Table OA4a. Predicting Exchange Rates with Foreign Exchange Market Positions
Foreign Dealers: USD Contracts
Monthly

	1-month percent chg in exchange rate			
	(1)	(2)	(3)	(4)
Chg log value USD calls purchased, foreign	-0.010			
	(-1.43)			
lag chg log value USD calls purchased, foreign	0.000			
	(0.03)			
Chg log value USD calls sold, foreign		-0.013		
		(-1.66)		
lag chg log value USD calls sold, foreign		0.004		
		(0.39)		
Chg log value USD puts purchased, foreign			-0.012	
			(-1.21)	
lag chg log value USD puts purchased, foreign			-0.022**	
			(-2.18)	
Chg log value USD puts sold, foreign				-0.020**
				(-2.14)
lag chg log value USD puts sold, foreign				-0.016
				(-1.38)
lag Fed Funds rate	0.150	0.150	0.119	0.112
	(1.35)	(1.37)	(1.06)	(1.03)
lag short rate differential	0.119	0.118	0.116	0.115
	(0.99)	(0.99)	(0.98)	(0.98)
lag chg Fed Funds rate	0.666	0.612	0.990	0.895
	(0.74)	(0.68)	(1.22)	(1.05)
lag chg short rate differential	0.181	0.199	0.189	0.148
	(0.59)	(0.67)	(0.67)	(0.53)
lag chg in VIX	-0.164*	-0.167*	-0.147	-0.148
	(-1.91)	(-1.97)	(-1.70)	(-1.70)
lag VIX	0.087**	0.086**	0.081**	0.078**
	(2.81)	(2.85)	(2.60)	(2.42)
lag 1-year chg stock return differential	0.084	0.086	0.081	0.081
	(1.60)	(1.62)	(1.56)	(1.58)
lag log Fed QE purchases	0.001	0.001	0.002**	0.001*
	(1.23)	(1.08)	(2.26)	(2.04)
lag chg exch rate	-0.043	-0.035	-0.035	-0.026
	(-0.73)	(-0.62)	(-0.62)	(-0.48)
r2	0.081	0.088	0.095	0.095
p	0.055	0.042	0.032	0.052
N	2094	2094	2094	2094

t statistics in parentheses

Note: The results in Table OA4 correspond to the summary Table 14 in the paper. The dependent variable is the one-month percent change in the dollar/foreign currency exchange rate, for a panel of 23 currencies.

Regressions include currency fixed effects and cluster standard errors on time and currency.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table OA4b. Predicting Exchange Rates with Foreign Exchange Market Positions
Foreign Dealers: USD Contracts
Monthly

	1-month percent chg in exchange rate			
	(1)	(2)	(3)	(4)
Chg log value USD swaps purchased, foreign	-0.016			
	(-1.51)			
lag chg log value USD swaps purchased, foreign	-0.041***			
	(-3.39)			
Chg log value USD swaps sold, foreign		-0.017		
		(-1.51)		
lag chg log value USD swaps sold, foreign		-0.043***		
		(-3.44)		
Chg log value USD futures purchased, foreign			0.000	
			(0.05)	
lag chg log value USD futures purchased, foreign			-0.005	
			(-1.26)	
Chg log value USD futures sold, foreign				-0.002
				(-0.51)
lag chg log value USD futures sold, foreign				-0.007*
				(-1.76)
lag Fed Funds rate	0.147	0.149	0.158	0.164
	(1.29)	(1.32)	(1.38)	(1.44)
lag short rate differential	0.121	0.120	0.115	0.110
	(1.01)	(1.01)	(0.97)	(0.93)
lag chg Fed Funds rate	1.061	1.044	0.773	0.741
	(1.33)	(1.31)	(0.87)	(0.84)
lag chg short rate differential	0.091	0.092	0.198	0.192
	(0.32)	(0.33)	(0.69)	(0.67)
lag chg in VIX	-0.134	-0.134	-0.145	-0.147
	(-1.56)	(-1.56)	(-1.63)	(-1.70)
lag VIX	0.086**	0.085**	0.089***	0.086**
	(2.80)	(2.78)	(2.91)	(2.84)
lag 1-year chg stock return differential	0.061	0.060	0.080	0.083
	(1.14)	(1.13)	(1.51)	(1.62)
lag log Fed QE purchases	0.002***	0.002***	0.001	0.001
	(3.03)	(3.12)	(1.61)	(1.71)
lag chg exch rate	-0.016	-0.014	-0.035	-0.033
	(-0.28)	(-0.26)	(-0.58)	(-0.56)
r2	0.107	0.108	0.084	0.088
p	0.007	0.007	0.040	0.036
N	2094	2094	2094	2094

