Pittsburgh Parking Asset Study:
FSG Work Results

Date: SEPTEMBER 24, 2010
Location: PITTSBURGH, PA

FSG
Finance Scholars Group

Introduction

Professor Chester Spatt

- Chaired Professor of Finance at Carnegie Mellon (Tepper)
- Director of Tepper's Center for Financial Markets
- Research Associate of the National Bureau of Economic Research
- Fellow of TIAA-CREF Institute
- Former Chief Economist of the SEC
- Former President of the Western Finance Association

Tanya Andrien

- Principal for FSG
- 12 years of professional finance/economic analysis, engagement management
- Wharton MBA, Palmer Scholar

Jeffrey Andrien

- President of FSG
- Visiting Professor of Economics at Thammasat University
- Former Adjunct Professor at Washington University

Scope of Work

Alternatives for monetizing the PPA parking assets:

1. ~~Shift assets to the CMPTF~~
2. ~~Sell the parking garages and surface lots owned by PPA~~
3. ~~Raise revenues through private management of assets~~
4. Allow State takeover of pension – using parking revenues to pay the in Minimum Obligation Requirements
5. Issue bond backed by increased parking revenues
6. Lease assets to private operator (50-year lease)

Valuation Approach

Different Methods of Valuing Assets:

1. ~~**Asset Approach** – Cost of Duplicating Assets~~

2. **Market Approach** – Comparable transactions

3. **Income Approach** – Discounted Cash Flow

Valuation Approach: DCF

FSG
Finance Scholars Group

Drivers of Value

1. Capacity and Ability to Generate Cash Flows

2. Expected Growth of Cash Flows

3. The Uncertainty (Risk) Associated with Cash Flows

Valuation Approach: DCF

FSG
Finance Scholars Group

Drivers of Value

1. **Capacity and Ability to Generate Cash Flows**
   - Revenues
     - Price Increases
     - Elasticity
   - Operating Costs
   - Taxes
   - CapEx
2. **Expected Growth of Cash Flows**

3. **The Uncertainty (Risk) Associated with Cash Flows**

Valuation Approach: DCF

Drivers of Value

1. **Capacity and Ability to Generate Cash Flows**
   - Revenues
     - Price Increases
     - Elasticity
   - Operating Costs
   - Taxes
   - CapEx
2. **Expected Growth of Cash Flows**
   - Growth of Revenues
   - Growth of Costs
3. **The Uncertainty (Risk) Associated with Cash Flows**

Valuation Approach: DCF

FSG
Finance Scholars Group

Drivers of Value

1. **Capacity and Ability to Generate Cash Flows**
   - Revenues
     - Price Increases
     - Elasticity
   - Operating Costs
   - Taxes
   - Cap Ex
2. **Expected Growth of Cash Flows**
   - Growth of Revenues
   - Growth of Costs
3. **The Uncertainty (Risk) Associated with Cash Flows**
   - Discount Rate

Valuation Approach: DCF

FSG
Finance Scholars Group

DCF Analysis

Model
Projected Revenues Less: Projected Op. Costs
Operating Income Less: Taxes
NOPAT Less: Cap Ex
FCF Apply Discount Rate
NPV

Valuation Approach: Perspective

FSG
Finance Scholars Group

DCF Analysis

PPA Ownership		Concessionaire
Projected Revenues Less: Projected Op. Costs		**Projected Revenues** Less: Projected Op Costs
Operating Income Less: Taxes	V.	**Operating Income** Less: Taxes
NOPAT Less: Cap Ex		**NOPAT** Less: Cap Ex
FCF Apply Discount Rate		**FCF** Apply Discount Rate
NPV		**NPV**

Valuation Approach: Perspective

DCF Analysis

PPA Ownership		Concessionaire
Projected Revenues Less: Projected Op. Costs		**Projected Revenues** Less: Projected Op Costs
Operating Income Less: Taxes	V.	**Operating Income** Less: Taxes
NOPAT Less: Cap Ex		**NOPAT** Less: Cap Ex
FCF Apply Discount Rate		**FCF** Apply Discount Rate
NPV		**NPV**

Valuation Approach: Perspective

DCF Analysis

PPA Ownership		Concessionaire
Projected Revenues		**Projected Revenues**
Less: Projected Op. Costs		Less: Projected Op Costs
Operating Income		**Operating Income**
Less: Taxes	V.	Less: Taxes
NOPAT		**NOPAT**
Less: Cap Ex		Less: Cap Ex
FCF		**FCF**
Apply Discount Rate		Apply Discount Rate
NPV		**NPV**

Valuation Approach: Perspective

FSG
Finance Scholars Group

DCF Analysis

PPA Ownership		Concessionaire
Projected Revenues		**Projected Revenues**
Less: Projected Op. Costs		Less: Projected Op Costs
Operating Income		**Operating Income**
Less: Taxes	V.	Less: Taxes
NOPAT		**NOPAT**
Less: Cap Ex		Less: Cap Ex
FCF		**FCF**
Apply Discount Rate		Apply Discount Rate
NPV		**NPV**

