Table 1. Probability for firm *y* to control firm *x*

	Desc. Mean	First order link	Model 1	Model 2	Model 3	Model 4	Model 5
Past controlling tie in *t-1*	0.013 %	81.0 %	11.34***				11.12***
			(0.03)				(0.04)
Past reversed controlling tie in *t-1* (*Restricted exchange* opportunity)	0.013 %	4.1 %	**1.25*** **	**4.81*** **	**4.50*** **	**0.33*** **	**1.51*** **
			(0.13)	**(0.04)**	**(0.11)**	**(0.09)**	**(0.17)**
Past reversed tie in [*t-5*, *t-2*] & no reversed tie in *t-1* & no tie in *t-2* (*Delayed exchange* opportunity)	0.008 %	0.62 %	**4.31*** **	**2.74*** **	**4.21*** **	0.16	**4.63*** **
			(0.17)	**(0.12)**	**(0.16)**	(0.37)	**(0.21)**
Past reversed 2- or 3-path in *t-1* (*Generalized exchange* opportunity)	0.019 %	0.61 %	**0.73*** **	**2.18*** **	**2.24*** **	0.14	**0.50* **
			(0.23)	**(0.08)**	**(0.22)**	(0.19)	**(0.28)**
Past *firm y* controlling activity in *t-1*	*m = 0.35*	*r = 0.021*	0.28***	0.81***	0.41***	0.06***	0.26***
			(0.01)	(0.00)	(0.01)	(0.02)	(0.01)
Past *firm x* controlling popularity in *t-1*	*m = 0.35*	*r = 0.021*	0.12***	0.70***	0.37***	-0.15***	0.16***
			(0.01)	(0.00)	(0.01)	(0.01)	(0.01)
(Year≥2004) × Past tie in *t-1*	0.012 %	80.2 %					0.49***
							(0.06)
(Year≥2004) × Past reversed tie in *t-1* (*Restricted exchange* opportunity)	0.012 %	1.8 %					**-0.74*** **
							(0.29)
(Year≥2004) × Past reversed tie in [t-5, t-2] & no reversed tie in *t-1* & no tie in *t-2* (*Delayed exchange* opportunity)	0.0096 %	0.35 %					**-0.84** **
							(0.39)
(Year≥2004) × Past reversed 2- or 3-path in *t-1* (*Generalized exchange* opportunity)	0.014 %	0.72 %					0.63
							(0.50)
(Year≥2004) × Past *firm y* controlling activity in *t-1*	*m = 0.31*	*r = 0.021*					0.04*
							(0.02)
(Year≥2004) × Past *firm x* controlling popularity in *t-1*	*m = 0.31*	*r = 0.019*					-0.12***
							(0.03)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Field	All	All	All	All	lag(tie)=0	lag(tie)=1	All
No. of obs. (dyads)	163,313,436	163,313,436	163,313,436	163,313,436	163,291,665	21,771	163,313,436

Note: On average, a given firm *y* has 0.013% chance of controlling a given firm *x* in *t-1* (Column 1). Conditionally to the existence of a this past controlling tie, the probability for *y* to control *x* amounts (81%). As we can't compute the conditional probability for continuous variables (popularity and activity), we calculate instead the correlation coefficient *r* between them and the controlling tie in *t*. Models 1 to 5 are dyadic logistic regressions modeling the existence of a controlling tie between firm *y* and firm *x*.
We adapt here the definition of *delayed exchange* to the regression design. The no reversed tie in *t-1* condition insures that *y* firm is not trying to build a *restricted exchange* as reverse tie has already been severed. The no tie in *t-2* condition insures it wasn't a previous restricted exchange.
Standard errors in parentheses. Note:*p<0.1; **p<0.05; ***p<0.01

Table 2. Compensation and reciprocity structures

Panel A. Compensation of US executives depending on the position in reciprocity structures

