are significantly higher than their peers is under contractual services. Also, despite high profits, depreciation surpasses investment into two of the three airports and investment, as a percent of operating profit is markedly low. This disinvestment may in fact be a causal factor in the unfavorable customer satisfaction scores for the airports as well. While LGA airport’s income is being reinvested in the airport, JFK and EWR airports’ income are not being reinvested. EWR and JFK airports’ income might hence be used to support other divisions of Port Authority’s activities.
DISSECTION OF CURRENT OPERATIONS:
Bridges and Tunnels

Background
The operation of several major bridges and tunnels is critical to the operational success of the Port Authority. Bridges and Tunnels include six crossings, four of which are bridges (George Washington, Bayonne, Goethals, and Outerbridge), and two of which are tunnels (Holland and Lincoln). In total, these six crossings make up 41.1 lane miles that the Port Authority governs. Finding comparable entities to this division of the Port Authority is a very difficult thing to do. The Greater New York Area is very unique in that no other region in the country is similar enough to make factual comparisons. Furthermore, comparing two structures (whether they are bridges or tunnels) is, no matter which way you look at it, like comparing apples to oranges. There are simply too many factors to consider when making facility comparisons (structure type, age, traffic volume, maintenance intensity, etc.).

Due to the fact that reasonably comparable regions and structures to Bridges and Tunnels do not exist, the operations of MTA Bridges and Tunnels were examined and compared to the Port Authority’s Bridges and Tunnels division. In order to get a grasp on a comparison of operational efficiency between the two entities, division operational cost was divided by the total lane miles per division. To further understand the comparability of the two Authorities, the number of crossings, total lane miles, vehicle users per year, operational costs, and operational revenues were all compared.

Analysis
The Bridges and Tunnels divisions of MTA and the Port Authority are similar enough to make a reasonable comparison for several reasons. First, they both operate within the New York City Metropolitan Area. They are therefore both subject to the same economical fluxes, the same geographical obstacles, as well as other regional features that make the area a unique place in which to operate. Both Authorities operate a similar number of crossings (the Port Authority operates six, while MTA operates nine). MTA operates 41.1 lane miles, while the Port Authority operates 44.3. MTA only operates seven percent more lane miles than the Port Authority indicating similar maintenance costs. While MTA handles more than twice as many vehicle users annually than the Port Authority (MTA averages about 289 million, while the Port Authority averages about 121 million), operational costs and revenues are also similar. MTA averages about $398 million in costs annually and about $1,439 million in revenues annually. On the other hand, the Port Authority averages about $449 million in costs annually and about $1,076 in revenues annually. These numbers are clearly compared to each other in Figure 20.
After establishing the similarities and differences between MTA and the Port Authority, the best comparison to make determining the operational efficiency of each division is to compare operational cost per lane mile under the control of MTA and the Port Authority. A lane mile is more indicative of cost than the number of user vehicles is. The metric of lane miles is more indicative of maintenance costs, whereas the number of user vehicles, in this instance, does not reveal enough about operational efficiency. As Figure 21 shows below, the Port Authority and MTA are similar to one another in terms of operational cost. The MTA’s cost per lane mile ranges between $9.35 million and $8.59 million. The Port Authority’s cost per lane mile ranges between $11.24 million and $10.63.

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Due to the fact that there is a distinct lack of comparable entities nationwide to the Port Authority’s Bridges and Tunnels division, the MTA was chosen as the best comparison. The comparison here displays a similar fluctuation of operational costs, but they still remain similar to each other over the four year period – however, Port Authority’s are constantly slightly higher. Similar operational costs to the MTA do not mean that the Bridges and Tunnels Division is operationally efficient or inefficient in comparison to its peer, but further investigation into correlations that take into account total lane miles and crossings and investments may make a more indication of efficiency.

The Bridges and Tunnels Division is the crux of the entire operational success. Bridges and Tunnels generates more than twice the amount of net income than all other operational divisions of the Port Authority, led by the busiest bridge in the world, the George Washington Bridge. Without Bridges and Tunnels to subsidize the operations of nearly all other Port Authority divisions, the organization would be insolvent.

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**OUR FINDINGS AND THE FUTURE**

Overall, the Port Authority has deviated away from being a transparent and depoliticized body, and become a shared political of the governors of the two states. This has led to the substantial channeling of the Port Authority’s resources away from the agency’s original purpose. While recent scandals have drawn attention to issues of governance and cross subsidization, it is important to determine if mismanagement has resulted in poor operational efficiencies in each of the Port Authority’s divisions. Internal cross-subsidization may reduce incentives for each division to operate at optimal levels, resulting in the underperformance of the Port Authority as a whole financially. Without bridges, tunnels, and airports to subsidize the operations of other Port Authority divisions, the organization will be insolvent.

The PATH, the airports, and the container ports all have above-average costs as compared to their peers, suggesting that opportunities may exist for improvements that could save money. Most notably, the Port Authority ports earns significantly less revenue on a per-unit of cargo basis and on a per-unit of land basis than similar ports on the west coast as well as east coast competitors. This suggests the port may need to refine its business model or reexamine the rates and fees it currently charges terminal operating companies. Similarly, the Port Authority has very high depreciation costs for the amount of capital asset per TEU. Although investment per TEU itself does not indicate any significant different from similar west coast ports, depreciation costs are significantly higher at the Port Authority, causing them to lose money when costs are fully accounted for.

Our analysis of Port Authority airports suggests that while their operations are profitable, their high expenses incurred mainly due to contractual services, and lack of proper reinvestment, lead to operational inefficiencies and poor infrastructure development. The lack of investment in airport infrastructure and poor operational management has led to astoundingly poor customer satisfaction in the Port Authority’s airports. The Port Authority should therefore strive to improve its accountability and operational management of each of its airports to better their infrastructure and service standards.

The analysis of the Port Authority’s Bridges and Tunnels division showed that it is relatively on par and operationally efficient when compared to the MTA. It was determined that the MTA is the only true comparable model to the Port Authority due to similarities in location, economies, and infrastructure. Both Authorities exhibit similar operational costs, revenues, and lane miles. This analysis is significant in that it shows us that not all of the Port Authority is operating inefficiently. Rather, when compared to a truly comparable model, it is competitive.

Moving forward with this project, it would be insightful to continue further dissection of the Port Authority with the other divisions that we did not analyze. We chose the PATH, the seaports, the
airports, and the bridges and tunnels due to our data collection limitations and project flow. Buses and terminals, and real estate and development are two divisions that were not analyzed as we did not feel we had the means to analytical venture them in a meaningful way. Next steps would include looking at these two divisions in this same respect in order to make a full case regarding the total efficiency of the Port Authority.
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