

Mergers and Acquisitions in the EU Food Sector

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Mergers and Acquisitions

- Builds on first deliverable which was a broad scene setting, detailing the data source and giving an overview of domestic and cross border deals in the EU food sector
- For the remaining deliverables, focus on food manufacturing in the EU-see next figure

What are the various perspectives on M&As?

- **IO Economists**

- process of consolidation (see for example recent papers by Sexton)

- implicitly it is horizontal mergers that occupy the discussion

- but also need to separate horizontal from vertical mergers and acquisitions

○ **Trade Economists**

- FDI has been one of the main features of globalisation in recent years

- most FDI is in the form of Cross Border Mergers and Acquisitions (c80%)

- 30% of all M&As are cross border

- theoretical models highlighting horizontal and vertical FDI

- empirically, it has been difficult to tie this down

- **Financial Economists**

- what drives M&As/merger waves/have acquisitions been successful (event studies)?

- characteristics of firms involved in M&As

- have M&As been due to financial market imperfections (e.g. mispricing/over-valuation/managerial short-termism)

Our Focus

- Address the horizontal and vertical distinction and what factors drive each
- And do firms that are involved in merger events differ from those that do not?
- Apart from horizontal and vertical M&As, also identify solely diversifying (conglomerate) acquisitions-we will see that this is a feature of the M&A process in the food sector (and others)

What we do!

- We have comprehensive data on all M&As
-all deals/all countries/public and private
- Data reports the firms (acquirors and targets) and SIC codes
- For publically-listed firms, we can tag the firm and trace it to other financial data sources
- Here we can trace firm-specific data

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- From these financial data sets, we can identify key features of the firms and performance indicators
 - We can also identify non-merging firms
- (so can ask, how do acquiring firms differ from non-acquiring firms?)

Address the Horizontal-Vertical Issue

- Why?
 - Different implications (market power/efficiency/scale/double marginalisation)
 - Different drivers (risk/property rights)
 - Differs between domestic and cross-border deals

Addressing the horizontal-vertical distinction

- Most attempts to do this are not convincing
 - "same/different" (often highly aggregated) industry
- A few recent papers follow a more convincing approach
- Fan (JBus, 2000+2006), Alfaro and Charlton (AER, 2009), Acemoglu et al, (JFin, 2009)

How do we identify type of deal?

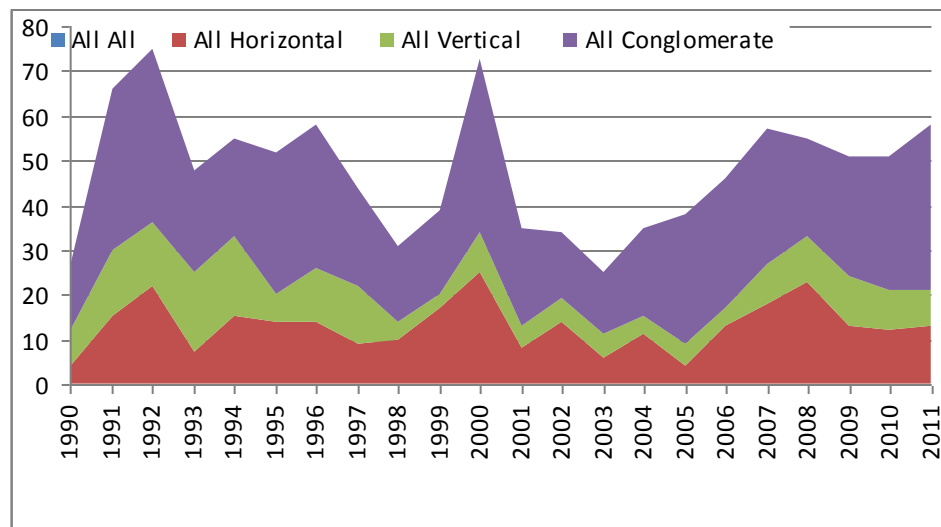
- Key issue is a measure of “vertical relatedness”
- “Vertical relatedness” is based on Fan (2001/2006) which identifies the extent to which industries are vertically-related based on US input:output tables. Specifically, they produce a **coefficient of vertical relatedness** based on the fraction of industry a that contributes to value added in industry b based on commodity flows between 500 industries
- We cross-match this coefficient of vertical relatedness with 4 digit SICs for each acquiring and target firm involved in CBAs. With each acquiring and target firm reporting up to 6 4 digit SIC codes, this gives us 36 possible combinations