Type of executives	No. of obs.	Salary		Bonus		Total cash		Option comp.		Equity comp.		Total comp.	
All executives	263633	491		525		1016		925		1523		2706	
		(0.7)		(2.6)		(2.9)		(9.5)		(14.1)		(14.4)	
In firms in a *restricted exchange* link	4524	574	+18%***	624	+19%***	1198	+18%***	1953	+117%***	2412	+60%***	3700	+38%***
		(7.1)		(26.6)		(30.7)		(247.9)		(253.9)		(228.1)	
In firms in a *delayed exchange* link	1299	548	+12%***	635	+21%***	1184	+17%***	1000	+11%	2416	+60%**	3888	+45%***
		(8.3)		(24.5)		(30.4)		(66.9)		(372.7)		(352.5)	
In firms in a *generalized exchange* link	976	712	+46%***	1030	+96%***	1742	+72%***	2329	+158%***	3342	+122%***	5346	+99%***
		(13.4)		(55.6)		(64.1)		(286.9)		(306.5)		(305.3)	
In firms outside any exchange links	238530	488	ref	525	ref	1012	ref	901	ref	1507	ref	2684	ref
		(0.7)		(2.7)		(3.1)		(9.1)		(14.5)		(14.8)	

Mean in 2015 constant thousands $ and standard error in parentheses

Panel B. Individual increase in compensation of US executives when entering reciprocity structures

One-year increase	No. of obs.	Salary		Bonus		Total cash		Option comp.		Equity comp.		Total comp.	
All executives	211449	0.077		-0.046		0.07		-0.13		0.18		0.116	
		(0.001)		(0.006)		(0.001)		(0.008)		(0.008)		(0.002)	
In firms entering a *restricted exchange* link	703	0.114	+4%*	0.008	+6%	0.156	+9%***	0.0045	+14%	0.55	+37%*	0.213	+10%**
		(0.017)		(0.095)		(0.021)		(0.136)		(0.151)		(0.029)	
In firms entering a *delayed exchange* link	228	0.073	-0%	0.798	+85%***	0.15	+8%**	-0.1429	-1%	0.28	+10%	0.074	-4%
		(0.018)		(0.145)		(0.027)		(0.194)		(0.259)		(0.05)	
In firms entering a *generalized exchange* link	287	0.068	-1%	0.267	+31%*	0.068	+0%	0.0609	+20%	0.23	+5%	0.252	+14%**
		(0.012)		(0.126)		(0.023)		(0.252)		(0.236)		(0.046)	
In firms remaining outside any exchange links	186078	0.076	ref	-0.048	ref	0.068	ref	-0.1376	ref	0.18	ref	0.111	ref
		(0.001)		(0.006)		(0.001)		(0.008)		(0.009)		(0.002)	
Two-year increase when entering a reciprocity structure in t-2													
All executives	166810	0.121		0.001		0.127		-0.128		0.178		0.222	
		(0.001)		(0.007)		(0.002)		(0.009)		(0.008)		(0.002)	
In firms entering a *restricted exchange* link	417	0.202	+8%**	0.301	+30%**	0.246	+12%***	0.455	+60%**	0.672	+49%*	0.346	+13%*
		(0.029)		(0.114)		(0.034)		(0.204)		(0.215)		(0.056)	
In firms entering a *delayed exchange* link	147	0.116	-0%	0.894	+89%***	0.257	+13%***	-0.589	-44%	-0.184	-36%	0.137	-8%
		(0.024)		(0.204)		(0.034)		(0.325)		(0.298)		(0.058)	
In firms entering a *generalized exchange* link	122	0.132	+1%	0.408	+40%*	0.24	+11%**	0.091	+24%	0.768	+59%	0.373	+16%**
		(0.024)		(0.239)		(0.038)		(0.337)		(0.369)		(0.059)	
In firms remaining outside any exchange links	148426	0.119	ref	0.003	ref	0.126	ref	-0.148	ref	0.178	ref	0.215	ref
		(0.001)		(0.007)		(0.002)		(0.009)		(0.009)		(0.002)	

