



Supplement of

Economic and design optimization of a 15 MW floating offshore wind platform using time series forecasting

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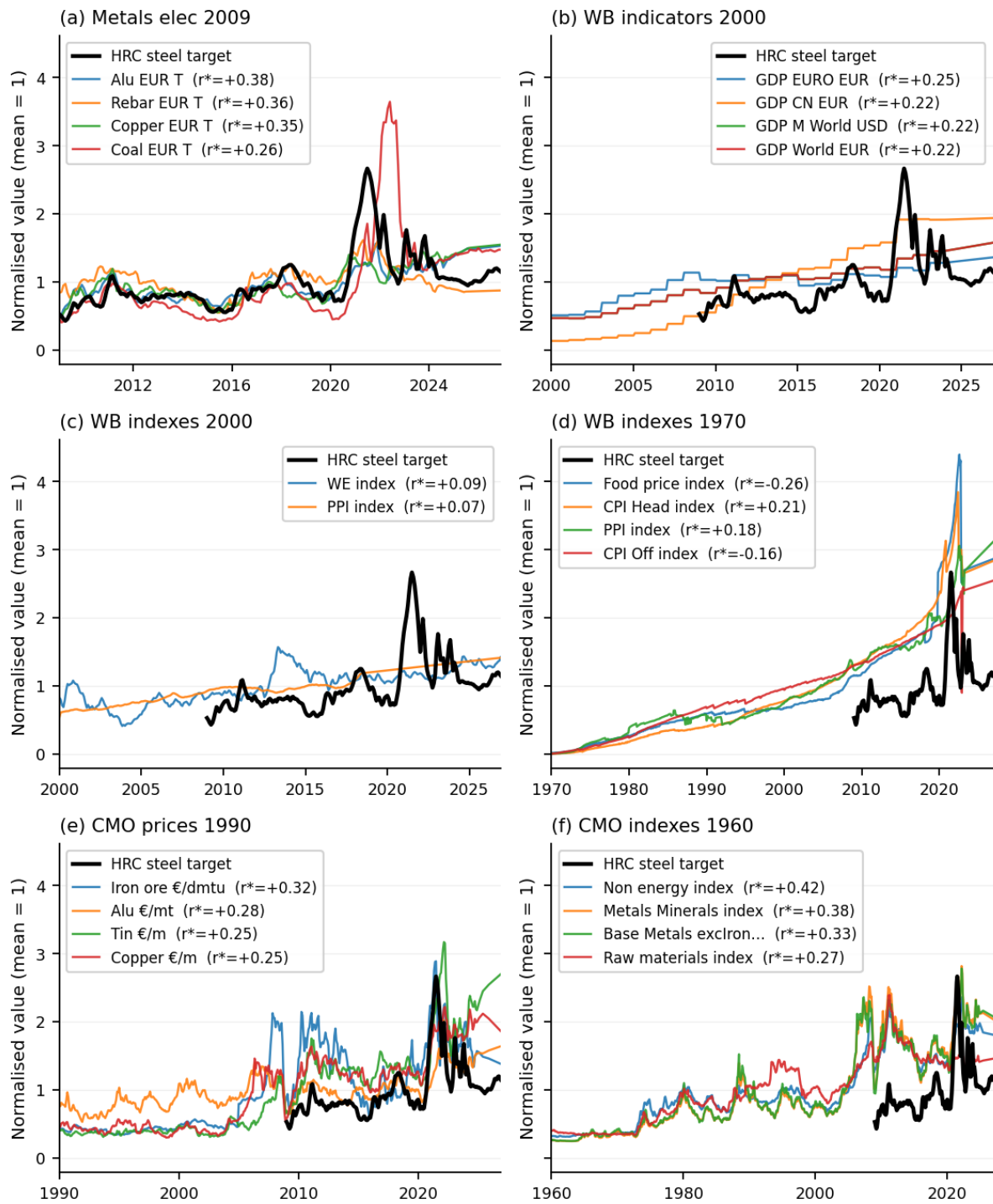


Figure S1. Overview of candidate exogenous data (coloured lines) with target steel data in black.