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- Notice how we are defining an “industry” here. The definition relates to any of the reported 4 digit SICs being associated with an industry.
 - It does not rely on the “principal” SIC. This is important since it means we are defining types of M&As allowing for the deal to reflect any of the segments in which the firm operates in.
 - In this way, we can classify deals according to type: specifically...

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- **'Pure' Horizontal:** deals where the acquiring and target firms share at least one (4 digit) SIC code but are never vertically-related
 - **'Pure' Vertical:** deals where firms do not share the same (at least one) SIC code but are vertically related
 - **'Pure' Conglomerate:** deals where firms do not share any SIC code and are not vertically related
 - **'Mixed':** deals where they do share a code and are vertically related

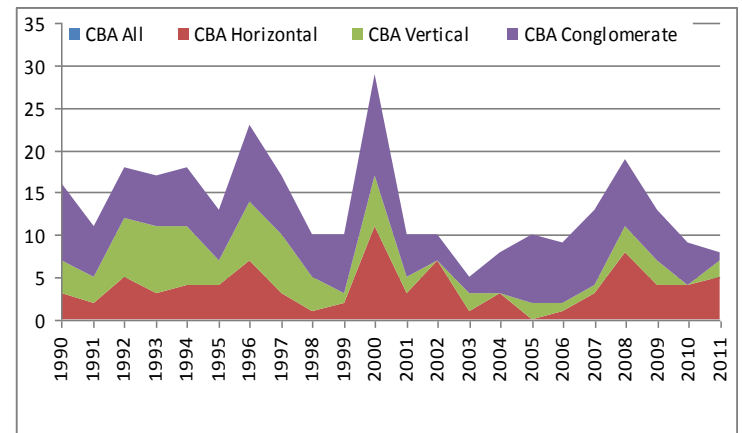
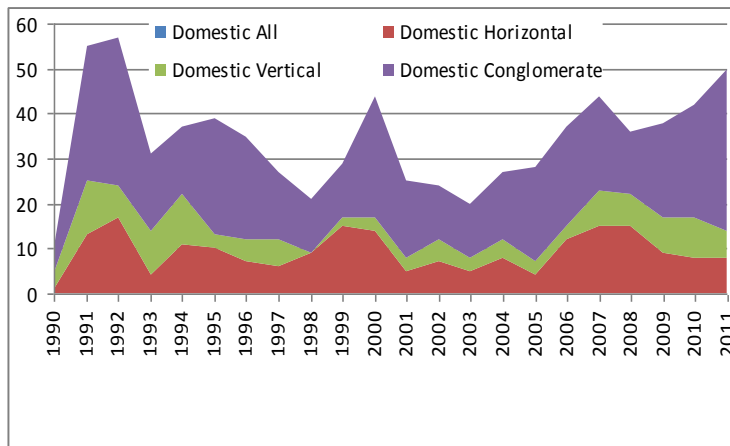
What do M&As in the Food Manufacturing Sector Look Like?

