EuroBrake 2014
BCS1: Global Aftermarket for Braking products

The Aftermarket for Brakes and Brake Parts – a Global Overview

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Global Aftermarket for Braking Products

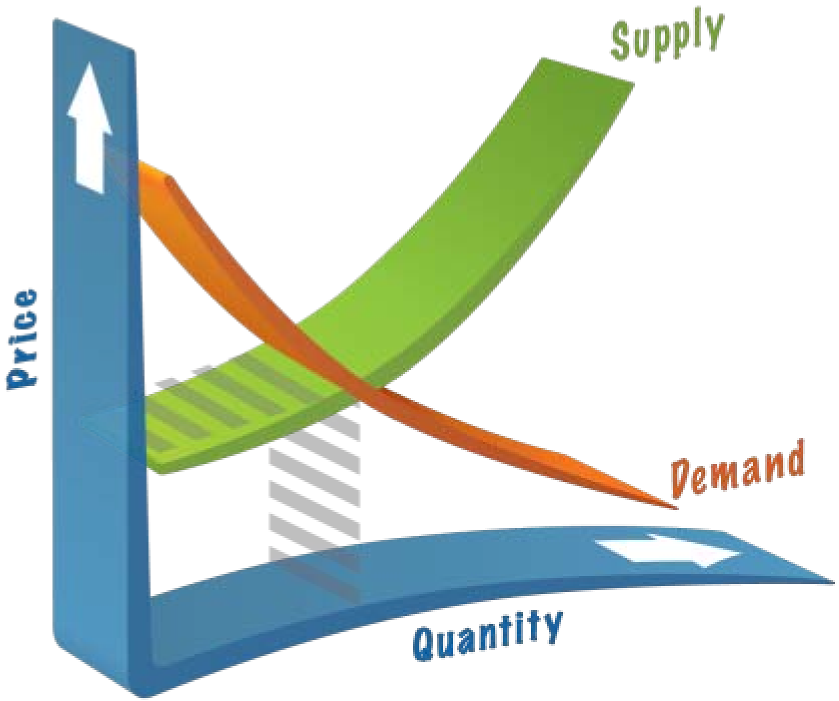
- **Passenger Vehicles**
  - **Demand Drivers**
  - **Supply Drivers**

- **Commercial Vehicles**
  - **Demand Drivers**
  - **Supply Drivers**

- **Rail**
  - **Brief Overview**

Key Aftermarket Supply & Demand Drivers

- **Aftermarket Demand:**
  - **Size of Car Parc**
  - **Average Age of Car Parc**
  - **Miles Driven**
  - **Replacement Rate**
  - **Household Budgets**
  - **The Missing Market**



- **Aftermarket Supply:**
  - **Manufacturing sources**
  - **Products**
  - **Channels**

1 Billion Vehicles Registered Globally

Global Car Parc over 20 years

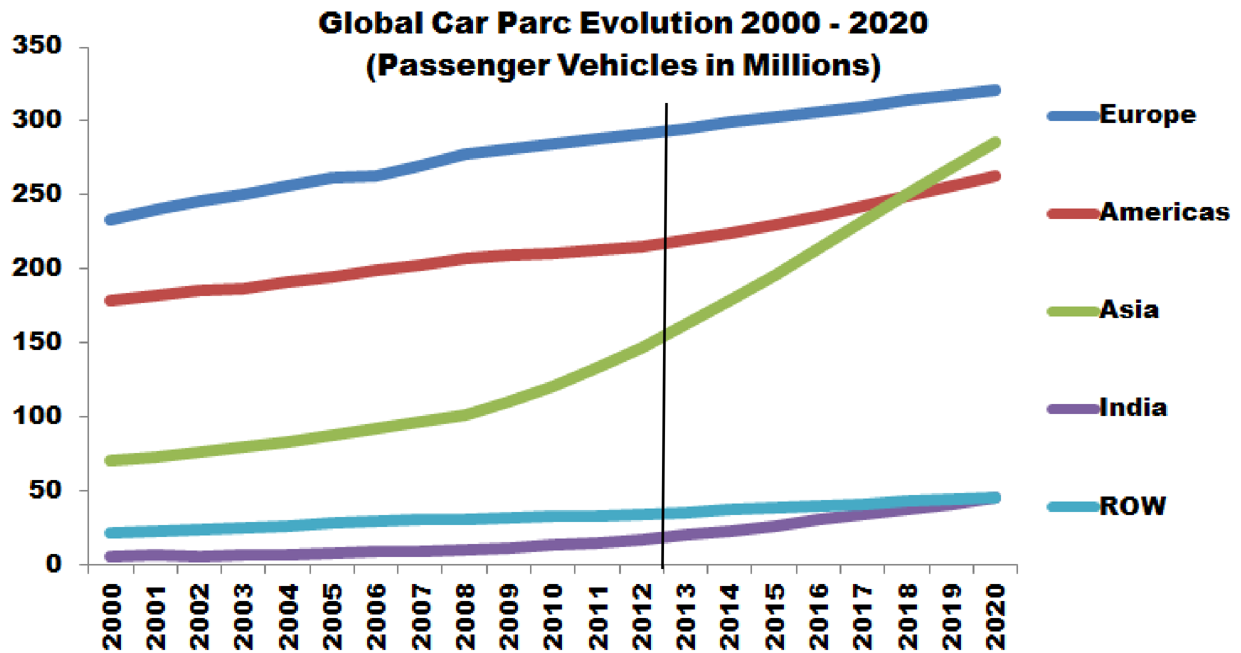
- **Global Car Parc is growing at 4% CAGR**

- **Largest Car Parc is in Europe**

  In 2000, the Car Parc in EU was as large as US, Japan and China Car Parcs combined.

- **Fastest growth and largest potential is in China**

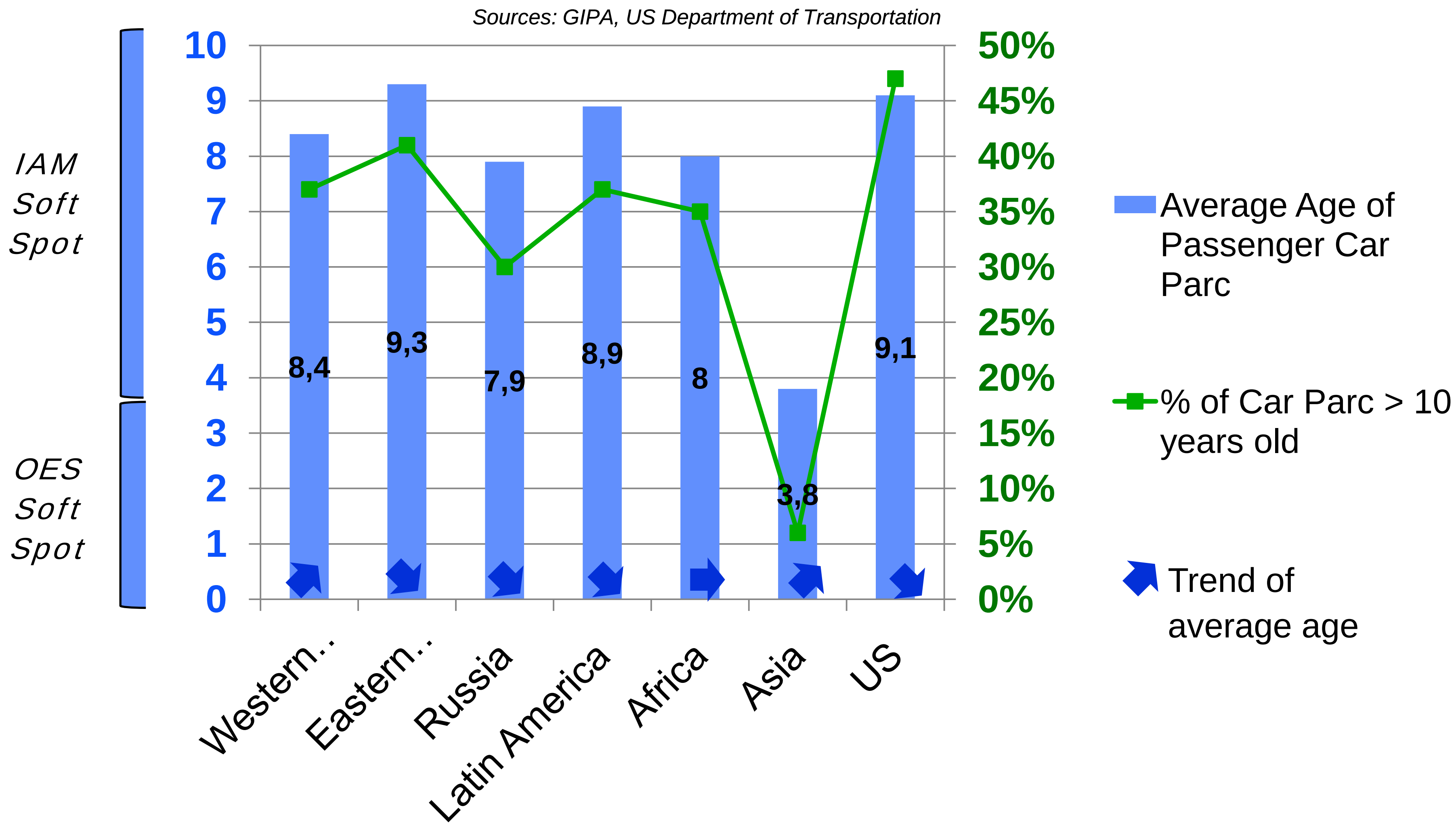
  In 2018, the Chinese car parc is forecasted to be bigger than that of the US.



