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Macroeconomy Relationship
since the Mid-1980s: A
Global Perspective**

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Summary

In this paper the oil price-macroeconomy relationship is investigated from a global perspective, by means of a large scale macro-financial-econometric model. In addition to real activity, fiscal and monetary policy responses and labor and financial markets are considered as well. We find that oil market shocks would have contributed to slowing down economic growth since the first Persian Gulf War episode. Among oil market shocks, supply side disturbances were the largest contributor to macro-financial fluctuations, accounting for up to 12% of real activity variance. The latter shocks would have exercised recessionary effects during the first and second Persian Gulf War and 2008 oil price episodes; preferences, speculative and volatility shocks would have also contributed to exacerbate the recessionary episodes. As long as oil supply will keep expanding at a lower pace than required by demand conditions, a recessionary bias, determined by higher and more uncertain real oil prices, may then be expected to persist also in the near future.

Keywords: Oil Price, Oil Price-Macroeconomy Relationship, Macro-finance Interface, International Business Cycle, Factor Vector Autoregressive Models

JEL Classification: C22, E32, G12

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The oil price-macroeconomy relationship since the mid-1980s: A global perspective

Claudio Morana¹

We investigate the oil price-macroeconomy relationship from a global perspective, by means of a large scale macro-financial-econometric model. In addition to real activity, we consider fiscal and monetary policy responses and labor and financial markets conditions, in order to provide a comprehensive account of the macro-financial effects of oil price shocks. We find that oil market supply side, speculative, preferences, and volatility shocks exercised recessionary effects during the first and second Persian Gulf War and 2008 oil price episodes. As long as oil supply will keep expanding at a slower pace than required by demand conditions, and in so far as the recently passed regulatory provisions aimed at controlling financial speculation in the oil (and other commodities) futures market will prove unsuccessful, a recessionary bias, determined by higher and more uncertain real oil prices, may then be expected to persist also in the near future.

1. INTRODUCTION

Since the 1990s, the literature has focused on different features of the oil price-macroeconomy relationship, concerning its relevance, the presence of asymmetric responses, the sources of shocks and the role of the Great Moderation: to date, 10 out of 11 postwar US recessions were preceded by sharp increases in oil prices (Hamilton, 2011).

Theoretically, an oil price shock may *directly* affect real activity through different demand and supply side channels. For instance, private consumption may contract due to discretionary income and precautionary savings effects, as households dispose of lower real income after paying energy bills and face a higher likelihood of future unemployment or longer unemployment duration (Edelstein and Kilian, 2009). Moreover, as higher and more volatile energy prices may lead consumers and firms postponing the purchase of durables and irreversible investment decisions, respectively (Bernanke, 1983; Pindyck, 1991), uncertainty effects may also be relevant; similarly through an operating costs channel, as consumers may postpone the purchase of durables (complement in use of energy) and firms save on capital usage, due to rising marginal costs and decreasing labor and capital productivity (Pindyck and Rotemberg, 1984; Rotemberg and Woodford, 1996).²

Indirect effects, due to changes in consumption patterns and technologies, inducing capital/labor reallocation across sectors, may also be posited: if production factors are sector or product specific, an oil price shock, by shifting preferences in favor of more efficient durables and technologies, may then lead to labor and capital unemployment (Hamilton, 1988). Moreover, as the implementation of preemptive restrictive monetary policies might lead to stronger negative responses of real activity to oil price shocks than otherwise would occur (Bernanke et al., 1997), the monetary policy transmission mechanism may yield an additional source of asymmetry, relatively to the reallocation and uncertainty effects.³

The empirical evidence on the above channels is not clear-cut. For instance support to the asymmetry feature of the oil price-macroeconomy relationship (Mork, 1989) is provided by Lee et al.

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² Oil price drag and real balances/interest rate channels, in the case of a stagflationary oil price shock, may also be posited.

³ Similarly for the real money balances effect, in so far as real wages are only downward rigid (Mork, 1994).