Metals elec 2009

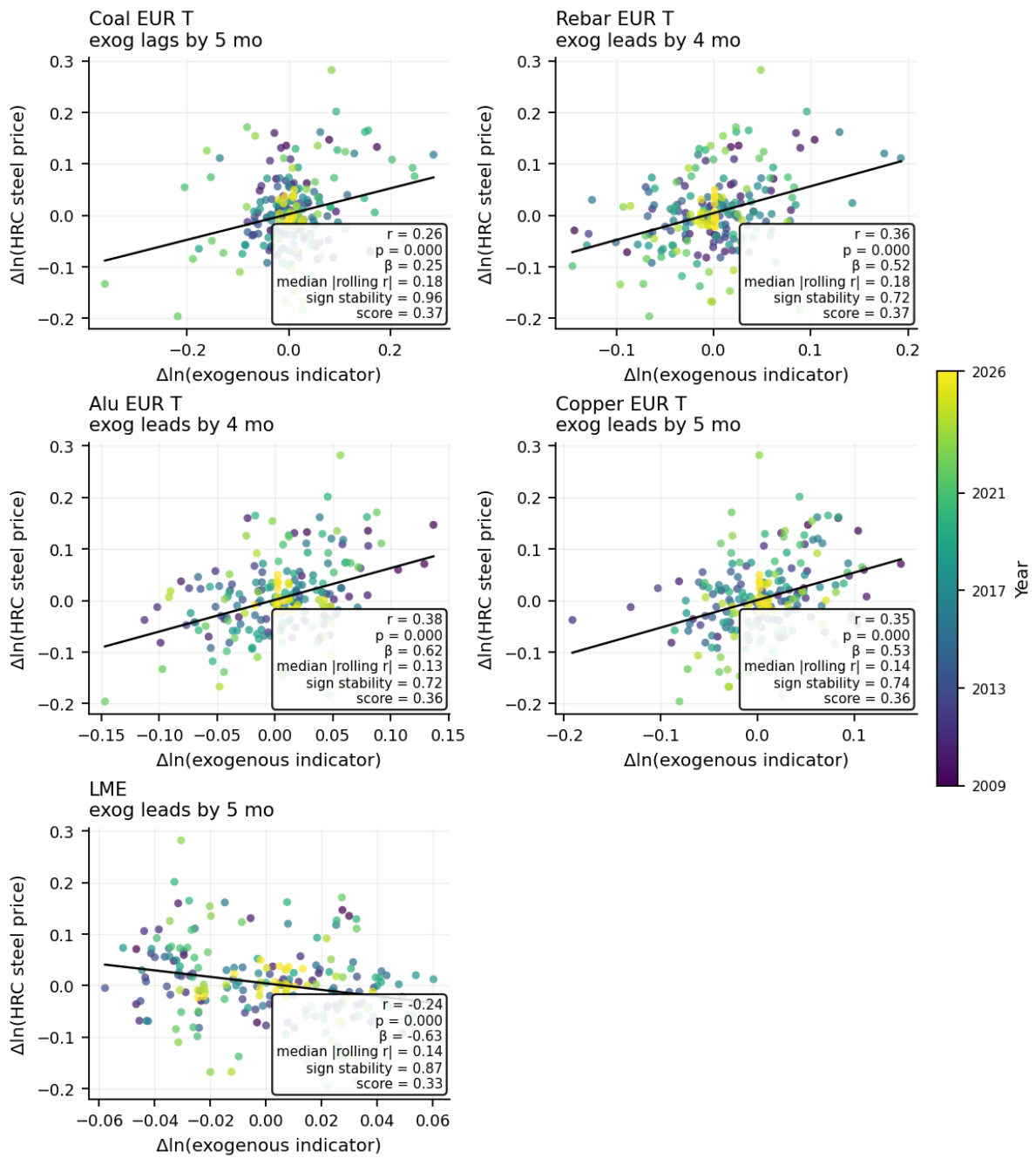


Figure S2. Comparison of exogenous data for metals and metal exchanges and target steel prices

