

Aerospace and Defense Industry Market Index for 1950-2012 and the Connection with Defense Spending

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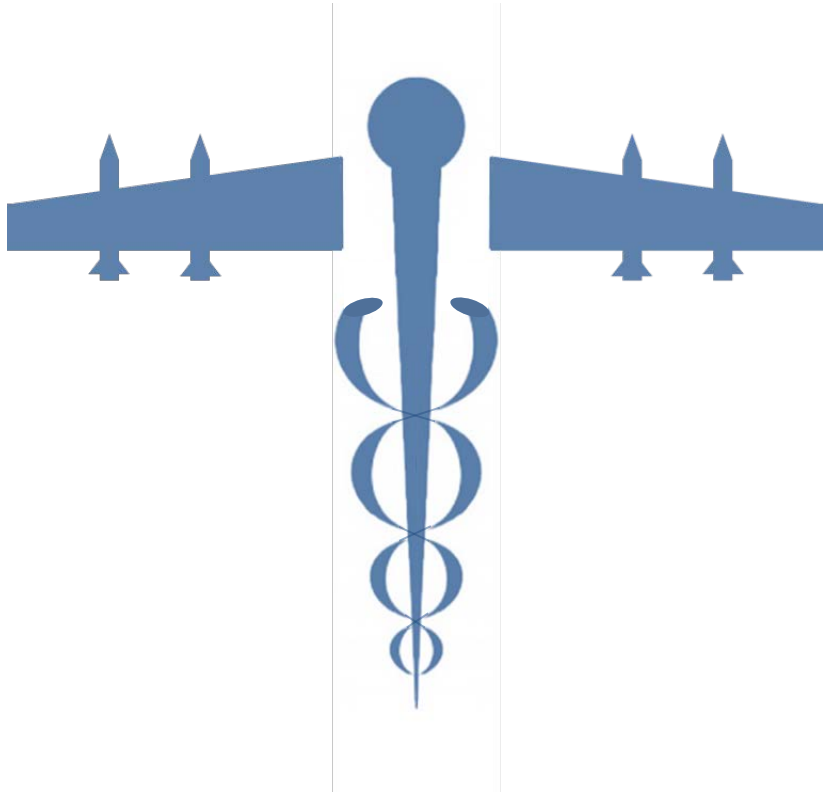
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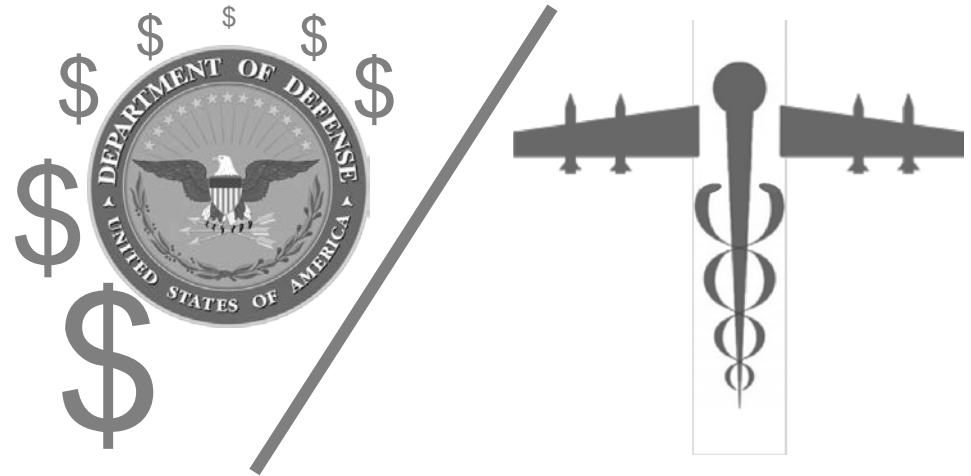