Table 1: impulse response analysis, responses to oil market structural shocks

	Employment										Unemployment rate										
	R	Pm	Pp	RM	C	INV	WT	FB	OP	OV	R	Pm	Pp	RM	C	INV	WT	FB	OP	OV	
0	-0.04	-0.01	0.02	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	-0.15	-0.04	0.12	-0.20	0.05	0.06	-0.05	0.04	-0.01	-0.01	0.06	0.02	-0.08	0.15	-0.07	-0.09	0.08	-0.05	0.03	0.05	0.05
4	-0.17	-0.13	0.20	-0.39	0.12	0.12	-0.11	0.08	-0.01	0.06	0.02	0.05	-0.09	0.27	-0.15	-0.17	0.15	-0.08	0.04	-0.03	-0.03
6	-0.14	-0.25	0.36	-0.49	0.15	0.20	-0.17	0.09	-0.04	0.15	-0.09	0.07	-0.24	0.34	-0.16	-0.25	0.22	-0.09	0.09	-0.09	-0.09
8	-0.13	-0.36	0.50	-0.61	0.18	0.28	-0.22	0.12	-0.09	0.19	-0.12	0.10	-0.35	0.43	-0.18	-0.35	0.26	-0.12	0.15	-0.09	-0.09
12	-0.25	-0.44	0.61	-0.78	0.20	0.42	-0.29	0.18	-0.15	0.13	-0.07	0.03	-0.36	0.52	-0.18	-0.46	0.32	-0.16	0.21	0.01	0.01
20	-0.37	-0.54	0.62	-0.80	0.03	0.40	-0.30	0.20	-0.12	0.11	-0.08	-0.06	-0.27	0.44	-0.03	-0.42	0.32	-0.15	0.18	0.05	0.05
40	-0.38	-0.62	0.66	-0.79	0.03	0.39	-0.29	0.19	-0.11	0.14	-0.19	-0.19	-0.23	0.39	-0.08	-0.41	0.31	-0.13	0.19	0.05	0.05
	Real activity										Public expenditure to GDP ratio										
	R	Pm	Pp	RM	C	INV	WT	FB	OP	OV	R	Pm	Pp	RM	C	INV	WT	FB	OP	OV	
0	-0.03	-0.11	-0.05	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	-0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.01	0.00	0.00	-0.06	0.14	0.07	-0.03	0.08	-0.05	-0.02	0.01	0.09	-0.06	0.04	-0.09	-0.09	0.05	-0.04	0.03	0.03	0.03
4	0.12	0.04	-0.05	-0.11	0.25	0.13	-0.07	0.10	-0.08	0.07	-0.05	0.07	-0.06	0.10	-0.12	-0.15	0.12	-0.07	0.06	-0.03	-0.03
6	0.22	0.04	0.07	-0.13	0.24	0.24	-0.11	0.10	-0.15	0.08	-0.17	0.08	-0.15	0.08	-0.07	-0.23	0.15	-0.05	0.11	-0.05	-0.05
8	0.23	0.11	0.10	-0.20	0.27	0.32	-0.14	0.13	-0.21	0.02	-0.20	-0.01	-0.16	0.10	-0.09	-0.27	0.16	-0.07	0.16	0.03	0.03
12	0.22	0.28	-0.01	-0.21	0.25	0.35	-0.18	0.13	-0.23	-0.08	-0.17	-0.21	0.00	0.04	-0.02	-0.25	0.18	-0.07	0.15	0.14	0.14
20	0.29	0.44	-0.13	-0.08	0.16	0.28	-0.15	0.10	-0.19	-0.12	-0.29	-0.37	0.12	-0.13	0.05	-0.18	0.14	-0.03	0.11	0.15	0.15
40	0.44	0.62	-0.19	-0.01	0.22	0.29	-0.15	0.09	-0.21	-0.14	-0.44	-0.58	0.20	-0.18	-0.03	-0.19	0.14	-0.02	0.14	0.18	0.18
	Nominal factor										Real wage										
	R	Pm	Pp	RM	C	INV	WT	FB	OP	OV	R	Pm	Pp	RM	C	INV	WT	FB	OP	OV	
0	-0.01	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.03	-0.10	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	-0.02	0.03	0.00	-0.01	0.01	0.00	0.00	0.01	0.00	0.01	0.22	0.10	-0.18	0.21	-0.01	0.04	0.04	-0.05	-0.06	-0.04	-0.04
4	-0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.31	0.36	-0.25	0.28	-0.02	0.09	0.04	-0.05	-0.11	-0.14	-0.14
6	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.35	0.56	-0.37	0.33	0.02	0.10	0.03	-0.06	-0.11	-0.23	-0.23
8	0.00	0.01	0.02	0.00	0.01	0.01	0.00	0.01	-0.01	0.01	0.47	0.73	-0.47	0.41	0.00	0.07	0.03	-0.10	-0.10	-0.23	-0.23
12	0.01	0.02	0.01	0.00	0.02	0.01	0.00	0.01	-0.01	0.01	0.73	1.03	-0.58	0.53	0.05	0.03	0.04	-0.14	-0.12	-0.26	-0.26
20	0.01	0.03	0.00	0.00	0.02	0.01	0.00	0.01	-0.01	0.01	0.95	1.46	-0.79	0.67	0.13	0.03	0.04	-0.17	-0.15	-0.34	-0.34
40	0.01	0.03	0.00	0.00	0.02	0.01	0.00	0.01	-0.01	0.01	1.18	1.87	-0.98	0.79	0.18	0.03	0.04	-0.20	-0.18	-0.42	-0.42
	Real housing prices										US\$ exchange rate index										
	R	Pm	Pp	RM	C	INV	WT	FB	OP	OV	R	Pm	Pp	RM	C	INV	WT	FB	OP	OV	
0	0.04	0.02	-0.08	-0.02	0.03	0.00	0.00	0.00	0.00	0.00	-0.12	-0.05	-0.09	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00
2	0.20	0.20	-0.23	0.06	0.18	0.05	0.05	-0.08	-0.04	0.06	-0.20	0.11	-0.13	-0.14	0.39	0.11	0.01	0.15	-0.10	-0.07	-0.07
4	0.41	0.42	-0.17	0.01	0.32	0.09	0.02	-0.14	-0.07	0.07	-0.23	0.05	-0.25	-0.01	0.46	0.17	0.07	0.13	-0.16	-0.07	-0.07
6	0.49	0.63	-0.14	-0.08	0.51	0.12	-0.01	-0.13	-0.12	0.02	-0.23	0.03	-0.23	-0.09	0.44	0.20	0.08	0.13	-0.16	-0.09	-0.09
8	0.56	0.81	-0.21	-0.12	0.62	0.13	-0.05	-0.14	-0.14	-0.01	-0.30	0.10	-0.24	-0.10	0.47	0.21	0.09	0.15	-0.18	-0.13	-0.13
12	0.64	1.09	-0.36	-0.12	0.66	0.14	-0.08	-0.13	-0.17	-0.07	-0.31	0.07	-0.27	-0.09	0.47	0.15	0.11	0.12	-0.14	-0.11	-0.11
20	0.63	1.20	-0.50	-0.06	0.49	0.12	-0.09	-0.14	-0.14	-0.16	-0.36	0.01	-0.25	-0.12	0.50	0.14	0.12	0.13	-0.13	-0.09	-0.09
40	0.79	1.38	-0.55	0.02	0.54	0.11	-0.09	-0.16	-0.16	-0.17	-0.42	-0.10	-0.20	-0.16	0.48	0.15	0.11	0.13	-0.12	-0.07	-0.07
	Real stock prices										Stock market volatility										
	R	Pm	Pp	RM	C	INV	WT	FB	OP	OV	R	Pm	Pp	RM	C	INV	WT	FB	OP	OV	
0	-0.17	-0.01	-0.02	0.06	0.06	0.05	-0.05	0.02	0.09	-0.03	0.19	0.07	0.00	-0.12	-0.08	0.00	0.00	0.00	0.00	0.00	0.00
2	-0.18	-0.13	0.14	-0.06	0.07	0.11	-0.07	0.00	0.09	0.02	0.30	0.06	-0.09	-0.07	-0.09	-0.05	0.03	0.04	0.01	0.04	0.04
4	-0.12	-0.39	0.26	-0.01	0.11	0.04	-0.07	-0.01	0.11	0.14	0.10	0.34	-0.04	-0.14	-0.09	0.03	0.03	0.10	-0.03	-0.08	-0.08
6	-0.13	-0.46	0.37	-0.05	0.10	0.06	-0.06	-0.02	0.09	0.15	-0.11	0.13	-0.08	-0.24	-0.16	0.07	0.01	0.13	-0.01	-0.08	-0.08
8	-0.23	-0.45	0.38	-0.10	0.15	0.06	-0.06	0.02	0.09	0.11	-0.06	-0.04	-0.03	-0.19	-0.25	0.08	0.01	0.09	0.00	-0.02	-0.02
12	-0.34	-0.55	0.34	-0.11	0.08	0.03	-0.06	0.02	0.12	0.13	-0.08	-0.12	0.12	-0.27	-0.23	0.09	-0.01	0.11	0.00	0.01	0.01
20	-0.46	-0.75	0.41	-0.13	0.00	0.01	-0.05	0.02	0.15	0.15	-0.11	-0.20	0.16	-0.30	-0.20	0.10	-0.01	0.12	-0.01	0.03	0.03
40	-0.54	-0.92	0.50	-0.18	-0.01	0.01	-0.04	0.04	0.16	0.19	-0.17	-0.29	0.19	-0.32	-0.23	0.10	-0.01	0.13	0.00	0.05	0.05
	Excess liquidity										Real short-term rate										
	R	Pm	Pp	RM	C	INV	WT	FB	OP	OV	R	Pm	Pp	RM	C	INV	WT	FB	OP	OV	
0	0.09	-0.04	-0.01	0.11	-0.05	0.00	0.00	0.00	0.00	0.00	0.06	0.01	0.01	-0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00
2	0.12	-0.23	-0.02	0.14	-0.04	-0.07	0.06	0.00													

Table 2: Historical decomposition over selected periods: contributions from oil market supply side shocks.

