

IEDA Annual Meeting Orlando, February 2018

TIPPING POINTS, BLACK SWANS AND BLACK ELEPHANTS

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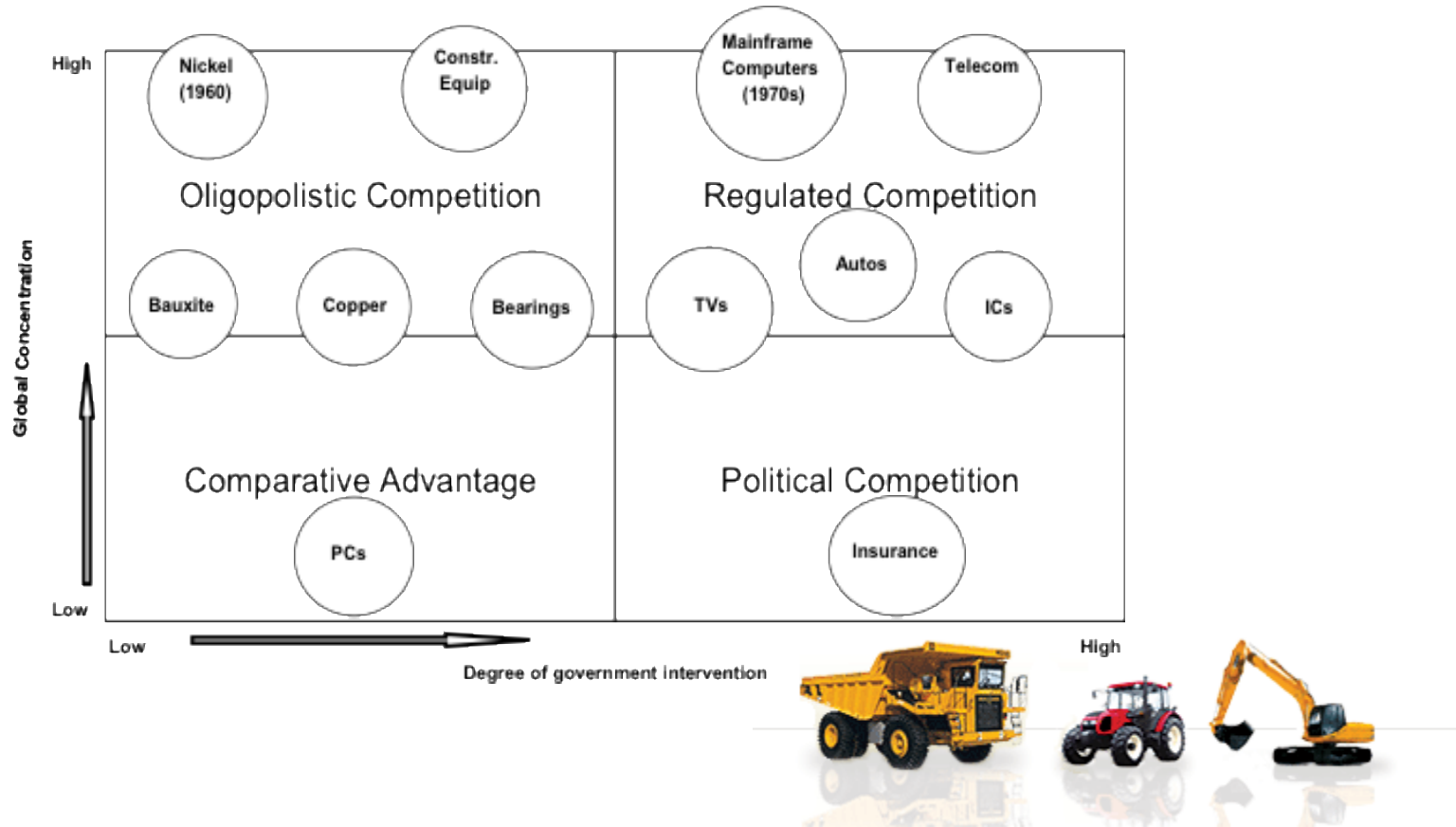
Presentation Outline

- Review of the Machinery Industry
- Current Market Situation
- What's It Take To Be In The Equipment Business?
- Industry Disruptions
- Distribution
- Connectivity
- The Sharing Economy
- Conclusions



Early U.S. Domination of World

Mapping Industries to Drivers
of International Trade



The Herfindahl-Hirschman Index

“The Herfindahl-Hirschman Index is the standard measure of industry concentration. This establishes that there is a direct relationship between the degree of industrial concentration and the average degree of market power...” Massimo Motta 2004

$$HHI = \sum m^2$$

- below 0.01 indicates a highly competitive industry
- below 0.1 indicates an unconcentrated industry
- between 0.1 to 0.18 indicates moderate concentration
- above 0.18 indicates high concentration