Mean difference in quasi-log $(sinh\text{-}1(x)=log(x+(x^2+1)^{0.5})$ of 2015 constant $ compensation and standard error in parentheses. Note: ***p < 0.01, **p < 0.05, *p < 0.1. (Student t-test)

Table 3. The effect of reciprocity on CEO pay. Results from two-year first-difference OLS regressions (within *firm×individual* units)

	Fixed salary $\Delta sinh^{-1}(w)$	Bonus $\Delta sinh^{-1}(w)$	Bonus/Sal. Δ (w)	Total cash $\Delta sinh^{-1}(w)$	Stock-options $\Delta sinh^{-1}(w)$	Equity pay $\Delta sinh^{-1}(w)$	Total pay $\Delta sinh^{-1}(w)$
Δ CEO	0.434***	0.907***	0.133***	0.509***	1.166***	1.349***	0.529***
	(0.013)	(0.046)	(0.017)	(0.015)	(0.066)	(0.064)	(0.017)
Δ Other executive board member	0.121***	0.226***	0.067***	0.147***	0.627***	0.645***	0.298***
	(0.009)	(0.037)	(0.013)	(0.011)	(0.057)	(0.054)	(0.014)
Δ Number of top executives in the firm	-0.003**	-0.089***	-0.023***	-0.015***	-0.041***	-0.083***	-0.001
	(0.001)	(0.006)	(0.002)	(0.002)	(0.008)	(0.008)	(0.002)
Δ Assets $\Delta sinh^{-1}(x)$	0.042***	0.131***	0.081***	0.076***	0.306***	0.353***	0.205***
	(0.007)	(0.034)	(0.012)	(0.009)	(0.037)	(0.036)	(0.012)
Δ Equity $\Delta sinh^{-1}(x)$	-0.001	-0.001	-0.005**	-0.002*	0.051***	0.069***	0.007***
	(0.001)	(0.005)	(0.002)	(0.001)	(0.007)	(0.007)	(0.002)
Δ Sales $\Delta sinh^{-1}(x)$	0.029***	0.141***	0.060***	0.058***	0.088***	0.083***	0.046***
	(0.006)	(0.037)	(0.013)	(0.010)	(0.029)	(0.031)	(0.011)
Δ Operating income $\Delta sinh^{-1}(x)$	0.003**	0.159***	0.076***	0.036***	0.037***	0.053***	0.029***
	(0.001)	(0.007)	(0.003)	(0.002)	(0.008)	(0.007)	(0.002)
Δ Operating income<=0	0.005	0.311***	0.504***	0.197***	0.150**	0.204***	0.122***
	(0.010)	(0.064)	(0.022)	(0.013)	(0.071)	(0.068)	(0.017)
Δ Increase in operating income since t-1	-0.000	0.039***	0.012***	0.006***	-0.017***	-0.023***	-0.002***
	(0.000)	(0.002)	(0.001)	(0.001)	(0.003)	(0.003)	(0.001)
Δ 3-year - coefficient of variation of operating income	0.001	-0.007**	-0.006***	-0.001**	0.005	0.002	-0.002*
	(0.001)	(0.003)	(0.001)	(0.001)	(0.004)	(0.003)	(0.001)
Δ ROE	0.003	0.141***	0.028***	0.020***	0.020	0.031	0.031***
	(0.005)	(0.024)	(0.008)	(0.006)	(0.030)	(0.027)	(0.007)
Δ Private firm	-0.001	0.016	-0.017	-0.003	-0.028	-0.082*	0.010
	(0.007)	(0.038)	(0.017)	(0.009)	(0.051)	(0.047)	(0.010)
Δ Board size	0.001	0.004	0.002	0.000	0.019**	0.013*	-0.002
	(0.001)	(0.005)	(0.002)	(0.001)	(0.008)	(0.007)	(0.002)
Δ At least one NED is ED elsewhere#	0.001	0.015	-0.014*	-0.003	-0.052*	-0.028	-0.007
	(0.004)	(0.020)	(0.007)	(0.005)	(0.027)	(0.024)	(0.006)
Δ At least one ED is NED elsewhere#	0.013***	0.014	-0.008	0.010**	0.121***	0.118***	0.012*
	(0.004)	(0.020)	(0.007)	(0.005)	(0.028)	(0.025)	(0.006)
Δ *Restricted exchange*	0.012	0.043	**0.068****	**0.051****	0.038	0.140	0.014
	(0.018)	(0.084)	(0.031)	(0.024)	(0.112)	(0.115)	(0.029)
Δ *Delayed exchange*	0.001	0.051	-0.071	0.000	0.027	-0.204	**-0.076****
	(0.015)	(0.138)	(0.055)	(0.025)	(0.216)	(0.167)	(0.036)
Δ *Generalized exchange*	-0.008	**0.532*****	**0.142****	**0.063****	0.217	0.253	0.029
	(0.017)	(0.145)	(0.063)	(0.028)	(0.189)	(0.179)	(0.043)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	151413	151413	150788	151413	133029	133029	151389
R2	0.044	0.103	0.070	0.087	0.024	0.022	0.061