Oil market supply side shocks																								
	Y		E		U		W		P		G		L		R		H		F		FV		X	
	SUP	ACT	SUP	ACT	SUP	ACT	SUP	ACT	SUP	ACT	SUP	ACT	SUP	ACT	SUP	ACT	SUP	ACT	SUP	ACT	SUP	ACT	SUP	ACT
1990(2)	0.42	-0.70	0.47	-0.23	-0.93	0.11	0.36	1.90	0.11	-0.02	-0.43	0.74	-0.42	-0.20	0.27	0.38	-0.09	-0.70	0.21	-0.64	-1.22	-0.01	0.31	-0.11
1990(3)	-0.52	-0.54	0.34	-0.39	-0.31	0.72	0.38	0.90	0.00	-0.08	0.39	0.85	-0.36	0.42	0.32	-0.22	-0.25	-0.48	-0.44	-1.94	0.36	0.66	-0.57	0.70
1990(4)	0.46	-0.35	0.23	-0.27	-0.03	0.91	0.53	0.25	0.16	0.08	0.14	1.08	-0.46	0.18	-0.46	-0.41	-0.12	-1.14	-1.15	-2.00	0.20	0.84	0.61	0.35
1991(1)	-0.12	-1.55	-0.22	-1.12	0.02	1.21	0.54	0.65	0.02	-0.08	0.14	0.82	-0.26	-0.46	0.38	0.60	0.21	0.13	-0.25	0.10	0.47	-0.64	0.08	-0.87
1991(2)	0.25	-0.37	-0.34	-1.26	0.27	1.29	1.55	2.04	-0.11	-0.07	0.24	0.76	-0.60	-0.80	0.14	0.03	0.46	-0.40	-1.51	-0.12	2.28	-0.69	-0.53	-1.97
1991(3)	-0.37	-0.81	-0.49	-1.41	0.41	0.76	0.87	0.99	-0.04	0.03	0.22	0.26	-0.27	-0.92	-0.07	-0.31	0.22	0.07	-1.07	-1.04	0.83	-0.24	-0.15	-0.52
1991(4)	-0.19	-0.13	-0.54	-1.54	0.32	0.74	0.52	0.63	-0.01	-0.06	0.19	0.29	-0.29	-1.39	-0.14	-0.04	0.16	0.11	0.21	-1.28	-0.66	-0.72	0.43	0.61
1992(1)	0.28	0.00	-0.26	-1.09	-0.25	1.44	0.19	1.25	0.10	-0.05	-0.16	-0.12	-1.12	-1.79	-0.05	0.62	0.17	-0.69	-0.31	-0.18	-0.77	1.42	0.00	-0.47
1992(2)	0.15	-1.05	-0.06	-1.49	-0.16	1.43	-0.02	1.79	-0.02	0.01	-0.41	0.67	-0.89	0.07	-0.17	-0.20	-0.11	-0.72	0.33	-0.86	-1.08	-1.05	0.38	-0.25
1992(3)	0.34	-0.45	0.11	-1.99	-0.26	1.34	0.15	1.61	0.04	0.04	-0.56	0.84	-0.45	-0.03	0.27	0.20	0.16	-0.85	-0.11	-1.92	-0.26	-0.75	0.17	0.85
1992(4)	0.21	-1.03	0.03	-2.47	-0.16	1.34	0.11	0.46	-0.07	0.02	-0.56	0.19	-0.20	-0.53	-0.05	-0.06	0.07	-1.19	-0.42	-0.52	0.31	-0.76	-0.51	-1.93
1993(1)	0.25	-1.02	0.02	-2.18	-0.24	1.09	0.54	1.05	-0.01	-0.19	-0.39	-0.72	-0.25	-1.30	0.14	-0.60	0.49	-1.41	-0.29	0.65	0.55	-0.83	-0.32	-1.22
1993(2)	0.18	-0.40	0.04	-1.53	-0.12	0.58	0.42	1.00	-0.05	-0.06	-0.17	-0.98	0.04	-1.34	-0.12	-0.25	0.35	-0.27	0.06	0.11	0.16	-0.49	0.02	0.26
1993(3)	0.25	-0.07	0.02	-1.08	-0.28	1.05	0.50	0.90	0.02	-0.22	-0.19	-0.92	-0.04	-1.42	0.07	0.10	0.65	-0.08	-0.28	0.58	0.23	-0.43	-0.16	-0.84
2000(4)	-0.31	-0.33	0.13	1.05	-0.17	-0.67	-0.27	-1.29	0.04	0.06	0.35	0.74	0.18	0.01	0.08	-0.01	-0.10	0.04	-0.26	-0.83	-0.03	0.43	-0.08	-0.94
2001(1)	-0.14	-0.71	0.09	0.84	0.21	0.06	-0.11	0.16	-0.05	-0.04	0.29	1.14	0.23	0.70	0.07	0.62	0.14	0.55	0.03	-0.35	0.26	0.43	0.00	0.27
2001(2)	0.01	-0.99	0.10	-0.54	0.04	0.21	-0.54	-0.45	0.02	0.03	0.00	1.01	0.14	0.46	-0.29	-0.95	0.14	-0.09	0.38	-0.23	-0.03	1.16	0.18	-1.14
2001(3)	0.00	-1.14	0.26	0.08	-0.17	0.81	-0.35	-0.02	0.00	-0.14	-0.13	1.50	0.07	1.25	0.14	0.78	0.21	0.24	0.31	-1.48	-0.25	-0.85	0.07	0.15
2001(4)	0.24	-0.95	0.39	-0.07	-0.16	1.22	-0.23	-0.85	-0.02	-0.16	-0.07	1.30	-0.06	-0.01	0.07	-0.24	0.35	0.16	0.07	0.37	0.30	0.74	-0.02	0.08
2002(1)	0.05	-0.59	0.36	-0.50	-0.33	0.20	-0.32	-0.70	0.01	0.16	-0.02	-0.02	-0.10	-1.21	-0.12	-0.44	0.16	0.21	-0.05	0.86	0.36	-1.01	0.14	0.08
2002(2)	0.15	-0.11	0.31	-0.36	-0.27	-0.07	-0.15	-0.55	0.03	0.02	-0.06	-0.42	0.10	-1.52	-0.02	-0.12	0.26	0.48	0.00	-0.50	-0.18	-0.54	0.25	1.25
2002(3)	0.15	-0.44	0.22	-0.39	-0.20	0.42	-0.04	0.49	0.00	-0.05	-0.02	0.52	0.22	0.26	0.08	0.27	0.47	0.86	-0.05	-2.09	0.16	1.01	-0.16	0.77
2002(4)	0.20	-0.19	0.21	-0.31	-0.13	0.87	0.06	-0.49	-0.02	-0.16	0.00	0.36	0.04	0.04	-0.09	-0.19	0.44	1.01	-0.19	0.13	0.42	1.82	-0.12	0.49
2003(1)	-0.24	-0.38	0.17	-0.35	-0.05	0.53	-0.36	-0.81	0.00	-0.08	0.01	0.29	0.16	0.17	-0.05	-0.38	0.07	0.20	0.25	-0.17	-0.45	-0.55	0.08	1.34
2003(2)	0.15	-1.07	0.23	-0.30	-0.21	0.45	-0.12	0.29	0.06	0.12	0.06	0.91	-0.18	0.68	0.13	1.18	-0.03	0.87	0.65	1.32	-0.95	-0.97	0.46	1.30
2008(2)	-0.34	-1.04	0.26	0.49	0.03	0.71	-0.60	-1.60	-0.02	0.01	0.47	1.84	0.58	1.32	-0.01	0.41	-0.37	-3.18	0.35	0.08	0.31	0.17	0.04	0.55
2008(3)	-0.30	-1.91	0.26	-0.34	0.04	1.24	-0.62	-0.73	-0.01	0.05	0.33	2.23	0.69	2.27	-0.03	0.33	-0.16	-2.73	0.29	-1.80	0.10	1.46	-0.27	-1.25
2008(4)	-0.55	-4.90	0.18	-1.69	0.11	2.66	-0.35	2.05	-0.04	-0.18	0.44	4.47	0.60	4.39	0.06	1.80	0.14	-2.12	0.15	-4.07	0.54	4.97	-0.64	-5.08
2009(1)	0.05	-4.97	0.13	-3.82	0.10	4.97	-0.34	1.57	0.03	-0.28	0.25	4.66	0.33	3.61	-0.32	-0.68	0.33	-1.94	0.13	-0.67	0.05	1.35	0.20	-0.71
2009(2)	0.22	-2.07	0.18	-3.32	-0.14	3.46	-0.49	-0.60	0.04	0.23	0.00	1.95	-0.11	0.52	0.00	-1.03	0.46	-1.58	0.44	1.85	-0.11	0.51	0.29	2.03
2009(3)	0.26	-0.47	0.22	-1.95	-0.24	1.65	-0.11	-1.25	-0.02	-0.20	-0.04	0.31	-0.18	-1.55	0.00	-0.53	0.32	-1.12	-0.01	1.79	0.22	-1.45	-0.03	1.64