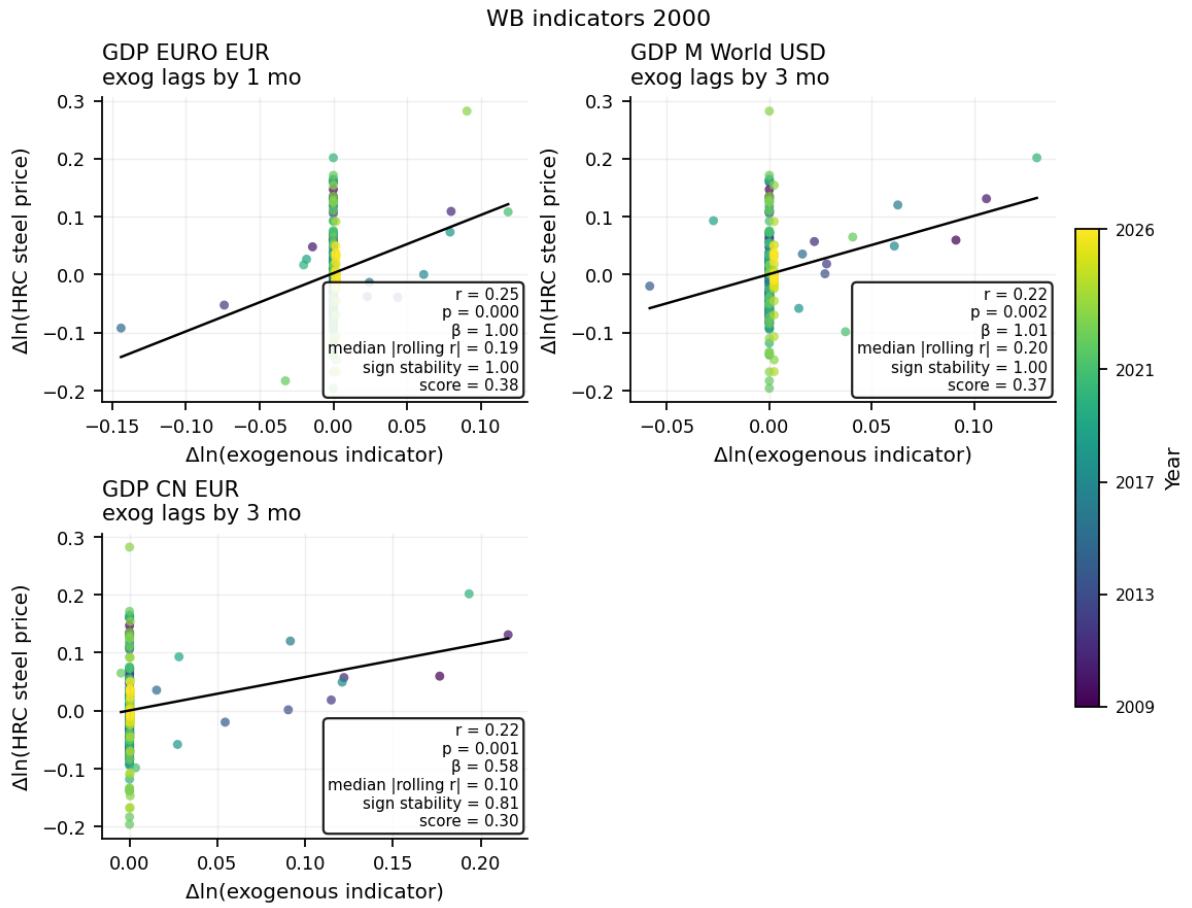


Figure S3. Comparison of exogenous GDP data and target steel prices

CMO prices 1990