t statistics in parentheses

Note: The results in Table OA4 correspond to the summary Table 14 in the paper. The dependent variable is the one-month percent change in the dollar/foreign currency exchange rate, for a panel of 23 currencies.

Regressions include currency fixed effects and cluster standard errors on time and currency. Swaps contracts purchased or sold include spot and forward contracts.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table OA4c. Predicting Exchange Rates with Foreign Exchange Market Positions
Domestic Dealers: USD Contracts
Monthly

	1-month percent chg in exchange rate			
	(1)	(2)	(3)	(4)
Chg log value USD calls purchased, domestic	-0.021			
	(-1.14)			
lag chg log value USD calls purchased, domestic	-0.027			
	(-1.35)			
Chg log value USD calls sold, domestic		-0.005		
		(-0.23)		
lag chg log value USD calls sold, domestic		-0.024		
		(-1.35)		
Chg log value USD puts purchased, domestic			-0.001	
			(-0.06)	
lag chg log value USD puts purchased, domestic			-0.014	
			(-0.93)	
Chg log value USD puts sold, domestic				0.025
				(1.56)
lag chg log value USD puts sold, domestic				0.007
				(0.68)
lag Fed Funds rate	0.187	0.179	0.171	0.119
	(1.60)	(1.52)	(1.46)	(1.01)
lag short rate differential	0.109	0.103	0.111	0.113
	(0.93)	(0.90)	(0.95)	(0.97)
lag chg Fed Funds rate	0.777	0.801	0.811	0.644
	(0.84)	(0.85)	(0.87)	(0.77)
lag chg short rate differential	0.144	0.115	0.127	0.210
	(0.48)	(0.36)	(0.41)	(0.70)
lag chg in VIX	-0.150	-0.170*	-0.164*	-0.144*
	(-1.68)	(-2.03)	(-1.93)	(-1.84)
lag VIX	0.082**	0.081**	0.087**	0.095***
	(2.52)	(2.54)	(2.75)	(3.11)
lag 1-year chg stock return differential	0.084	0.085	0.081	0.081
	(1.63)	(1.56)	(1.53)	(1.68)
lag log Fed QE purchases	0.001	0.001	0.001	0.001
	(1.45)	(1.30)	(1.47)	(1.18)
lag chg exch rate	-0.043	-0.057	-0.050	-0.047
	(-0.73)	(-1.02)	(-0.87)	(-0.82)
r2	0.082	0.084	0.080	0.092
p	0.050	0.074	0.060	0.046
N	2094	2094	2094	2094

t statistics in parentheses

Note: The results in Table OA4 correspond to the summary Table 14 in the paper. The dependent variable is the one-month percent change in the dollar/foreign currency exchange rate, for a panel of 23 currencies.

Regressions include currency fixed effects and cluster standard errors on time and currency.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table OA4d. Predicting Exchange Rates with Foreign Exchange Market Positions
Domestic Dealers: USD Contracts
Monthly