The table reports the historical decomposition (net of base prediction) for various macroeconomic and financial variables, relatively to the contribution of the oil market supply side shocks (SUP, reserves, net production changes, refinery margins), over selected sub periods. The macroeconomic and financial variables are real activity growth (Y), employment growth (E), unemployment rate changes (U), real wages growth (W), core inflation (nominal factor, P), public expenditure to GDP ratio growth (G), excess liquidity (L), real interest rate in changes (R), real housing price returns (H), real stock price returns (F), nominal stock price volatility (FV), nominal US\$ exchange rate index return (X). For each of the macroeconomic and financial variables, ACT denotes the actual realization of the variable (net of base prediction), while SUP is the contribution yield by the oil market supply side shocks.

Table 3: Historical decomposition over selected periods: contributions from oil futures market speculative shocks.

Oil futures market speculative shocks																								
	Y		E		U		W		P		G		L		R		H		F		FV		X	
	SPC	ACT	SPC	ACT	SPC	ACT	SPC	ACT	SPC	ACT	SPC	ACT	SPC	ACT	SPC	ACT	SPC	ACT	SPC	ACT	SPC	ACT	SPC	ACT
1990(2)	-0.01	-0.70	-0.05	-0.23	0.05	0.11	0.00	1.90	0.00	-0.02	0.01	0.74	0.09	-0.20	-0.04	0.38	-0.06	-0.70	0.16	-0.64	-0.06	-0.01	0.09	-0.11
1990(3)	0.13	-0.54	0.06	-0.39	-0.02	0.72	0.01	0.90	0.00	-0.08	-0.03	0.85	0.08	0.42	0.00	-0.22	-0.11	-0.48	-0.10	-1.94	0.20	0.66	0.14	0.70
1990(4)	0.00	-0.35	0.00	-0.27	-0.04	0.91	-0.09	0.25	0.00	0.08	0.03	1.08	0.06	0.18	0.00	-0.41	-0.14	-1.14	-0.05	-2.00	0.17	0.84	0.19	0.35
1991(1)	-0.06	-1.55	0.05	-1.12	-0.04	1.21	0.01	0.65	-0.02	-0.08	0.01	0.82	0.01	-0.46	0.06	0.60	-0.05	0.13	-0.10	0.10	0.08	-0.64	-0.20	-0.87
1991(2)	-0.13	-0.37	-0.04	-1.26	0.10	1.29	0.04	2.04	-0.01	-0.07	0.04	0.76	0.06	-0.80	-0.03	0.03	0.08	-0.40	0.10	-0.12	-0.16	-0.69	-0.25	-1.97
1991(3)	-0.03	-0.81	-0.04	-1.41	0.08	0.76	0.04	0.99	0.01	0.03	0.06	0.26	0.01	-0.92	-0.02	-0.31	0.16	0.07	-0.01	-1.04	0.01	-0.24	-0.09	-0.52
1991(4)	0.03	-0.13	-0.06	-1.54	0.02	0.74	-0.07	0.63	0.02	-0.06	0.02	0.29	-0.05	-1.39	-0.07	-0.04	0.05	0.11	-0.02	-1.28	-0.13	-0.72	0.15	0.61
1992(1)	-0.03	0.00	0.00	-1.09	-0.01	1.44	-0.06	1.25	0.00	-0.05	0.02	-0.12	-0.09	-1.79	0.07	0.62	0.07	-0.69	0.05	-0.18	-0.02	1.42	0.04	-0.47
1992(2)	-0.06	-1.05	-0.04	-1.49	0.09	1.43	0.01	1.79	-0.02	0.01	0.03	0.67	0.00	0.07	0.00	-0.20	0.02	-0.72	0.05	-0.86	-0.16	-1.05	-0.16	-0.25
1992(3)	-0.15	-0.45	-0.07	-1.99	0.14	1.34	0.10	1.61	0.01	0.04	0.15	0.84	0.06	-0.03	0.06	0.20	0.13	-0.85	-0.16	-1.92	0.15	-0.75	-0.15	0.85
1992(4)	-0.21	-1.03	-0.17	-2.47	0.20	1.34	0.08	0.46	-0.02	0.02	0.19	0.19	0.10	-0.53	-0.02	-0.06	0.06	-1.19	0.05	-0.52	-0.10	-0.76	-0.14	-1.93
1993(1)	-0.15	-1.02	-0.16	-2.18	0.14	1.09	0.02	1.05	0.01	-0.19	0.15	-0.72	0.00	-1.30	-0.02	-0.60	0.02	-1.41	0.09	0.65	-0.08	-0.83	0.04	-1.22
1993(2)	-0.07	-0.40	-0.09	-1.53	0.09	0.58	-0.04	1.00	0.00	-0.06	0.01	-0.98	-0.11	-1.34	-0.03	-0.25	-0.10	-0.27	0.09	0.11	-0.20	-0.49	0.05	0.26
1993(3)	-0.03	-0.07	-0.07	-1.08	0.04	1.05	-0.03	0.90	0.02	-0.22	-0.04	-0.92	-0.09	-1.42	0.02	0.10	-0.04	-0.08	0.07	0.58	-0.10	-0.43	0.01	-0.84
2000(4)	0.19	-0.33	0.15	1.05	-0.21	-0.67	-0.11	-1.29	0.02	0.06	-0.19	0.74	-0.08	0.01	0.00	-0.01	-0.08	0.04	0.02	-0.83	0.04	0.43	0.20	-0.94
2001(1)	0.21	-0.71	0.25	0.84	-0.21	0.06	-0.05	0.16	0.00	-0.04	-0.20	1.14	-0.04	0.70	0.02	0.62	-0.01	0.55	-0.05	-0.35	0.10	0.43	-0.05	0.27
2001(2)	0.11	-0.99	0.18	-0.54	-0.21	0.21	-0.01	-0.45	-0.02	0.03	-0.10	1.01	0.00	0.46	0.01	-0.95	0.04	-0.09	0.02	-0.23	0.16	1.16	-0.06	-1.14
2001(3)	0.12	-1.14	0.18	0.08	-0.16	0.81	0.02	-0.02	0.00	-0.14	-0.06	1.50	0.06	1.25	-0.02	0.78	0.03	0.24	-0.03	-1.48	0.10	-0.85	0.02	0.15
2001(4)	0.08	-0.95	0.18	-0.07	-0.19	1.22	-0.03	-0.85	0.00	-0.16	-0.02	1.30	0.03	-0.01	0.02	-0.24	0.11	0.16	0.00	0.37	0.07	0.74	-0.03	0.08
2002(1)	0.09	-0.59	0.16	-0.50	-0.18	0.20	-0.04	-0.70	-0.01	0.16	-0.08	-0.02	0.01	-1.21	-0.04	-0.44	0.02	0.21	0.13	0.86	-0.18	-1.01	-0.04	0.08
2002(2)	0.11	-0.11	0.20	-0.36	-0.18	-0.07	-0.07	-0.55	0.01	0.02	-0.08	-0.42	-0.01	-1.52	0.02	-0.12	0.08	0.48	-0.04	-0.50	0.01	-0.54	-0.04	1.25
2002(3)	0.03	-0.44	0.18	-0.39	-0.15	0.42	-0.03	0.49	-0.02	-0.05	-0.05	0.52	-0.04	0.26	0.03	0.27	0.15	0.86	-0.03	-2.09	0.08	1.01	-0.23	0.77
2002(4)	0.04	-0.19	0.08	-0.31	-0.08	0.87	-0.02	-0.49	0.01	-0.16	-0.02	0.36	0.09	0.04	-0.05	-0.19	0.13	1.01	0.03	0.13	-0.17	1.82	-0.08	0.49
2003(1)	0.06	-0.38	0.13	-0.35	-0.06	0.53	0.00	-0.81	0.01	-0.08	0.05	0.29	0.04	0.17	0.05	-0.38	0.15	0.20	-0.18	-0.17	0.17	-0.55	0.05	1.34
2003(2)	-0.07	-1.07	0.01	-0.30	-0.01	0.45	-0.01	0.29	-0.02	0.12	0.10	0.91	0.06	0.68	0.00	1.18	0.10	0.87	0.15	1.32	-0.06	-0.97	-0.07	1.30
2008(2)	-0.02	-1.04	-0.06	0.49	0.07	0.71	0.09	-1.60	0.00	0.01	0.12	1.84	0.09	1.32	-0.05	0.41	0.12	-3.18	-0.05	0.08	-0.02	0.17	0.07	0.55
2008(3)	-0.05	-1.91	-0.08	-0.34	0.02	1.24	0.00	-0.73	0.02	0.05	0.10	2.23	0.00	2.27	0.00	0.33	-0.01	-2.73	-0.04	-1.80	-0.08	1.46	0.20	-1.25
2008(4)	-0.08	-4.90	-0.07	-1.69	0.14	2.66	0.05	2.05	0.01	-0.18	0.06	4.47	0.11	4.39	0.05	1.80	0.03	-2.12	0.01	-4.07	-0.06	4.97	-0.04	-5.08
2009(1)	-0.02	-4.97	-0.08	-3.82	0.14	4.97	0.04	1.57	-0.02	-0.28	0.04	4.66	0.07	3.61	0.01	-0.68	-0.02	-1.94	0.01	-0.67	0.15	1.35	-0.02	-0.71
2009(2)	-0.02	-2.07	-0.11	-3.32	0.10	3.46	-0.02	-0.60	0.01	0.23	0.04	1.95	0.06	0.52	-0.06	-1.03	-0.14	-1.58	0.05	1.85	-0.02	0.51	0.16	2.03
2009(3)	-0.03	-0.47	-0.05	-1.95	0.03	1.65	-0.04	-1.25	0.02	-0.20	0.06	0.31	0.01	-1.55	0.05	-0.53	-0.14	-1.12	-0.08	1.79	0.07	-1.45	0.08	1.64