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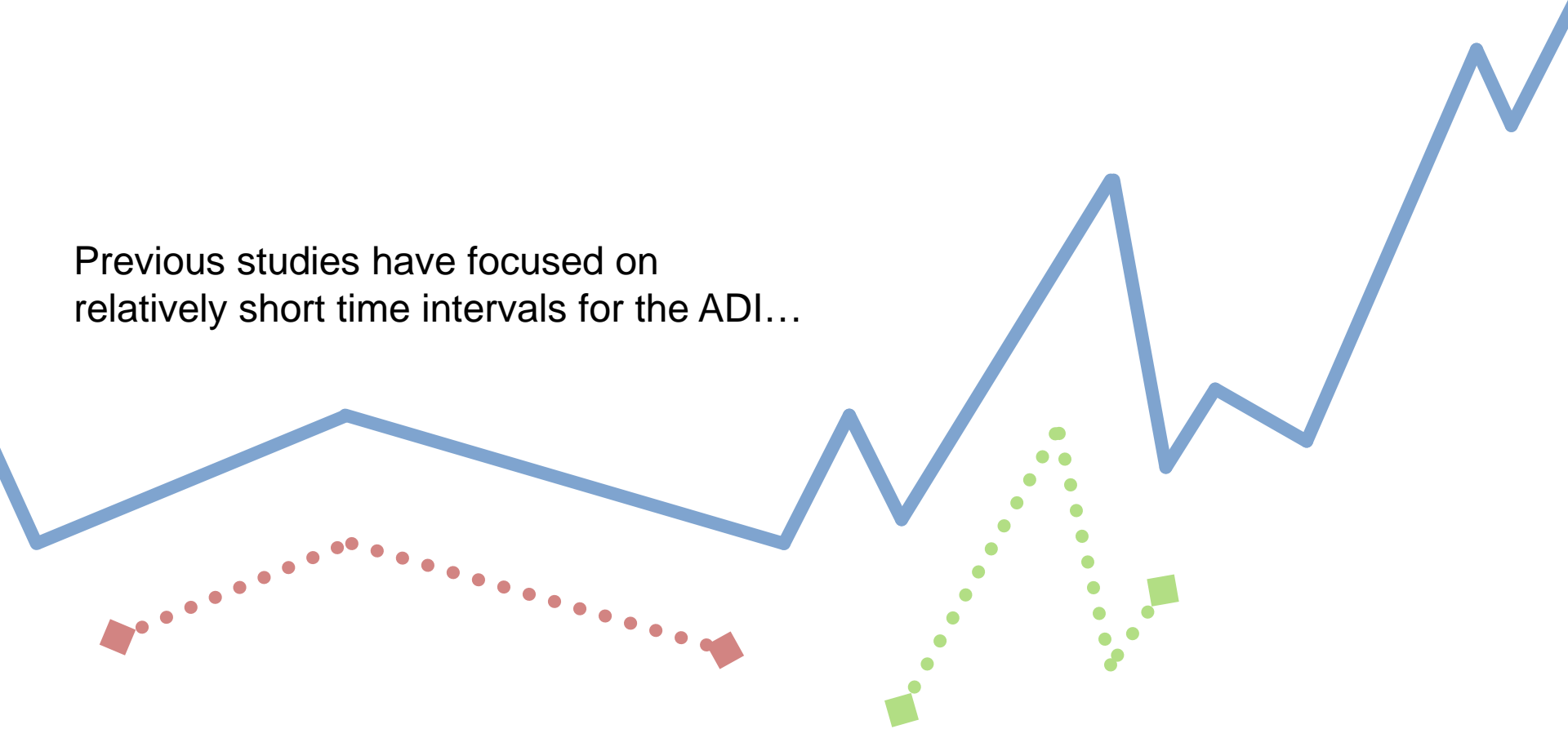
The health of the Aerospace and Defense Industry (ADI) should be assessed regularly to enable government and industry leaders to understand fully how and to what extent changes to its capacities and capabilities can be forecast and thus included in their policy deliberations.

