Measuring Mispricing in the Global Market: A New Perspective

Massimo Massa
Yang (Gloria) Yu
Hong Zhang

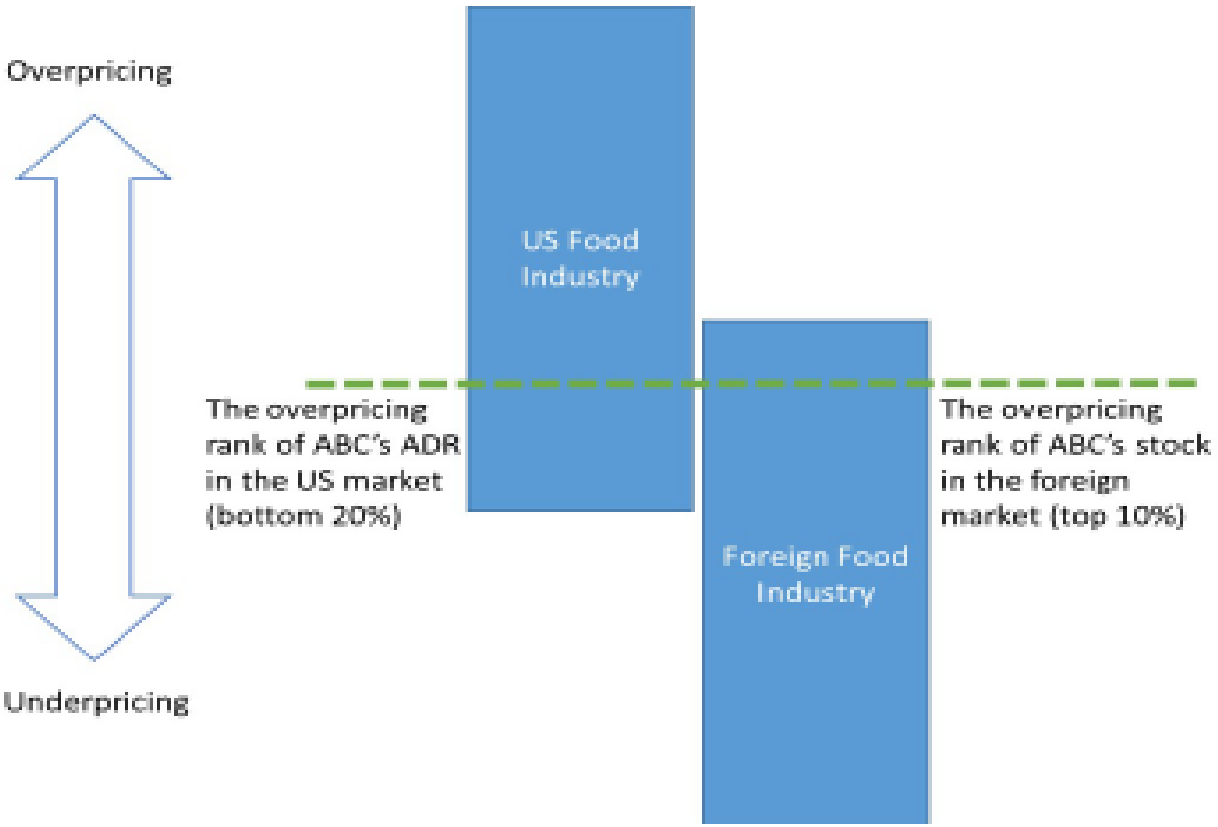
Discussion by
Tarun Chordia

The motivation

- Global markets are fragmented – albeit less so in recent years
  - Bekaert and Harvey (1995), Griffin and Karolyi (1998), Doidge, Karolyi and Stulz (2004)
- ADRs
  - Provide access to US capital markets – deep pool of investors
  - Improved corporate governance
  - Rigorous accounting standards
- ADRs
  - Diversification benefits to US investors while trading in US

The Idea

- Exploit valuation differences in US and foreign markets



Computation of Underpricing

- Rhodes-Kropf, Robinson, and Viswanathan (2005)

$$logM_{icst} = a_{cst} + \beta 1_{cst} logB_{icst} + \beta 2_{cst} \log(NI)_{icst} + \beta 3_{cst} I_{<0} \log(NI^{+})_{icst} + \beta 4_{cst} \mathrm{LEV}_{icst} + S_{icst}$$

$$MIS_{icst} = logM_{icst} - \widehat{logM}_{icst}$$

$$UnderPricing_{sct} = \sum w_{icst} * (RankParent_{icst} - RankADR_{iast})$$

- But first equation above is estimated for ADRs and foreign stocks using same independent variables
  - BV is hard to measure in recent years – misses things like brand value or ability to innovate – eg. Apple
  - What is R^2 in above equation? For ADRs? For foreign stocks?
  - Only difference is due to frictions between US and foreign markets

Frictions lead to Home Bias

- Information – distance: Coval and Moskowitz (2001)
- Accounting differences
- Regulatory differences – capital flows
- Currency risk
- Transaction Costs
- Corporate Governance
- Industry definition – Conglomerates