Valuation Approach: Perspective

DCF Analysis

PPA Ownership		Concessionaire
Projected Revenues		**Projected Revenues**
Less: Projected Op. Costs		Less: Projected Op Costs
Operating Income		**Operating Income**
Less: Taxes	V.	Less: Taxes
NOPAT		**NOPAT**
Less: Cap Ex		Less: Cap Ex
FCF		**FCF**
Apply Discount Rate		Apply Discount Rate
NPV		**NPV**

Valuation Approach: Perspective

FSG
Finance Scholars Group

DCF Analysis

PPA Ownership		Concessionaire
Projected Revenues		**Projected Revenues**
Less: Projected Op. Costs		Less: Projected Op Costs
Operating Income		**Operating Income**
Less: Taxes	V.	Less: Taxes
NOPAT		**NOPAT**
Less: Cap Ex		Less: Cap Ex
FCF		**FCF**
Apply Discount Rate		Apply Discount Rate
NPV		**NPV**

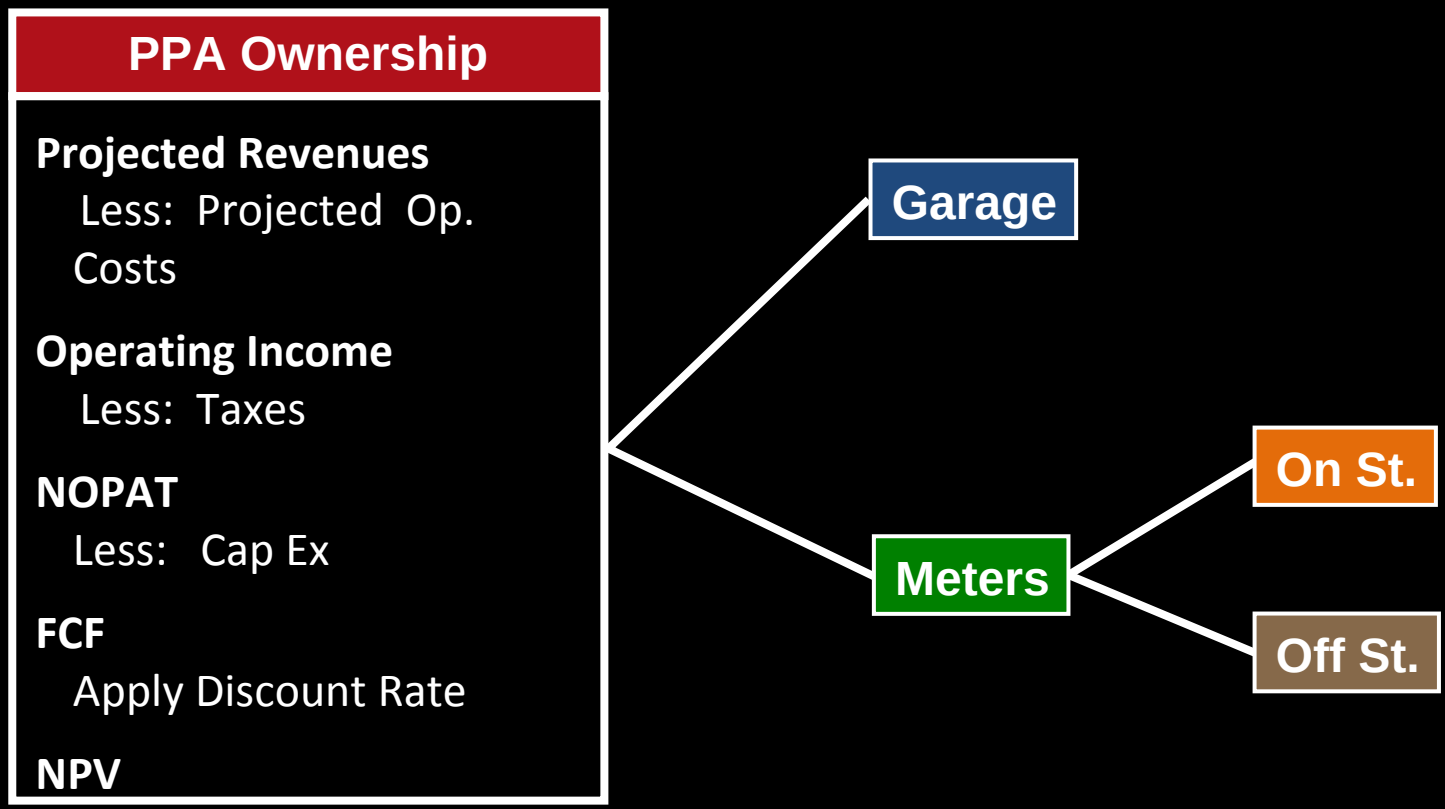
Valuation Approach: Perspective

DCF Analysis

PPA Ownership		Concessionaire
Projected Revenues		**Projected Revenues**
Less: Projected Op. Costs		Less: Projected Op Costs
Operating Income		**Operating Income**
Less: Taxes	V.	Less: Taxes
NOPAT		**NOPAT**
Less: Cap Ex		Less: Cap Ex
FCF		**FCF**
Apply Discount Rate		Apply Discount Rate
NPV		**NPV**