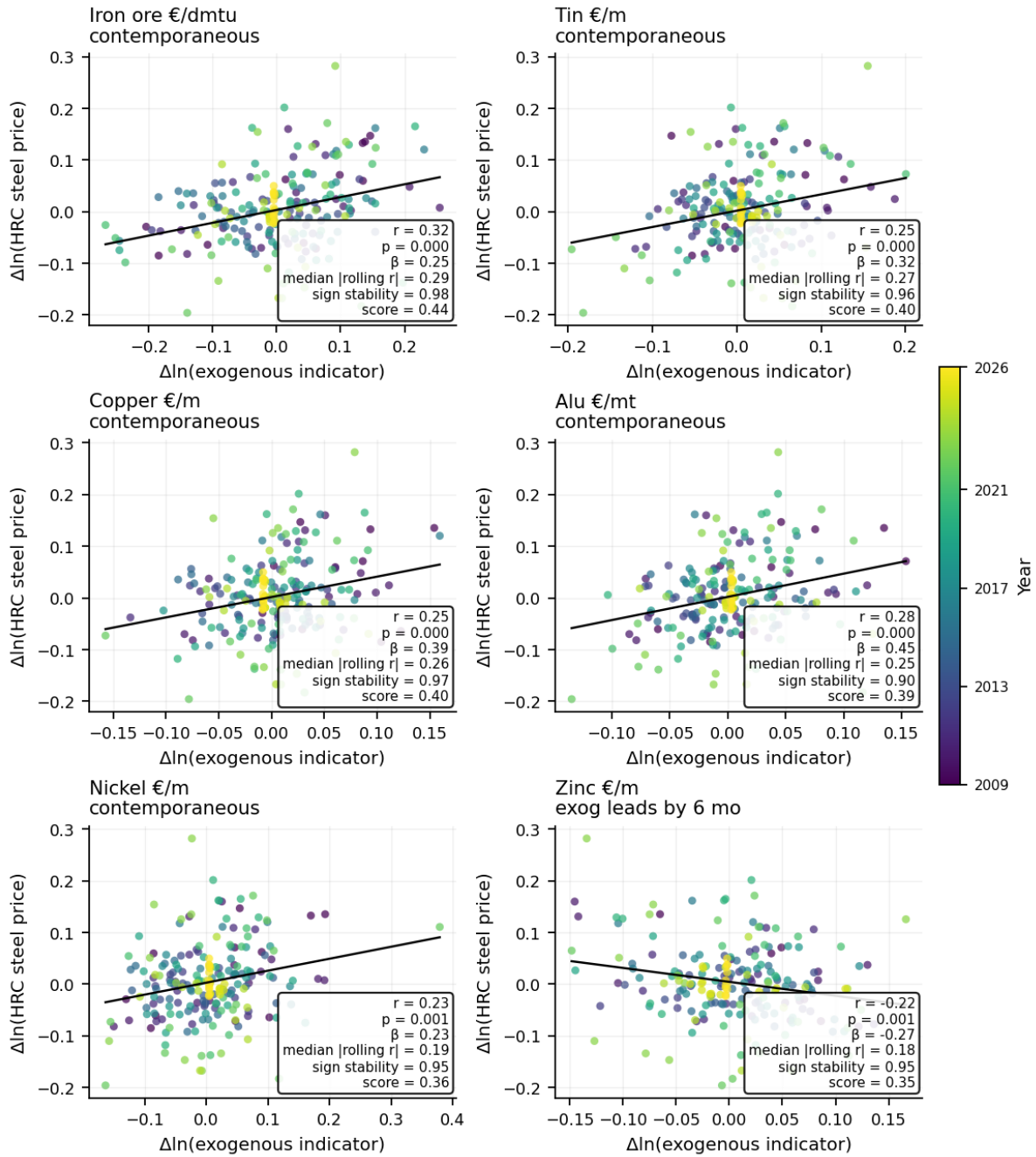


Figure S4. Comparison of exogenous commodity price data and target steel prices