Example of HHI

HHI for 4 firms with 21% market share each

$$\text{HHI} = 0.18$$

Concentrated

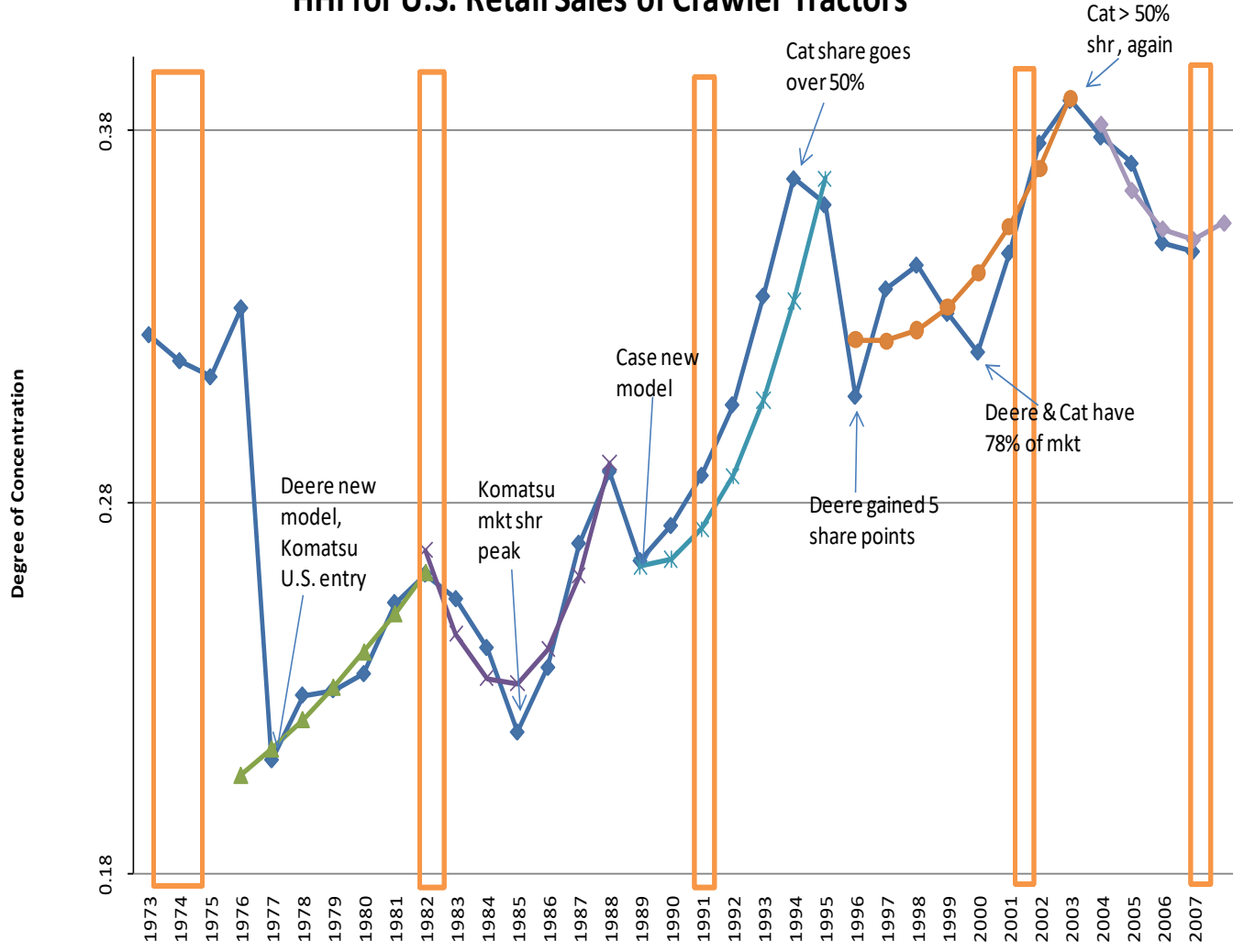
HHI for 100 firms with 1% market share each