Valuation Approach: FSG Framework

DCF Analysis



Garage Model: Assumptions

2011-2015 Assumptions

1. Garage-specific average price increases were weighted by usage categories
2. Demand Elasticity: -0.3
3. Annual Demand Growth Rate: 0%
4. Grant Street Demand Growth Rate: 5%
5. OPEX and CAPEX Growth Rate 2%

Post 2015 Assumptions

1. Annual Demand Growth Rate: 2%
2. OPEX and CAPEX Growth Rate 2%
3. Included CAPEX for rehabilitation of Ft. Duquesne & 6th (2017), Smithfield-Liberty (2025) , and 9th & Penn (2025)

Garage Model: 2011 Revenue

1. Example Calculation of Weighted Average Price Increase

THIRD AVENUE GARAGE				
	Current	Jan. 2011	% Increase	Weighted
1 hr or less	$ 3.75	$ 7.00	87%	1.1%
2 hrs or less	4.75	9.00	89%	3.7%
4 hrs or less	7.50	12.00	60%	5.9%
4 - 24 hrs	12.75	16.00	25%	48.9%
Evening/Weekends	5.00	5.00	0%	6.2%
Regular Lease	250.00	290.00	16%	34.1%
Average				**25.7%**

*** Weighted by usage*

2. 2011 Revenue Calculation

2010 Revenues X (1 + % price increase) X (1+ (elasticity * % price increase)) X (1+ Annual Growth Rate) = 2011 Projected Revenues

Captures price increase

Captures change in demand

Garage Model: Summary of Cash Flows

2011-2060

FSG
Finance Scholars Group

Garage Summary:

Description	PPA Ownership (with rate increase)
Revenues	$3,112,204,515
-(OPEX-Depreciation)	$684,140,711
Operating Income	$2,428,063,805
-Taxes	$848,783,050
Net Operating Profit After Tax	$1,579,280,755
-Capital Expenditures	$381,691,264
FREE CASH FLOWS	**$1,197,589,491**

On-Street Meters: Assumptions

2011-2015 Assumptions

1. Demand elasticity: -0.3
2. Annual demand growth: 0%
3. OPEX and CAPEX Growth Rate: 2%
4. Conversion to multi-space meters, per PPA's 10-year plan, generates a 25% increase in revenues
5. New multi-meter cost, installed: $15K
6. New spaces (April 2011): 922

Post 2015 Assumptions

1. Annual Demand Growth Rate: 2%
2. OPEX Growth Rate: 2%
3. CAPEX calculated through 2020 and then grown at 2% per year beyond 2020

On-Street Meters: Revenues

FSG
Finance Scholars Group

Components to Revenue Projections for On-street Meters

1. Revenue from current demand valued at higher hourly fees and monthly lease rates
2. Revenue from new spaces
3. Revenue from longer hours of enforcement on Monday-Saturday
4. Revenue increase from conversion to multi-space meters

On-Street Meters: 2011 Revenue Model

FSG
Finance Scholars Group

1. Revenues from Current Demand Priced at New Hourly Fees

2010 Hours Demanded	X	2011 Hourly Fees	X	1+ (elasticity * % price increase)	=	2011 Projected Revenues

Captures price increase

Captures change in demand

2. Daily Revenues from New Spaces

2011 Monthly Hours Demanded Per Space	X	922 New Spaces in 2011 for 9 months	X	2011 Hourly Fees	=	2011 Revenues from New Spaces

Per Concession Agreement, the new spaces would have the same utilization as other spaces in the same geographic area

On-Street Meters: 2011 Revenue (Cont.)

FSG
Finance Scholars Group

3. Revenues from Enhanced Hours for Current and New Spaces: 6PM to 10PM Mon.-Sat.

2010 Utilization per Space	X	1,248 Maximum Hours	X	Total Number of Spaces	X	2011 Hourly Fees	=	2011 Revenues from Enhanced Hours

4. Revenues from Conversion to Multi-space Meters

- Estimated at 25% increase
- PPA Conversion Plan indicated conversion rates of:
  - 15 (2011-2013)
  - 20 (2014-2015)
  - 15 (2016)
  - 10 (2017-2020)
- Primary Conversion Areas:
  - Downtown
  - Oakland
  - JCC Lot
  - South Side
  - North Side
  - Squirrel Hill

Off-Street Meters: Assumptions

FSG
Finance Scholars Group

Assumptions:

1.Same as On-Street

Off-Street Meters: Revenues

FSG
Finance Scholars Group

Components to Revenue Projections for On-street Meters:

1. Revenue from current demand valued at higher hourly fees
2. Revenue from new spaces
3. Revenue from longer hours of enforcement on Monday-Saturday
4. Revenue increase from conversion to multi-space meters

Off-Street Meters: 2011 Revenue Model

FSG
Finance Scholars Group

1. Hourly Revenues from Current Demand Priced at New Hourly Fees

2010 Hours Demanded	X	2011 Hourly Fees	X	1+ (elasticity * % price increase)	X	1 + annual growth rate	=	2011 Projected Revenues

Captures price increase

Captures change in demand

2. Lease Revenues from Current Demand Priced at New Lease Rates

2010 Lease Revenues	X	2011 Lease Rates	X	1+ (elasticity * % price increase)	X	1 + annual growth rate	=	2011 Projected Revenues

Captures price increase

Captures change in demand

Meters/Lots: Summary of Free Cash Flows
2011-2060

FSG
Finance Scholars Group

Meter Model Summary:

Description	PPA Ownership (with rate increase)
Revenues	$1,392,269,678
-(OPEX-Depreciation)	$117,853,113
Operating Income	$1,274,416,565
-Taxes	$58,096,392
Net Operating Profit After Tax	$1,216,320,173
-Capital Expenditures	$63,669,392
FREE CASH FLOWS	**$1,152,650,781**

Cash Flows: Garages and Meters

FSG
Finance Scholars Group

Projected Cash Flows from assets for 2011-2060

Description	Garages	Meters/Lots	Total
Revenues	$3,112,204,515	$1,392,269,678	$4,504,474,193
-OPEX	$684,140,711	$117,853,113	$801,993,824
Operating Income	$2,428,063,805	$1,274,416,565	$3,702,480,370
-Taxes	$848,783,050	$58,096,392	$906,879,442
NOPAT	$1,579,280,755	$1,216,320,173	$2,795,600,928
-CAPEX	$381,691,264	$63,669,392	$445,360,656
FREE CASH FLOWS	**$1,197,589,491**	**$1,152,650,781**	**$2,350,240,272**

Discount Rate: Considerations

FSG
Finance Scholars Group

Determining a Discount Rate:

1. Cost of the city issuing a revenue bond for assets
2. WACC rates of parking companies
3. WACC rates of concessionaires
4. Chicago Discount Rate

Discount Rate: Calculation

Description	Discount Rate	Weighting	Extension
Revenue Bond	7.84%	70%	5.49%
Parking WACC	8.07%	10%	0.81%
Conc. WACC	6.55%	10%	0.66%
Chicago (Adj.)	9.79%	10%	0.98%
TOTAL			**7.93%**