Note: We limit changes in cycling to those occurring between *t-2* and *t-1*. For calculating "quasi-logs" of variables that can be negative or null, we use the inverse hyperbolic sine: $sinh^{-1}(x)=log(x+(x^2+1)^{0.5})$.
All models are 2-year first-differences OLS panel regression. Robust clustered standard errors at the firm×executive level.
***p < 0.01, **p < 0.05, *p < 0.1.
ED: executive director; NED: non-executive director.

Table 4. The effect of reciprocity before and after the implementation of Sarbanes-Oxley. Results from two-year first-difference OLS regressions (within *firm×individual* units)

	Fixed salary $\Delta sinh^{-1}(w)$	Bonus $\Delta sinh^{-1}(w)$	Bonus/Fix. Δ *(w)*	Total cash $\Delta sinh^{-1}(w)$	Stock-options $\Delta sinh^{-1}(w)$	Equity pay $\Delta sinh^{-1}(w)$	Total pay $\Delta sinh^{-1}(w)$
Δ *Restricted exchange*	0.003	**0.197****	**0.084****	**0.062****	**0.227***	**0.318****	0.048
	(0.022)	(0.089)	(0.034)	(0.028)	(0.138)	(0.143)	(0.035)
Δ *Delayed exchange*	-0.015	0.201	**0.147****	**0.067****	-0.277	-0.329	-0.065
	(0.021)	(0.150)	(0.064)	(0.027)	(0.358)	(0.287)	(0.056)
Δ *Generalized exchange*	**-0.042***	**0.478****	0.117	0.015	**0.544***	0.388	0.029
	(0.024)	(0.198)	(0.073)	(0.035)	(0.285)	(0.263)	(0.062)
(Year>2004) × Δ *Restricted exchange*	0.039	**-0.629*****	-0.062	-0.046	**-0.667*****	**-0.627*****	**-0.137*****
	(0.034)	(0.214)	(0.073)	(0.046)	(0.236)	(0.233)	(0.051)
(Year>2004) × Δ *Delayed exchange*	0.032	-0.318	**-0.460*****	**-0.143*****	0.606	0.249	-0.023
	(0.030)	(0.280)	(0.113)	(0.051)	(0.429)	(0.329)	(0.070)
(Year>2004) × Δ *Generalized exchange*	**0.092*****	0.123	0.070	**0.129****	**-0.776****	-0.333	-0.005
	(0.032)	(0.268)	(0.119)	(0.055)	(0.360)	(0.346)	(0.083)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	151413	151413	150788	151413	133029	133029	151389
R2	0.044	0.103	0.070	0.087	0.024	0.022	0.061

Note: We limit changes in cycling to those occurring between *t-2* and *t-1*. Therefore, the first changes in cycling during the second period occur between 2003 and 2004.
All models are 2-year FD OLS panel regression. Robust clustered standard errors at the *firm×executive* level.
Control variables are the same as in table 4. For calculating "quasi-logs" of variables that can be negative or null, we use the inverse hyperbolic sine: $sinh^{-1}(x)=log(x+(x^2+1)^{0.5})$.
***p < 0.01, **p < 0.05, *p < 0.1.