hypothesis:

Defense spending is a predictor of the equity valuations of the major defense companies.



Previous studies have focused on relatively short time intervals for the ADI...

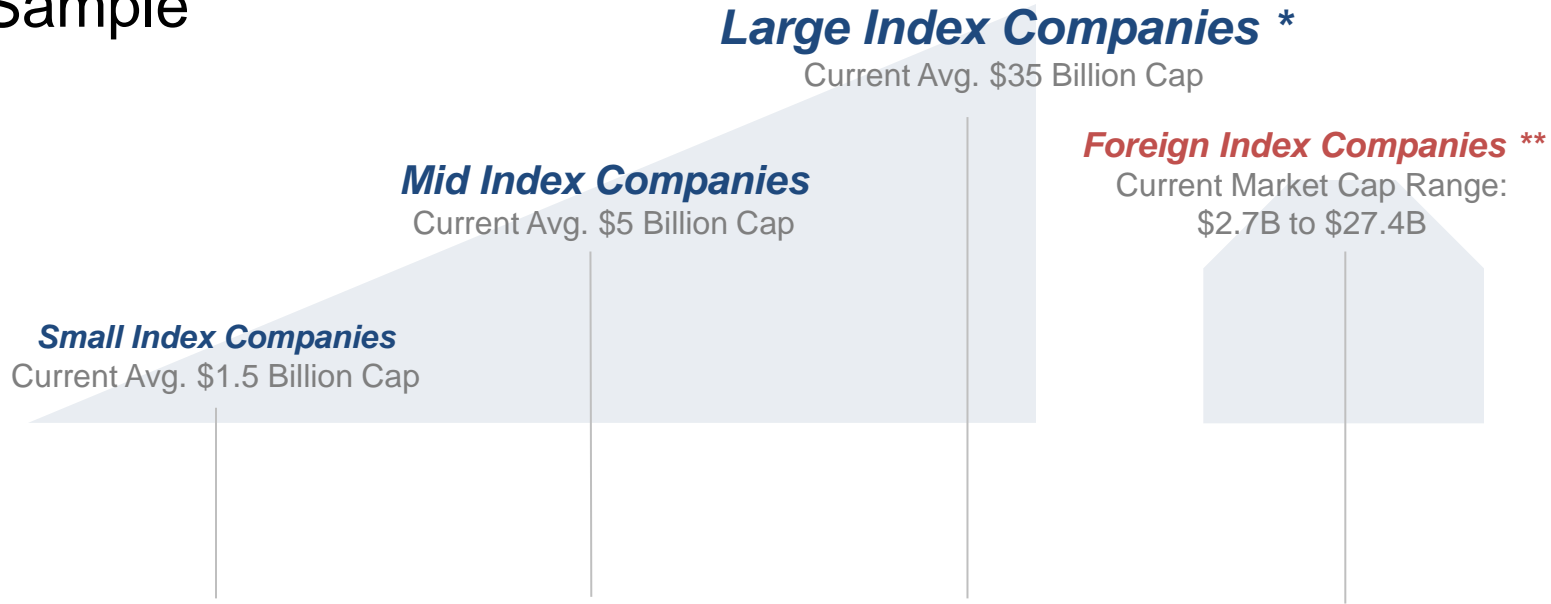


...too short for understanding long term trends or forecasting future prospects.

The Aerospace and Defense Health Index (ADI Health Index) is a balanced, share weighted proprietary market index of publicly traded companies, tracking market health from January 1950 to the present.



ADI Index Sample



<i>Average # of Companies Each Year</i>	6	27	19	11
<i>Date Range</i>	1998-Present	1950-Present	1950-Present	2000-Present
<i>Average Current Asset Value</i>	\$2.2B	\$3.95B	\$32.6B	Range: \$4B to \$111.3B
<i>Average Current Annual Revenue</i>	\$1.5B	\$4.5B	\$30B	Range: \$3B to \$61B

* Includes 5 of the “Big 6” – Northrop Grumman, Lockheed Martin Corp., Boeing Co. General Dynamics, and Raytheon