$$\text{HHI} = 0.01$$

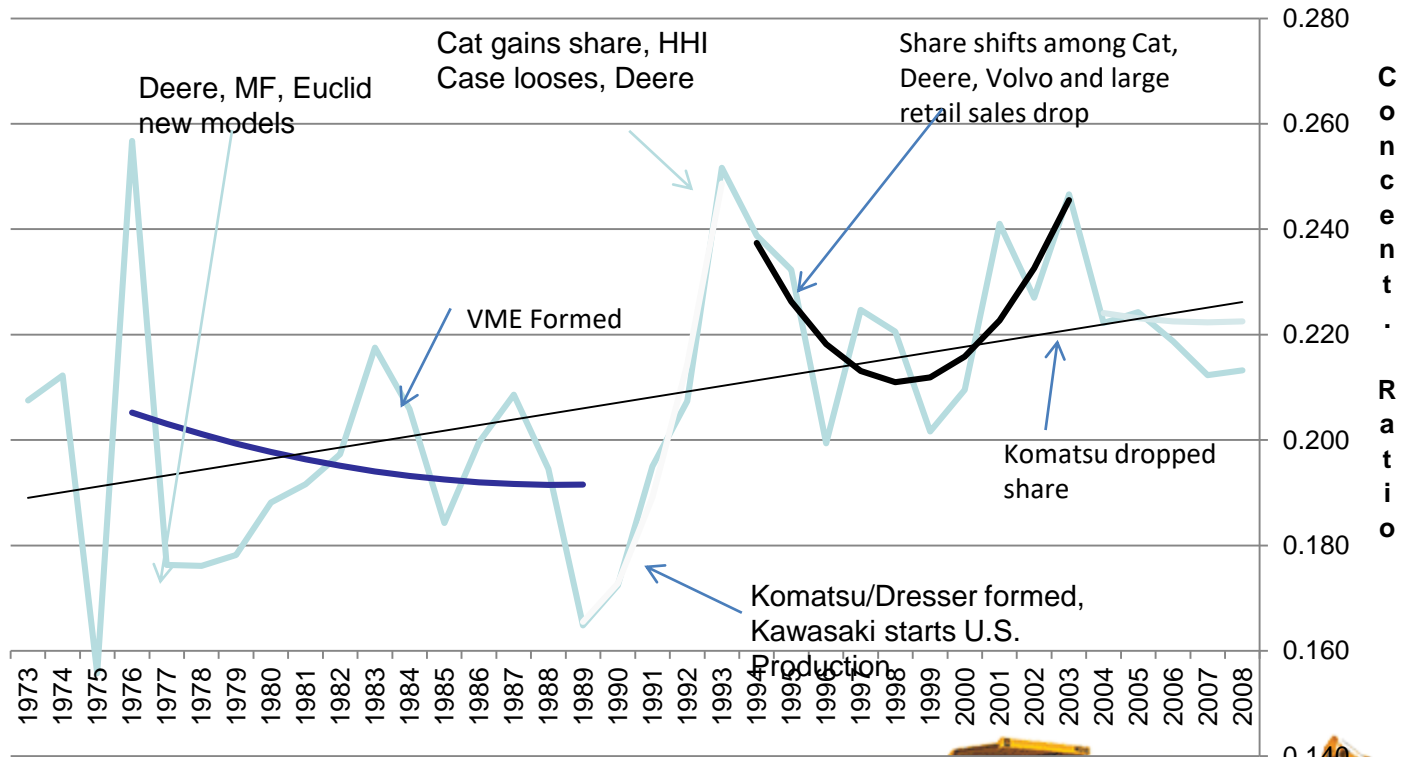
Not Concentrated



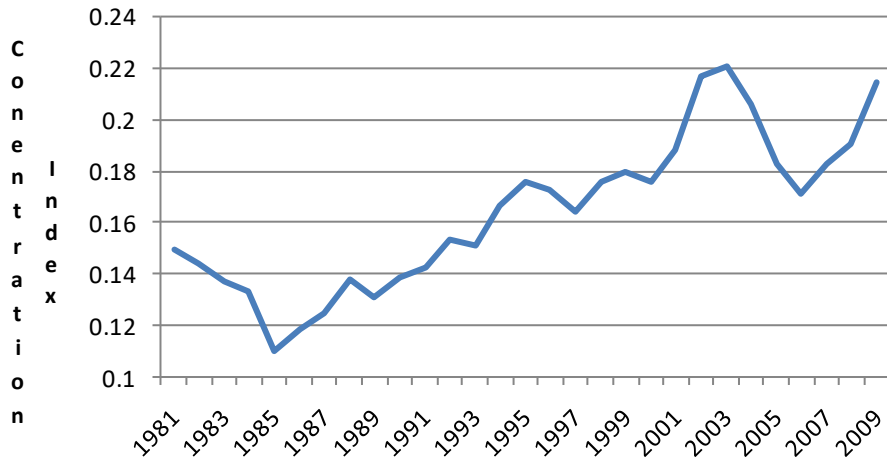
HHI for U.S. Retail Sales of Crawler Tractors



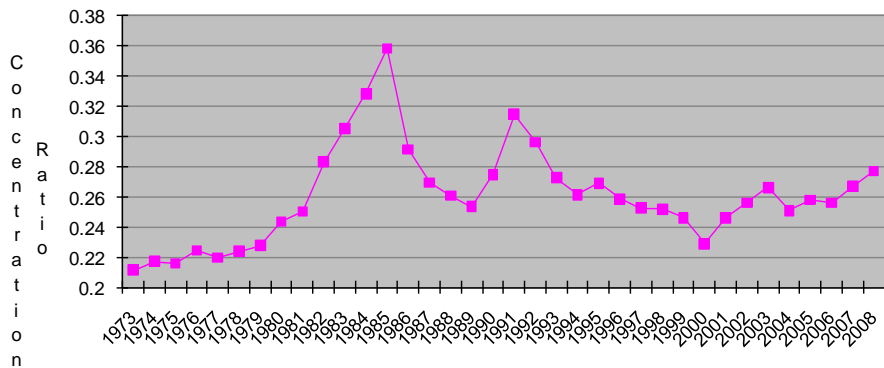
HHI for U.S. Retail Sales of Wheel Loaders



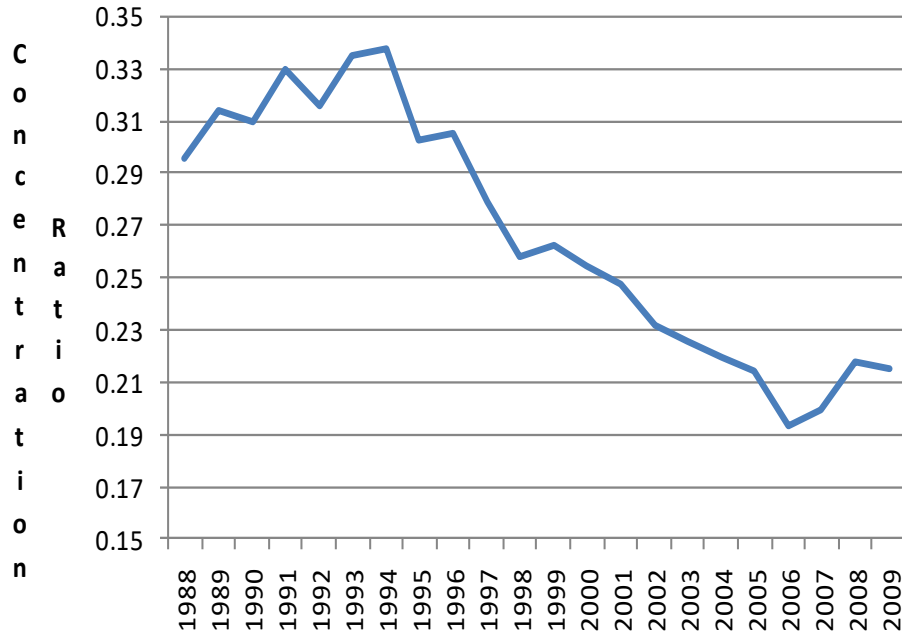
HHI for U.S. Retail Sales of Hydraulic Excavators



HHI for Retail Sales of Tractor Loader Backhoes



HHI for Retail Sales of Skid Steer Loaders



Why Does Market Concentration Persist?

