

Country Code	ISO	WFO	Subject Code	Country	Subject	Units	Scale
1991	AD	AD	NY	Andorra	GDP	€	1000000000
1991	AE	AE	NY	United Arab Emirates	GDP	AED	1000000000
1991	AF	AF	NY	Afghanistan	GDP	AFN	1000000000
1991	AG	AG	NY	Antigua and Barbuda	GDP	BBD	1000000000
1991	AI	AI	NY	Anguilla	GDP	USD	1000000000
1991	AL	AL	NY	Albania	GDP	ALL	1000000000
1991	AM	AM	NY	Armenia	GDP	AMD	1000000000
1991	AN	AN	NY	Netherlands Antilles	GDP	USD	1000000000
1991	AO	AO	NY	Angola	GDP	KzD	1000000000
1991	AR	AR	NY	Argentina	GDP	ARS	1000000000
1991	AS	AS	NY	Samoa	GDP	USD	1000000000
1991	AT	AT	NY	Austria	GDP	S	1000000000
1991	AU	AU	NY	Australia	GDP	AUD	1000000000
1991	AW	AW	NY	Aruba	GDP	USD	1000000000
1991	AX	AX	NY	Åland Islands	GDP	EUR	1000000000
1991	AZ	AZ	NY	Azerbaijan	GDP	AZN	1000000000
1991	BA	BA	NY	Bosnia and Herzegovina	GDP	BAM	1000000000
1991	BB	BB	NY	Barbados	GDP	USD	1000000000
1991	BD	BD	NY	Bangladesh	GDP	Taka	1000000000
1991	BE	BE	NY	Belgium	GDP	EUR	1000000000
1991	BF	BF	NY	Burkina Faso	GDP	CFA Franc	1000000000
1991	BG	BG	NY	Bulgaria	GDP	BGN	1000000000
1991	BH	BH	NY	Bahrain	GDP	Dinar	1000000000
1991	BI	BI	NY	Burundi	GDP	FRB	1000000000
1991	BJ	BJ	NY	Benin	GDP	CFA Franc	1000000000
1991	BK	BK	NY	Belize	GDP	USD	1000000000
1991	BL	BL	NY	Bolivia	GDP	BOB	1000000000
1991	BM	BM	NY	Bermuda	GDP	USD	1000000000
1991	BN	BN	NY	Brunei Darussalam	GDP	RM	1000000000
1991	BO	BO	NY	Bolivia	GDP	BOB	1000000000
1991	BR	BR	NY	Brazil	GDP	Real	1000000000
1991	BS	BS	NY	Bahamas	GDP	USD	1000000000
1991	BT	BT	NY	Bhutan	GDP	Ngultrum	1000000000
1991	BV	BV	NY	Bouvet Island	GDP	NOK	1000000000
1991	BW	BW	NY	Botswana	GDP	Pula	1000000000
1991	BY	BY	NY	Belarus	GDP	BYN	1000000000
1991	BZ	BZ	NY	Belize	GDP	USD	1000000000
1991	CA	CA	NY	Canada	GDP	CAD	1000000000
1991	CC	CC	NY	Cocos (Keeling) Islands	GDP	USD	1000000000
1991	CD	CD	NY	Congo	GDP	CFA Franc	1000000000
1991	CE	CE	NY	Cote d'Ivoire	GDP	CFA Franc	1000000000
1991	CF	CF	NY	Central African Republic	GDP	CFA Franc	1000000000
1991	CG	CG	NY	Congo	GDP	CFA Franc	1000000000
1991	CH	CH	NY	Switzerland	GDP	CHF	1000000000
1991	CI	CI	NY	Cote d'Ivoire	GDP	CFA Franc	1000000000
1991	CK	CK	NY	Cook Islands	GDP	USD	1000000000
1991	CL	CL	NY	Chile	GDP	CLP	1000000000
1991	CM	CM	NY	Cameroun	GDP	CFA Franc	1000000000
1991	CN	CN	NY	China	GDP	Yuan	1000000000
1991	CO	CO	NY	Colombia	GDP	Colombian Peso	1000000000
1991	CR	CR	NY	Costa Rica	GDP	Colón	1000000000
1991	CU	CU	NY	Cuba	GDP	Cuban Peso	1000000000
1991	CV	CV	NY	Cape Verde	GDP	Escudo	1000000000
1991	CX	CX	NY	Christmas Island	GDP	USD	1000000000
1991	CY	CY	NY	Cyprus	GDP	Cypriot Pound	1000000000
1991	CZ	CZ	NY	Czechia	GDP	Czech Koruna	1000000000
1991	DD	DD	NY	East Germany	GDP	DM	1000000000
1991	DE	DE	NY	Germany	GDP	DM	1000000000
1991	DG	DG	NY	East Germany	GDP	DM	1000000000
1991	DJ	DJ	NY	Djibouti	GDP	Djiboutian Franc	1000000000