** Includes BAE Systems, the other company in the “Big 6”

Figure 1

The ADI Index Series with the S&P500, 1950-2011

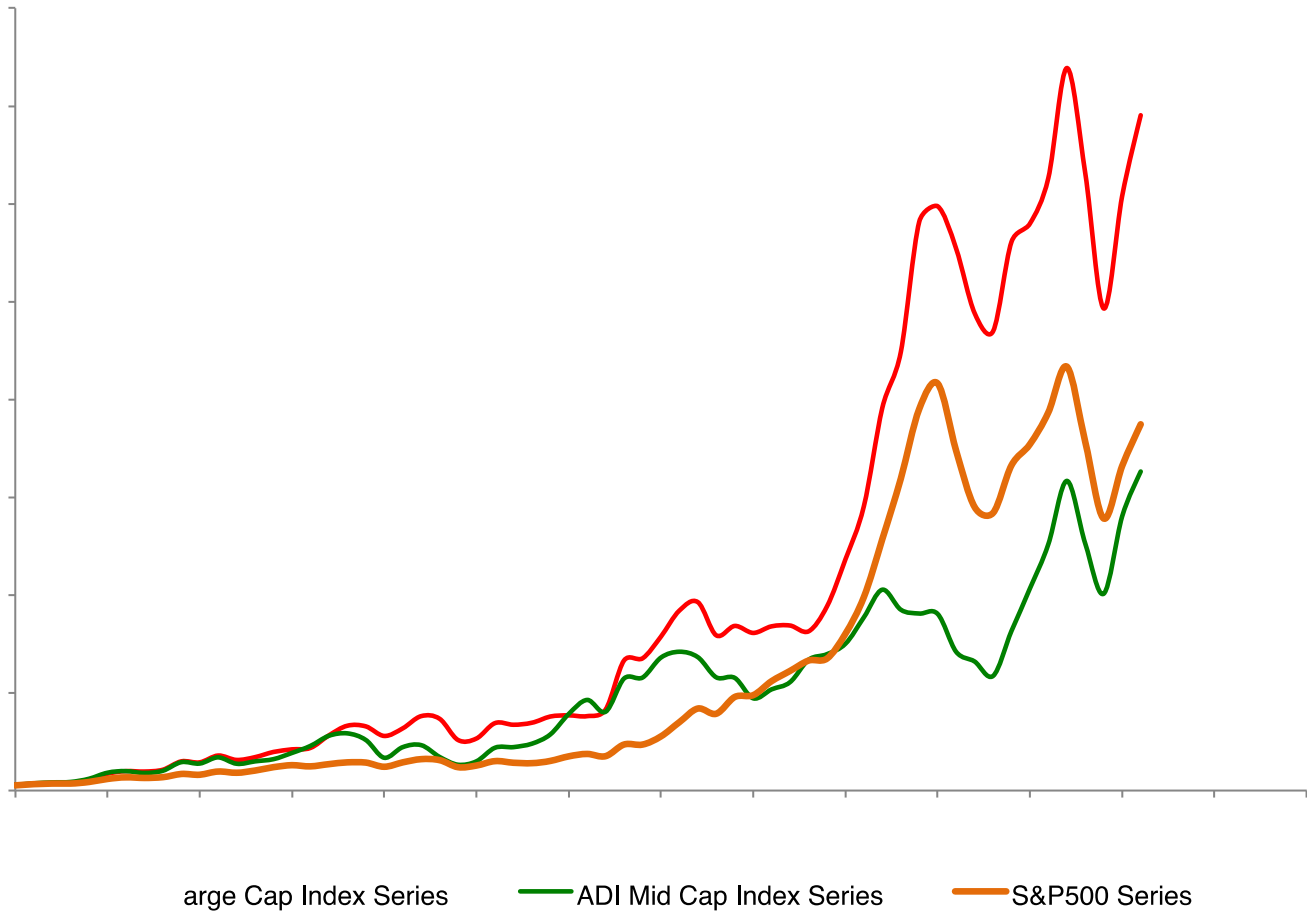


Figure 2

The Federal Reserve Board Defense Index and the ADI Large and Mid Cap Index Series