Simulation: Inputs

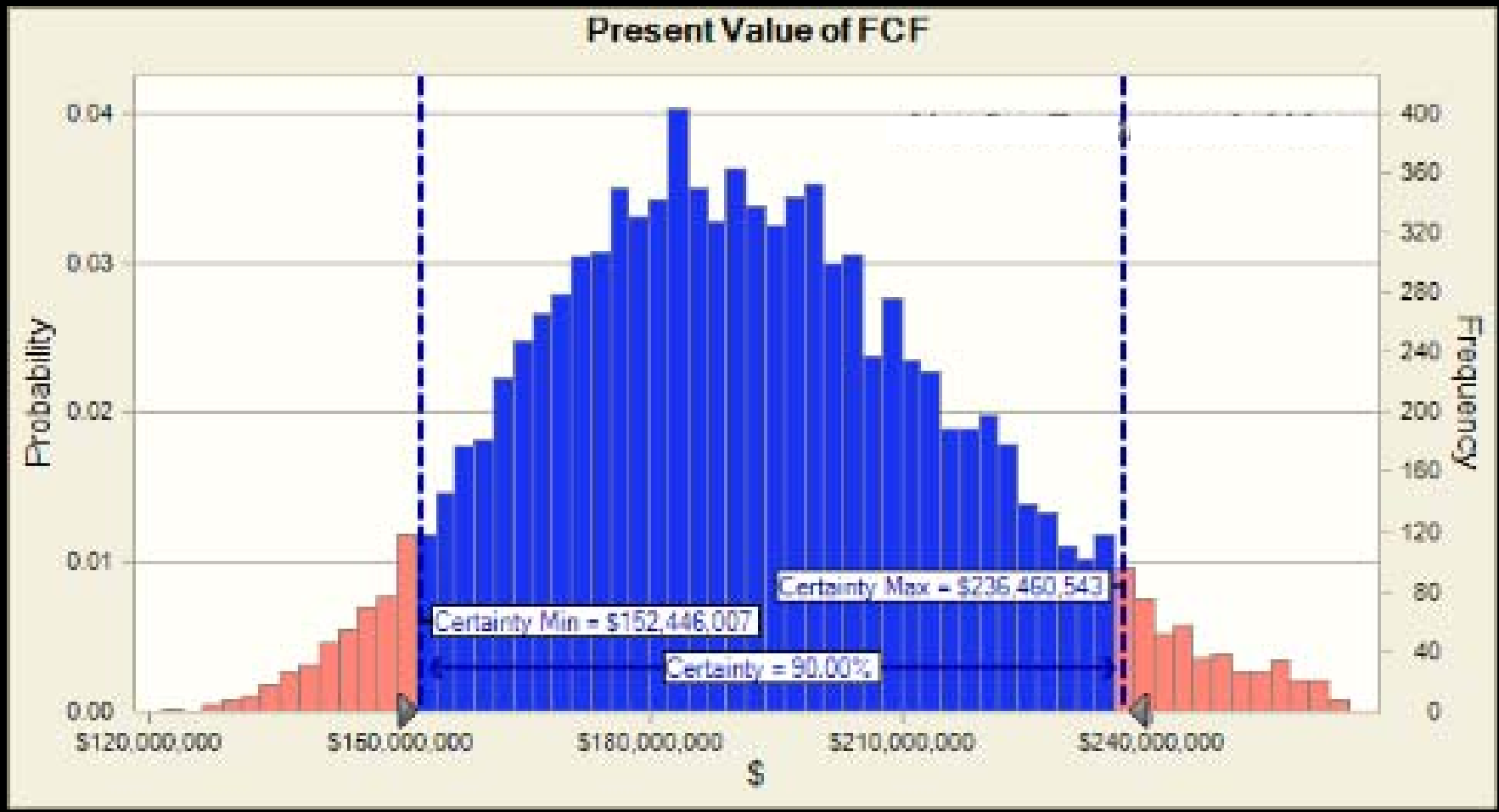
Simulation Variables for Garage Model

Variable	Low	Model	High
Elasticity	-0.1	-0.3	-0.5
Discount Rate	7%	8%	10%
Growth Rate	1%	2%	3%

Simulation Variables for Meter Model

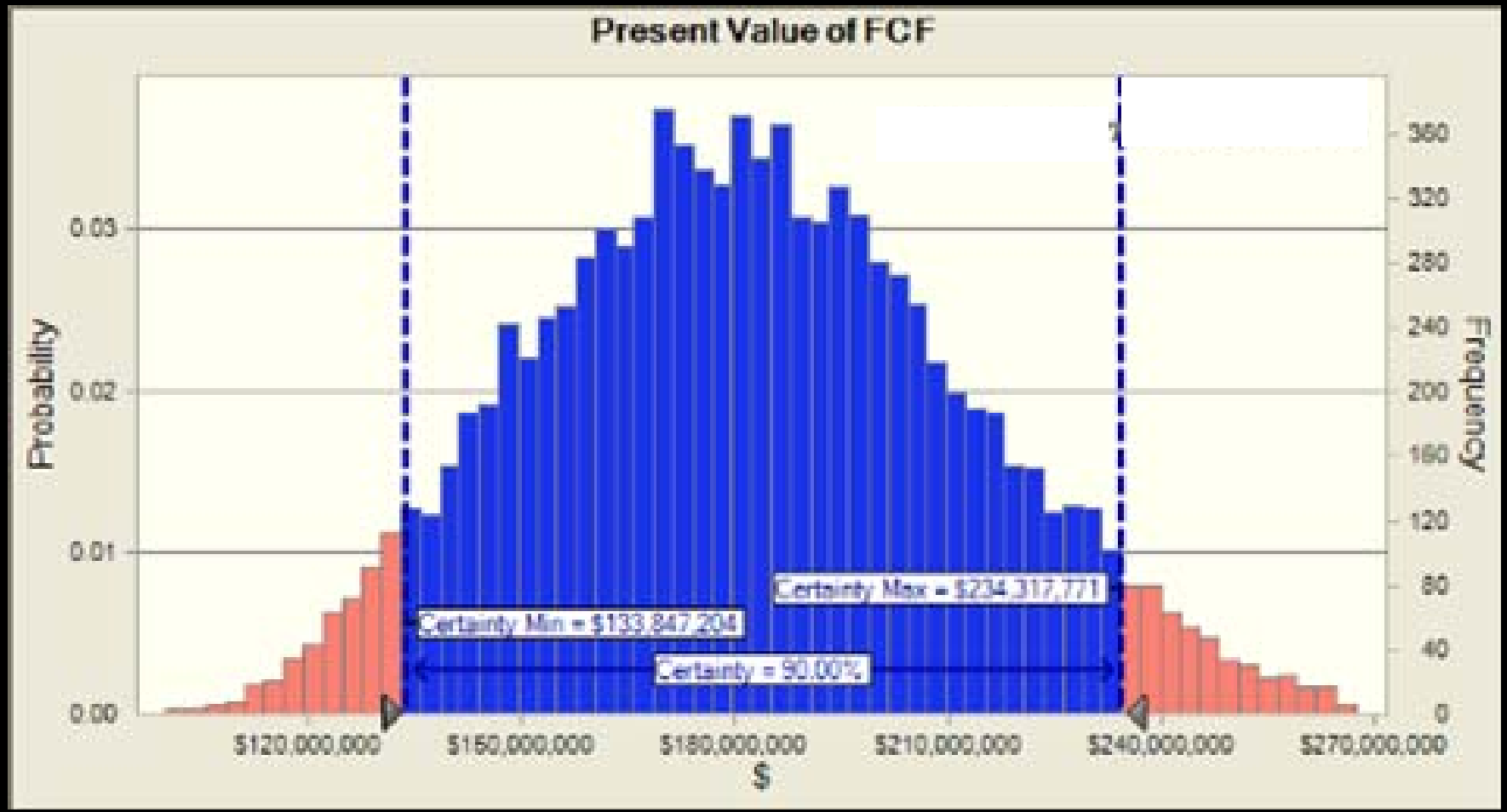
Variable	Low	Model	High
Elasticity	-0.2	-0.3	-0.5
Discount Rate	7%	8%	10%
Growth Rate	1%	2%	3%
Rev Inc. MMC	20%	25%	35%