1991	DK	DK	NY	Denmark	GDP	Danish Krone	1000000000
1991	DM	DM	NY	Dominican Republic	GDP	Dominican Peso	1000000000
1991	DO	DO	NY	Dominican Republic	GDP	Dominican Peso	1000000000
1991	DQ	DQ	NY	Dominican Republic	GDP	Dominican Peso	1000000000
1991	DR	DR	NY	Dominican Republic	GDP	Dominican Peso	1000000000
1991	DU	DU	NY	Dominican Republic	GDP	Dominican Peso	1000000000
1991	DV	DV	NY	Maldives	GDP	Rufiyaa	1000000000
1991	DZ	DZ	NY	Algeria	GDP	Dinar	1000000000
1991	EA	EA	NY	Spain	GDP	EUR	1000000000
1991	EC	EC	NY	Ecuador	GDP	Dolar	1000000000
1991	EE	EE	NY	Estonia	GDP	Euro	1000000000
1991	EG	EG	NY	Egypt	GDP	Egyptian Pound	1000000000
1991	EH	EH	NY	Western Sahara	GDP	USD	1000000000
1991	ER	ER	NY	Eritrea	GDP	Nakfa	1000000000
1991	ES	ES	NY	Spain	GDP	EUR	1000000000
1991	ET	ET	NY	Ethiopia	GDP	Birr	1000000000
1991	EU	EU	NY	European Union	GDP	EUR	1000000000
1991	EV	EV	NY	European Union	GDP	EUR	1000000000
1991	EW	EW	NY	European Union	GDP	EUR	1000000000
1991	EX	EX	NY	European Union	GDP	EUR	1000000000
1991	EY	EY	NY	European Union	GDP	EUR	1000000000
1991	EZ	EZ	NY	European Union	GDP	EUR	1000000000
1991	FA	FA	NY	Iran	GDP	Rial	1000000000
1991	FB	FB	NY	Iran	GDP	Rial	1000000000
1991	FC	FC	NY	Iran	GDP	Rial	1000000000
1991	FD	FD	NY	Iran	GDP	Rial	1000000000
1991	FE	FE	NY	Iran	GDP	Rial	1000000000
1991	FF	FF	NY	Iran	GDP	Rial	1000000000
1991	FG	FG	NY	Iran	GDP	Rial	1000000000
1991	FH	FH	NY	Iran	GDP	Rial	1000000000
1991	FI	FI	NY	Finland	GDP	Finnish Markka	1000000000
1991	FJ	FJ	NY	Fiji	GDP	Fiji Dollar	1000000000
1991	FK	FK	NY	Falkland Islands	GDP	USD	1000000000
1991	FL	FL	NY	Finland	GDP	Finnish Markka	1000000000
1991	FM	FM	NY	Micronesia	GDP	Dollars	1000000000
1991	FO	FO	NY	Faroe Islands	GDP	DKr	1000000000
1991	FR	FR	NY	France	GDP	EUR	1000000000
1991	FS	FS	NY	France	GDP	EUR	1000000000
1991	FT	FT	NY	France	GDP	EUR	1000000000
1991	FU	FU	NY	France	GDP	EUR	1000000000
1991	FV	FV	NY	France	GDP	EUR	1000000000
1991	FW	FW	NY	France	GDP	EUR	1000000000
1991	FX	FX	NY	France	GDP	EUR	1000000000
1991	FY	FY	NY	France	GDP	EUR	1000000000
1991	FZ	FZ	NY	France	GDP	EUR	1000000000
1991	GA	GA	NY	Gabon	GDP	CFA Franc	1000000000
1991	GB	GB	NY	United Kingdom	GDP	GBP	1000000000
1991	GC	GC	NY	United Kingdom	GDP	GBP	1000000000
1991	GD	GD	NY	Grenada	GDP	Dollars	1000000000
1991	GE	GE	NY	Georgia	GDP	Lari	1000000000
1991	GF	GF	NY	French Guiana	GDP	EUR	1000000000
1991	GG	GG	NY	Guernsey	GDP	GBP	1000000000
1991	GH	GH	NY	Ghana	GDP	Cedi	1000000000
1991	GI	GI	NY	Guernsey	GDP	GBP	1000000000
1991	GL	GL	NY	Greenland	GDP	DKr	1000000000
1991	GM	GM	NY	Gambia	GDP	Dalasi	1000000000
1991	GN	GN	NY	Guinea	GDP	Guinean Franc	1000000000
1991	GO	GO	NY	Guinea	GDP	Guinean Franc	1000000000
1991	GP	GP	NY	Guadeloupe	GDP	EUR	1000000000
1991	GQ	GQ	NY	Equatorial Guinea	GDP	CFA Franc	1000000000
1991	GR	GR	NY	Greece	GDP	Euro	1000000000