	1-month percent chg in exchange rate			
	(1)	(2)	(3)	(4)
Chg log value USD swaps purchased, domestic	0.007			
	(0.22)			
lag chg log value USD swaps purchased, domestic	-0.055*			
	(-1.96)			
Chg log value USD swaps sold, domestic		0.006		
		(0.20)		
lag chg log value USD swaps sold, domestic		-0.057*		
		(-2.05)		
Chg log value USD futures purchased, domestic			0.021*	
			(1.85)	
lag chg log value USD futures purchased, domestic			-0.006	
			(-0.55)	
Chg log value USD futures sold, domestic				-0.015*
				(-1.87)
lag chg log value USD futures sold, domestic				-0.022**
				(-2.77)
lag Fed Funds rate	0.172	0.173	0.170	0.129
	(1.50)	(1.51)	(1.51)	(1.15)
lag short rate differential	0.121	0.121	0.101	0.126
	(0.98)	(0.98)	(0.91)	(1.04)
lag chg Fed Funds rate	0.821	0.831	0.934	0.893
	(1.01)	(1.02)	(0.99)	(1.31)
lag chg short rate differential	0.168	0.164	0.265	0.083
	(0.56)	(0.55)	(0.91)	(0.29)
lag chg in VIX	-0.146*	-0.146*	-0.173*	-0.151*
	(-1.75)	(-1.75)	(-1.91)	(-1.98)
lag VIX	0.090**	0.090**	0.095***	0.079**
	(2.78)	(2.80)	(2.97)	(2.53)
lag 1-year chg stock return differential	0.078	0.078	0.070	0.066
	(1.46)	(1.46)	(1.19)	(1.42)
lag log Fed QE purchases	0.001**	0.001**	0.001	0.002***
	(2.11)	(2.17)	(1.12)	(3.18)
lag chg exch rate	-0.033	-0.033	-0.069	-0.030
	(-0.56)	(-0.56)	(-1.26)	(-0.54)
r2	0.087	0.087	0.097	0.109
p	0.014	0.013	0.004	0.004
N	2094	2094	2094	2094

t statistics in parentheses

Note: The results in Table OA4 correspond to the summary Table 14 in the paper. The dependent variable is the one-month percent change in the dollar/foreign currency exchange rate, for a panel of 23 currencies.

Regressions include currency fixed effects and cluster standard errors on time and currency. Swaps contracts purchased or sold include spot and forward contracts.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table OA4e. Predicting Exchange Rates with Foreign Exchange Market Positions
Foreign Dealers: Foreign Currency Contracts
Monthly

	1-month percent chg in exchange rate			
	(1)	(2)	(3)	(4)
Chg log value FX calls purchased, foreign	-0.009*			
	(-2.21)			
Lag chg log value FX calls purchased, foreign	-0.013*			
	(-2.27)			
Chg log value FX calls sold, foreign		-0.012**		
		(-3.15)		
Lag chg log value FX calls sold, foreign		-0.011*		
		(-2.42)		
Chg log value FX puts purchased, foreign			-0.011*	
			(-2.77)	
Lag chg log value FX puts purchased, foreign			-0.005	
			(-1.05)	
Chg log value FX puts sold, foreign				-0.013*
				(-2.48)
Lag chg log value FX puts sold, foreign				-0.005
				(-0.86)
lag Fed Funds rate	-0.076	-0.077	-0.060	-0.060
	(-0.70)	(-0.70)	(-0.52)	(-0.53)
lag short rate differential	0.449*	0.446*	0.440*	0.440*
	(2.19)	(2.18)	(2.15)	(2.15)
lag chg Fed Funds rate	1.210	1.227	1.267	1.259
	(1.02)	(1.02)	(1.03)	(1.03)
lag chg short rate differential	-1.190	-1.200	-1.375	-1.375
	(-1.47)	(-1.55)	(-1.74)	(-1.75)
lag chg in VIX	-0.100	-0.095	-0.112	-0.113
	(-1.03)	(-0.96)	(-1.19)	(-1.18)
lag VIX	0.075	0.073	0.080	0.079
	(1.87)	(1.75)	(1.95)	(1.97)
lag 1-year chg stock return differential	-0.081	-0.100	-0.085	-0.084
	(-0.60)	(-0.70)	(-0.57)	(-0.55)
lag log Fed QE purchases	0.001	0.001	0.001	0.001
	(1.20)	(1.22)	(0.90)	(0.90)
lag chg exch rate	-0.052	-0.048	-0.049	-0.044
	(-0.67)	(-0.62)	(-0.64)	(-0.58)
r2	0.082	0.082	0.083	0.088
p	0.082	0.082	0.083	0.088
N	525	525	525	525

t statistics in parentheses

Note: The results in Table OA4 correspond to the summary Table 14 in the paper. The dependent variable is the one-month percent change in the dollar/foreign currency exchange rate, for the panel of currencies: EUR, JPY, GBP, CHF, CAD. Regressions include currency fixed effects and cluster standard errors on time and currency.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table OA4f. Predicting Exchange Rates with Foreign Exchange Market Positions
Foreign Dealers: Foreign Currency Contracts
Monthly

