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The Divergent Performance of Global Equity Markets to Rising Trade Tensions

As investors, we try to take views on things where we have an edge and as best we can to minimize our exposure to things where we do not have an edge. The political ups and downs of the trade negotiations is an area where we do not have an edge, although we expect we can diversify our positions reasonably to be balanced to the range of plausible outcomes. We also work to build known policy changes into our processes. As events unfold, we keep comparing those outcomes to our expectations and modifying our thinking as a result. Below, we share our updated views on how we are seeing the trade war ripple through markets. We observe that:

- The largest impact has been on the Chinese equity markets. That is not surprising. The more interesting
 point is that this impact is broad-based across both sectors directly impacted by trade and those with few
 direct ties.
- Outside of China, the equities of companies that have stronger ties to the Chinese supply chain have a
 greater sensitivity to rising trade tensions than those whose primary exposure is to Chinese demand.
- Of the larger equity markets, Japan and Korea stand out as having sizable exposures to both the Chinese supply chain and Chinese demand. Consistent with this, after China, these markets have had the highest betas to rising trade tensions.
- European and US companies' exposures are much more weighted to Chinese demand than to the Chinese supply chain, and their betas to rising trade tensions have been smaller.

The table below shows the exposures of the major equity markets to Chinese demand and the Chinese supply chain (proxied by FDI and the economies' value add to Chinese exports to the US) and compares those exposures to the market action and the equity markets' betas to rising trade tensions (proxied by our tit-for-tat gauge).

Sales, Investment, and Supply Chain Exposure to China vs Market Action

	Direct Revenue Exposure of Listed Companies		Proxy for Investment and Supply Chain Dependencies		Mkt Action & Beta to Tit-forTat		
	Sales	s to China	Level of FDI Investments into China	Value Add: Exports from China to US	Market Action YTD	Betas to Tit-for- Tat	
	(%Total)	(USD, Bin)	(%GDP)	(%GDP)			
United States	5%	810	0.6%	0.1%	1996	-0.25%	This is the
Euroland	6%	348	27%	0.1%	196	-0 28%	portion of
Japan	7%	513	35%	0.5%	0%	-0 52%	exports from China to the US
Korea	9%	167	6.686	0.9%	16%	-0 56%	that is sourced
China	86%	4,648	_	4.6	20%	-1.17%:	from Japan and Korea

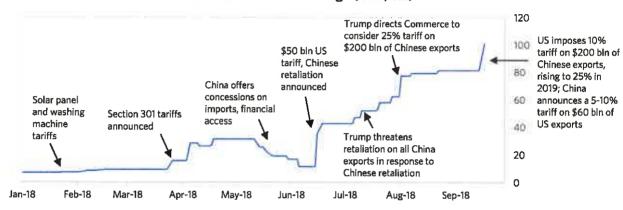
Note: Supply chain dependencies on China proxied by (1) the level of FDI investments into China (source: CDIS) and (2) the reported value added to exports from China to US (source: OECD). Chinese listed equity domestic exposure is overstated due to supply chain complexities.

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Relationship with our Tit-for-Tat Gauge

Before jumping into our analytics, we want to take a minute to refresh you on our tit-for-tat trade conflict gauge. As you know, we like to quantify and then make gauges for just about everything that we are interested in following. Because we are especially interested in watching the evolution of the US-China conflict, several months ago we created a tit-for-tat gauge to capture the nature and severity of the exchanges of harmful actions (thus far just trade tariffs) between the US and China. We are particularly interested in seeing each action taken and each response to that action. As explained before, we believe that this conflict is about more than trade and that it could take different forms, though that hasn't happened yet.

United States and China Tit-for-Tat Gauge (USD, Bln)



Digging into the Major Equity Markets by Sector Highlights Which Sectors Are Most Sensitive

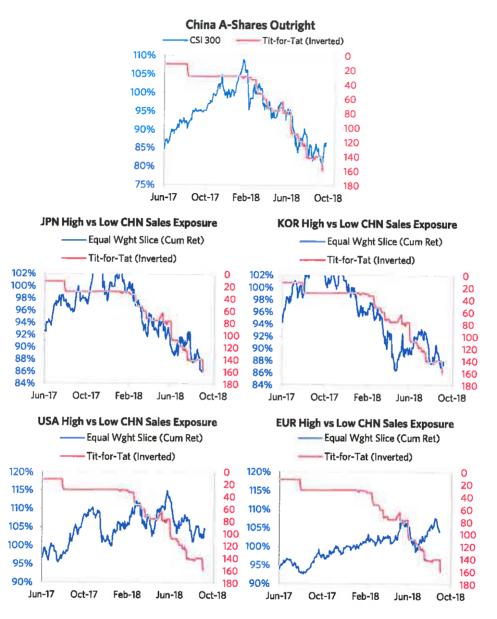
- Almost all Chinese sectors show a very high sensitivity to the tit-for-tat gauge, indicative of how broad-based the impact has been, rather than just confined to trade-related sectors.
- In contrast to China, the Japanese and Korean sector-level market action has been more differentiated, with materials (which houses some of the large steel producers in these two countries that are directly hit by tariffs), financials, and the more export-oriented sectors (e.g., info tech, industrials) showing higher sensitivity.
- While some of the US foreign-exposed sectors like materials (which houses chemical giants) and industrials have shown moderate sensitivity, overall the sensitivities have been relatively small. The European equity market has a similar if marginally smaller beta than the US.