1991	GS	GS	NY	South Georgia and the South Sandwich Islands	GDP	USD	1000000000
1991	GT	GT	NY	Guatemala	GDP	Quetzal	1000000000
1991	GU	GU	NY	Guam	GDP	USD	1000000000
1991	GV	GV	NY	Guinea-Bissau	GDP	Escudo	1000000000
1991	GW	GW	NY	Guinea-Bissau	GDP	Escudo	1000000000
1991	GX	GX	NY	Guinea-Bissau	GDP	Escudo	1000000000
1991	GY	GY	NY	Guyana	GDP	Dollars	1000000000
1991	HK	HK	NY	Hong Kong	GDP	Dollars	1000000000
1991	HM	HM	NY	Heard Island and McDonald Islands	GDP	USD	1000000000
1991	HN	HN	NY	Honduras	GDP	Lempira	1000000000
1991	HO	HO	NY	Honduras	GDP	Lempira	1000000000
1991	HP	HP	NY	Honduras	GDP	Lempira	1000000000
1991	HQ	HQ	NY	Honduras	GDP	Lempira	1000000000
1991	HR	HR	NY	Croatia	GDP	Kuna	1000000000
1991	HT	HT	NY	Haiti	GDP	Gourde	1000000000
1991	HU	HU	NY	Hungary	GDP	Hungarian Forint	1000000000
1991	HV	HV	NY	Haiti	GDP	Gourde	1000000000
1991	HW	HW	NY	Haiti	GDP	Gourde	1000000000
1991	HX	HX	NY	Haiti	GDP	Gourde	1000000000
1991	HY	HY	NY	Haiti	GDP	Gourde	1000000000
1991	HZ	HZ	NY	Haiti	GDP	Gourde	1000000000
1991	IA	IA	NY	Iran	GDP	Rial	1000000000
1991	IB	IB	NY	Iran	GDP	Rial	1000000000
1991	IC	IC	NY	Iran	GDP	Rial	1000000000
1991	ID	ID	NY	Indonesia	GDP	Rupiah	1000000000
1991	IE	IE	NY	Ireland	GDP	Euro	1000000000
1991	IF	IF	NY	Ireland	GDP	Euro	1000000000
1991	IG	IG	NY	Ireland	GDP	Euro	1000000000
1991	IH	IH	NY	Ireland	GDP	Euro	1000000000
1991	II	II	NY	Ireland	GDP	Euro	1000000000
1991	IJ	IJ	NY	Ireland	GDP	Euro	1000000000
1991	IK	IK	NY	Ireland	GDP	Euro	1000000000
1991	IL	IL	NY	Israel	GDP	Sheqel	1000000000
1991	IM	IM	NY	Isle of Man	GDP	GBP	1000000000
1991	IN	IN	NY	India	GDP	Rupee	1000000000
1991	IO	IO	NY	British Indian Ocean Territory	GDP	USD	1000000000
1991	IP	IP	NY	Iran	GDP	Rial	1000000000
1991	IQ	IQ	NY	Iraq	GDP	Dinar	1000000000
1991	IR	IR	NY	Iraq	GDP	Dinar	1000000000
1991	IS	IS	NY	Iceland	GDP	Island Krona	1000000000
1991	IT	IT	NY	Italy	GDP	Euro	1000000000
1991	IU	IU	NY	Iran	GDP	Rial	1000000000
1991	IV	IV	NY	Ivory Coast	GDP	CFA Franc	1000000000
1991	IW	IW	NY	Iran	GDP	Rial	1000000000
1991	IX	IX	NY	Ivory Coast	GDP	CFA Franc	1000000000
1991	IY	IY	NY	Ivory Coast	GDP	CFA Franc	1000000000
1991	IZ	IZ	NY	Ivory Coast	GDP	CFA Franc	1000000000
1991	JA	JA	NY	Jordan	GDP	Dinar	1000000000
1991	JB	JB	NY	Jordan	GDP	Dinar	1000000000
1991	JC	JC	NY	Jordan	GDP	Dinar	1000000000
1991	JD	JD	NY	Jordan	GDP	Dinar	1000000000
1991	JE	JE	NY	Jordan	GDP	Dinar	1000000000
1991	JF	JF	NY	Jordan	GDP	Dinar	1000000000
1991	JG	JG	NY	Jordan	GDP	Dinar	1000000000
1991	JH	JH	NY	Jordan	GDP	Dinar	1000000000
1991	JI	JI	NY	Jordan	GDP	Dinar	1000000000
1991	JK	JK	NY	Jordan	GDP	Dinar	1000000000
1991	JL	JL	NY	Jordan	GDP	Dinar	1000000000
1991	JM	JM	NY	Jordan	GDP	Dinar	1000000000
1991	JN	JN	NY	Jordan	GDP	Dinar	1000000000
1991	JO	JO	NY	Jordan	GDP	Dinar	1000000000
1991	JP	JP	NY	Japan	GDP	Yen	100