Source: Global Insight

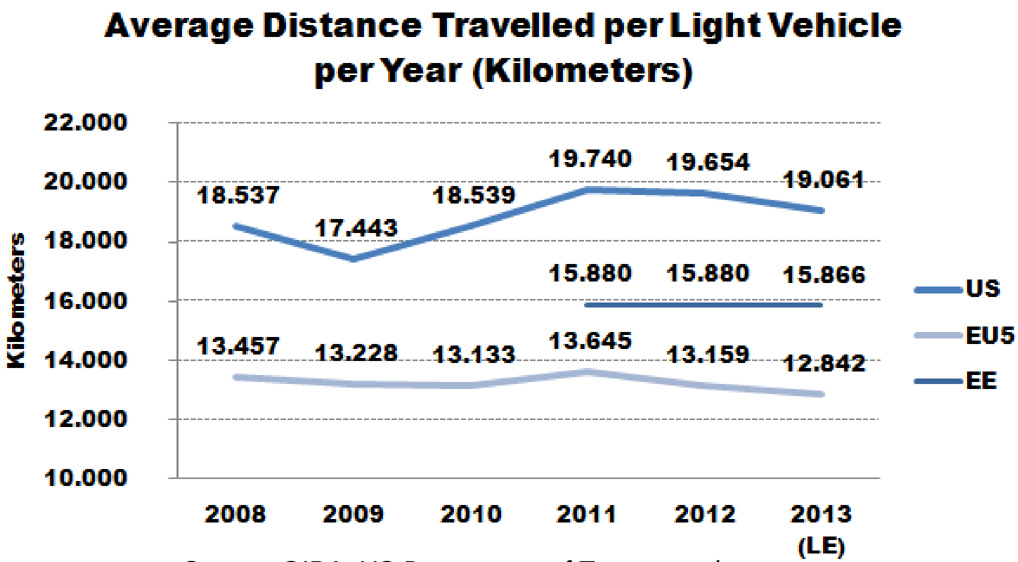
The Aftermarket is Moving East

Age of Car Parc

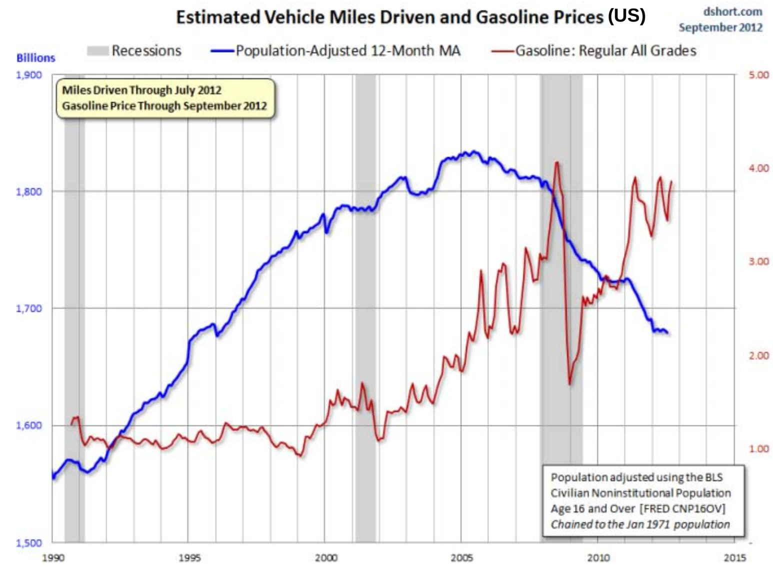


China Car Parc Entering IAM Soft Spot

Miles Driven & Gasoline Prices



Source: GIPA, US Department of Transportation

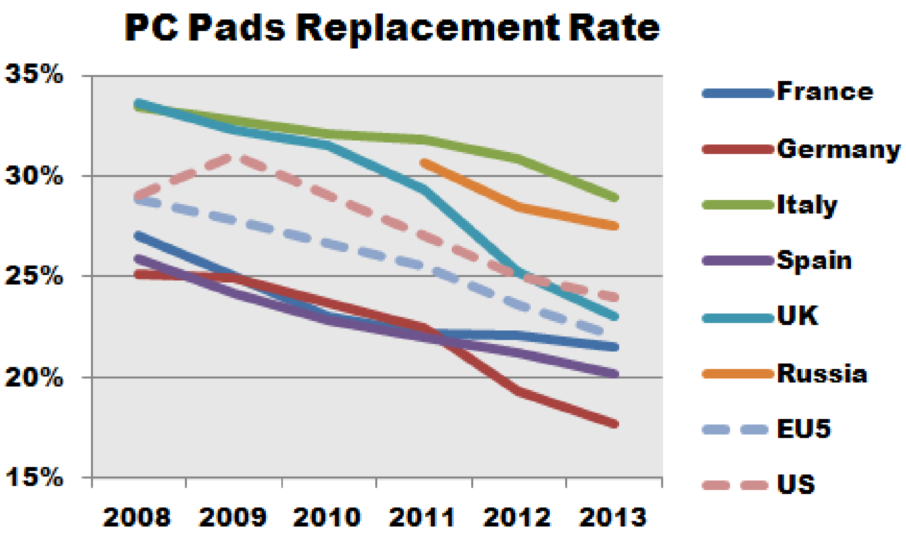


Source: US Department of Transportation

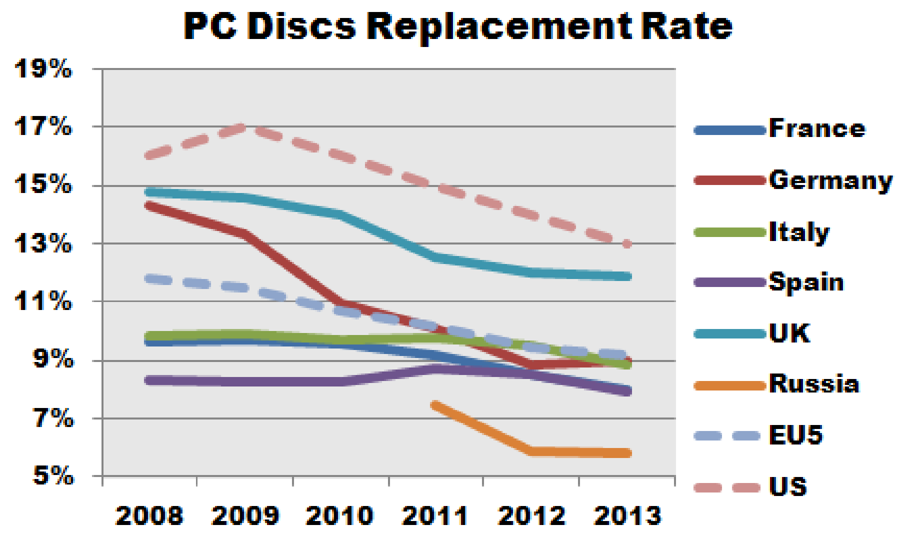
- **Slight decrease in mature regions due to Gasoline prices**
- **Increasing in BRIC regions due to growing car parc and transport infrastructure**