- Companies choose to issue ADRs – not random
  - More underpricing in foreign markets - Doidge, Karolyi and Stulz

Frictions

Panel A : Quarterly

	count	mean	sd	min	p25	p50	p75	max
UnderPricing	14414	0.049	0.223	-0.798	-0.045	0.019	0.143	0.997
Returns	14414	0.047	0.174	-0.585	-0.051	0.040	0.134	1.151
GlobalDGTW	14414	-0.004	0.122	-0.318	-0.075	-0.008	0.060	0.398
LocalDGTW	14414	-0.014	0.126	-0.331	-0.088	-0.019	0.053	0.402
Size(log$)	14414	6.575	3.231	0.072	4.245	7.230	9.029	12.346
BM	14414	1.548	2.307	0.140	0.474	0.745	1.195	9.791
Capex	14414	0.044	0.042	0.000	0.014	0.033	0.059	0.223
Leverage	14414	0.208	0.150	0.001	0.078	0.192	0.313	0.639

Identification

- Examine differences in industry underpricing across countries
  - Valid as long as no systematic differences in industry valuation across countries

- But what if in emerging markets – only large firms that are conglomerates have ADRs

Data

- Need more information about countries and industries
- In Table A1
  - List largest three or four countries in the different industries
    - Banks to get USD funding
    - Mining – trade is in USD
- Why end data in 2012?
- Require minimum # of firms in industry in a country?
- Need to think about accounting standards
  - What is delay in reporting of financial statements?

Data

- Need more information about countries and industries
- In Table A2
  - Distribution of ADRs across countries by market cap compared to market cap of other firms in a country
  - Countries with most ADRs – Australia, Japan, UK - Why US?
  - But also Argentina, Brazil, China, India, Malaysia, Mexico, South Africa, Turkey
- Comparison of industries across developed and emerging markets
  - More underpricing in emerging markets and they did well in recent years due to globalization and integration

Results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	$GlobalDGTW_{t+1}$	$GlobalDGTW_{t+1}$	$GlobalDGTW_{t+1}$	$GlobalDGTW_{t+1}$	$GlobalDGTW_{t+1}$	$GlobalDGTW_{t+1}$	$GlobalDGTW_{t+1}$
$UnderPricing_t$	0.020**	0.021**	0.023***	0.020***	0.021***	0.023***	0.018**
	(3.06)	(3.07)	(3.43)	(3.39)	(3.60)	(3.81)	(2.76)
$GlobalDGTW_t$	0.034***	0.028**	0.025**	0.034**	0.028**	0.025**	0.040**
	(3.69)	(2.97)	(2.58)	(3.27)	(2.73)	(2.31)	(2.79)
$Size_t$	0.001**	0.001	0.001**	0.001**	0.001	0.001**	0.001*
	(2.91)	(1.58)	(2.41)	(2.23)	(1.13)	(2.17)	(2.00)
BM_t	0.001	-0.002	0.007	0.001	-0.002	0.007	0.003
	(0.19)	(-0.29)	(0.98)	(0.21)	(-0.32)	(1.08)	(0.38)
$Capex_t$	0.073*	0.070*	0.038	0.073***	0.070***	0.038*	0.022
	(1.74)	(1.79)	(1.01)	(3.55)	(3.87)	(1.96)	(0.54)
$Leverage_t$	-0.053***	-0.047***	-0.050***	-0.053***	-0.047***	-0.050***	-0.039**
	(-4.80)	(-5.20)	(-4.25)	(-5.31)	(-5.45)	(-4.61)	(-2.35)
FE Time	Y	Y	Y	Y	Y	Y	
FE Industry	N	Y	N	N	Y	N	
FE Country	N	N	Y	N	N	Y	
Clustering Time	Y	Y	Y	N	N	N	
Clustering Industry	N	N	N	Y	Y	Y	
Clustering Country	Y	Y	Y	N	N	N	

Results – High and Low Underpricing

	Raw Return		GlobalDGTW Return		LocalDGTW Return	
Quintile	mean	t	mean	t	mean	t
			Panel A: Equal- Weight			
1	0.028	1.972	-0.013	-2.966	-0.024	-4.823
2	0.033	2.347	-0.006	-2.371	-0.018	-5.610
3	0.031	2.172	-0.009	-2.704	-0.019	-5.356
4	0.047	3.096	0.002	0.491	-0.006	-1.106
5	0.052	3.291	-0.001	-0.221	-0.003	-0.744

Suggestions

- Would like to see
  - Return differential for portfolio that is long most underpriced industry and short least underpriced industry by country
  - Similarly for country by industry
  - FM will not provide within country differences across industry unless run by industry within country or by country within industry
- Cluster standard errors by country, industry and time
  - There could be residual correlation within a country
  - There could be residual correlation within an industry
  - There could be residual correlation at a particular point in time
- More lags of dependent variable and in Newey West

Final Thoughts

- Interesting idea – exploit underpricing using global industry data
  - Interesting result that foreign mutual funds exploit underpricing

- Suggestions
  - Think about computation of underpricing
  - Portfolio results: long-short industry returns within country and long-short country returns within industry
  - Clustering of standard errors