**Bond Hedging.** Regard for my readers and the scale of my error in looking for higher rates compels me now to look at how rates instead fell so far so fast. (See chart below, left.) I claim the severity of the move is linked to the inflated scale of global bond markets under prolonged, global, central bank manipulation, and the great hedging needs that creates.

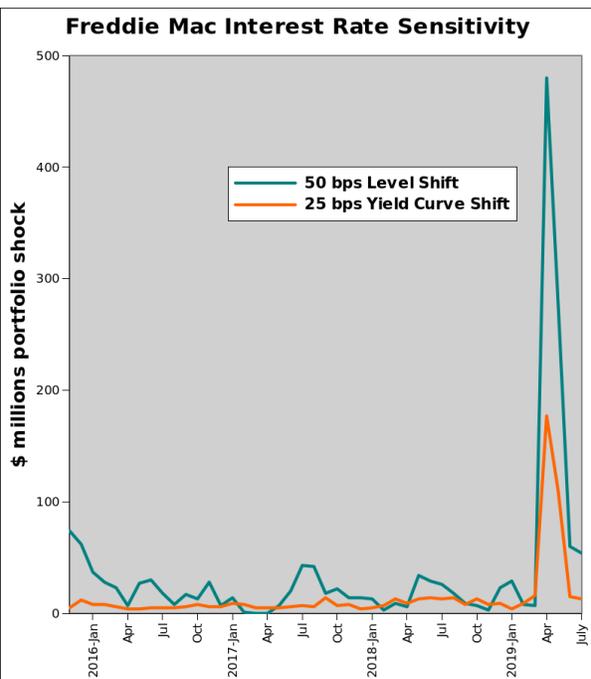
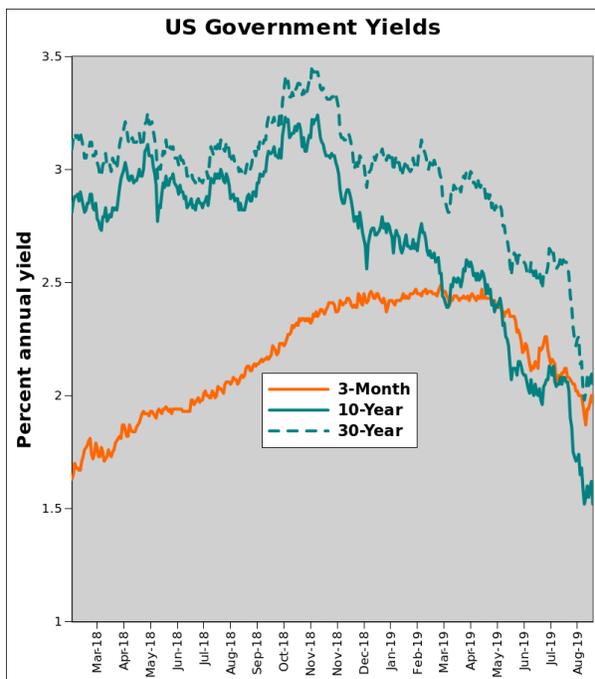
For some time, higher US yields have attracted investment refugees from the negative yields in Europe and Japan. For these refugee investors, the safest bet was to borrow in the US at short term to fund (or hedge) their bond buying, picking up the carry along the US curve. These flows helped to drive down US long yields and tended to invert our curve during 2018.