France: Domestic and CBAs, 1990-2011

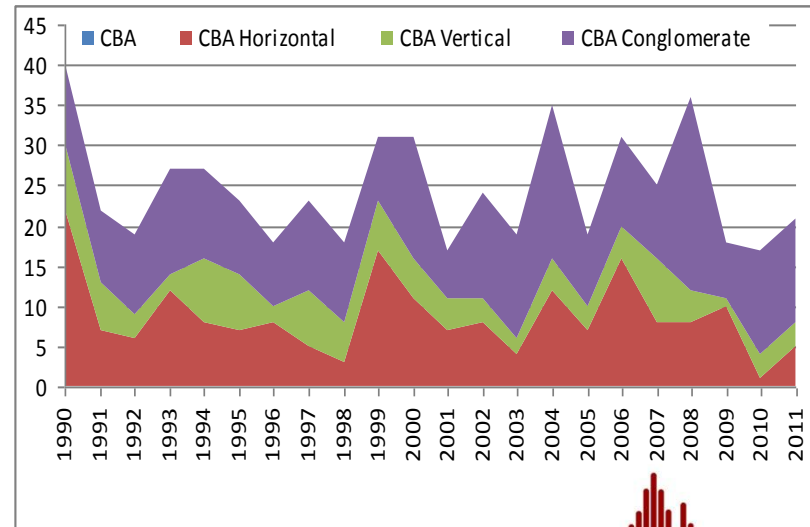
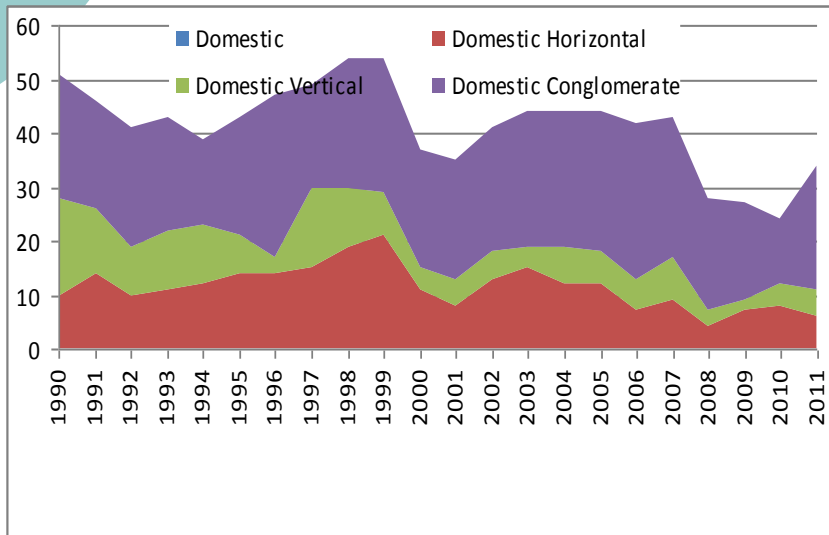
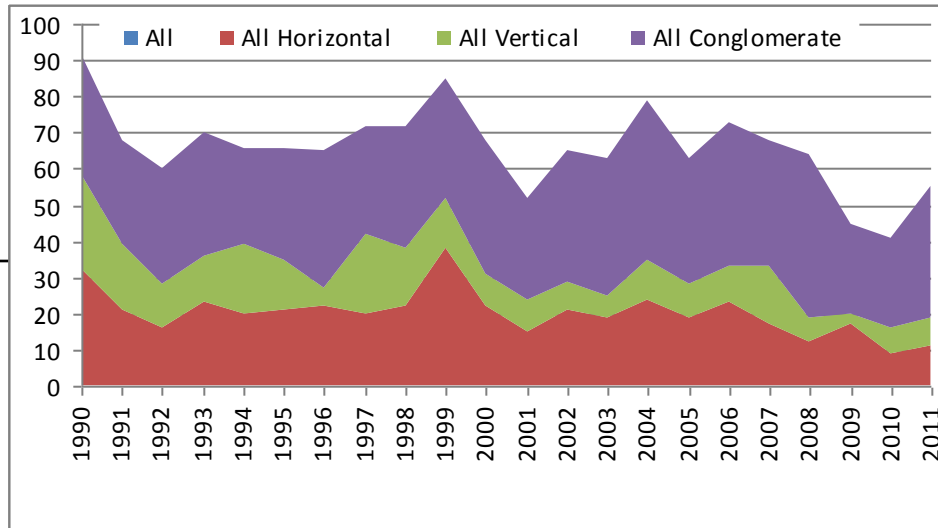