U.S. market barriers to entry

- Distribution
 - 260 independent ownership groups control nearly 80% of the market
 - Manufacturer exclusivity relationships
- Engine emission regulations – onerous
- Manufacturing facilities – unique, expensive






Current Market Situation



Estimated U.S. Construction Machinery Market

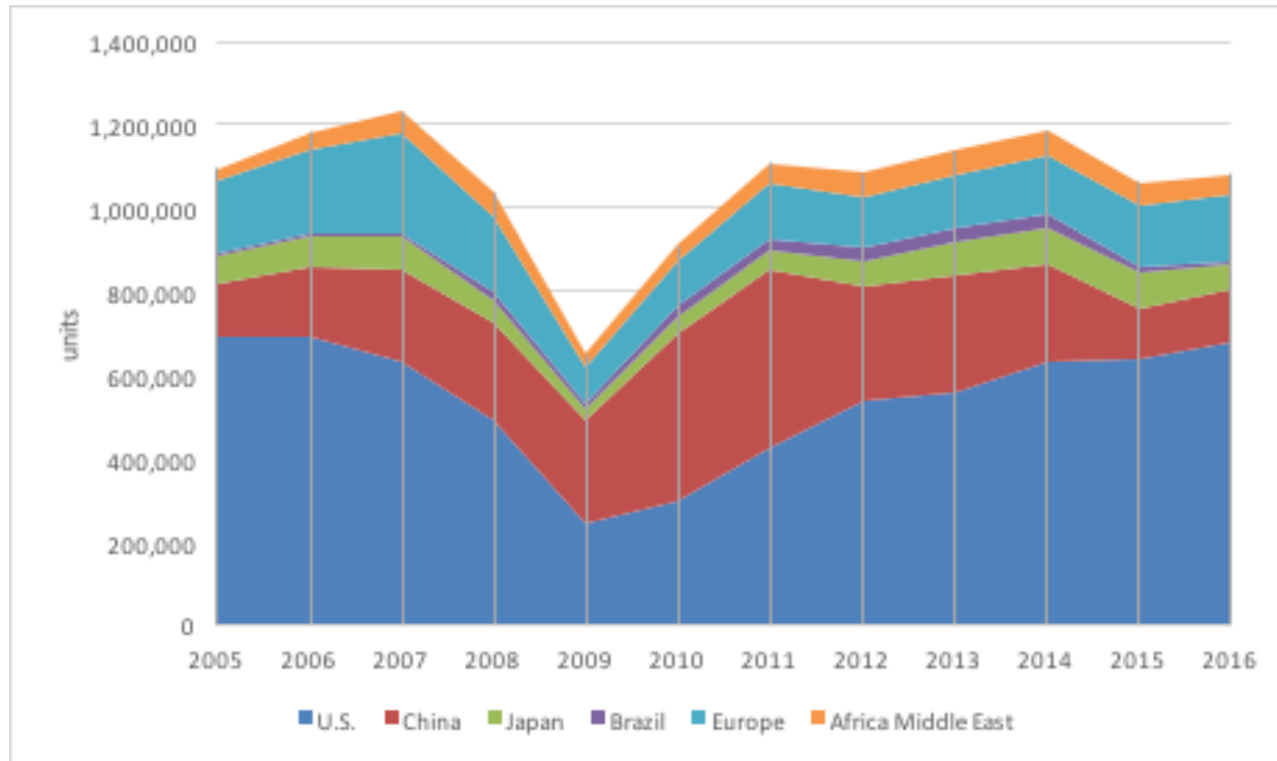
(units)

Product	2013	2014	2015	2016	Estimated % Change		Forecast % Change	
					2017	17 vs 16	2018	18 vs 17
Asphalt Pavers	1,275	1,340	1,400	1,450	1,510	4.1%	1,586	5.0%
Compactors	4,315	4,530	4,700	4,750	4,750	0.0%	4,750	0.0%
Cranes	1,830	1,450	1,340	1,425	1,238	-13.1%	960	-22.5%
Crawler Tractors	6,090	6,100	6,700	6,900	8,340	20.9%	7,950	5.0%
Hydraulic Excavators	39,000	42,300	44,000	37,000	36,000	-2.7%	39,600	10.0%
Loader Backhoes	16,000	15,200	17,500	16,500	16,000	-3.0%	17,200	7.5%
Motor Graders	2,695	2,800	2,600	2,600	2,650	1.9%	2,703	2.0%
Haulers - Rigid	895	850	760	675	675	0.0%	675	0.0%
Haulers - Articulated	1,300	1,500	1,650	1,550	1,500	-3.2%	1,470	-2.0%
RT Forklifts	15,090	15,800	15,500	14,750	14,000	-5.1%	16,100	15.0%
Rubber Tracked Loaders	23,200	25,500	34,000	30,000	31,000	3.3%	33,790	9.0%
Skid Steer Loaders	41,027	45,000	39,000	37,000	35,000	-5.4%	38,500	10.0%
Wheel Loaders	19,000	21,000	22,000	20,000	19,000	-5.0%	20,710	9.0%
Total	171,327	183,370	190,550 	174,600 	171,663 	-1.7%	185,994	8.3%