The table reports the historical decomposition (net of base prediction) for various macroeconomic and financial variables, relatively to the contribution of the oil futures market speculative shocks (SPC), over selected sub periods. The macroeconomic and financial variables are real activity growth (Y), employment growth (E), unemployment rate changes (U), real wages growth (W), core inflation (nominal factor, P), public expenditure to GDP ratio growth (G), excess liquidity (L), real interest rate in changes (R), real housing price returns (H), real stock price returns (F), nominal stock price volatility (FV), nominal US\$ exchange rate index return (X). For each of the macroeconomic and financial variables, ACT denotes the actual realization of the variable (net of base prediction), while SPC is the contribution yield by the oil futures market speculative shocks.

Table 4: Historical decomposition over selected periods: contributions from other nominal oil price volatility shocks.

Other nominal oil price volatility shocks																								
	Y		E		U		W		P		G		L		R		H		F		FV		X	
	OV	ACT	OV	ACT	OV	ACT	OV	ACT	OV	ACT	OV	ACT	OV	ACT	OV	ACT	OV	ACT	OV	ACT	OV	ACT	OV	ACT
1990(2)	-0.14	-0.70	-0.11	-0.23	0.17	0.11	0.19	1.90	-0.01	-0.02	0.13	0.74	0.15	-0.20	0.00	0.38	0.09	-0.70	-0.25	-0.64	0.21	-0.01	-0.11	-0.11
1990(3)	-0.11	-0.54	-0.17	-0.39	0.21	0.72	0.12	0.90	0.00	-0.08	0.13	0.85	0.18	0.42	-0.06	-0.22	0.16	-0.48	0.05	-1.94	0.08	0.66	-0.07	0.70
1990(4)	0.06	-0.35	-0.11	-0.27	0.07	0.91	0.01	0.25	0.01	0.08	-0.01	1.08	-0.03	0.18	-0.07	-0.41	0.17	-1.14	0.21	-2.00	-0.10	0.84	0.02	0.35
1991(1)	0.19	-1.55	0.01	-1.12	-0.06	1.21	-0.09	0.65	0.01	-0.08	-0.16	0.82	-0.17	-0.46	-0.05	0.60	0.11	0.13	0.25	0.10	-0.27	-0.64	0.03	-0.87
1991(2)	0.23	-0.37	0.11	-1.26	-0.17	1.29	-0.15	2.04	0.03	-0.07	-0.24	0.76	-0.22	-0.80	0.00	0.03	0.02	-0.40	0.17	-0.12	-0.24	-0.69	0.06	-1.97
1991(3)	0.19	-0.81	0.16	-1.41	-0.23	0.76	-0.14	0.99	0.01	0.03	-0.21	0.26	-0.19	-0.92	0.04	-0.31	-0.08	0.07	0.09	-1.04	-0.14	-0.24	0.04	-0.52
1991(4)	0.09	-0.13	0.17	-1.54	-0.23	0.74	-0.02	0.63	0.00	-0.06	-0.12	0.29	-0.13	-1.39	0.07	-0.04	-0.11	0.11	-0.15	-1.28	0.02	-0.72	0.00	0.61
1992(1)	-0.09	0.00	0.10	-1.09	-0.03	1.44	0.09	1.25	-0.03	-0.05	0.07	-0.12	0.12	-1.79	0.07	0.62	-0.04	-0.69	-0.21	-0.18	0.16	1.42	-0.12	-0.47
1992(2)	-0.20	-1.05	-0.04	-1.49	0.08	1.43	0.19	1.79	0.00	0.01	0.19	0.67	0.19	0.07	0.04	-0.20	0.00	-0.72	-0.17	-0.86	0.20	-1.05	-0.07	-0.25
1992(3)	-0.17	-0.45	-0.13	-1.99	0.10	1.34	0.20	1.61	-0.01	0.04	0.16	0.84	0.10	-0.03	-0.02	0.20	-0.01	-0.85	-0.04	-1.92	0.00	-0.75	0.07	0.85
1992(4)	-0.07	-1.03	-0.13	-2.47	0.10	1.34	0.19	0.46	-0.02	0.02	0.10	0.19	0.03	-0.53	0.00	-0.06	0.03	-1.19	-0.14	-0.52	0.05	-0.76	0.06	-1.93
1993(1)	-0.07	-1.02	-0.15	-2.18	0.15	1.09	0.15	1.05	-0.01	-0.19	0.05	-0.72	-0.01	-1.30	-0.01	-0.60	-0.01	-1.41	-0.15	0.65	0.07	-0.83	0.08	-1.22
1993(2)	-0.03	-0.40	-0.17	-1.53	0.13	0.58	0.10	1.00	0.00	-0.06	0.00	-0.98	-0.03	-1.34	-0.04	-0.25	-0.01	-0.27	0.04	0.11	0.02	-0.49	0.08	0.26
1993(3)	0.08	-0.07	-0.13	-1.08	-0.02	1.05	0.11	0.90	0.01	-0.22	-0.11	-0.92	-0.21	-1.42	-0.01	0.10	-0.05	-0.08	0.00	0.58	-0.08	-0.43	0.17	-0.84