	1-month percent chg in exchange rate			
	(1)	(2)	(3)	(4)
Chg log value FX swaps purchased, foreign	-0.008			
	(-0.43)			
Lag chg log value FX swaps purchased, foreign	-0.019			
	(-0.97)			
Chg log value FX swaps sold, foreign		-0.009		
		(-0.52)		
Lag chg log value FX swaps sold, foreign		-0.020		
		(-1.03)		
Chg log value FX futures purchased, foreign			-0.002	
			(-1.21)	
Lag chg log value FX futures purchased, foreign			-0.003*	
			(-2.38)	
Chg log value FX futures sold, foreign				0.001
				(0.98)
Lag chg log value FX futures sold, foreign				-0.002
				(-0.90)
lag Fed Funds rate	-0.051	-0.052	-0.035	-0.048
	(-0.45)	(-0.46)	(-0.27)	(-0.41)
lag short rate differential	0.420*	0.420*	0.439*	0.433*
	(2.14)	(2.15)	(2.19)	(2.15)
lag chg Fed Funds rate	1.180	1.194	1.169	0.928
	(1.04)	(1.05)	(1.01)	(0.82)
lag chg short rate differential	-1.129	-1.138	-1.270	-1.015
	(-1.53)	(-1.54)	(-1.95)	(-1.51)
lag chg in VIX	-0.090	-0.089	-0.107	-0.103
	(-0.98)	(-0.96)	(-1.12)	(-1.11)
lag VIX	0.079*	0.078*	0.086	0.082
	(2.20)	(2.21)	(1.88)	(1.92)
lag 1-year chg stock return differential	-0.078	-0.082	-0.068	-0.066
	(-0.61)	(-0.66)	(-0.61)	(-0.50)
lag log Fed QE purchases	0.002**	0.002**	0.001	0.001
	(3.14)	(3.16)	(1.11)	(0.99)
lag chg exch rate	-0.040	-0.040	-0.044	-0.050
	(-0.47)	(-0.48)	(-0.48)	(-0.56)
r2	0.075	0.076	0.076	0.069
p	0.075	0.076	0.076	0.069
N	525	525	525	525

t statistics in parentheses

Note: The results in Table OA4 correspond to the summary Table 14 in the paper. The dependent variable is the one-month percent change in the dollar/foreign currency exchange rate, for the panel of currencies: EUR, JPY, GBP, CHF, CAD. Regressions include currency fixed effects and cluster standard errors on time and currency. Swaps contracts purchased or sold include spot and forward contracts.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table OA4g. Predicting Exchange Rates with Foreign Exchange Market Positions
Domestic Dealers: Foreign Currency Contracts
Monthly