Garage Results: Simulation



Within 90% Confidence Interval:	Min	$152.4 M
	Model	$199.8 M
	Max	$236.4 M

Meter/Lot Results: Simulation



Within 90% Confidence Interval:	Min	$133.8 M
	Model	$201.3 M
	Max	$234.3 M

Summary of Results: All Assets

FSG
Finance Scholars Group

50 Year Value of Pittsburgh's Parking Assets:

	Garages	Meters	Total
MIN	$152.4 M	$133.8 M	$286.2
MODEL	**$199.8 M**	**$201.3 M**	**$401.1**
MAX	$236.4 M	$234.3 M	$470.7

Summary of Results: Sensitivity

FSG
Finance Scholars Group

PV of Garage Model

Elasticity	Discount Rate 7%	8%	10%
-0.1	$294	$251	$191
-0.3	$234	**$200**	$152
-0.5	$179	$153	$117

PV of Meter Model

Elasticity	Discount Rate 7%	8%	10%
-0.1	$352	$301	$286.2
-0.3	$235	**$201**	$154
-0.5	$148	$127	$98

Application of Results

FSG

Finance Scholars Group

Application of Results: State Takeover

FSG
Finance Scholars Group

PROS

- $400 million (NPV) from assets
- Avoid need/cost of bond issuance
- Preserves asset optionality
  - Pricing
  - Sale
  - Raise future capital
- PPA controls relationship between enforcement/fine rev/park rev
- By at least 2026 the assets will generate additional cash flow to cover increase in MMO *(2016 if elasticity of DTG = -0.1)*
- Pension off table for union negotiations

CONS

- $27 million increase in MMO
- $2 million annual admin cost
- Loss of control over pension benefits
- Reduction in contribution requirements
- Pension off table for union negotiations
- Does not fix pension problem

State Takeover: Incremental Costs

FSG
Finance Scholars Group

The $27 million increase in MMO is NOT an incremental cost

- City has been paying $60M/yr.
- Current Pension benefit payments are $80M/yr.
- $45M in MMO would increase underfunding (continue to push problem down the road). The money would still have to be paid eventually.

True incremental costs are:

- $2m/yr. administrative fee
- Reduction in contribution requirements from current employees
- Potential addition of a DROP plan
- Ability for State to increase benefits

State Takeover: Key Considerations

FSG
Finance Scholars Group

1. Still need a plan to fix underfunding problem or ability to pay $12M - $27M more per year in MMO

2. Which entity (City or State) is more likely to inflate benefits?

3. Is losing the ability to negotiate with unions via pension benefits a positive or negative event?

Application of Results: Bond Issuance

Analysis Assumes a $180M bond with a 20-year maturity.

Question:

Q: Will revenue increases cover increase in debt service?

A: In aggregate, yes, but not in the early years.

Bond Issuance: Revenue v. Debt Service

Increased Revenues = $447 million

Increased Debt Service = $305 million

	New Revenues			
Year	Min	Mean	Max	Debt Service
2011	$4,080,281	$5,462,463	$6,743,545	$15,282,863
2012	$6,115,722	$8,612,547	$10,940,833	$15,282,863
2013	$8,979,172	$12,878,883	$16,591,463	$15,282,863
2014	$11,314,926	$16,483,909	$21,493,358	$15,282,863
2015	$13,866,591	$20,463,458	$26,939,507	$15,282,863
TOTAL	**$44,356,693**	**$63,901,260**	**$82,708,707**	**$76,408,383**

Based on 90% confidence interval of simulation results
Variables : Elasticity and MM Conversion Rev %