2000(4)	0.16	-0.33	0.04	1.05	-0.08	-0.67	-0.04	-1.29	0.01	0.06	-0.12	0.74	-0.10	0.01	-0.02	-0.01	0.14	0.04	0.04	-0.83	-0.04	0.43	-0.09	-0.94
2001(1)	0.13	-0.71	0.09	0.84	-0.11	0.06	-0.03	0.16	0.02	-0.04	-0.13	1.14	-0.11	0.70	0.01	0.62	0.09	0.55	0.05	-0.35	-0.12	0.43	-0.05	0.27
2001(2)	0.11	-0.99	0.11	-0.54	-0.07	0.21	-0.11	-0.45	0.00	0.03	-0.07	1.01	0.02	0.46	-0.03	-0.95	0.14	-0.09	0.16	-0.23	-0.07	1.16	-0.14	-1.14
2001(3)	0.12	-1.14	0.13	0.08	-0.19	0.81	-0.06	-0.02	0.04	-0.14	-0.10	1.50	-0.09	1.25	0.03	0.78	0.06	0.24	0.14	-1.48	-0.10	-0.85	-0.02	0.15
2001(4)	0.11	-0.95	0.16	-0.07	-0.20	1.22	-0.06	-0.85	-0.01	-0.16	-0.10	1.30	-0.11	-0.01	0.00	-0.24	-0.02	0.16	0.13	0.37	-0.24	0.74	0.04	0.08
2002(1)	0.03	-0.59	0.17	-0.50	-0.13	0.20	0.01	-0.70	0.00	0.16	0.01	-0.02	0.05	-1.21	0.08	-0.44	0.02	0.21	-0.24	0.86	0.14	-1.01	-0.12	0.08
2002(2)	-0.16	-0.11	0.03	-0.36	0.04	-0.07	0.07	-0.55	0.00	0.02	0.13	-0.42	0.15	-1.52	0.05	-0.12	-0.05	0.48	-0.13	-0.50	0.11	-0.54	-0.06	1.25
2002(3)	-0.14	-0.44	-0.05	-0.39	0.08	0.42	0.07	0.49	-0.01	-0.05	0.17	0.52	0.20	0.26	-0.03	0.27	0.03	0.86	0.01	-2.09	0.11	1.01	-0.07	0.77
2002(4)	-0.08	-0.19	-0.06	-0.31	0.03	0.87	0.11	-0.49	0.00	-0.16	0.10	0.36	0.04	0.04	0.01	-0.19	-0.03	1.01	-0.04	0.13	0.02	1.82	0.06	0.49
2003(1)	-0.06	-0.38	-0.08	-0.35	0.06	0.53	0.09	-0.81	-0.02	-0.08	0.05	0.29	-0.03	0.17	-0.02	-0.38	-0.09	0.20	-0.09	-0.17	-0.08	-0.55	0.12	1.34
2003(2)	-0.07	-1.07	-0.09	-0.30	0.13	0.45	0.06	0.29	-0.01	0.12	0.08	0.91	0.07	0.68	0.02	1.18	-0.03	0.87	-0.21	1.32	0.18	-0.97	-0.03	1.30
2008(2)	0.18	-1.04	0.04	0.49	-0.16	0.71	0.01	-1.60	0.01	0.01	-0.20	1.84	-0.27	1.32	0.04	0.41	-0.03	-3.18	-0.01	0.08	-0.12	0.17	0.09	0.55
2008(3)	0.09	-1.91	0.04	-0.34	-0.13	1.24	0.05	-0.73	-0.01	0.05	-0.16	2.23	-0.22	2.27	0.03	0.33	-0.11	-2.73	-0.08	-1.80	-0.12	1.46	0.09	-1.25
2008(4)	0.00	-4.90	0.02	-1.69	-0.06	2.66	0.13	2.05	-0.01	-0.18	-0.04	4.47	-0.04	4.39	0.07	1.80	-0.04	-2.12	-0.30	-4.07	0.15	4.97	-0.04	-5.08
2009(1)	-0.14	-4.97	-0.07	-3.82	0.11	4.97	0.19	1.57	-0.02	-0.28	0.11	4.66	0.13	3.61	0.03	-0.68	0.03	-1.94	-0.20	-0.67	0.23	1.35	-0.13	-0.71
2009(2)	-0.13	-2.07	-0.15	-3.32	0.13	3.46	0.20	-0.60	0.00	0.23	0.11	1.95	0.09	0.52	-0.04	-1.03	0.09	-1.58	-0.01	1.85	0.04	0.51	-0.03	2.03
2009(3)	0.00	-0.47	-0.12	-1.95	0.09	1.65	0.12	-1.25	-0.01	-0.20	0.03	0.31	0.01	-1.55	-0.05	-0.53	0.14	-1.12	0.09	1.79	-0.10	-1.45	0.00	1.64

The table reports the historical decomposition (net of base prediction) for various macroeconomic and financial variables, relatively to the contribution of nominal oil price volatility shocks (OV), over selected sub periods. The macroeconomic and financial variables are real activity growth (Y), employment growth (E), unemployment rate changes (U), real wages growth (W), core inflation (nominal factor, P), public expenditure to GDP ratio growth (G), excess liquidity (L), real interest rate in changes (R), real housing price returns (H), real stock price returns (F), nominal stock price volatility (FV), nominal US\$ exchange rate index return (X). For each of the macroeconomic and financial variables, ACT denotes the actual realization of the variable (net of base prediction), while OV is the contribution yield by the nominal oil price volatility shock.