	1-month percent chg in exchange rate			
	(1)	(2)	(3)	(4)
Chg log value FX calls purchased, domestic	-0.009			
	(-0.81)			
Lag chg log value FX calls purchased, domestic	-0.020			
	(-0.99)			
Chg log value FX calls sold, domestic		-0.010		
		(-1.23)		
Lag chg log value FX calls sold, domestic		-0.006		
		(-0.39)		
Chg log value FX puts purchased, domestic			-0.016	
			(-1.42)	
Lag chg log value FX puts purchased, domestic			-0.007	
			(-0.46)	
Chg log value FX puts sold, domestic				-0.031
				(-1.74)
Lag chg log value FX puts sold, domestic				-0.018
				(-0.63)
lag Fed Funds rate	-0.059	-0.051	-0.047	-0.058
	(-0.48)	(-0.44)	(-0.39)	(-0.43)
lag short rate differential	0.459*	0.438*	0.433*	0.464*
	(2.31)	(2.16)	(2.16)	(2.23)
lag chg Fed Funds rate	0.950	1.192	1.278	1.026
	(0.79)	(0.93)	(1.01)	(0.82)
lag chg short rate differential	-1.086	-1.353	-1.493	-1.238
	(-1.49)	(-1.65)	(-1.89)	(-1.73)
lag chg in VIX	-0.101	-0.111	-0.116	-0.103
	(-1.07)	(-1.21)	(-1.30)	(-1.14)
lag VIX	0.076	0.079	0.077	0.073
	(1.81)	(2.02)	(1.97)	(1.67)
lag 1-year chg stock return differential	-0.062	-0.063	-0.072	-0.075
	(-0.50)	(-0.49)	(-0.48)	(-0.51)
lag log Fed QE purchases	0.001	0.001	0.001	0.001
	(1.33)	(1.06)	(1.09)	(1.31)
lag chg exch rate	-0.051	-0.054	-0.060	-0.055
	(-0.59)	(-0.65)	(-0.71)	(-0.73)
r2	0.065	0.066	0.072	0.075
p	0.065	0.066	0.072	0.075
N	525	525	525	525

t statistics in parentheses

Note: The results in Table OA4 correspond to the summary Table 14 in the paper. The dependent variable is the one-month percent change in the dollar/foreign currency exchange rate, for the panel of currencies: EUR, JPY, GBP, CHF, CAD. Regressions include currency fixed effects and cluster standard errors on time and currency.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table OA4h. Predicting Exchange Rates with Foreign Exchange Market Positions
Domestic Dealers: Foreign Currency Contracts
Monthly

	1-month percent chg in exchange rate			
	(1)	(2)	(3)	(4)
Chg log value FX swaps purchased, domestic	-0.027			
	(-1.04)			
Lag chg log value FX swaps purchased, domestic	-0.033			
	(-0.93)			
Chg log value FX swaps sold, domestic		-0.026		
		(-0.95)		
Lag chg log value FX swaps sold, domestic		-0.039		
		(-1.07)		
Chg log value FX futures purchased, domestic			-0.006	
			(-1.65)	
Lag chg log value FX futures purchased, domestic			-0.001	
			(-0.43)	
Chg log value FX futures sold, domestic				0.003
				(0.32)
Lag chg log value FX futures sold, domestic				-0.001
				(-0.11)
lag Fed Funds rate	-0.046	-0.045	-0.051	-0.047
	(-0.38)	(-0.38)	(-0.42)	(-0.36)
lag short rate differential	0.446*	0.445*	0.424*	0.432
	(2.20)	(2.20)	(2.16)	(2.03)
lag chg Fed Funds rate	1.045	1.072	1.251	0.926
	(0.88)	(0.90)	(1.00)	(0.88)
lag chg short rate differential	-1.174	-1.186	-1.343	-1.068*
	(-1.56)	(-1.53)	(-1.83)	(-2.24)
lag chg in VIX	-0.094	-0.092	-0.111	-0.105
	(-1.04)	(-1.03)	(-1.18)	(-1.03)
lag VIX	0.077	0.077	0.078	0.082
	(1.90)	(1.95)	(1.92)	(1.79)
lag 1-year chg stock return differential	-0.062	-0.060	-0.093	-0.074
	(-0.41)	(-0.41)	(-0.76)	(-0.51)
lag log Fed QE purchases	0.001*	0.002**	0.001	0.001
	(2.63)	(2.91)	(1.15)	(1.15)
lag chg exch rate	-0.047	-0.045	-0.039	-0.055
	(-0.58)	(-0.56)	(-0.49)	(-0.54)
r2	0.068	0.069	0.079	0.064
p	0.068	0.069	0.079	0.064
N	525	525	525	525

t statistics in parentheses

Note: The results in Table OA4 correspond to the summary Table 14 in the paper. The dependent variable is the one-month percent change in the dollar/foreign currency exchange rate, for the panel of currencies: EUR, JPY, GBP, CHF, CAD. Regressions include currency fixed effects and cluster standard errors on time and currency. Swaps contracts purchased or sold include spot and forward contracts.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$