Bond Issuance: Cash Flows v. Debt Service

Year	Operating Inc. [1] Total	CAPEX Garage	CAPEX Meter	Debt Service Outstanding	Parking CF Available for New Debt [2]	New Tax Revenues [3]	Total CF Available for New Debt	New Debt Service	Excess CF
2011	$ 21,135,474	3,757,170	1,244,600	$ 8,533,720	$ 7,599,984	$ 848,166	$ 8,448,150	$ 15,282,863	$ (6,834,713)
2012	24,526,392	3,832,313	827,625	8,634,568	11,231,886	1,122,849	12,354,735	15,282,600	(2,927,865)
2013	28,497,200	3,908,960	905,125	8,748,738	14,934,378	1,888,575	16,822,952	15,279,900	1,543,052
2014	31,950,845	3,987,139	820,125	8,749,798	18,393,784	2,480,511	20,874,294	15,281,528	5,592,767
2015	35,783,222	4,066,882	880,156	8,752,161	22,084,023	3,114,195	25,198,219	15,281,493	9,916,726
2016	36,590,232	11,997,068	980,157	8,747,480	14,865,527	3,176,479	18,042,006	15,284,158	2,757,849
2017	37,342,418	12,237,009	754,450	8,616,330	15,734,629	3,240,009	18,974,638	15,280,640	3,693,998
2018	38,110,402	4,315,807	830,160	8,359,830	24,604,605	3,304,809	27,909,414	15,279,990	12,629,424
2019	38,916,591	4,402,123	875,160	8,350,105	25,289,203	3,370,905	28,660,108	15,279,214	13,380,894
2020	39,699,675	4,490,166	889,663	8,357,505	25,962,340	3,438,323	29,400,664	15,281,538	14,119,126
2021	40,493,668	4,579,969	907,456	8,258,255	26,747,987	3,507,090	30,255,077	15,280,580	14,974,497
2022	41,303,541	4,671,569	925,606	7,352,255	28,354,112	3,577,232	31,931,344	15,284,015	16,647,329
2023	42,129,612	4,765,000	944,118	7,322,360	29,098,134	3,648,776	32,746,911	15,279,628	17,467,283
2024	42,972,204	28,651,092	963,000	7,305,735	6,052,377	3,721,752	9,774,129	15,281,165	(5,507,036)
2025	43,831,649	29,224,114	982,260	7,298,558	6,326,717	3,796,187	10,122,904	15,279,798	(5,156,894)
2026	44,708,281	5,056,656	1,001,905	9,446,685	29,203,035	3,872,110	33,075,146	15,279,255	17,795,891
2027	45,602,447	5,157,789	1,021,943	8,480,818	30,941,897	3,949,553	34,891,450	15,280,418	19,611,032
2028	46,514,496	5,260,945	1,042,382	-	40,211,169	4,028,544	44,239,713	15,281,786	28,957,926
2029	47,444,786	5,366,164	1,063,230	-	41,015,392	4,109,115	45,124,507	15,279,083	29,845,424
2030	48,393,682	5,473,487	1,084,494	-	41,835,700	4,191,297	46,026,997	15,282,461	30,744,536
	$ 775,946,817	**$ 155,201,423**	**$ 18,943,617**	**$ 141,314,899**	**$ 460,486,879**	**$64,386,476**	**$ 524,873,355**	**$ 305,622,109**	**$ 219,251,246**

Notes:

(1) - OPEX includes parking taxes.

(2) - Operating Income - CAPEX - Outstanding Debt Service = Parking Cash Flows Available for New Debt.

(3) - Because the City would be issuing the new debt, I understand that parking taxes associated with the increase in revenues could be used to support the bond issuance.

Bond Issuance: Key Considerations

FSG
Finance Scholars Group

1. Transaction Costs

2. Early year debt service

3. Ability to backload bond payments

4. Economics of Borrowing
   - Borrowed funds need to be repaid
   - Interest rate cost of borrowing > Return on lending (risk adjusted)
   - Risk (least able to absorb shocks when they're most likely to occur)
   - Transforms pension pledges into taxpayer obligations

5. Does not fix pension underfunding problem

Application of Results: Lease

Lease Framework:

- 50-year lease
- Upfront payment
- Requires bond defeasance
- Requires transaction costs
- Requires higher enforcement costs
- Concessionaire assumes revenue risk

Application of Results: Lease

FSG
Finance Scholars Group

PROS

- Upfront Proceeds from Lease
- Avoid State Takeover of Pension
- Potential increase in Parking Tax
- Layoff revenue risk

CONS

- Loss of asset control
- Inability to predict 50 year horizon
- Transaction costs
- Defeasance costs
- Future negotiations costs
- Cost of enforcement
- Potential reduction in enforcement revenues
- Non-compete zones
- PPA restructuring
- Cannot issue future debt
- Loss of “in-lieu tax”
- Does not fix pension problem