By 2019, the flattening of our yield curve meant that the cost of these hedges wiped out the return. So some offshore investors must have shifted to buy their US bonds unhedged, taking greater risk and also creating upside pressure on the dollar. A strengthening dollar then contributed to ease inflation on these shores, just as a delayed inventory adjustment hit. To top it off, completely unnecessary tariff disputes between our great leader and

China added to the danger. Global recession, including in the US, suddenly looked possible.

Certain very large portfolios were obviously caught napping by the shift in apparent recession risk. One place where risk built up and had to be covered in a hurry was in the great mortgage portfolios of our now-nationalized mortgage agencies. These agencies hold over \$5 trillion in mortgages directly and indirectly, all of which can be refinanced at will by borrowers, at which point the agency portfolios lose assets.

Trillions of dollars in the mortgage agency portfolios are normally hedged, and those hedges have to be reduced as rates come down and assets evaporate. If re-hedging is delayed, then the agencies will be forced to catch up, rushing to buy back bonds earlier sold as hedges. As they buy back bonds, yields fall further, forcing further re-hedging, and initiating a cascade down in yields. In June, Freddie Mac's potential losses from a further drop in rates surged as someone was asleep at the wheel. In August, another jolt down in yields means something similar must have happened again at Freddie Mac or another comparable portfolio. (See chart below, right)

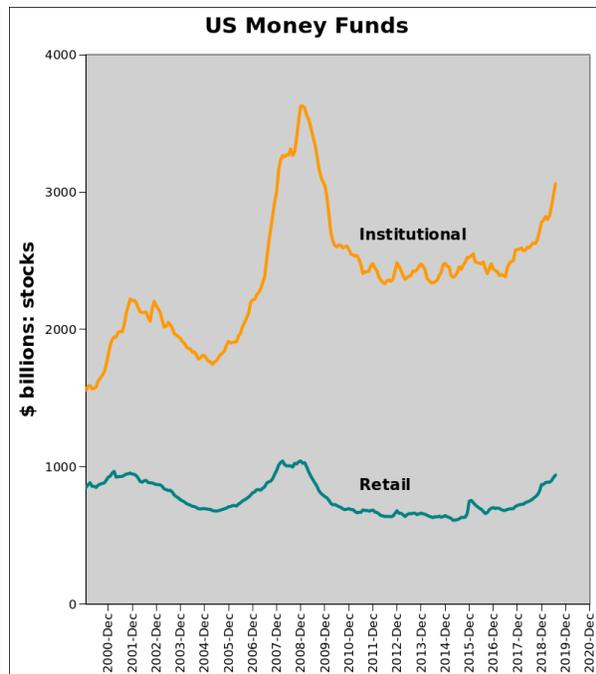
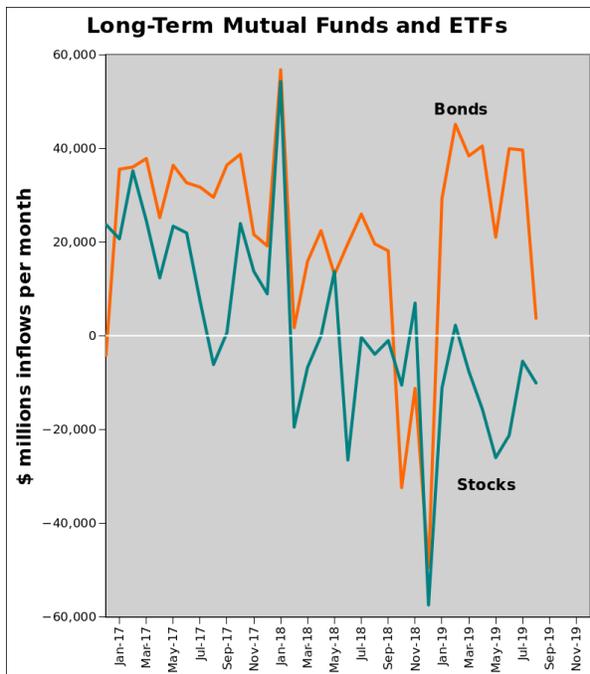


**From Equity to Bonds to Cash.** Portfolio flows have also been coming into bonds and out of equities for some time. Apparently, the sharp run-up in US equity values since 2017 has looked increasingly dodgy to investors. Mutual fund and exchange traded funds in the US show equity outflows since the beginning of 2018, spiking at year-end. Even after a sharp sell-off and rebound, mutual funds and ETF flows have kept flowing out of stocks all year. (See chart below, left.)