Slight Increase of Miles Driven

Replacement Rate per year



Source: GIPA



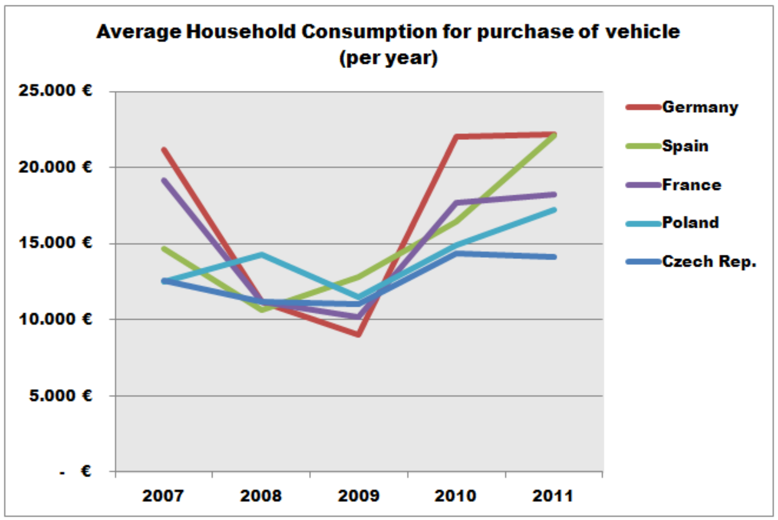
Source: GIPA

- **Decline in replacement rates due to:**
  - **Quality improvement of Brake parts which have lower wear**
  - **Drivers postpone maintenance expenses**
  - **Decreasing Miles Driven in US and Europe**
  - **Economic driving style**

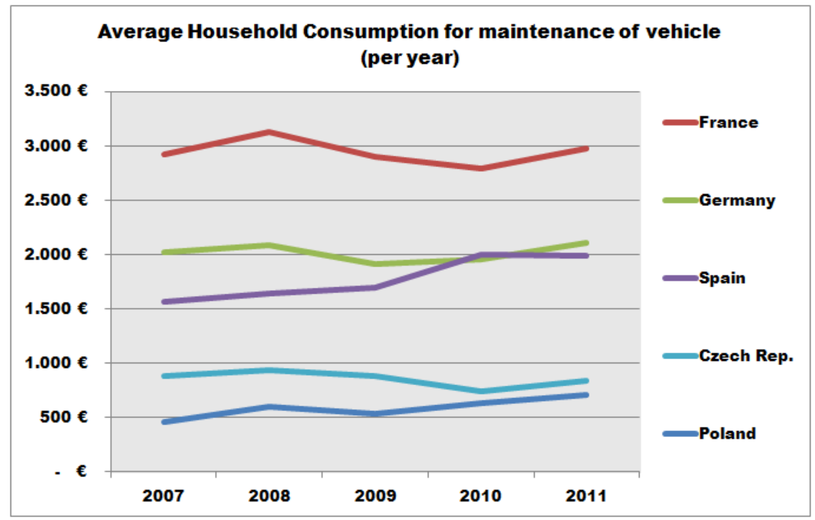
Replacement declining by 5% per Year

Household Consumption of Automotive Goods

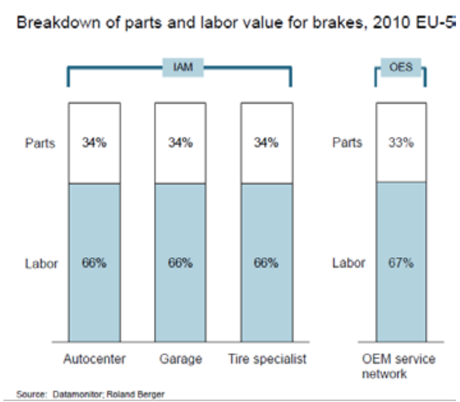
- **During the 2009 crisis, Households cut down more on car Purchases than Maintenance.**
- **Household Maintenance budgets: Large discrepancies between countries, related to labor costs.**



Source: GIPA



Source: GIPA



Households Kept Old Car and Delayed Maintenance

Missing Light Vehicle Aftermarket in the US*

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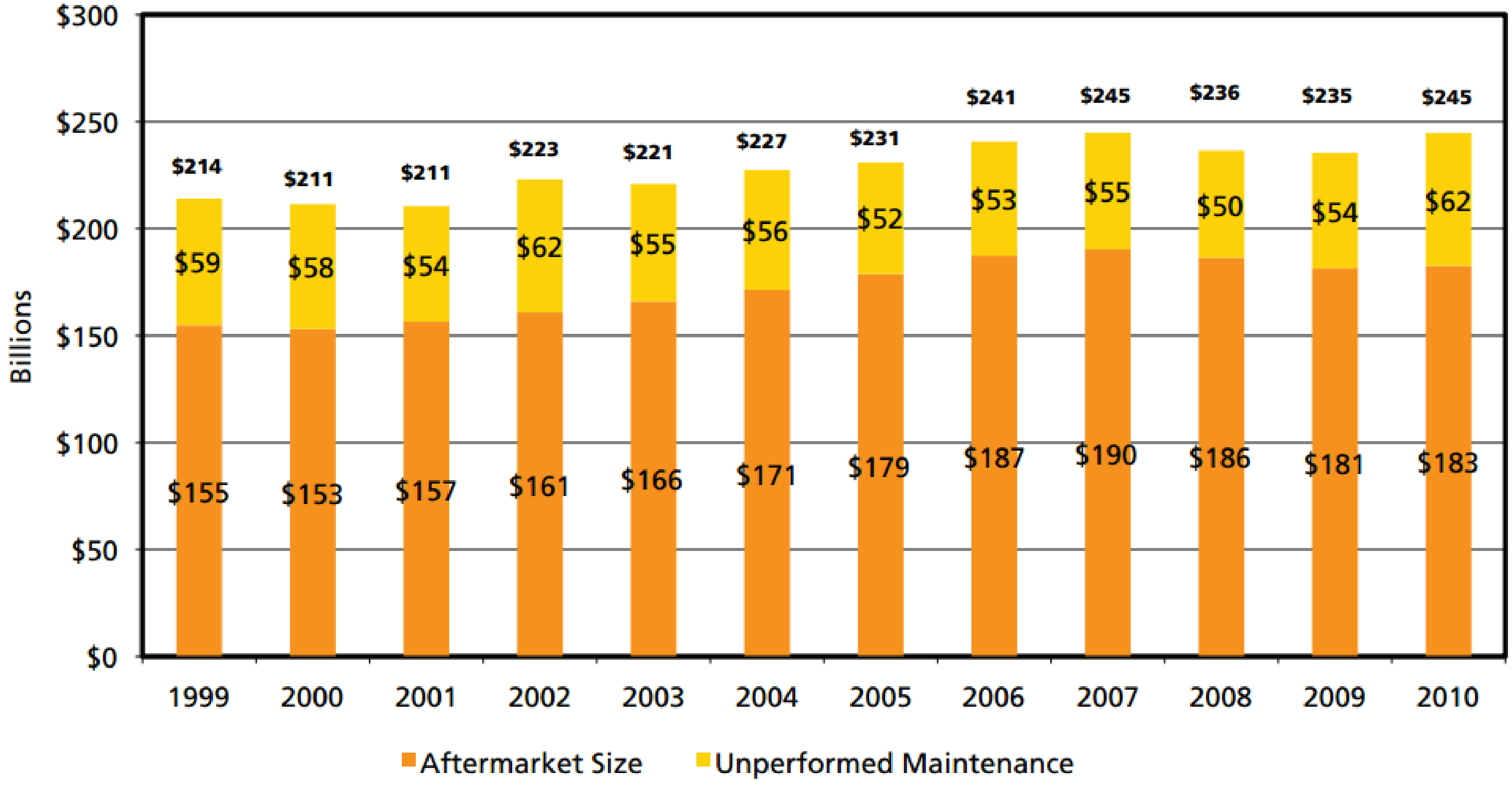
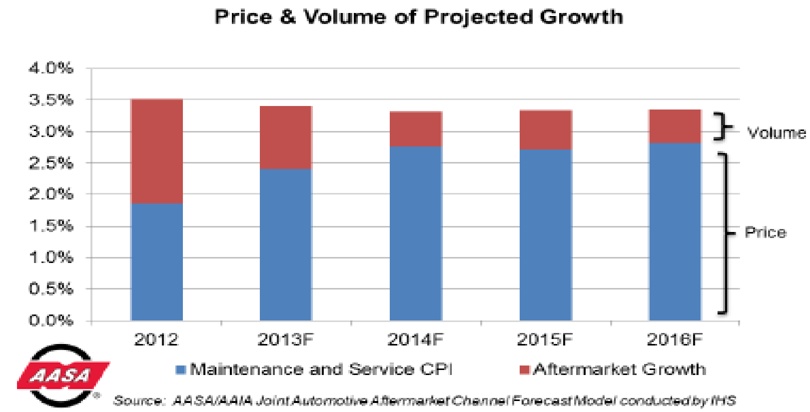