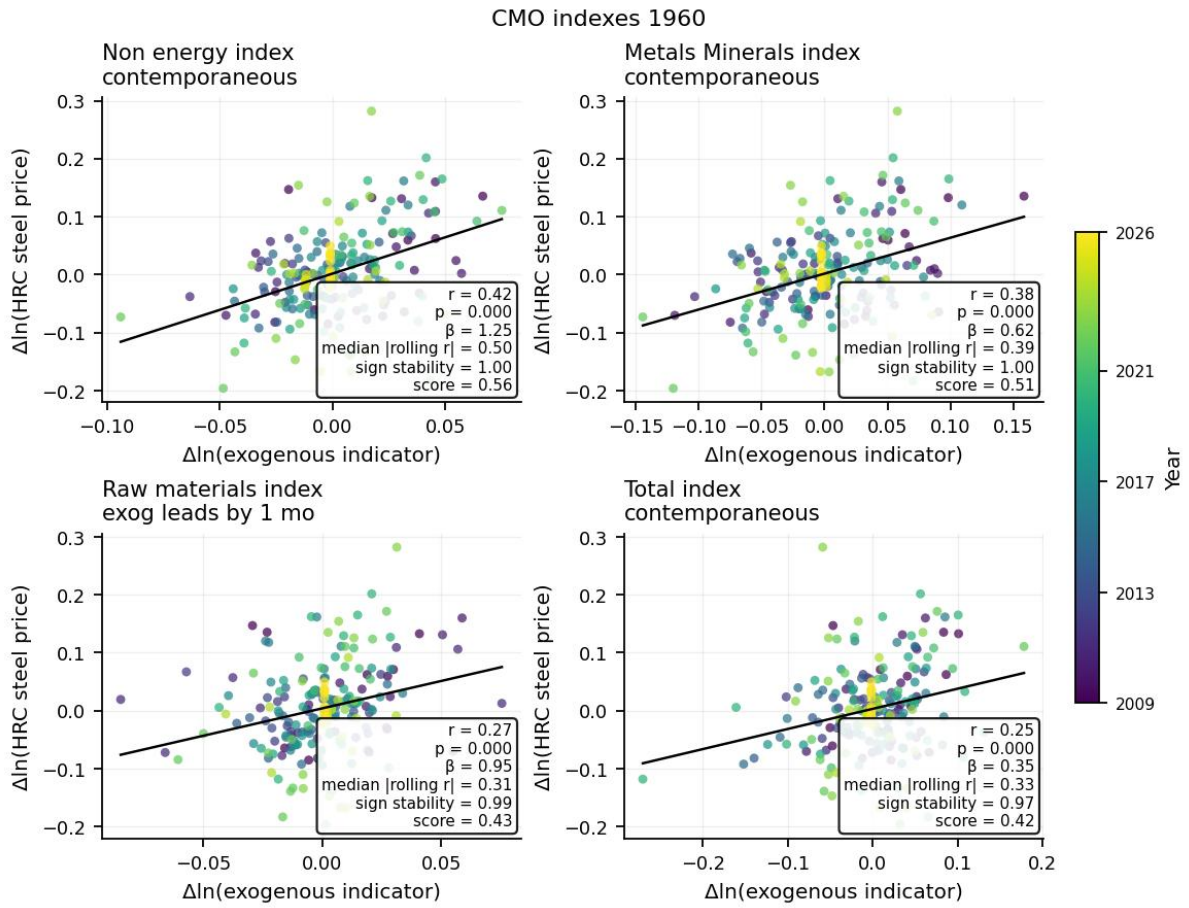


Figure S5. Comparison of extra exogenous commodity price data and target steel prices