	China Stock Sectors		Betas to a \$10 Bln Move in the Tit-for-Tat Gauge		
	Telecommunication Services		-1.49%		
	Consumer Staples		1.40%		
	Information Technolo	gy	-1.31%	Broad-based	
	Materials		-1.21%	bi dau-daseu	
	Consumer Discretiona	ary	-0 98%		
	Energy	,	-0 92%		
	Healthcare		-0 91%		
	Total Market	1	-0.89%		
	Industrials		-0 84%		
	Financials		-0.57%		
	Utilities		0.01%		
	Othities		0.01%		
Japan Stock Sectors	Betas to a \$10 Bln Move in the Tit-for-Tat Gauge	_	Korea Stock Sector	rs Betas to a \$10 Bln Move in the Tit-for-Tat Gauge	
Materials	-1.12%	-	Materials	-1.12%	
Financials	-0 84%		Financials	-i.12%	
Information Technology	-0 77%		Industrials	-1.01%	
Industrials	-0 74%	More	Consumer Discretionary	-0 71%	
Consumer Discretionary	-0 60%	differentia	ited Energy	-0.68%	
Total Market	-0.59%		Utilities	-0.57%	
Utilities	-0 53%		Total Market	-0 56%	
Energy	-0 52%		Healthcare	-0 52%	
Healthcare	-0.10%		Consumer Staples	-0.32%	
Consumer Staples	-0.10%		Information Technology	-0.26%	
Telecommunication Services	0.03%		Telecommunication Serv	vices 0.16%	
United States Stock Sectors	Betas to a \$10 Bln Move in the Tit-for-Tat Gauge		Euroland Stock Sect	ors Betas to a \$10 Bln Move in the Tit-for-Tat Gauge	
Materials	-0.60%		Materials	-0.55%	
Energy	-0 58%		Consumer Discretionary	-0 45%	
Industrials	-0 52%		Financials	-0.32%	
Financials	-0.45%	Lower	Energy	-0.32%	
Total Market	otal Market -0.15%		Industrials	-0.18%	
Information Technology -0.14% Telecommunication Services -0.03%		sensitivity	Total Market	-0.16%	
			Information Technology	-0.13%	
Healthcare	-0.02%		Healthcare	0.15%	
Consumer Discretionary	0.04%		Utilities	0.18%	
Consumer Staples	0.26%	0.26%		rices 0.32%	
Utilities	0.84%		Consumer Staples	0.33%	

The Picture Is the Same at the Company Level

One more way to observe the impact of rising trade tensions on the different equity markets is to see whether companies that have higher sales exposure to China have underperformed their peers who are less exposed this year on days when we saw escalating trade tensions.

- Outside Chinese listed companies (which of course derive most of their revenues domestically),
 Japanese and Korean firms with higher exposure to China have underperformed those that are less
 China-focused on days of rising trade tensions.
- On the other hand, companies in Europe and the US that have more exposure to Chinese demand have not underperformed this year and do not show a very tight relationship with our tit-for-tat gauge. This is also indicative of direct exposure to the supply chain rather than Chinese demand being the bigger driver.

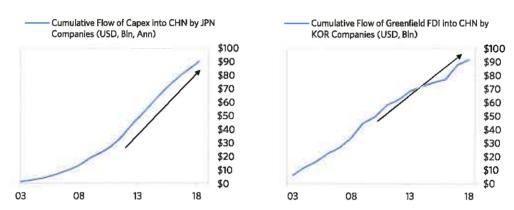


Taking a Look at Investment and Supply Chain Ties

Today's multinational companies have fairly complicated supply chain arrangements as they increasingly outsource portions of the production pipeline to the cheapest and most efficient destinations. The proposed US tariffs and potential retaliations create sizable uncertainty for international companies that export goods from China to the US and other countries. The chart below roughly proxies this supply chain dependency by looking at the level of FDI by country into China. Of course some of this is to sell to China domestically, but it should give a rough ordering of countries' exposure to the export supply chain. As you can see, the relative market action this year (which also lines up with the betas to tit-for-tat) has been larger for those economies with bigger exposure to the supply chain.