Source: AASA World Motor Vehicle Market Report 2012, U.S. Department of Commerce 2014
** Includes automotivve aftermarket service sector*

25% Untapped Aftermarket Potential

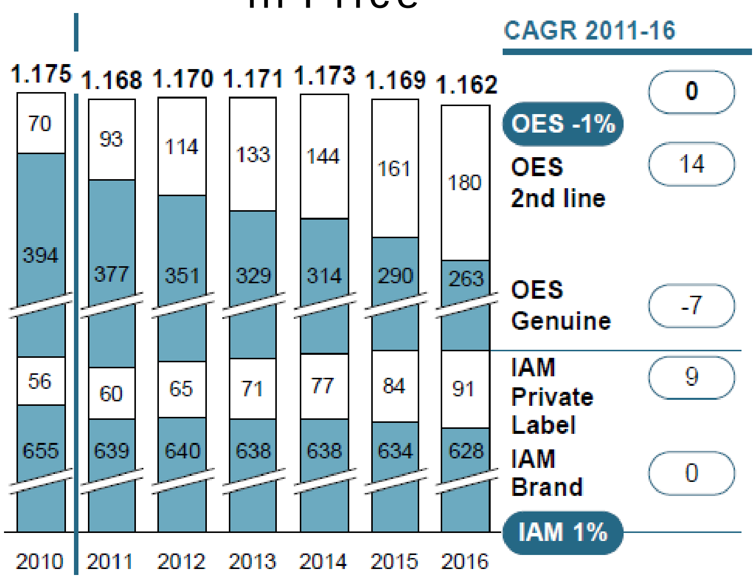
Aftermarket Demand for Brake Pads

US Aftermarket flat in volume, growing slightly in Price



Source: AASA/AAIA Joint Automotive Aftermarket Channel Forecast Model conducted by IHS

EU Brake Pads Aftermarket increasing in volume, decreasing in Price



Source: GIPA; J.D. Power, Data Monitor; Roland Berger

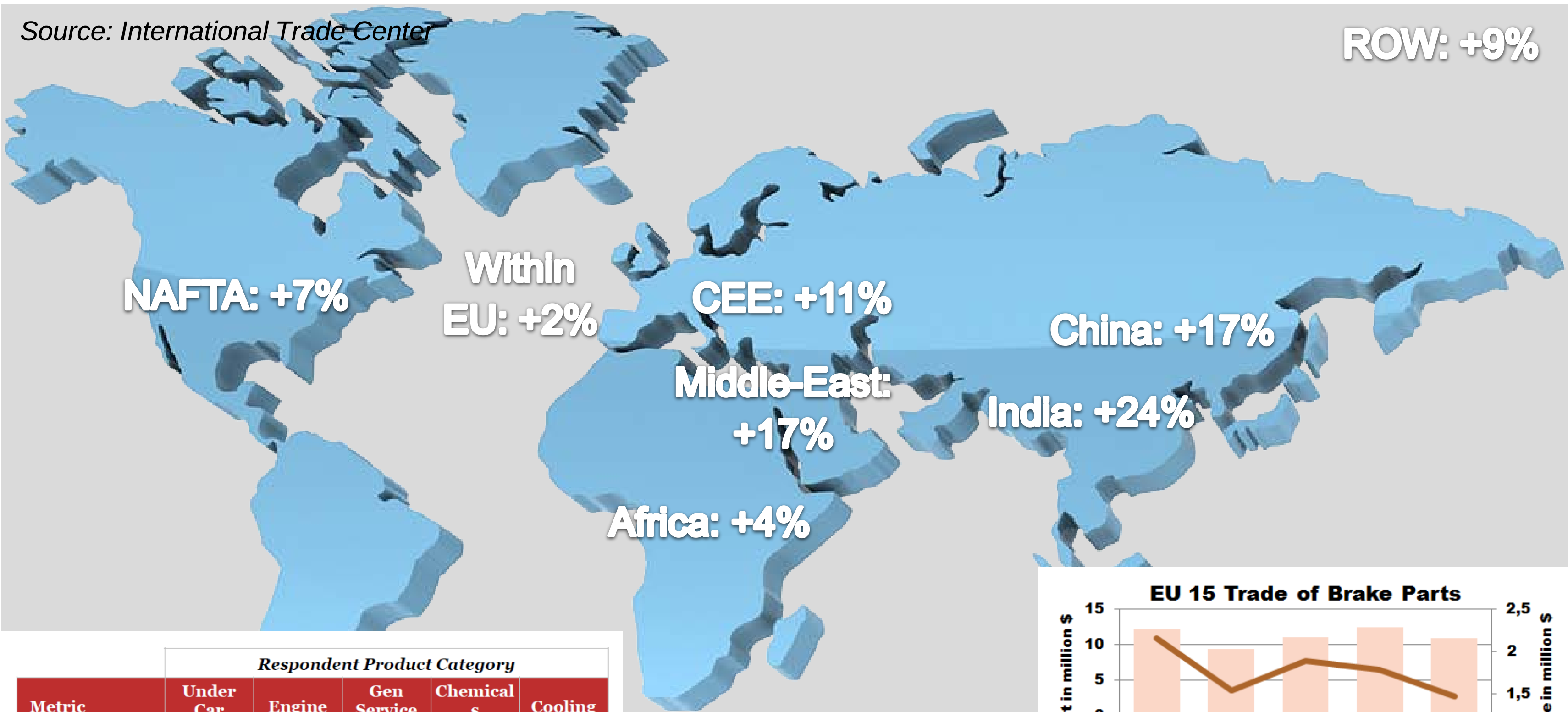
Global Aftermarket Demand Drivers:

- + Growing Global Car Parc at 4%/y
- + Aging Car Parc in WE & Asia
- + Slight growth of Miles Driven particularly in BRICS
- – Decreasing Replacement Rate due to Brake Pad quality improvements & postponed Household consumption
- – Increasing Share of Private Label in IAM
- – Increasing share of OES 2nd-Line in OES

Increasing Global Demand Mainly in BRIC

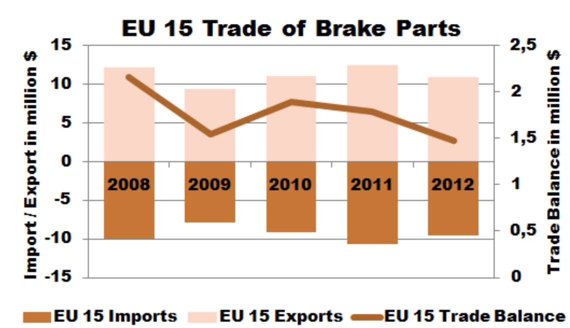
Sourcing of the Aftermarket

- **Since 2008, Trade Balance of EU 15 decreased by 33%**
- **Since 2008, Total increase of EU 15 Imports of Brake Parts from:**



	Respondent Product Category				
Metric	**Under Car**	**Engine**	**Gen Service**	**Chemicals**	**Cooling**
% of Sales Manufactured in US					
Upper Quartile	55.0%	60.0%	55.0%	95.0%	75.0%
Median	**35.0%**	**35.0%**	**45.0%**	**95.0%**	**35.0%**
Lower Quartile	25.0%	20.8%	30.0%	37.5%	35.0%
Mean (Avg.)	40.3%	41.2%	46.2%	67.3%	46.7%

Source: AASA World Motor Vehicle Market Report 2012

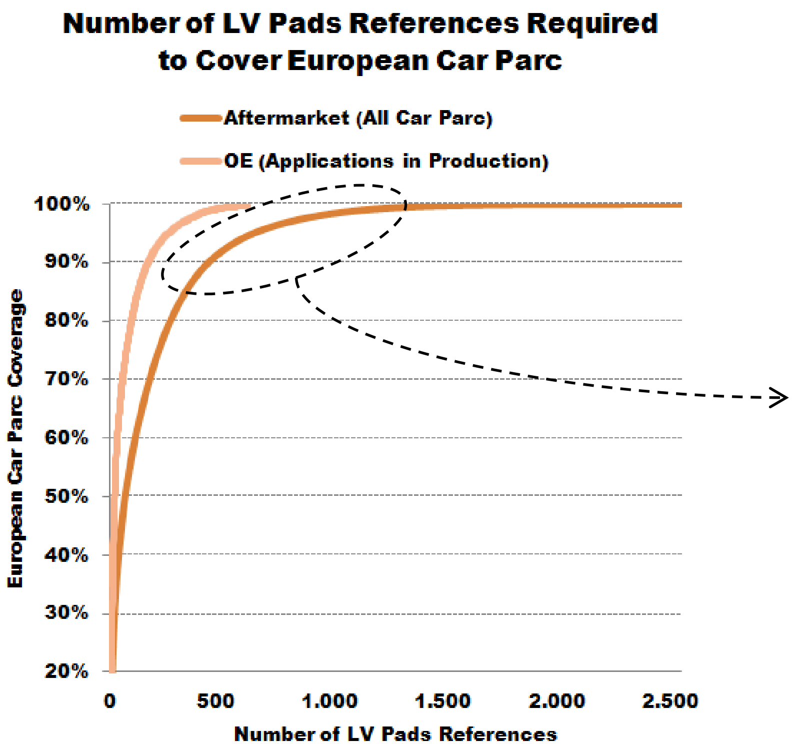


Source: International Trade Center

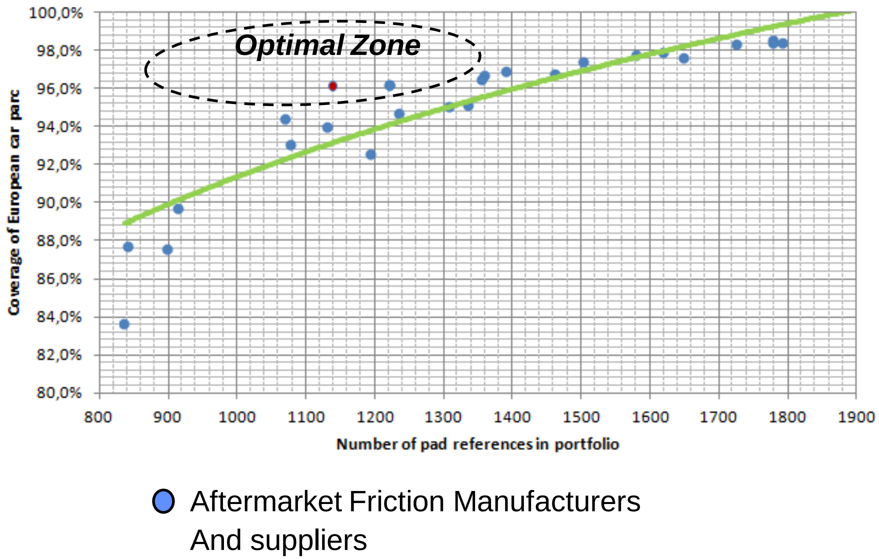
Manufacturing is Moving East

Supplying Products to the Aftermarket

- There are currently ~600 different sets of pads in production for entire EU OE
- Engine & Vehicle model proliferation is increasing number of parts
- The European rolling Car Parc uses around 2.500 different sets of pads
- Distributors require from Aftermarket Friction Manufacturers a minimum of 97% coverage at European level (95% in each country)

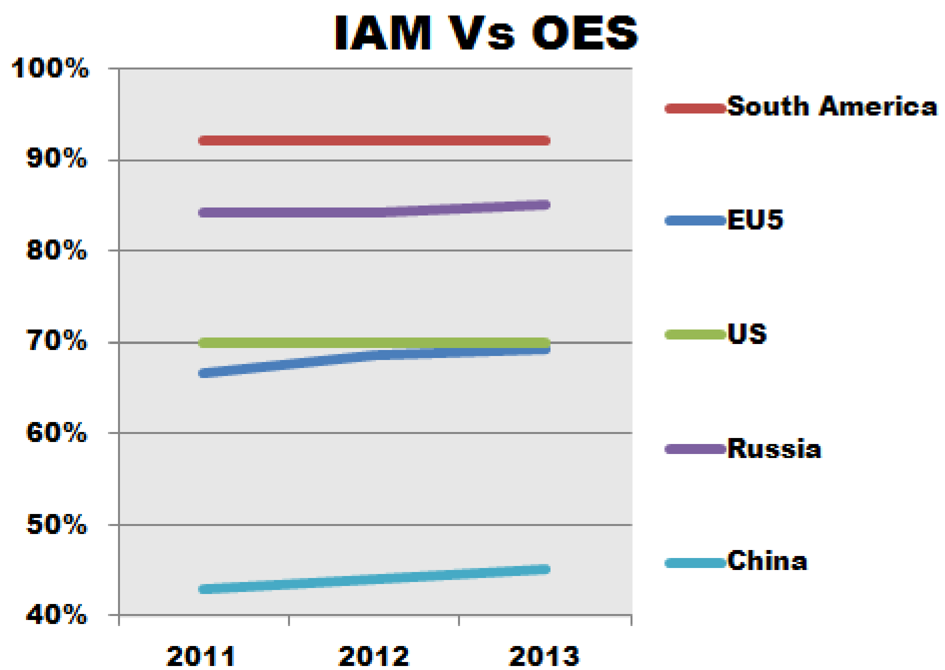


Aftermarket Portfolio needs to be optimized: Achieve highest coverage with the fewest references.