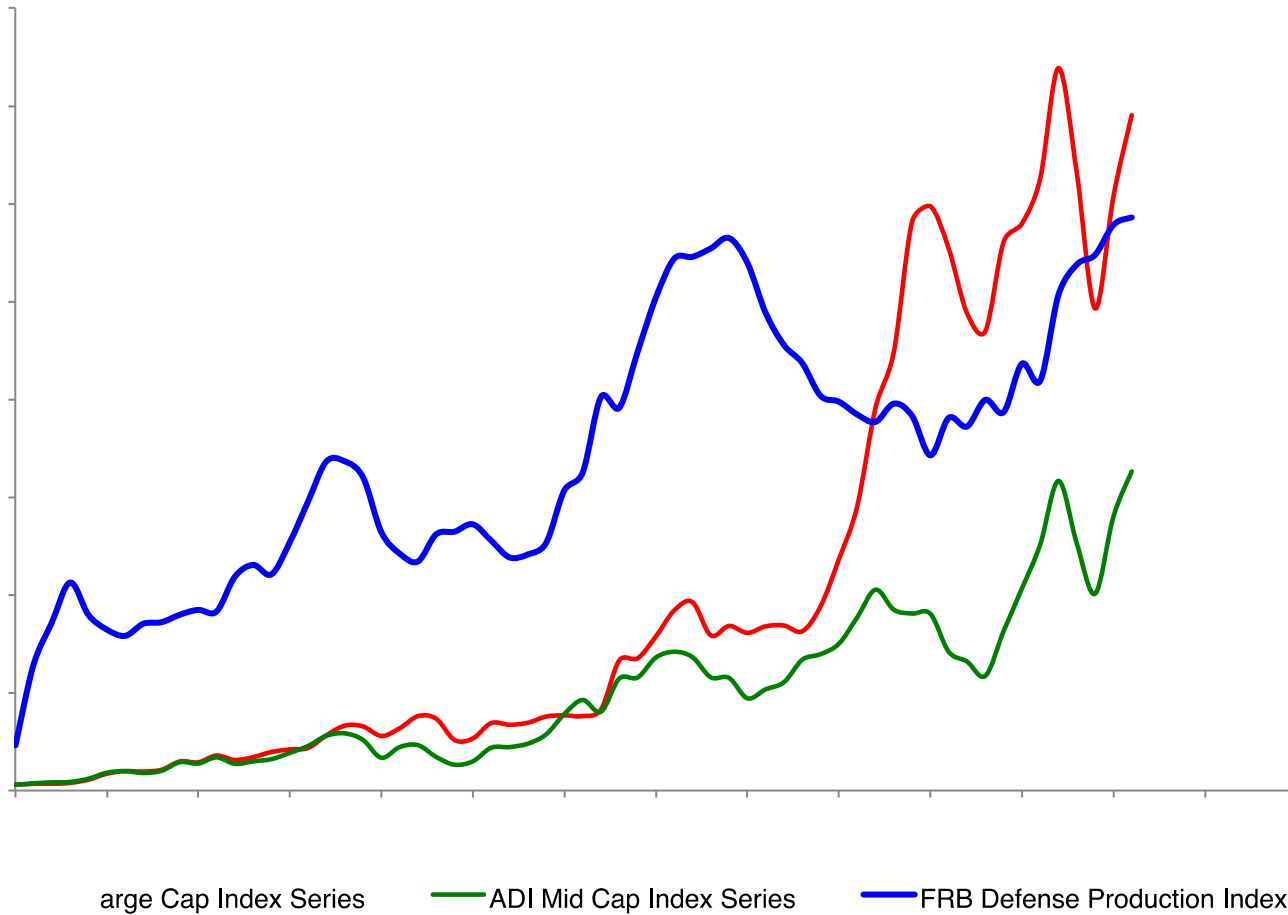


Figure 3

Department of Defense Outlays by Selected Categories, 1950-2011 and Projections 2012-2016