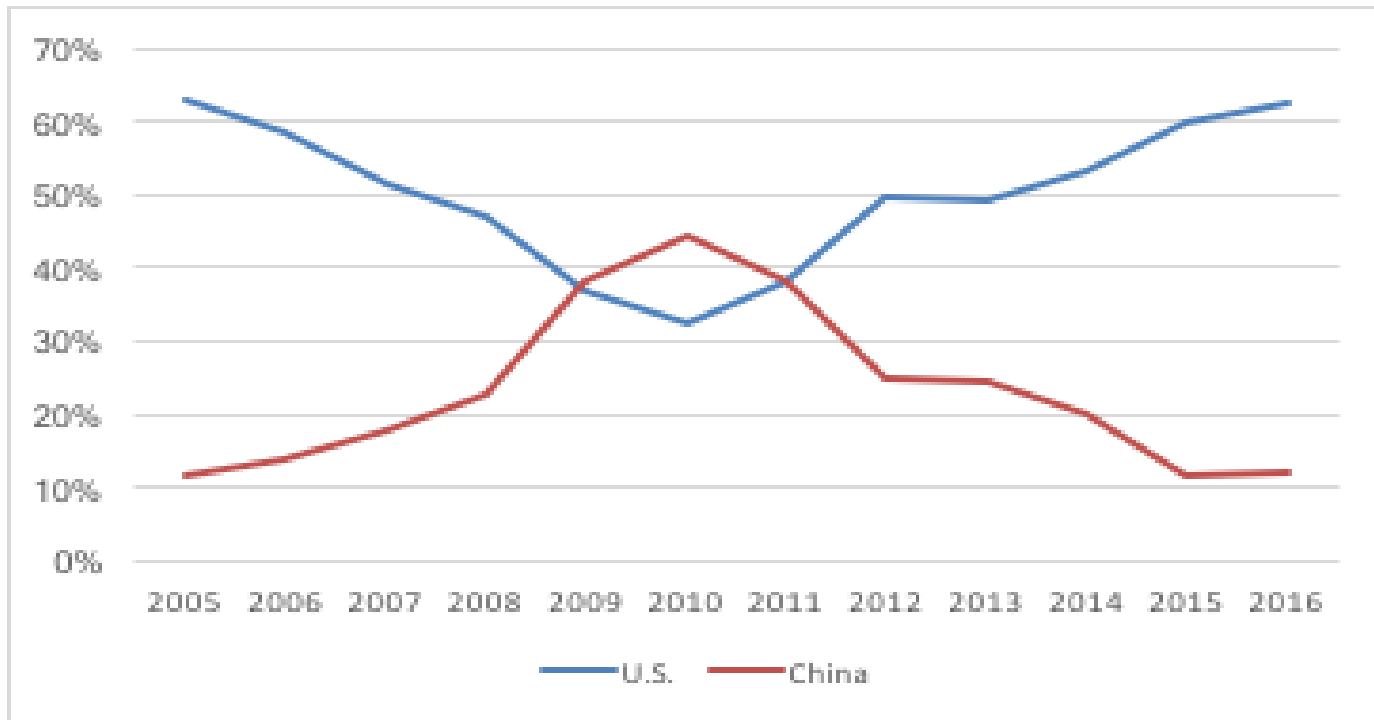


Current Market Situation

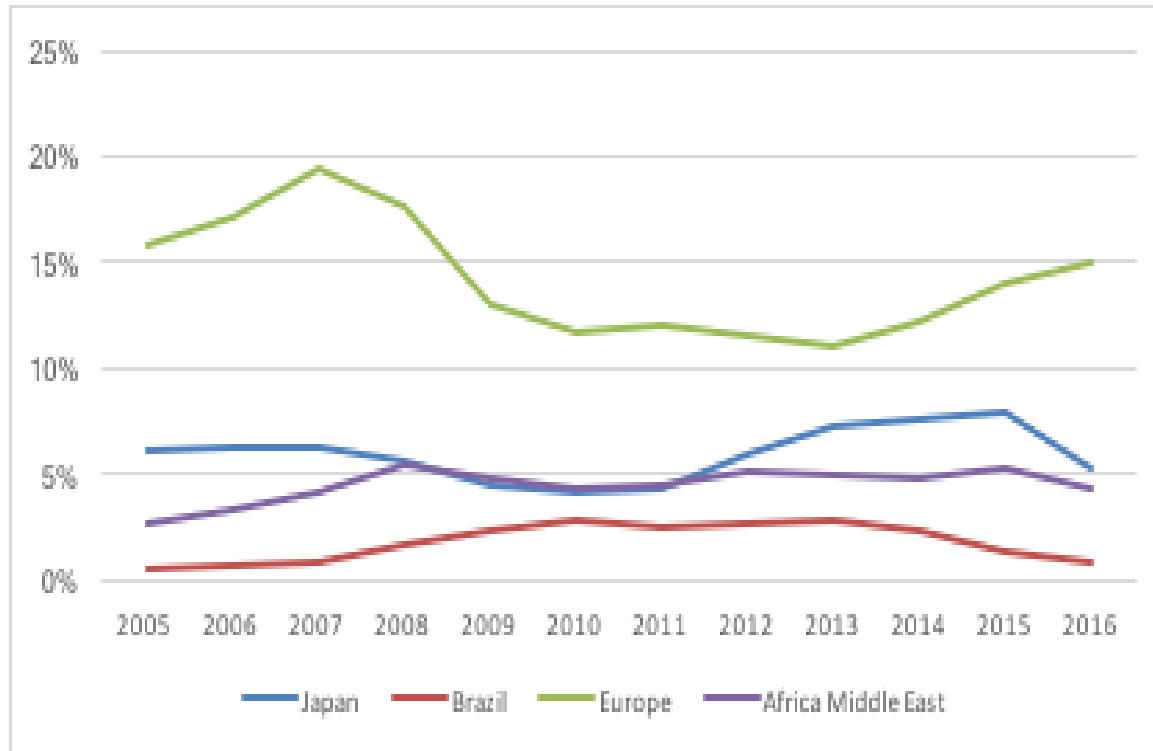
Construction Total Market



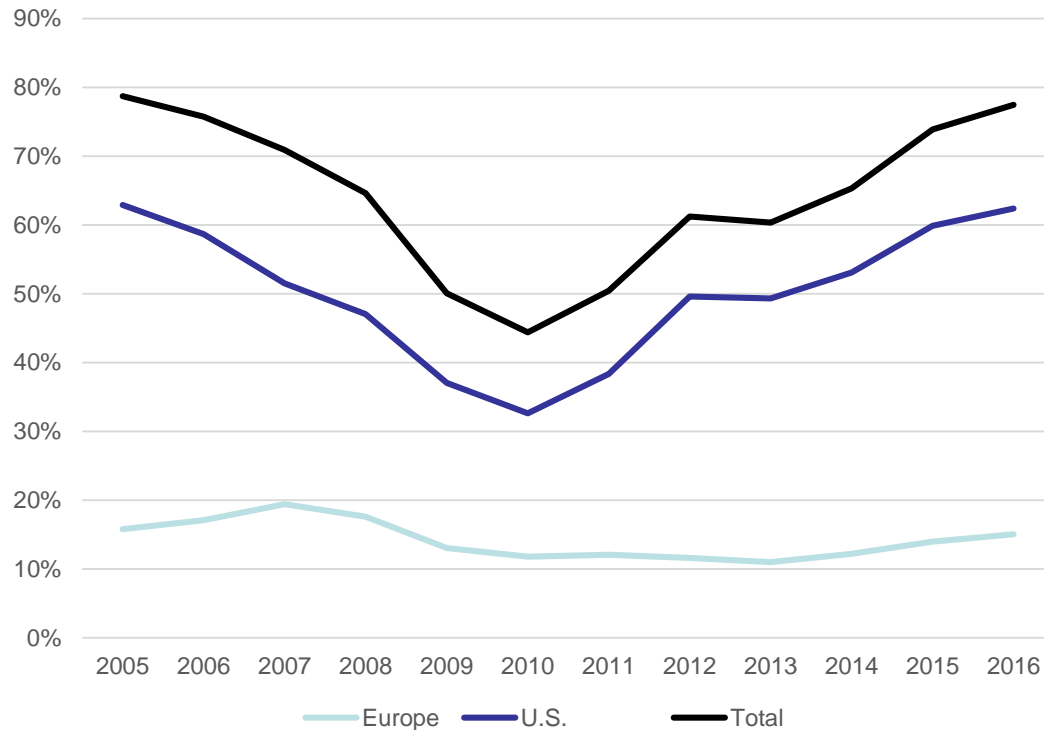
Market as % of Total World



Market as % of Total World

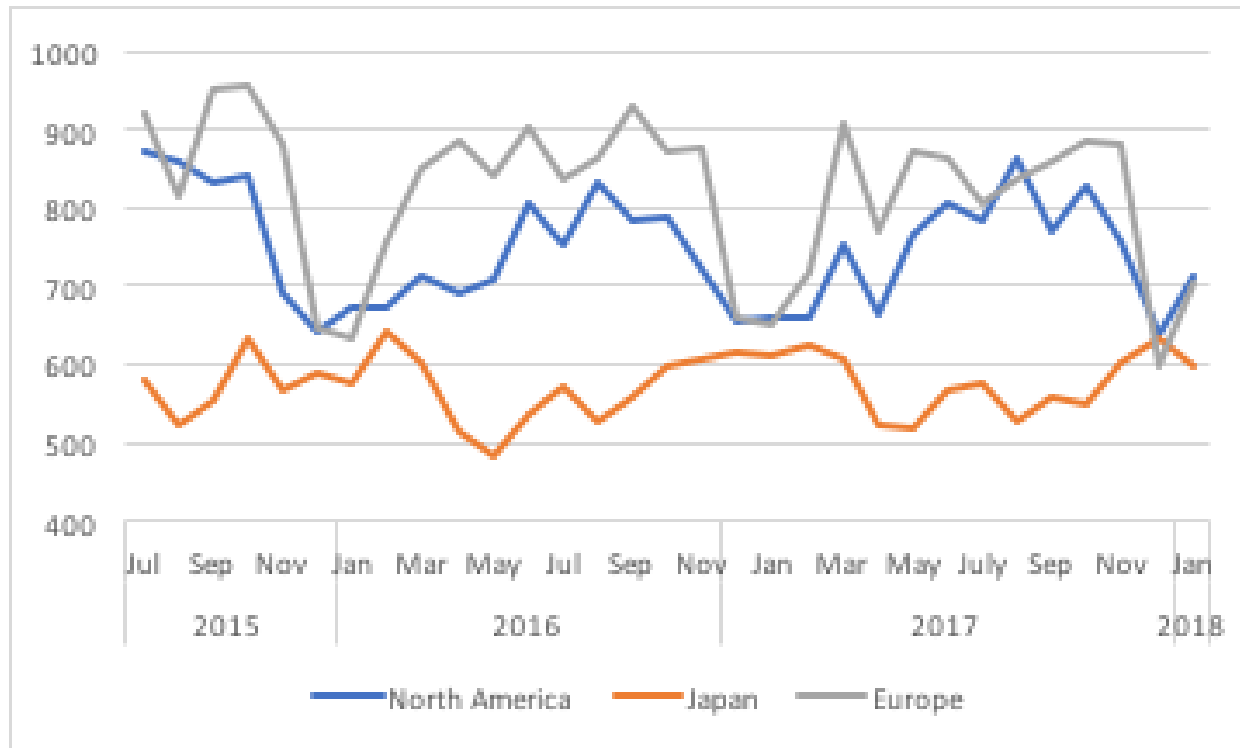


Market as % of Total World



Komatsu Telematics Data

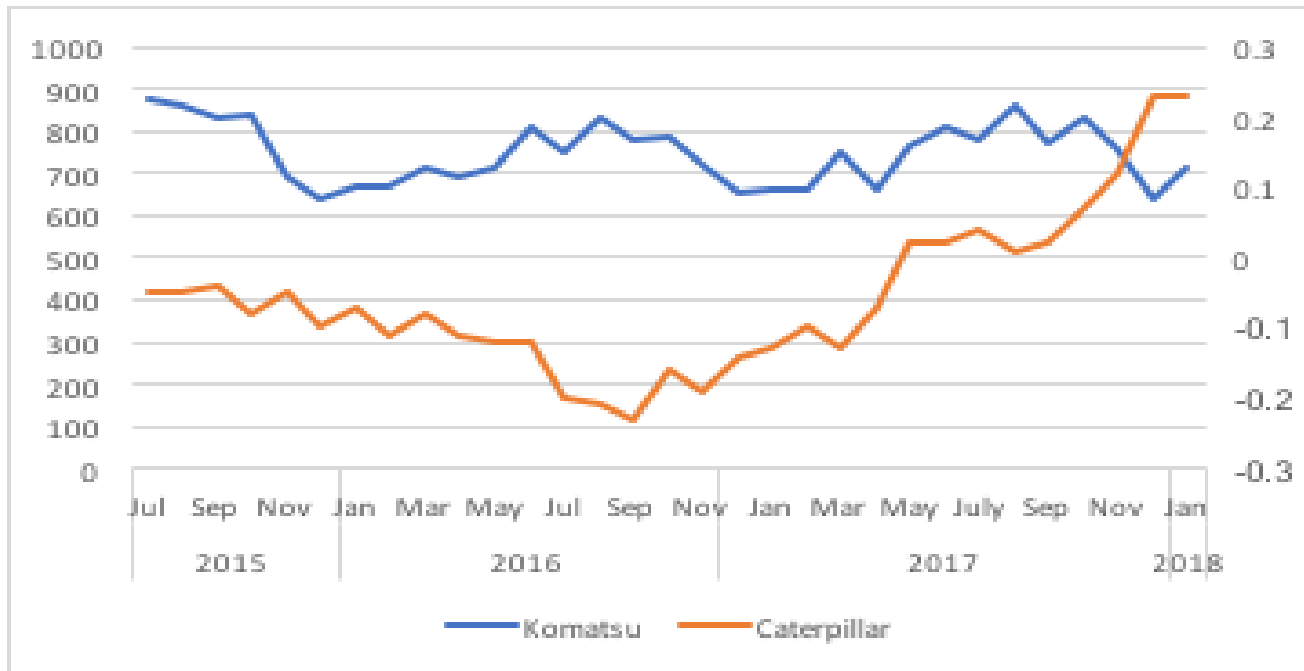
Monthly Hours of Operation



Komatsu vs. Caterpillar

North America

(% chg. Ave. Hrs vs. Retail Sales chg.)



Industry Disruptions

Rentals

Emissions

Sharing



Industry Disruptions

- Shift toward rental
 - A Tipping Point
 - Trend Towards rentals is a Black Swan event
- Emission regulations
 - A Black Elephant event
- The sharing economy
 - Another Black Elephant



The Tipping Point

- Book by Malcolm Gladwell
- Tipping point -> some change is irreversible
 - Why some ideas “tip”, meaning they change and the change is irreversible
- The machinery industry is at an irreversible Tipping Point
 - More than 50% of all equipment sold in 2014 went into rental fleets
 - That ratio could move to 65% by 2020



Tipping Point

Worldwide % of Machines Sold Into Rental Fleets



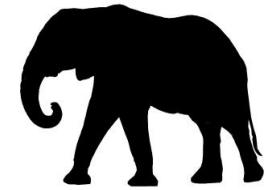
The Black Swan



- A Book by Nassim Nicholas Taleb
- A Black Swan event comes as a complete surprise and is inappropriately rationalized after the fact with the benefit of hindsight
- The emergence of the equipment rental business is a Black Swan event



The Black Elephant



- A cross between a Black Swan event with the “elephant in the room”
- A problem that is visible to everyone, yet no one wants to deal with it
- EPA emission regulations are an example of a Black Elephant event