Complexity of Covering Aftermarket Demand

Channels in the Aftermarket

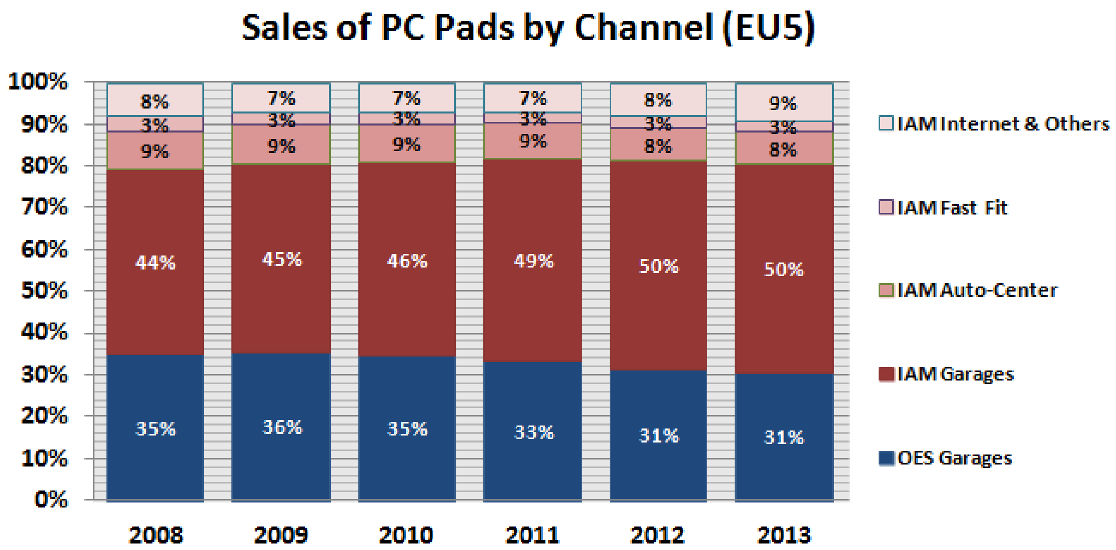


- OES still losing ground Vs IAM
- China IAM estimated to grow to 54% share by 2018

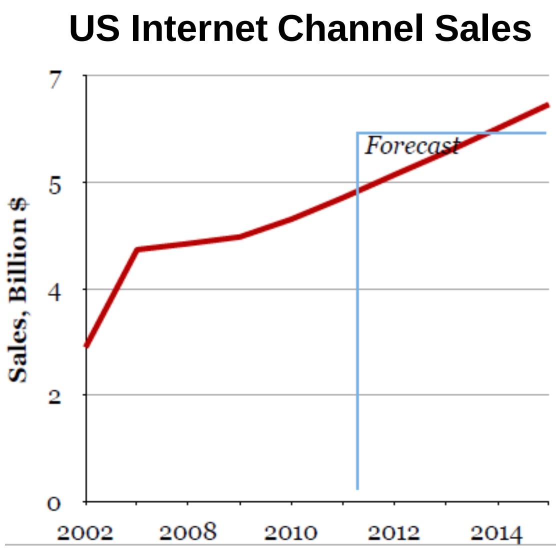
IAM Gaining Over OES in BRIC

Distribution in the Aftermarket

- **Impact of crisis:**
  - **Growth of DIY or "Do-It-For-Me" and Internet Channel**
  - **Continuous decline of OES**



Source: GIPA



Internet & IAM Garages Growing Over OES

Conclusion – Passenger Vehicles

- **In Largest current Aftermarket Regions, demand is flattening due to variability in Gasoline prices which change consumer behaviors.**

- **Demand is moving East due to growing car parc and transport infrastructure.**

- **Supplying the Aftermarket is becoming more complex due to car model proliferation.**

- **Aftermarket Manufacturing is moving East faster & sooner than Demand**

Manufacturing Flexibility & Logistic Efficiency

Global Aftermarket for Braking Products

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- **Rail**
  - **Brief Overview**