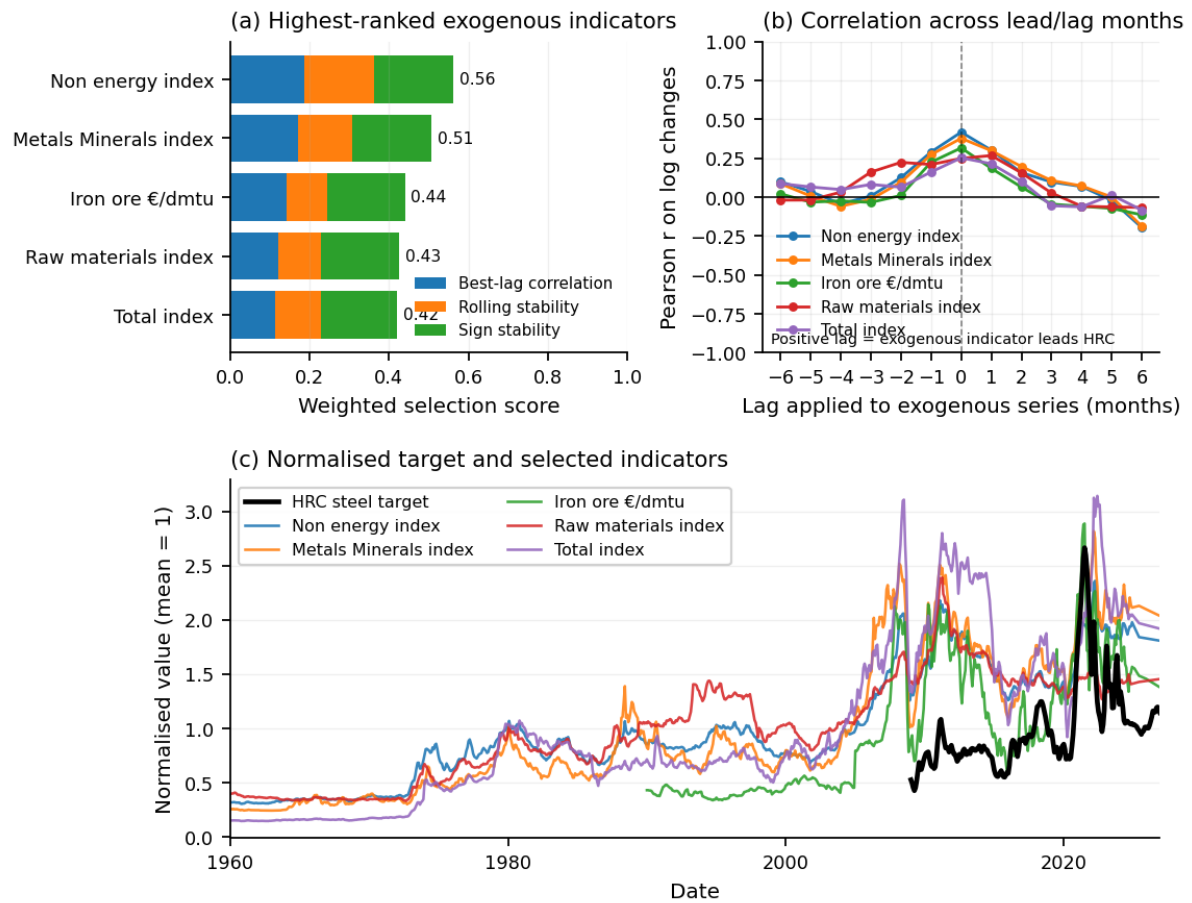


Figure S6. Top exogenous data summary

Table S1 - Summary of best exogs

Sheet	Series	Col name	Select ion score	Best lag r	Best lag mon ths	Med abs roll corr.	Sign stabi lity	p val ue	Beta slope
CMO_indexes_1960	Non_energy_index	CMO Non_energy_index	0.56285	0.41753	0	0.49991	1	1.77E-10	1.25328
CMO_indexes_1960	Metals_Mineral s_index	CMO Metals_Mineralsindex	0.50722	0.37809	0	0.39166	1	1.03E-08	0.61918
CMO_prices_1990	Iron_ore_€/dmt u	CMO_prices_1990__Iron_ore_€/dmtu	0.43985	0.31618	0	0.28977	0.98077	2.23E-06	0.24829
CMO_indexes_1960	Raw_materials_index	CMO_indexes_1960__Raw_m aterials_index	0.42632	0.2673	1	0.30664	0.99359	7.51E-05	0.94662
CMO_indexes_1960	Total_index	CMO_indexes_1960__Total_i ndex	0.4212	0.25246	0	0.32573	0.96795	1.83E-04	0.34702