Table 5. Effect of social exchange on future results. First differences models

Panel A.	$\Delta_{[t,t+1]}$ *Assets*	$\Delta_{[t,t+1]}$ *Equity*	$\Delta_{[t,t+1]}$ *Sales*	$\Delta_{[t,t+1]}$ *Income*	$\Delta_{[t,t+1]}$ *ROE*	$\Delta_{[t+1,t+2]}$ *Assets*	$\Delta_{[t+1,t+2]}$ *Equity*	$\Delta_{[t+1,t+2]}$ *Sales*	$\Delta_{[t+1,t+2]}$ *Income*	$\Delta_{[t+1,t+2]}$ *ROE*
$\Delta_{[t-1,t]}$ Assets (Δ *sinh*$^{-1}$*(x))*		0.093*	0.341***	-0.847***	-0.144***		0.037	0.133***	-0.251***	-0.042***
		(0.054)	(0.014)	(0.102)	(0.016)		(0.032)	(0.011)	(0.090)	(0.014)
$\Delta_{[t-1,t]}$ Equity (Δ *sinh*$^{-1}$*(x))*	0.011***		-0.008*	-0.240***	0.014***	0.007***		0.002	-0.057**	0.002
	(0.002)		(0.004)	(0.025)	(0.005)	(0.001)		(0.001)	(0.024)	(0.004)
$\Delta_{[t-1,t]}$ Sales (Δ *sinh*$^{-1}$*(x))*	0.135***	0.146**		0.050	0.020	0.073***	0.025		-0.338***	-0.005
	(0.030)	(0.071)		(0.097)	(0.016)	(0.018)	(0.025)		(0.061)	(0.014)
$\Delta_{[t-1,t]}$ Income (Δ *sinh*$^{-1}$*(x))*	0.003***	0.011**	0.001**		-0.012***	0.002***	0.009**	-0.001		-0.004***
	(0.000)	(0.005)	(0.001)		(0.001)	(0.000)	(0.004)	(0.001)		(0.001)
$\Delta_{[t-1,t]}$ ROE	0.013**	0.247***	0.001	-0.893***		0.007	-0.024	-0.005	-0.320***	
	(0.006)	(0.085)	(0.013)	(0.090)		(0.005)	(0.064)	(0.009)	(0.073)	
$\Delta_{[t-1,t]}$ Private firm	-0.026***	0.026	-0.019	-0.146	-0.006	0.014	-0.024	-0.014	-0.123	0.005
	(0.008)	(0.044)	(0.018)	(0.118)	(0.011)	(0.010)	(0.051)	(0.010)	(0.125)	(0.011)
$\Delta_{[t-1,t]}$ Board size	0.002	0.004	0.002	0.045**	0.003	0.003**	0.007	0.001	0.000	0.001
	(0.001)	(0.008)	(0.001)	(0.019)	(0.002)	(0.001)	(0.007)	(0.002)	(0.020)	(0.002)
$\Delta_{[t-1,t]}$ At least one NED is ED elsewhere	0.004	0.004	-0.003	0.075	0.004	0.001	-0.005	-0.004	0.023	0.009
	(0.005)	(0.029)	(0.007)	(0.075)	(0.008)	(0.004)	(0.033)	(0.006)	(0.075)	(0.008)
$\Delta_{[t-1,t]}$ At least one ED is NED elsewhere	0.014***	0.025	-0.001	-0.036	0.006	0.007*	0.052	-0.004	-0.127	-0.005
	(0.004)	(0.035)	(0.004)	(0.083)	(0.008)	(0.004)	(0.034)	(0.008)	(0.081)	(0.008)
$\Delta_{[t-1,t]}$ *Restricted exchange*	0.012	-0.052	0.002	0.182	0.013	0.006	-0.037	-0.010	0.284	-0.011
	(0.013)	(0.092)	(0.013)	(0.249)	(0.021)	(0.011)	(0.082)	(0.011)	(0.309)	(0.022)