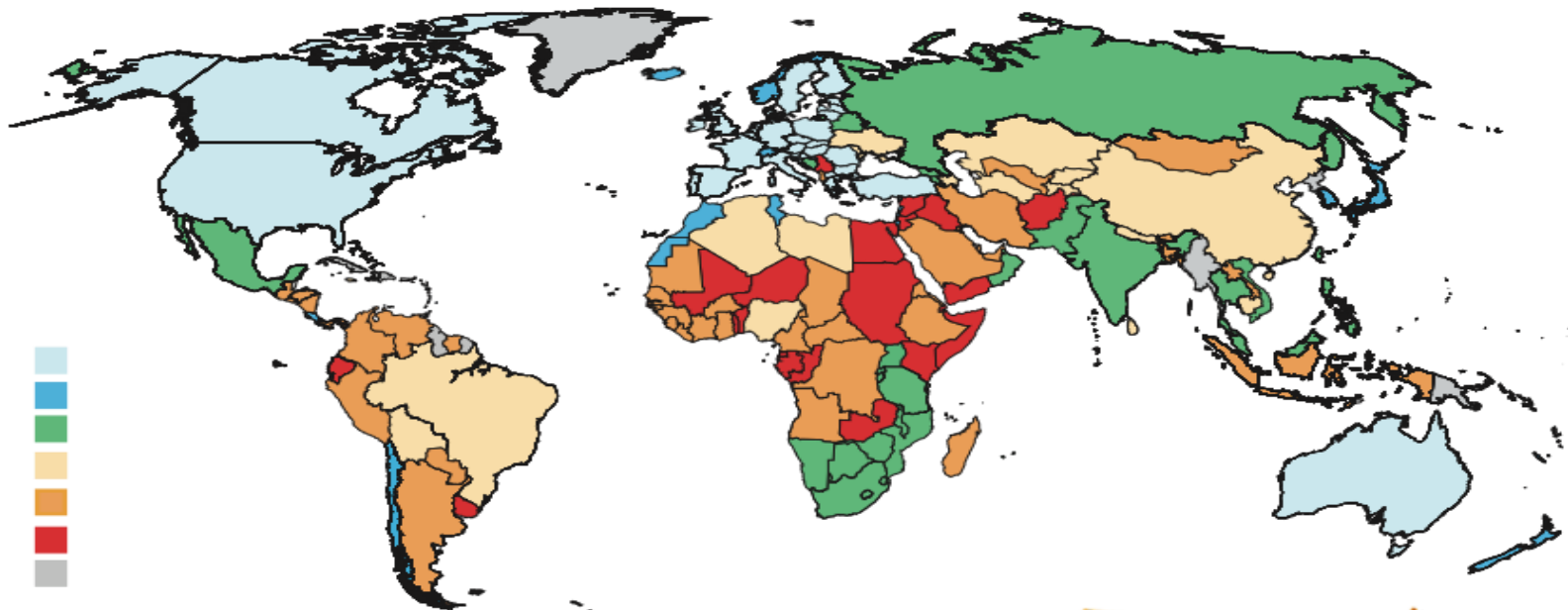
U.S. Emission Regulations Have Changed The Market

- Tier IV interim – January 2012
- Tier IV Final – January 2014
- Availability of ultra-Low Sulphur Diesel
- Need for a stable used equipment market
- Need for predictable residual values
- Tier V??



ultra Low Sulphur Diesel Fuel Availability

Isolating Impact of Emission Regulations



Regulated versus Non-Regulated Markets

Distribution

Getting your product into the
customers' hands



Distribution

- Independent distribution channel may not be so independent
- 3,000 independent dealers/rental companies



- U.S. Distribution
 - 260 independent ownership groups control nearly 60% of the U.S. market
 - Manufacturer exclusivity relationships
- Komatsu now owns directly, or through trading company proxies, 60% to 70% of its retail distribution
- Deere owns 20% of its U.S. distribution



Machine Connectivity



Machine Connectivity

- Machines will follow Automobiles
 - GM, Ford—Lyft
 - Google – Fiat-Chrysler and Uber
 - Caterpillar
 - Caterpillar Marine
 - Others??



Sophistication of machine users increasing Exponentially

Data intermediaries facilitated by the
Internet

2006 Internet crossed > 1 billion users

Facebook public domain 2006

Apple iPhone 2007

Twitter 2006/2007

The “Cloud” 2007

Kindle 2007

Airbnb 2007



Standardization of Machine Operation Data Must Happen

Equipment manufacturer telematics systems (partial list)	System Name
Case	SiteWatch
Caterpillar	ProductLink
Deere	JDLink
Doosan/Bobcat	CoreTMS
Komatsu	KomTrax
Manitowoc/Grove	CraneSTAR (with Telogis)
Tadano	HELLO-NET
Takeuchi	Takeuchi Fleet Management (TFM)
Volvo	CareTrack

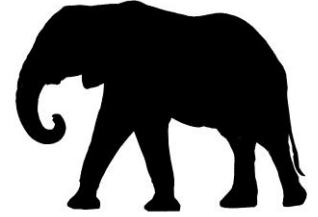


Too Much Information!!

- Users who receive telematics data generally have not altered their operational behavior
- Too Much Information – Users overwhelmed with data
- Dashboard must provide actionable advice not just more information
- Fault code algorithms must identify problems and provide solutions
- Sell solutions, not hardware
- Must be Agnostic



Traditional Dealer Model Will Be Replaced By The New Black Elephant The Sharing Economy



- Millennials do not have the desire to own things
- There will be an Uber or AirBNB entry to the machinery industry that will disrupt the status-quo
- YardClub (CE) and MachineryLink (AG) are two start ups that will be disruptive
- Even a small increase in utilization could shrink equipment market



The Sharing Economy

- Yard Club
- Machinery Link
- Dozr
- BigRentz
- Equipmentssharing.com



Future Competition Will Not Be Other Equipment Manufacturers

- Software Developers
- Contractors
- Mine Operators
- Large Fleet Owners
- Equipment Rental Companies



Conclusions

- Manufacturers must take a more active role in the distribution of their products
- Distributors must expand into rentals which will require much more capital
- The the sharing economy for machinery will impact rental companies and distributors the most and long term may result in reduced demand for machines



No New Way To Move Dirt

- Operational differences between brands negligible
- The future belongs to those manufacturers who help the user dig holes, load a hopper, build a building, build a road

