

Connected Stocks: Evidence from Tehran Stock Exchange

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Hypothesis 1: Simple measures of institutional connectedness statistically and economically improve forecasts of cross-sectional variation in the correlation. The effect is stronger when pairs are in the same business groups

Dependent Variable: Future Monthly Correlation of 4F+Industry Residuals									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
FCA*	0.00320*** (4.05)	0.00235*** (3.90)			0.00154 (1.73)	0.00105 (1.51)	0.00103 (1.12)	0.000548 (0.80)	0.000948 (1.37)
Same Group			0.0194*** (9.72)	0.0183*** (6.03)	0.0176*** (7.15)	0.0172*** (5.09)	0.0111*** (3.53)	0.00952** (2.73)	0.00829* (2.25)
(FCA*) × SameGroup							0.00679* (2.41)	0.00744** (3.32)	0.00734** (3.30)
Observations	436735	434850	436735	434850	436735	434850	436735	434850	434850
Group Effect	No	No	No	No	No	No	No	No	Yes
Controls	No	Yes	No	Yes	No	Yes	No	Yes	Yes
R ²	0.000306	0.0360	0.000496	0.0363	0.000719	0.0364	0.000909	0.0366	0.0432

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Hypothesis 2: Pairs of companies belonging to the same business group have a higher correlation than pairs not in the same group. In addition, Pairs that belong to the same group and have a common ownership co-move more than pairs that don't have common ownership.

Table 1: one of these tables

	Future Monthly Correlation of 4F+Industry Residuals					
	(1)	(2)	(3)	(4)	(5)	(6)
(FCA > Median[FCA])		-0.00168 (-1.45)	-0.00337** (-2.89)	0.00855** (2.76)		-0.00513*** (-4.32)
SameGroup	0.0122*** (5.81)		0.0135*** (6.48)			0.00574* (2.02)
(FCA > Median[FCA]) × SameGroup						0.0181*** (5.91)
FCA*					0.00174* (2.43)	
Observations	5148109	5148109	5148109	76240	76240	5148109
Sub Sample	Total	Total	Total	SameGroups	SameGroups	Total
Controls	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.000455	0.000439	0.000485	0.0136	0.0135	0.000513
<i>t</i> statistics in parentheses						
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$						
	Future Monthly Correlation of 4F+Industry Residuals					
	(1)	(2)	(3)	(4)	(5)	(6)
Common Ownership		-0.00350** (-3.30)	-0.00445*** (-4.22)	0.00651* (2.48)		-0.00527*** (-4.72)
SameGroup	0.0122*** (5.81)		0.0140*** (7.01)			0.00607* (2.09)
Common Ownership × SameGroup						0.0157*** (5.51)
FCA*					0.00174* (2.43)	
Observations	5148109	5148109	5148109	76240	76240	5148109
Sub Sample	Total	Total	Total	SameGroups	SameGroups	Total
Controls	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.000455	0.000456	0.000504	0.0135	0.0135	0.000528
<i>t</i> statistics in parentheses						
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$						

Hypothesis 3: Return of business group improve forecasts of cross-sectional variation in stocks' return.

Return _{<i>i</i>} - <i>r_f</i> = <i>R_i</i>					
	(1)	(2)	(3)	(4)	(5)
<i>R_M</i>	0.216*** (12.43)	0.181*** (11.10)	0.124*** (9.91)	0.173*** (11.07)	0.118*** (9.98)
<i>R_{Industry}</i>		0.119*** (6.41)	0.119*** (6.41)	0.130*** (7.62)	0.130*** (7.62)
<i>R_{Businessgroup}</i>				0.0549*** (14.81)	0.0549*** (14.81)
<i>SMB</i>			0.0194** (2.95)		0.0193** (3.11)
<i>UMD</i>			0.00751 (1.31)		0.00681 (1.27)
<i>HML</i>			0.0105* (1.98)		0.0105* (2.22)
Constant	0.0155 (0.66)	-0.00383 (-0.18)	-0.00387 (-0.39)	-0.000620 (-0.03)	-0.00107 (-0.11)
Observations	207552	207552	207552	207552	207552
<i>R</i> ²	0.000	0.054	0.054	0.133	0.133

t statistics in parentheses

* *p* < 0.05, ** *p* < 0.01, *** *p* < 0.001

Channels:

	Future Monthly Corr. of 4F+Ind. Residuals						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
FCA*	0.00116 (1.66)	0.00114 (1.66)	0.00106 (1.53)		0.00574* (2.44)	0.00107 (1.56)	0.00154* (2.14)
Same Group	0.0165*** (4.74)	0.0166*** (4.61)	0.00974* (2.40)	0.0108** (2.82)		0.00977* (2.40)	0.00850* (2.05)
Low Imbalance std		-0.000538 (-0.48)	-0.00249 (-1.92)	-0.00260 (-1.97)	0.0222*** (5.40)	-0.00249 (-1.92)	-0.00177 (-0.54)
Low Imbalance std \times SameGroup			0.0284*** (5.95)	0.0285*** (6.00)		0.0282*** (4.09)	0.0286*** (3.99)
Low Imbalance std \times SameGroup \times FCA*						-0.000322 (-0.06)	-0.000725 (-0.13)
Observations	434850	434850	434850	434850	38382	434850	434850
Group Effect	No	No	No	No	No	No	Yes
Sub-sample	Total	Total	Total	Total	Same Groups	Total	Total
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.0364	0.0366	0.0369	0.0367	0.0691	0.0370	0.0433

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 2: Estimate regression for each stock across trading days

	Dependent Variable: $\Delta \text{TurnOver}_i$			
	(1)	(2)	(3)	(4)
$\Delta \text{TurnOver}_{\text{Market}}$	0.448*** (5.61)	0.387*** (7.80)	0.445*** (11.13)	0.353*** (10.18)
$\Delta \text{TurnOver}_{\text{Group}}$		0.231** (2.67)	0.234* (2.07)	0.245*** (8.22)
$\Delta \text{TurnOver}_{\text{Industry}}$	0.0993 (1.55)	-0.0558 (-0.61)	-0.0970 (-0.84)	0.0365 (0.68)
$\ln(\text{size})_{i,t}$	-0.00571 (-0.03)	-0.0136*** (-5.21)	-0.0210** (-3.06)	-0.0119** (-3.24)
Constant	-0.303 (-0.05)	0.380*** (5.03)	0.610** (2.86)	0.334** (3.11)
Observations	293264	184699	184699	184699
Group Weight	-	MC \times CR	MC	Equal
R^2	0.111	0.213	0.215	0.124

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3: Estimate regression for each stock across trading days

	Dependent Variable: ΔAmihud_i					
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta \text{Amihud}_{\text{Market}}$	0.324*** (6.46)	0.549* (2.23)	0.373*** (13.09)	0.343*** (12.01)	0.391*** (13.09)	0.361*** (12.14)
$\Delta \text{Amihud}_{\text{Group}}$			0.165** (2.60)	0.153* (2.57)	0.143* (2.07)	0.129* (1.98)
$\Delta \text{Amihud}_{\text{Industry}}$	0.0567 (1.21)	0.121 (1.36)	-0.00390 (-0.06)	-0.00670 (-0.10)	-0.00322 (-0.04)	-0.00430 (-0.06)
Observations	293264	291933	184699	183301	184699	183301
Weight	-	-	MC \times CR	MC \times CR	MC	MC
Control	No	Yes	No	Yes	No	Yes
R^2	0.0976	0.132	0.194	0.220	0.199	0.224

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$