Table S2 - CMO_prices_1990

id	Exog	Method	Best_lag_months	Selection score	Best_lag_r
0	Iron_ore_€/dm tu	dlog	0	0.400799	0.316175
1	Crude_€/bbl	quad_resid	3	0.388662	-0.238821
2	Tin_€/m	lin_resid	5	0.386459	-0.285134
3	Alu_€/mt	quad_resid	3	0.382101	-0.289253
4	NG_index	seasonal_resid	0	0.377989	-0.238384
5	Copper_€/m	dlog	0	0.373102	0.253332
6	Gold_€/toz	dlog	10	0.358509	0.235338
7	Lead_€/m	dlog	8	0.357742	-0.230626
8	NG_US_€/mmbtu	seasonal_resid	0	0.356427	-0.212274
9	NG_Euro_€/mmbtu	lin_resid	3	0.356184	-0.223192
10	Zinc_€/m	dlog	7	0.350554	-0.1946
11	Nickel_€/m	dlog	0	0.34961	0.231009
12	Plat_€/toz	dlog	8	0.328584	-0.188964
13	Coal_Aus_€/mt	lin_resid	3	0.327277	-0.235705
14	Silver_€/toz	dlog	4	0.311645	0.149719
15	Year	seasonal_resid	2	0.233285	-0.051823

Table S3 - Metals_elec_2009

id	Exog	Method	Best_lag_months	Selection score	Best_lag_r
0	HRC_EUR_T	raw	0	1.1	1
1	Alu_EUR_T	dlog	4	0.452722	0.375435
2	Copper_EUR_T	dlog	5	0.449657	0.353234
3	Rebar_EUR_T	raw	4	0.433178	0.361654
4	LME	dlog	5	0.380852	-0.240196
5	Elec_price_EURMWh	quad_resid	7	0.369507	-0.251242
6	Coal_EUR_T	quad_resid	6	0.346823	-0.248081
7	IronOre_EUR_T	dlog	3	0.299477	-0.11702

Table S4 - WB_indexes_1970

id	Exog	Method	Best_lag_months	Selection score	Best_lag_r
0	CPI_Head_index	dlog	12	0.366342	0.275484
1	Food_price_index	dlog	2	0.316472	-0.260773
2	PPI_index	dlog	8	0.307188	-0.19827

3	CPI_Off_index	dlog	2	0.303432	-0.159186
4	CPI_est_index	quad_resid	8	0.268198	-0.064691

Table S5 - WB_indexes_2000

id	Exog	Method	Best_lag_months	Selection score	Best_lag_r
0	WE_index	dlog	7	0.307343	0.092963
1	PPI_index	dlog	12	0.285552	-0.097547

Table S6 - WB_indicators_2000

id	Exog	Method	Best_lag_months	Selection score	Best_lag_r
0	GDP_USA_EUR	quad_resid	2	0.400939	-0.313515
1	Exp_EU_%GDP	quad_resid	2	0.384191	-0.317201
2	Imp_UK_%GDP	quad_resid	2	0.382374	-0.267467
3	Imp_Japan_%GDP	quad_resid	2	0.380447	-0.278974
4	Imp_CN_%GDP	lin_resid	3	0.370645	-0.219330
5	GDP_M_World_EUR	quad_resid	2	0.368471	-0.209491
6	Exp_Japan_%GDP	quad_resid	3	0.357338	-0.271042
7	Exp_RUS_%GDP	raw	9	0.352161	-0.206241
8	GDP_M_World_USD	dlog	0	0.350403	0.190675
9	GDP_World_EUR	dlog	0	0.350403	0.190675
10	Exp_UKR_%GDP	dlog	11	0.329917	-0.194366
11	Exp_World_%GDP	dlog	0	0.329169	0.166756
12	Exp_India_%GDP	dlog	0	0.321550	0.162082
13	Exp_USA_%GDP	dlog	0	0.320025	0.157612
14	Imp_World_%GDP	seasonal_resid	3	0.317046	-0.337781
15	Imp_India_%GDP	dlog	8	0.309525	-0.147754

id	Exog	Method	Best_lag_months	Selection score	Best_lag_r
16	GCF_World_%	lin_resid	3	0.308906	-0.141039
17	Imp_UMI_%GDP	lin_resid	3	0.296762	-0.300640
18	Imp_USA_%GDP	dlog	0	0.295138	0.144078
19	GDP_CN_EUR	log	7	0.291374	-0.080096