$\Delta_{[t-1,t]}$ *Delayed exchange*	-0.009	-0.316	0.018	-0.115	**0.134***	0.010	-0.307	0.026	-0.518	-0.068
	(0.023)	(0.331)	(0.014)	(0.363)	(0.077)	(0.021)	(0.202)	(0.023)	(0.419)	(0.044)
$\Delta_{[t-1,t]}$ *Generalized exchange*	-0.001	0.108	-0.016	**-1.236****	**-0.092****	0.002	-0.190	0.001	0.059	0.071
	(0.013)	(0.153)	(0.015)	(0.525)	(0.046)	(0.012)	(0.164)	(0.015)	(0.474)	(0.046)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	40727	40728	40719	40716	40716	38516	38517	38505	38495	38496
R2	0.083	0.017	0.097	0.048	0.026	0.050	0.009	0.035	0.030	0.009
Panel B.										
$\Delta_{[t-1,t]}$ *Restricted exchange*	0.011	-0.095	-0.000	0.222	0.015	0.001	-0.079	-0.008	0.366	-0.038
	(0.017)	(0.112)	(0.016)	(0.315)	(0.017)	(0.016)	(0.092)	(0.016)	(0.449)	(0.024)
$\Delta_{[t-1,t]}$ *Delayed exchange*	-0.015	-0.275	-0.009	-0.218	0.158	0.008	-0.879	0.036	0.280	-0.134
	(0.035)	(0.344)	(0.018)	(0.385)	(0.101)	(0.048)	(0.581)	(0.063)	(0.793)	(0.127)
$\Delta_{[t-1,t]}$ *Generalized exchange*	0.011	0.212	-0.027	**-1.039***	-0.071	-0.011	-0.403	-0.013	-0.052	0.093
	(0.014)	(0.238)	(0.018)	(0.578)	(0.050)	(0.023)	(0.353)	(0.024)	(0.765)	(0.063)
(Year>2004) × $\Delta_{[t-1,t]}$ *Restricted exchange*	0.001	0.153	0.009	-0.149	-0.007	0.012	0.139	-0.005	-0.200	0.066
	(0.025)	(0.193)	(0.019)	(0.440)	(0.061)	(0.021)	(0.178)	(0.019)	(0.536)	(0.047)
(Year>2004) × $\Delta_{[t-1,t]}$ *Delayed exchange*	0.012	-0.078	**0.054****	0.217	-0.049	0.003	0.848	-0.015	-1.204	0.099
	(0.046)	(0.113)	(0.026)	(0.720)	(0.099)	(0.050)	(0.585)	(0.067)	(0.914)	(0.129)
(Year>2004) × $\Delta_{[t-1,t]}$ *Generalized exchange*	-0.033	-0.273	0.030	-0.537	-0.055	0.024	0.408	0.025	0.206	-0.039
	(0.028)	(0.247)	(0.029)	(1.161)	(0.102)	(0.029)	(0.354)	(0.031)	(0.951)	(0.069)
Control Variables and year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: All models are 1-year FD OLS panel regression. Robust clustered standard errors at the firm level. For calculating "quasi-logs" of variables that can be negative or null, we use the inverse hyperbolic sine: $sinh^{-1}(x)=log(x+(x^2+1)^{0.5})$. Control variables in Panel B similar to Panel A. *p<0.1; **p<0.05; ***p<0.01