Global Truck Parc over 20 years

- **Global Truck Parc is growing at 3% CAGR**

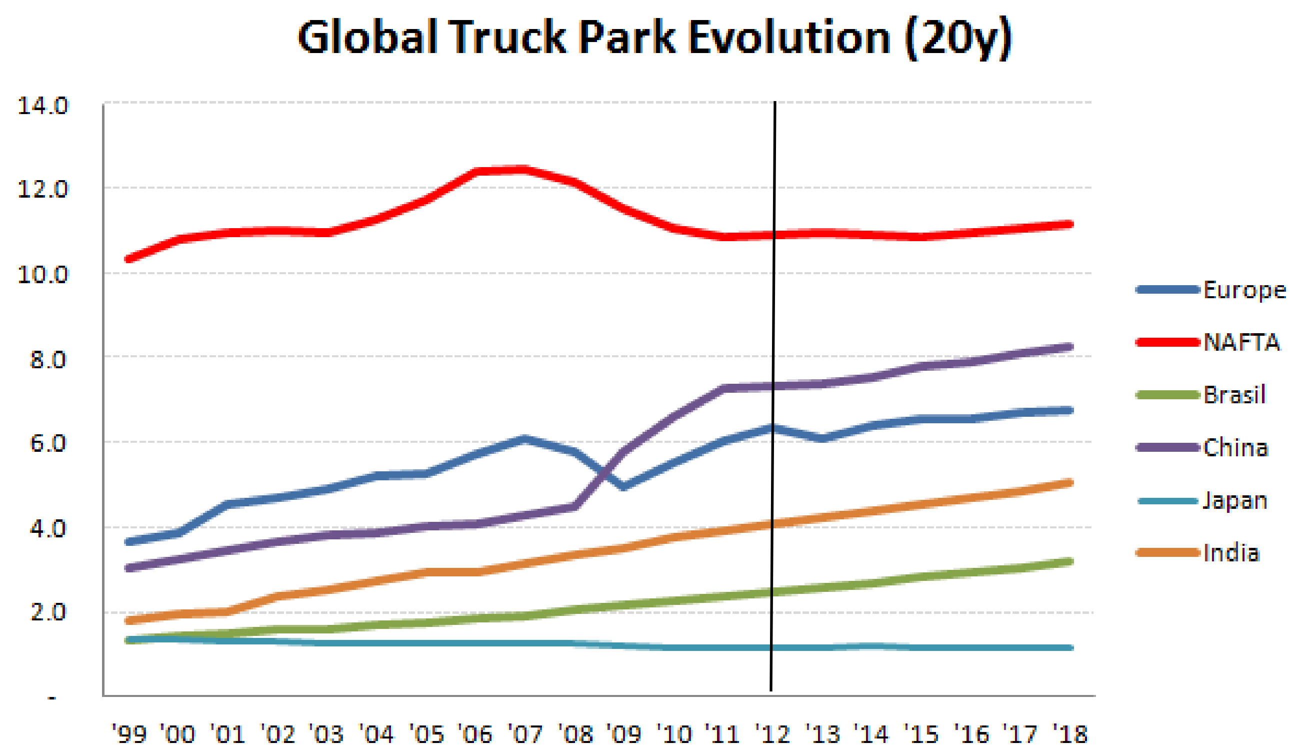
  Worldwide over 33M

- **Largest Car Parc is in NAFTA**

  10.9M but flat CAGR in 20y

- **Fastest growth and largest potential is in BRICs**

  China 7.6M, exceeding EU (6.4M) already in '09, with 5.1%

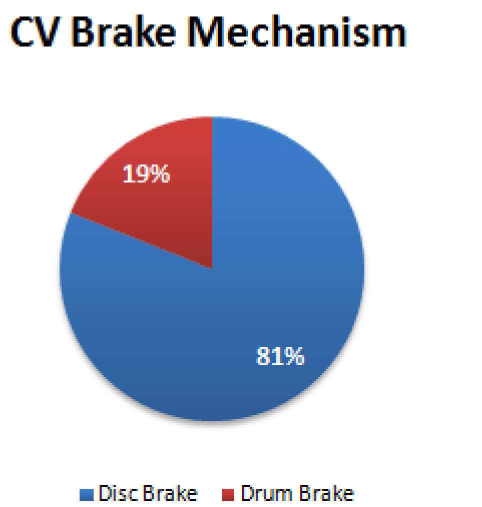


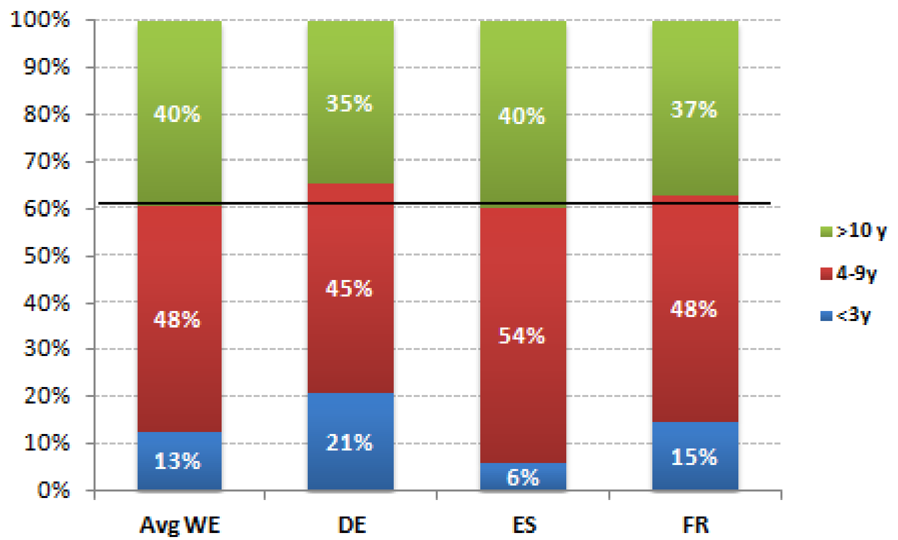
Source: LMC Automotive, Scope: On-Highway, >6t

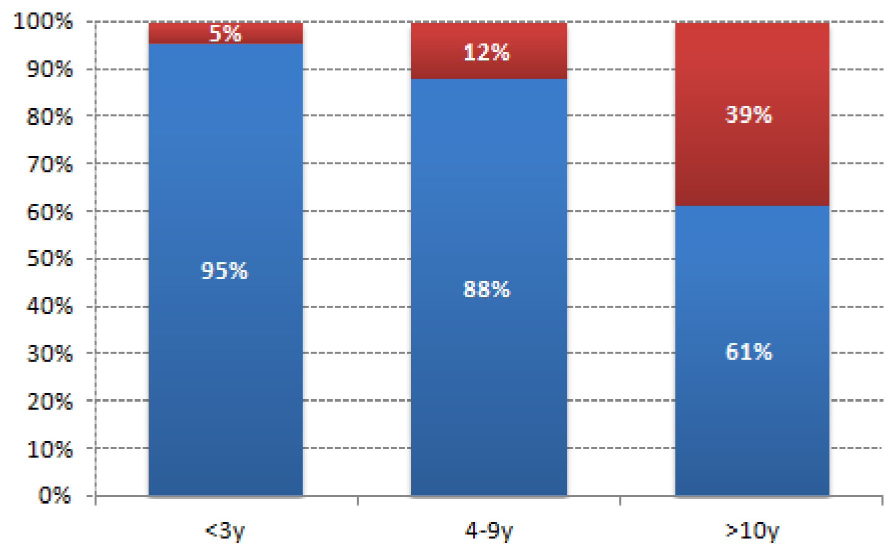
Growth in BRICs

Age of EU Truck Park, by Brake Type

- **Market dominated by Disc Brake technology**
- **Drum brakes mainly on trucks >10y**
- **DE – leading in new registrations**