Table 5: Historical decomposition over selected periods: joint contributions from oil market shocks.

	Oil market shocks																							
	Y		E		U		W		P		G		L		R		H		F		FV		X	
	OM	ACT	OM	ACT	OM	ACT	OM	ACT	OM	ACT	OM	ACT	OM	ACT	OM	ACT	OM	ACT	OM	ACT	OM	ACT	OM	ACT
1990(2)	0.02	-0.70	0.18	-0.23	-0.57	0.11	0.56	1.90	0.13	-0.02	-0.18	0.74	-0.20	-0.20	0.37	0.38	-0.12	-0.70	-0.60	-0.64	-0.89	-0.01	0.63	-0.11
1990(3)	-0.47	-0.54	0.11	-0.39	-0.03	0.72	0.41	0.90	-0.02	-0.08	0.42	0.85	-0.13	0.42	0.15	-0.22	-0.28	-0.48	-1.92	-1.94	0.34	0.66	-0.24	0.70
1990(4)	0.65	-0.35	0.19	-0.27	-0.09	0.91	0.42	0.25	0.16	0.08	0.14	1.08	-0.43	0.18	-0.53	-0.41	-0.03	-1.14	-0.64	-2.00	0.73	0.84	0.60	0.35
1991(1)	-0.33	-1.55	-0.29	-1.12	0.18	1.21	0.47	0.65	-0.05	-0.08	0.23	0.82	-0.33	-0.46	0.57	0.60	0.20	0.13	0.29	0.10	0.30	-0.64	-0.37	-0.87
1991(2)	0.11	-0.37	-0.53	-1.26	0.45	1.29	1.48	2.04	-0.05	-0.07	0.29	0.76	-0.66	-0.80	0.01	0.03	0.54	-0.40	1.02	-0.12	1.59	-0.69	-0.71	-1.97
1991(3)	-0.22	-0.81	-0.49	-1.41	0.36	0.76	0.72	0.99	-0.01	0.03	0.02	0.26	-0.56	-0.92	-0.13	-0.31	0.46	0.07	-0.45	-1.04	0.29	-0.24	0.03	-0.52
1991(4)	0.03	-0.13	-0.48	-1.54	0.16	0.74	0.33	0.63	-0.02	-0.06	-0.01	0.29	-0.67	-1.39	-0.11	-0.04	0.37	0.11	-1.37	-1.28	-0.85	-0.72	0.96	0.61
1992(1)	0.32	0.00	-0.17	-1.09	-0.31	1.44	0.20	1.25	0.10	-0.05	-0.21	-0.12	-1.19	-1.79	0.10	0.62	0.32	-0.69	0.14	-0.18	-0.55	1.42	0.18	-0.47
1992(2)	-0.09	-1.05	-0.07	-1.49	-0.04	1.43	-0.01	1.79	-0.04	0.01	-0.24	0.67	-0.65	0.07	-0.12	-0.20	0.01	-0.72	-1.10	-0.86	-0.99	-1.05	0.03	-0.25
1992(3)	-0.12	-0.45	-0.10	-1.99	0.00	1.34	0.47	1.61	0.01	0.04	-0.07	0.84	-0.27	-0.03	0.45	0.20	0.43	-0.85	-1.46	-1.92	-0.09	-0.75	-0.14	0.85
1992(4)	-0.20	-1.03	-0.38	-2.47	0.27	1.34	0.61	0.46	-0.09	0.02	-0.13	0.19	-0.01	-0.53	-0.14	-0.06	0.22	-1.19	-0.01	-0.52	0.03	-0.76	-0.77	-1.93
1993(1)	-0.14	-1.02	-0.39	-2.18	0.19	1.09	0.74	1.05	0.00	-0.19	-0.12	-0.72	-0.07	-1.30	0.05	-0.60	0.56	-1.41	1.31	0.65	0.57	-0.83	-0.49	-1.22
1993(2)	-0.18	-0.40	-0.36	-1.53	0.29	0.58	0.52	1.00	-0.09	-0.06	0.00	-0.98	-0.05	-1.34	-0.01	-0.25	0.15	-0.27	-0.10	0.11	0.16	-0.49	-0.02	0.26
1993(3)	0.18	-0.07	-0.33	-1.08	-0.07	1.05	0.58	0.90	0.05	-0.22	-0.21	-0.92	-0.39	-1.42	-0.04	0.10	0.29	-0.08	0.77	0.58	0.08	-0.43	-0.27	-0.84
2000(4)	0.16	-0.33	0.56	1.05	-0.62	-0.67	-0.66	-1.29	0.07	0.06	-0.06	0.74	-0.01	0.01	0.05	-0.01	0.09	0.04	-0.71	-0.83	-0.19	0.43	-0.14	-0.94
2001(1)	0.19	-0.71	0.62	0.84	-0.18	0.06	-0.31	0.16	-0.06	-0.04	0.04	1.14	0.13	0.70	0.24	0.62	0.36	0.55	-0.40	-0.35	0.26	0.43	-0.12	0.27
2001(2)	0.17	-0.99	0.47	-0.54	-0.21	0.21	-0.72	-0.45	0.02	0.03	-0.01	1.01	0.32	0.46	-0.33	-0.95	0.35	-0.09	-0.76	-0.23	0.15	1.16	-0.13	-1.14
2001(3)	0.02	-1.14	0.57	0.08	-0.43	0.81	-0.52	-0.02	0.04	-0.14	-0.05	1.50	0.36	1.25	0.16	0.78	0.33	0.24	-1.72	-1.48	-0.09	-0.85	-0.24	0.15
2001(4)	0.08	-0.95	0.67	-0.07	-0.37	1.22	-0.28	-0.85	-0.05	-0.16	0.12	1.30	0.12	-0.01	0.24	-0.24	0.41	0.16	0.32	0.37	0.28	0.74	-0.47	0.08
2002(1)	-0.19	-0.59	0.55	-0.50	-0.40	0.20	-0.26	-0.70	0.00	0.16	0.22	-0.02	0.01	-1.21	-0.13	-0.44	-0.04	0.21	1.08	0.86	0.24	-1.01	-0.51	0.08
2002(2)	-0.28	-0.11	0.33	-0.36	-0.17	-0.07	-0.03	-0.55	0.07	0.02	0.30	-0.42	0.20	-1.52	0.03	-0.12	0.12	0.48	-0.23	-0.50	-0.16	-0.54	-0.10	1.25
2002(3)	-0.28	-0.44	0.00	-0.39	0.07	0.42	0.08	0.49	-0.03	-0.05	0.34	0.52	0.40	0.26	-0.01	0.27	0.45	0.86	-1.69	-2.09	0.38	1.01	-0.50	0.77
2002(4)	-0.06	-0.19	-0.13	-0.31	0.23	0.87	0.07	-0.49	-0.02	-0.16	0.22	0.36	0.14	0.04	-0.12	-0.19	0.24	1.01	0.35	0.13	0.34	1.82	0.17	0.49
2003(1)	-0.29	-0.38	-0.06	-0.35	0.24	0.53	-0.45	-0.81	-0.02	-0.08	0.11	0.29	0.24	0.17	-0.08	-0.38	-0.28	0.20	-0.23	-0.17	-0.38	-0.55	0.36	1.34
2003(2)	-0.09	-1.07	-0.02	-0.30	0.07	0.45	-0.19	0.29	0.04	0.12	0.22	0.91	-0.15	0.68	0.24	1.18	-0.26	0.87	0.67	1.32	-0.69	-0.97	0.44	1.30
2008(2)	-0.19	-1.04	0.24	0.49	-0.08	0.71	-0.44	-1.60	0.01	0.01	0.29	1.84	0.14	1.32	0.01	0.41	-0.31	-3.18	-0.36	0.08	0.10	0.17	0.47	0.55
2008(3)	-0.23	-1.91	0.18	-0.34	-0.05	1.24	-0.62	-0.73	-0.04	0.05	0.29	2.23	0.46	2.27	-0.09	0.33	-0.23	-2.73	-1.51	-1.80	0.12	1.46	-0.23	-1.25
2008(4)	-0.89	-4.90	-0.01	-1.69	0.29	2.66	0.06	2.05	-0.05	-0.18	0.60	4.47	0.73	4.39	0.37	1.80	0.17	-2.12	-3.73	-4.07	0.89	4.97	-0.75	-5.08
2009(1)	-0.21	-4.97	-0.18	-3.82	0.56	4.97	-0.04	1.57	-0.04	-0.28	0.40	4.66	0.54	3.61	-0.44	-0.68	0.31	-1.94	-0.81	-0.67	0.12	1.35	0.03	-0.71
2009(2)	0.21	-2.07	-0.14	-3.32	0.09	3.46	-0.30	-0.60	0.07	0.23	0.01	1.95	-0.07	0.52	-0.17	-1.03	0.52	-1.58	1.24	1.85	-0.25	0.51	0.63	2.03
2009(3)	0.42	-0.47	0.06	-1.95	-0.15	1.65	-0.07	-1.25	-0.02	-0.20	-0.14	0.31	-0.26	-1.55	0.01	-0.53	0.40	-1.12	1.73	1.79	0.17	-1.45	0.32	1.64