As shown below, Japanese and Korean capex investments into China have been rising over the past decade.



The tables below aggregate new capex announcements (Greenfield FDI) into China by sector. Some of the Japanese and Korean sectors that have made the largest investments into China over the last ten years (tech, autos, etc.) are also the ones that have shown higher sensitivity this year to our tit-for-tat gauge (see sector-level beta tables in an earlier section).

Cumulative Greenfield FDI into China By Japanese Equity Sector			Cumulative Greenfield FDI into China By Korean Equity Sector			
Automotive OEM	10,589	20%	Semiconductors	15,784	34%	
Real Estate	4,728	9%	Electronic Components	5,402	11%	
Electronic Components	4,414	8%	Metals	4,043	9%	
Metals	4,144	8%	Automotive OEM	3,804	8%	
Chemicals	3,618	7%	Financial Services	2,956	6%	
Financial Services	3,400	6%	Chemicals	2,243	5%	
Automotive Components	3,182	6%	Rubber	1,742	4%	
Semiconductors	2,209	4%	Consumer Products	1,691	4%	
Rubber	1,815	3%	Plastics	1,466	3%	
Transportation	1,520	3%	Warehousing & Storage	1,349	3%	

This Observations has been a deep dive into equity market betas to the tit-for-tat gauge, so we thought it would be helpful to provide a broader look at global markets' sensitivities to rising trade tensions. As you can see, the largest sensitivity has been in China and other Asian equity markets that are also connected to the Chinese export-related supply chain. Commodities have also been sensitive to rising trade tensions, which is consistent with China's dominant role as a consumer of them.

Market Sensitivity to a \$10 Bln Move in the Tit-for-Tat Gauge

Equities	Beta
Hong Kong	-1 24%
China	-1 17%
Philippines	-113%
Poland	-0 97%
South Africa	0 94%
Malaysia	-0.87%
Singapore	-0 75%
Hungary	-0 66%
Thailand	-0 66%
Russia	-0.58%
Korea	-0 56%
Portugal	-0 56%
Japan	-0 52%
Norway	-0 48%
New Zealand	-0 47%
Germany	-0 42%
Brazil	-0 41%
ireland	-0 39%
Netherlands	-0.37%
Chile	-0.37%
United Kingdom	-0 36%
Peru	-0 34%
France	-0 33%
Euroland	-0 28%
Spain	-0 28%
Switzerland	-0.28%
United States	-0.25%
Belgium	-0 20%
Canada	-0.19%
Czech Republic	-0.13%
India	0.01%
Saudi Arabia	0.02%
Australia	0.03%
Colombia	0.04%
Bulgaria	0.17%
Italy	0.19%
Turkey	0.25%
Indonesia	0.26%
Mexico	0.35%
Greece	0.40%

Nominal Bonds	Beta
Canada	0.28%
Australia	0.22%
United Kingdom	0 20%
Euroland	0.20%
China	018%
United States	0 18%
Switzerland	0.16%
Japan	-0.01%

EM Spreads	Beta
Malaysia	-0.10%
Hungary	-0.07%
South Africa	-0 06%
Poland	-0.06%
Philippines	-0.05%
Indonesia	-0.05%
Saudi Arabia	-0.04%
Korea	-0 03%
China	-0 03%
Singapore	-0.01%
Hong Kong	-0.01%
Czech Republic	0.00%
Thailand	0.00%
Turkey	0.01%
Russia	0.01%
India	0.02%
Peru	0.03%
Colombia	0.03%
Chile	0.04%
Mexico	0.08%
Brazil	0.14%

Developed FX	Beta
Canada	-0 34%
Euroland	-0.22%
Norway	-0 21%
United Kingdom	-0 20%
New Zealand	-0 06%
United States	0.08%
Japan	0.16%

EMFX vs USD	Beta
Korea	-0.45%
Turkey	-0.34%
Thailand	-0.31%
Czech Republic	-0.30%
Bulgaria	-0 23%
Poland	-0 23%
China	-0 23%
Hungary	-0 21%
Singapore	-0.19%
Colombia	-0.12%
Russia	-0.09%
Indonesia	-0.04%
Hong Kong	-0.01%
Saudi Arabia	0.00%
Malaysia	0.02%
Philippines	0.04%
South Africa	0.04%
Peru	0.06%
India	0.11%
Chile	0.30%
Brazil	0.54%
Mexico	0.59%

China-sensitive commodities have shown weakness over the last year	\ <u></u>

Commodities	Beta
Oil	1.32%
Copper	-1.20%
Aluminum	-0.99%
Iron	-0 64%
Silver	-0.37%
Gold	-0 12%
Soybeans	0.00%

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