Some long-term investors may also have been shifting from equity to bonds. Norway's sovereign wealth fund, for example, moved its equity share to 70% in 2017 and has found itself right at this level all year. A bounce in equity values through April will have forced equity sales to rebalance the value of its portfolio back into bonds. Other less transparent funds around the world are likely to have been following something similar to this best

practice. <sup>1</sup>

So the central bank game of systematically driving up asset values to bolster demand has bad side effects. Just as with drugs offering apparently wonderful effect at first, hangovers follow. One way this happens is when exaggerated valuations in stocks, and now increasingly in bonds, creates justifiable caution on the part of investors. A symptom of this caution will be the gradual shift back into cash-like instruments such as gold, bank deposits, or money-market funds. Money funds hold short term paper with little risk of loss, and are treated by investors as cash-equivalents. My definition of a financial crisis is a rush for cash and out of riskier paper, which promptly collapses in value. It may have already started, because US resident money-market funds are beginning to ominously trend up. (See chart below, right.)



<sup>1</sup>Norges Bank Investment Management (2019), Government Pension Fund Global Quarterly Report (2Q 2019). Retrieved from <https://www.nbim.no/en/publications/reports/2019/2q-2019-quarterly-report>

**Central Bankers Miss the Point.** Central bankers spent some time discussing what they should do about the risk of a renewed economic downturn. For me, a renewed recession calls for public spending on a coherent list of socially worthwhile projects. In fact, only China actually has this fiscal tool operationally available, which it has been using aggressively. The US, bogged down in an oversized deficit and outlandish plans for a great wall on our southern border, cannot muster a useful discussion of any other spending. Europe's national deficit limits, which are sometimes binding, block any clear continent-wide fiscal response to recession. But these are man-made limits that can be lifted.

In their talk of renewed monetary policy ease, however irrelevant, central bankers always return to the idea that interest rates influence real world investment spending. In fact, it seems obvious to me that interest rates have their most certain effect on neighboring *financial* prices in an age of serial financial bubbles. Low rates do inflate asset price bubbles and that does create an illusion of well-being that may bolster demand for a time, but later bring bursting bubbles as the inevitable result. With financial prices already inflated, more monetary ease makes little sense here.

While central bankers talk, a global trade and inventory adjustment should be coming to an end.

Unfortunately the added burden of now-substantial trade tariffs, might still tripped us into a broader downturn. So far the evidence is mixed.

In China, manufacturing earnings are weak, investment producing autos sold at home and exports headed for the US are down, just as a forced deleveraging is bringing out a steady stream of bankruptcies. Officials have responded, including with the deliberate decision to allow a measured devaluation of the yuan to offset US tariffs. Meanwhile, European news has been dominated by a drop in German capital goods orders and production that may be linked to the swing away from manufacturing investment in China. Ominously, German employers have finally begun to put workers on short-shifts and are beginning layoffs.

In the US, output clearly slowed around mid-year, as the global inventory adjustment came late to our shores. Low oil prices are crimping shale oil investment, and Boeing production of 737 Max is all going into inventory. Worryingly, broader investment spending is also deeply disappointing, possibly because companies do not know how to handle a possible tariff war. Consumption jumped, but one wonders how much was merely an effort to beat import price increases due to impending tariffs. Meanwhile, housing sales are back with lower mortgage rates, but cautiously so far.

**Today's super-low bond yields give a false reading of the macro picture. Several portfolio shifts and hedging errors seem to have cascaded into the latest bond market moves to produce something more like a flash-crash than a reasoned price.**

**Even central bankers have taken note of the low yields, and have loudly discussed their options to ease policies as in 2018. Some moves are possible as a precautionary matter, but mostly this must be a bluff. The real news will only come if Europe and the US find their way to effective fiscal policy, each surmounting its own political obstacles to get to this reasonable response, if needed.**

**My conclusions are unchanged from two months ago: the really big risk remains that we recover mostly unscathed from a trade and inventory adjustment, despite the added tariff risks. If needed, we find our way to effective fiscal support. If the facts start to fall my way, we can easily see new and wonderful one-way moves among our great and integrated global asset pools, over-inflated by years of monetary manipulation.**