Separating Domestic and CBAs

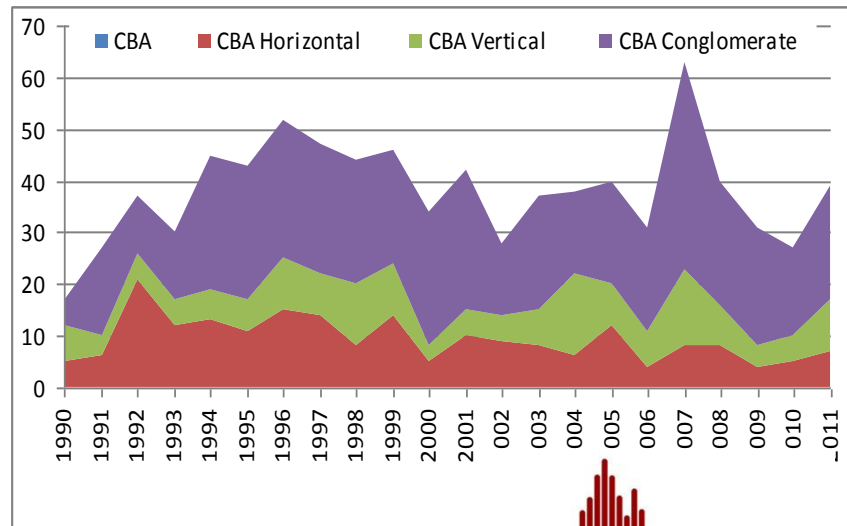
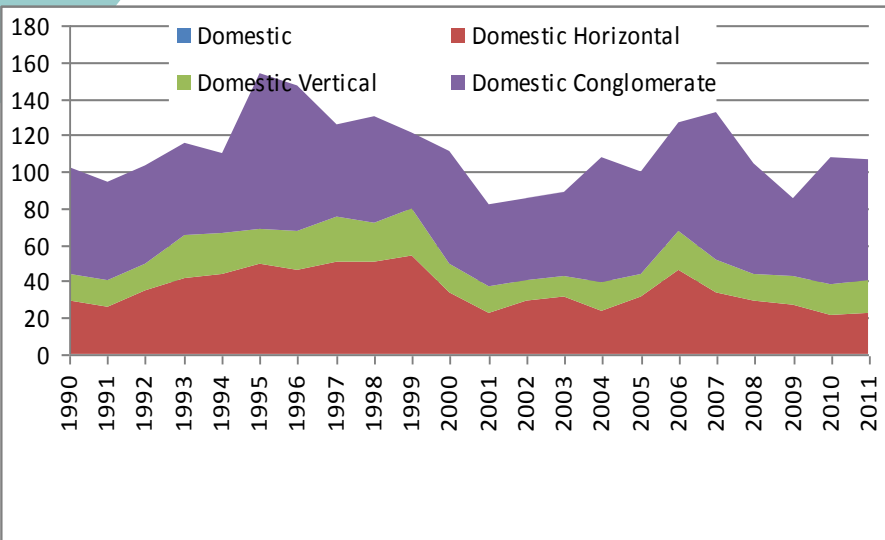
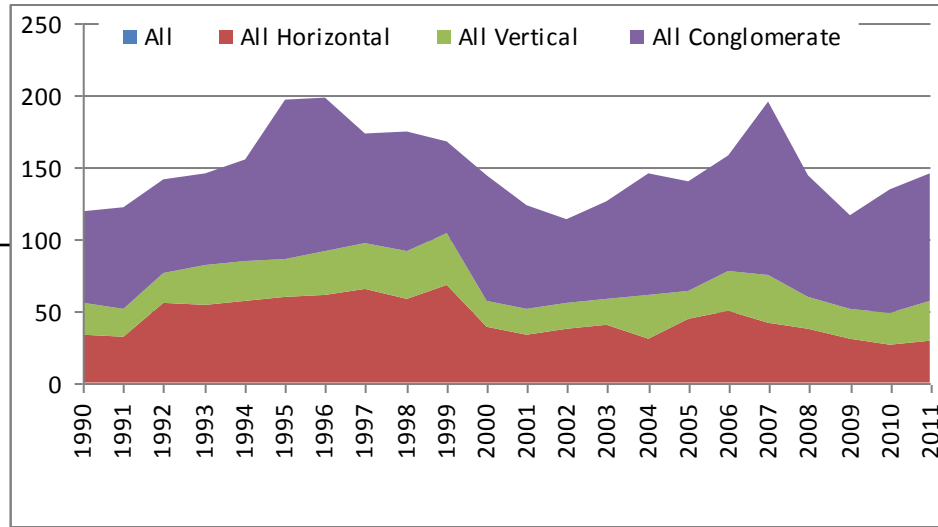
France: Splitting Domestic and CBA and by Type