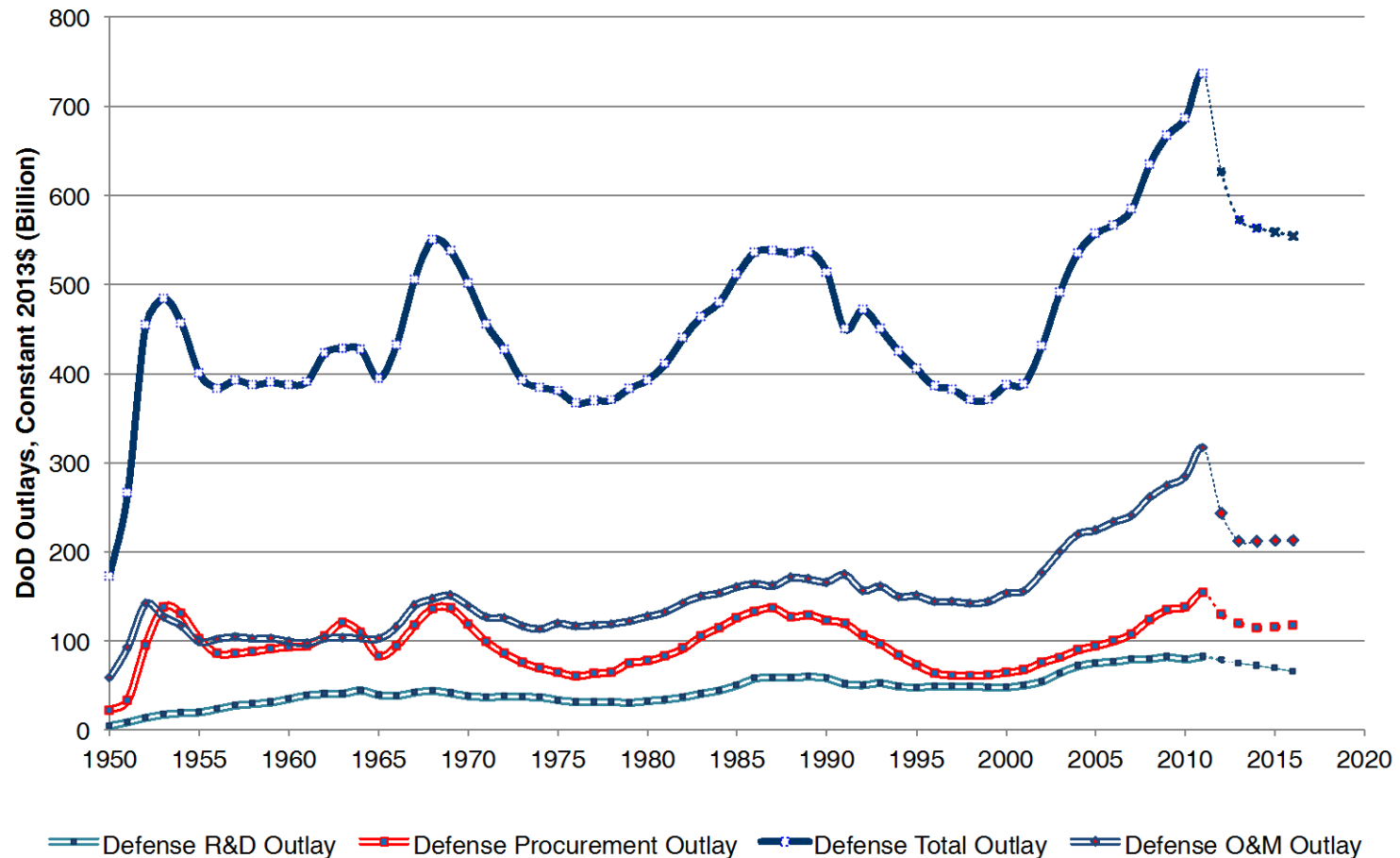
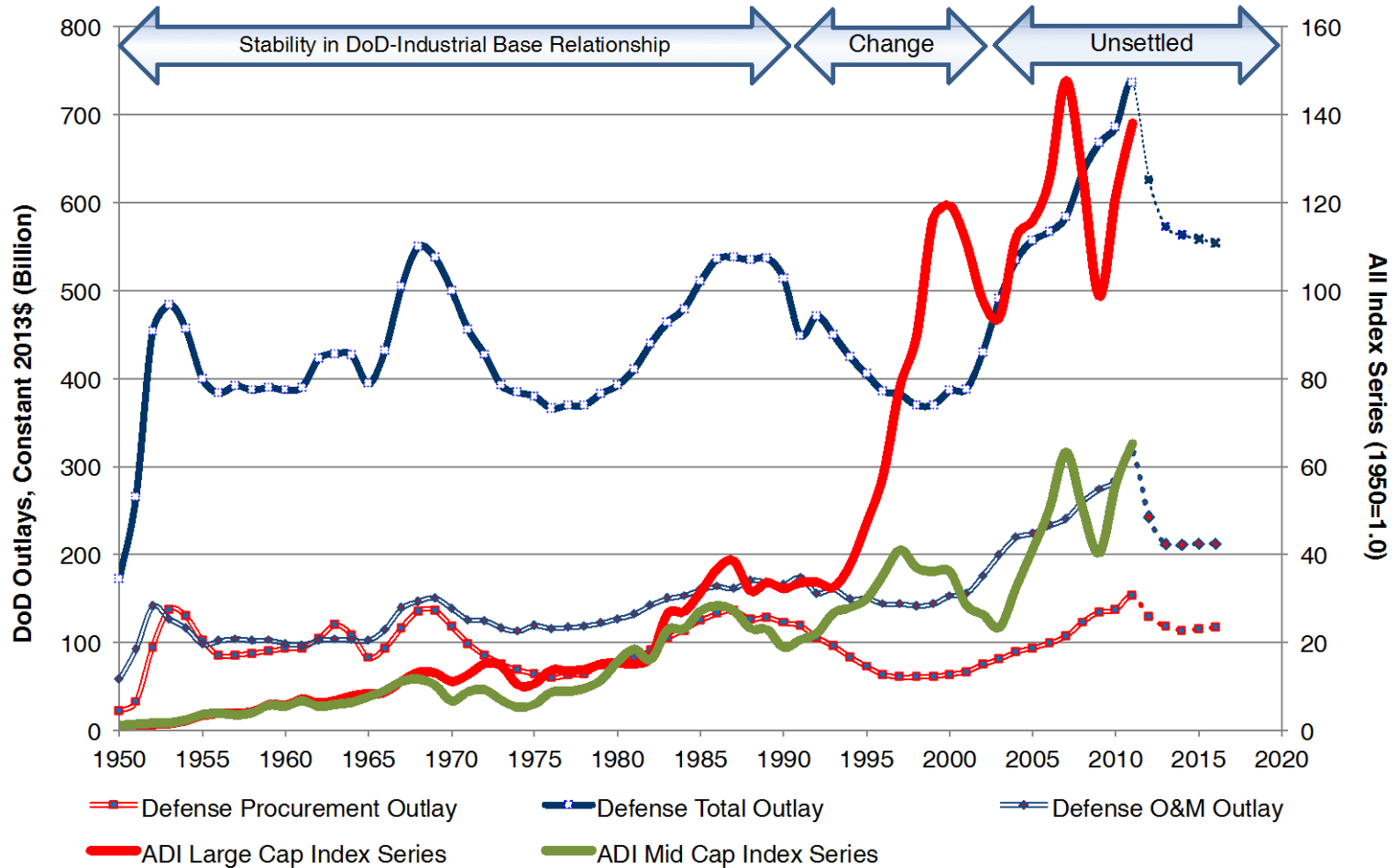