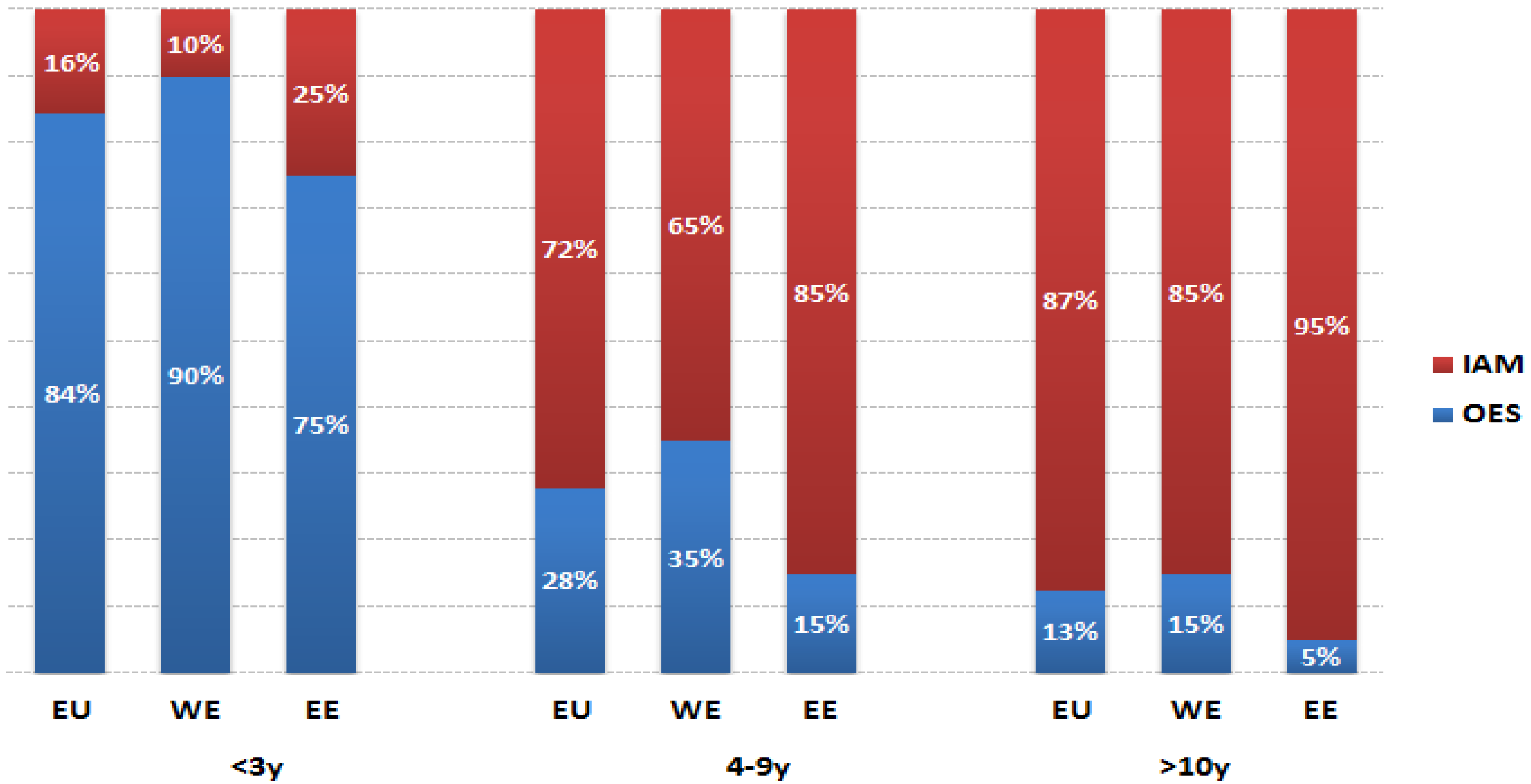






Slow renewal of the park, on disc technology

Channels in the EU Aftermarket



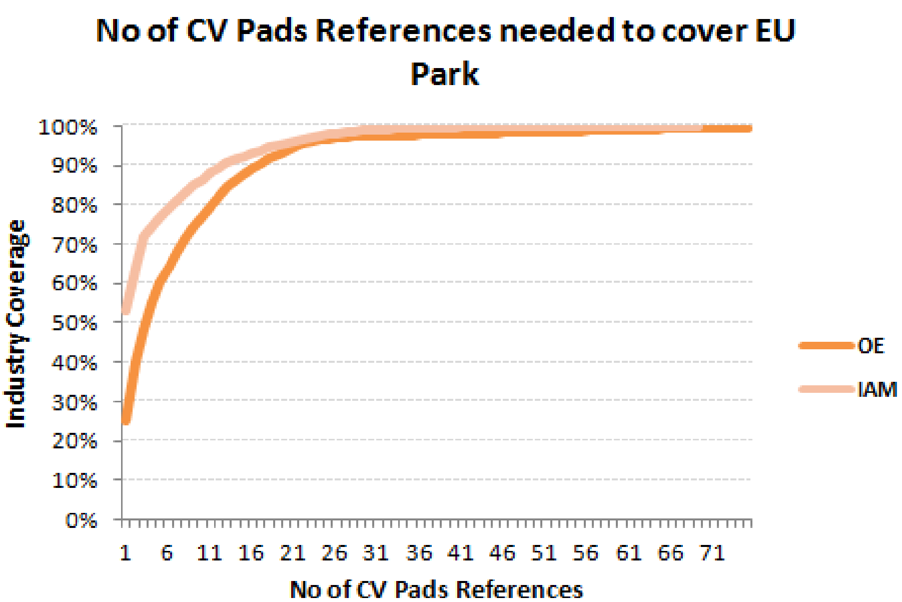
Source: Headline, VOC, internal estimates

- **3 year period triggering first change of ownership**
- **OES struggling to keep 4-9y old trucks, mainly in WE**
- **>10y old is an IAM area**

IAM Dominating After First Ownership Period

Supplying Products to the EU Aftermarket

- There are currently ~75 different references in production for CV HD OE
- The European rolling Car Parc uses ~70 different references
- Distributors require from Aftermarket Friction Manufacturers a minimum of 98% coverage at European level (similar at country level)
- Highly concentrated market: 1 reference covering >50% AM parc.



20 Variants Needed to Reach 95% Coverage

Conclusion – Commercial Vehicles

- **Fastest Growth and Largest Potential is in BRICs**

- **Only EU Market Dominated by Air Disc Brake Technology**

- **In EU IAM Dominating After First Ownership Period**

- **CV ADB AM less complex than PV – only 20 Pad Variants Needed to Reach 95% Coverage in EU**

Supplying 33M Trucks and many more Trailers worldwide

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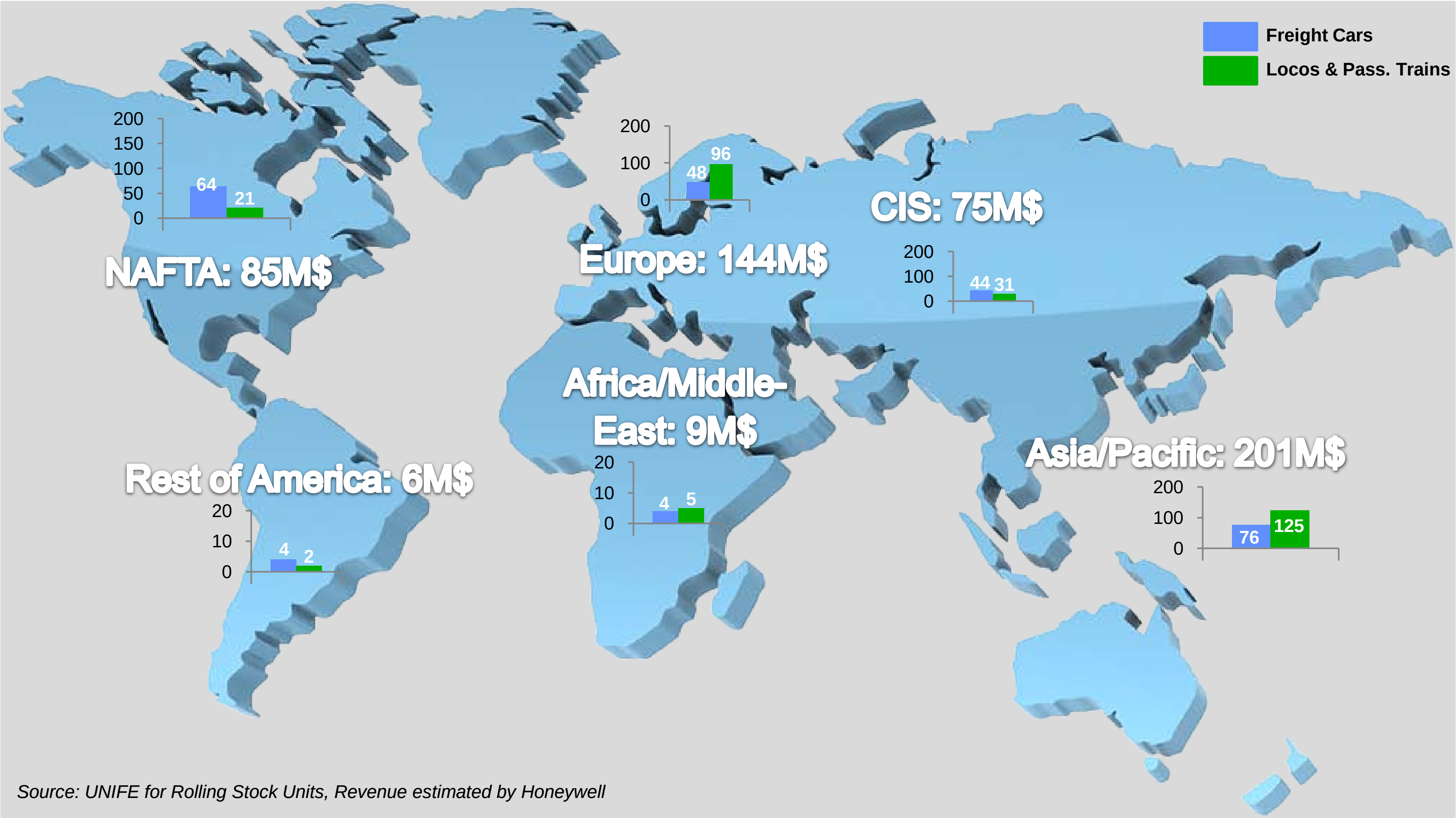
Rail Friction Material Global Aftermarket

- **Freight Cars: 88% of installed units, 46% of revenue - $80M cast iron**
- **Locos & Passenger Trains: 12% of installed units, 54% of revenue**



Source: UNIFE for Rolling Stock Units, Revenue estimated by Honeywell

Regional Fragmented $0.5B Market

Conclusion - Rail

- **Demographics**
  - **Urbanization leads to increased demand of Light Trains and Metros.**
  - **Fast connection between Tier 1 cities drives expansion of high speed networks.**
- **Environment**
  - **CO2 emission reduction efforts promote change from individual transport to mass transport**
  - **European silent freight initiative will ban cast iron blocks**
- **Technical Development**
  - **Less brake stations per unit to reduce weight requieres higher performing materials.**
  - **More focus on LCC will drive future freight car concepts.**

Positive Outlook for the Rail Industry

Thank You!

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