Lease: Calculation

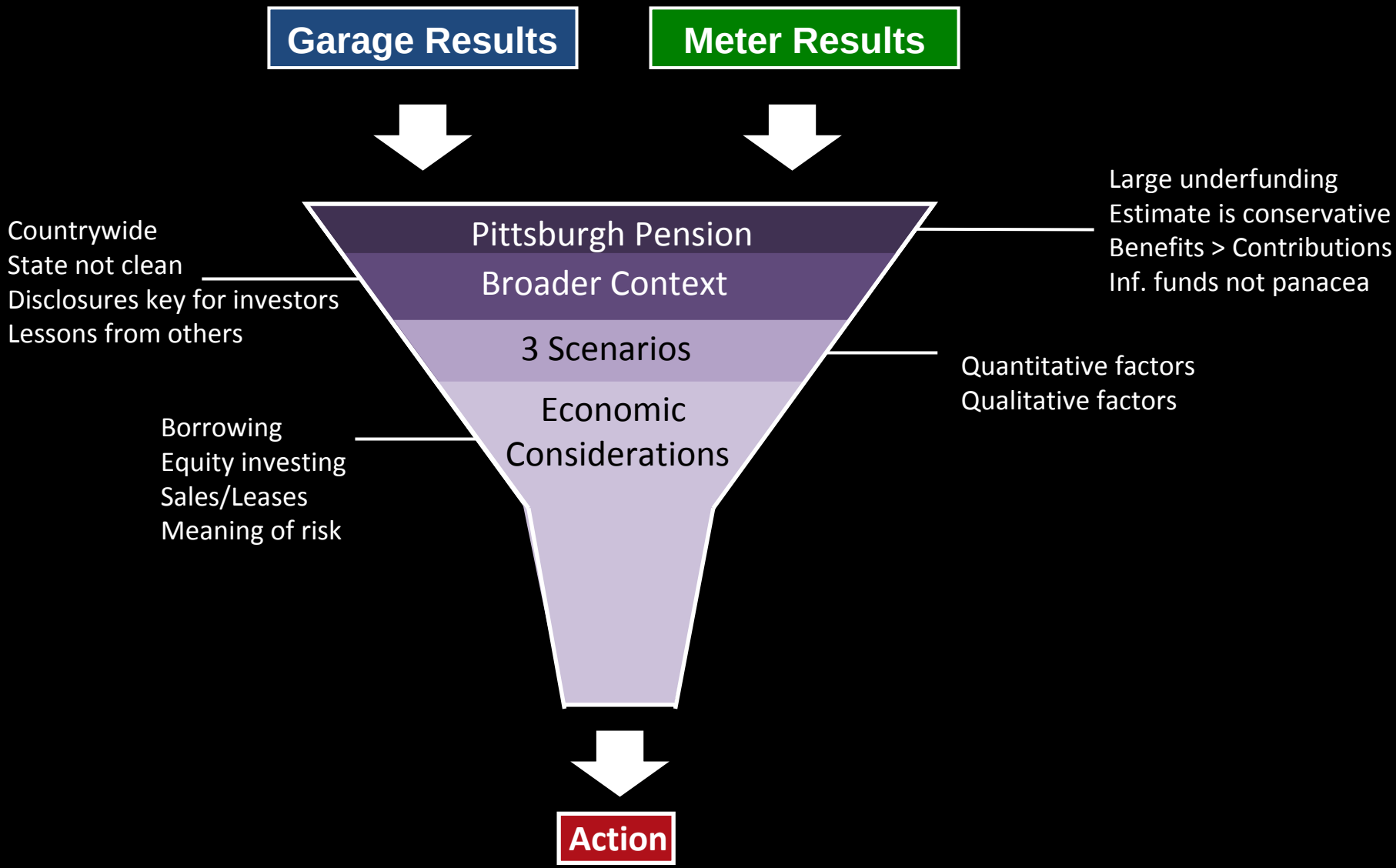
Lease Model:

Lease Value
Winning Bid
+ Increased Parking Tax
- Lost “In Lieu Real Estate Tax”
- Defeasance of Current Debt
- Transaction Costs
- Increased Enforcement Costs
- Reduced Enforcement Revenues
- Cost of PPA Restructuring
- Cost of closure days
- Cost of 1st Year Ticket Enforcement
- Cost of Other Compensation Events
Net Proceeds

Lease: Key Considerations

1. Transaction Costs
2. Defeasance Costs
3. Other Costs
   - Enforcement
   - Restructuring, etc.
   - Unintended Consequences
4. Economics of Lease
   - Similar to borrowing
5. Ability to mitigate risks through ownership

Decision Framework



Concluding Comments

FSG
Finance Scholars Group

- Underfunding is probably bigger than currently estimated
- State mandate is forcing an undesirable outcome
- Neither of the three options addresses root cause of underfunding
- Underfunding will continue
- City can still face State takeover in the future
- Infusion of resources does not resolve the dollar mismatch between the assets and liabilities in the pension plan
- Many of the economic variables underlying the City's options are still unknown
- Unique qualitative factors of each option must be considered

Finance Scholars Group
5000 Plaza on the Lake, Suite 300
Austin, TX 78746
(512) 703-4600

Finance Scholars Group

www.finsch.com

California · Illinois · New York · Texas

FSG

Finance Scholars Group