The table reports the historical decomposition (net of base prediction) for various macroeconomic and financial variables, relatively to the joint contribution of oil market shocks (OV), over selected sub periods. The macroeconomic and financial variables are real activity growth (Y), employment growth (E), unemployment rate changes (U), real wages growth (W), core inflation (nominal factor, P), public expenditure to GDP ratio growth (G), excess liquidity (L), real interest rate in changes (R), real housing price returns (H), real stock price returns (F), nominal stock price volatility (FV), nominal US\$ exchange rate index return (X). For each of the macroeconomic and financial variables, ACT denotes the actual realization of the variable (net of base prediction), while OM is the joint contribution yield by the oil market shocks.

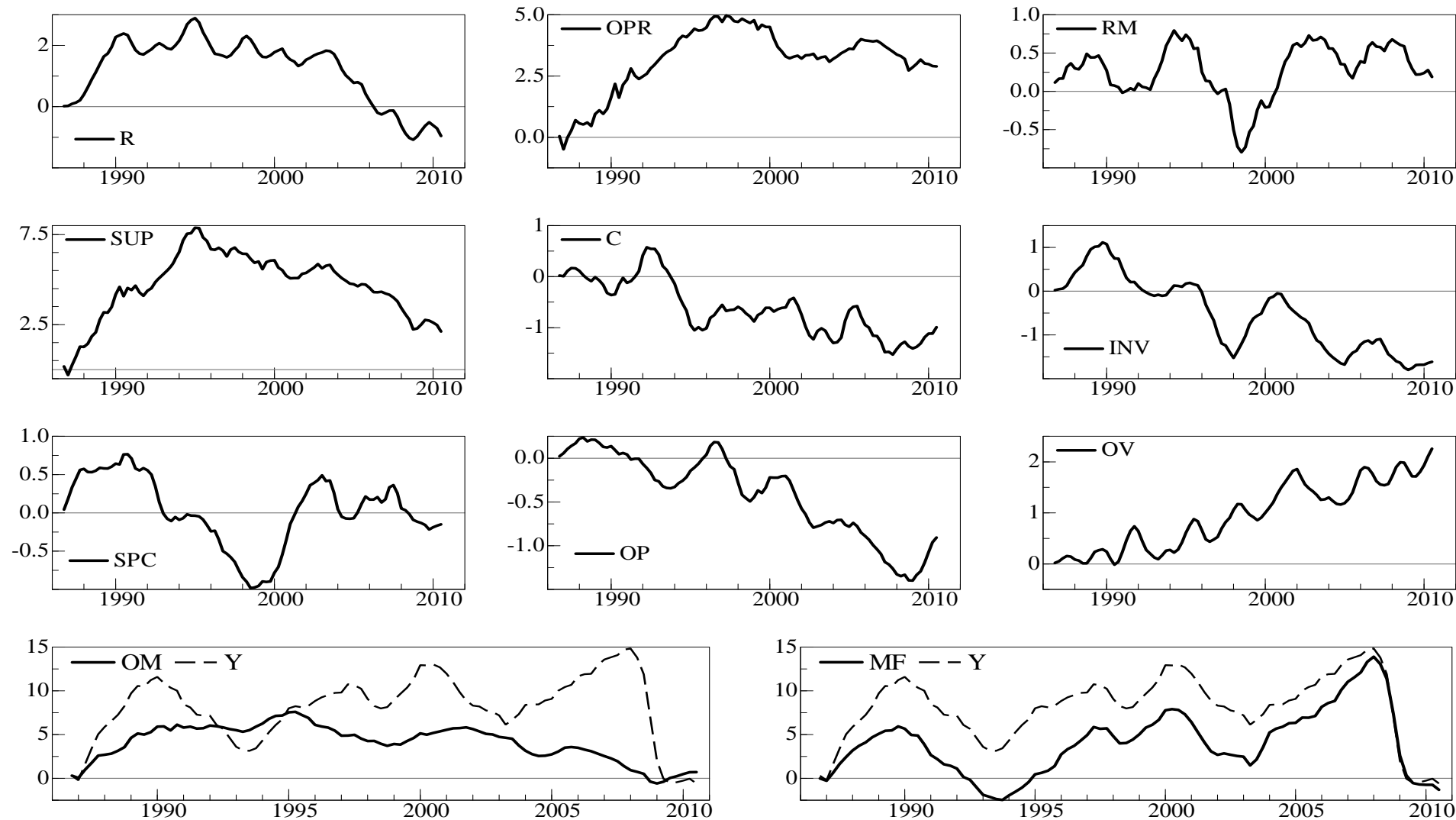


Figure 1: Cumulative historical decomposition; contribution of various categories of shocks to real activity. Reserves shocks (R), oil production shocks (OPR), refinery margins shocks (RM), oil market supply side shocks (SUP: $R + OPR + RM$), oil consumption (C) and inventories (INV) preferences shocks, oil futures market speculative shocks (SPC), other real oil price (OP) and nominal oil price volatility (OV) shocks; oil market shocks (OM: $SUP + C + INV + SPC + OP + OV$) and macro-financial shocks (MF, all the remaining shocks).

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