Figure 4

DoD Real Outlays and Long Term Market Performance of the ADI



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Structural Modeling

Predictor Variables	ADI Large Index Model β Coefficients (Unstandardized)	ADI Mid Index Model β Coefficients (Unstandardized)
<i>Intercept Constant</i>	-98.45(35.47)**	-42.88(10.13)***
<i>Trend</i>	20.15(7.52) **	11.24(2.12)***
<i>Year 1995 Indicator</i>	29.60(4.81) ***	-
<i>FRB Defense Production Index</i>	-1.80(1.1) *	-
<i>Large Company Order Backlog,\$</i>	0.0004(0.0002) **	0.0007(0.0001)***
<i>DoD RD Outlay,\$, Year Prior</i>	0.43(0.36)	-0.47(0.2)**
<i>DoD PC Outlay, \$, Year Prior</i>	-	0.12(0.05)**
<i>1 Period Autoregressive Term</i>	0.19(0.18)	0.41(0.13)***
<i>1 Period Moving Average Term</i>	0.99(0.11)***	-
<i>4 Period Autoregressive Term</i>	-	-0.57(0.14)***

Structural Modeling

Predictor Variables	ADI Large Index Model β Coefficients (Unstandardized)	ADI Mid Index Model β Coefficients (Unstandardized)
<i>R-squared</i>	0.97	0.94
<i>Adjusted R-squared</i>	0.96	0.91
<i>Standard Error of regression</i>	8.74	4.39
<i>Sum squared residuals</i>	2518.87	596.65
<i>Log likelihood</i>	-142.59	-106.24
<i>F-statistic</i>	146.87	66.13
<i>Prob(F-statistic)</i>	0.00	0.00
<i>Durbin-Watson stat</i>	2.05	2.06

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conclusion:

Before 1990, the market health of the ADI companies was more obviously connected with DoD spending on defense programs. A disruptive structural change affected that relationship between 1990 and 2000. The current period – post 2000 – produces weaker correlation between defense spending and ADI market health, but the counterintuitive patterns of the 1990s relationship between defense spending and ADI market health appear to have passed.