UK



US



Observations

- The above examples apply to the 5% VR benchmark and the allocation can vary by the VR benchmark i.e. we can use 1% or 10%
- One issue that does come out is the relative importance of conglomerate acquisitions in the food sector. This is firms from outside the food sector buying into it. This is a global issue as it happens across all countries in food manufacturing
- It also appears in the full sample and an issue not always addressed

Why is it important?

- Different drivers and different effects
- As an example of this, consider work by Herger and McCorrison (2013) on the full sample with CBAs
- Most work on FDI focuses on horizontal and vertical though seldom do they directly observe the difference (except Alfaro and Charlton (AER, 2009))
- We use a panel count gravity-based model of CBAs

Table 4: Economic and Geographical Determinants according of CBAs

Corporate Tax:	All CBAs (1)		Horizontal CBAs (2)		Vertical CBAs (3)		Conglomerate CBAs (4)	
	Coefficient β	Elasticity η	Coefficient β	Elasticity η	Coefficient β	Elasticity η	Coefficient β	Elasticity η
Σ GDP	-0.008 (0.008)	-0.02 (0.02)	0.101*** (0.018)	0.15** (0.03)	-0.019 (0.014)	-0.03 (0.02)	-0.061*** (0.013)	-0.10*** (0.02)
SWP	0.025*** (0.009)	0.04*** (0.01)	0.003 (0.020)	0.001 (0.03)	0.044*** (0.067)	0.07*** (0.03)	0.017 (0.015)	0.03 (0.03)
Distance	-0.186*** (0.001)	-1.25*** (0.01)	-0.215*** (0.003)	-1.45*** (0.02)	-0.174*** (0.002)	-1.17*** (0.01)	-0.189*** (0.002)	-1.27*** (0.01)
CU	0.179*** (0.014)	0.03*** (0.002)	-0.121*** (0.030)	-0.02*** (0.005)	0.196*** (0.025)	0.04*** (0.01)	0.317*** (0.021)	0.06*** (0.004)
Trade Freedom	1.079*** (0.074)	0.81*** (0.05)	0.386** (0.178)	0.29** (0.14)	1.378*** (0.139)	1.03*** (0.11)	1.182*** (0.125)	0.89*** (0.09)
Investment Fd.	0.027 (0.040)	0.02 (0.03)	-0.088 (0.091)	-0.06 (0.06)	0.038 (0.076)	0.02 (0.05)	0.079 (0.068)	0.05 (0.04)
Corruption	-0.319*** (0.055)	-0.13*** (0.02)	-0.207* (0.121)	-0.09* (0.05)	-0.188* (0.106)	-0.08* (0.05)	-0.333*** (0.092)	-0.14*** (0.04)
Exchange Rate	-0.375*** (0.015)	-0.49*** (0.02)	-0.425*** (0.034)	-0.56*** (0.05)	-0.381*** (0.029)	-0.50*** (0.04)	-0.379*** (0.025)	-0.50*** (0.03)
α_{st}	yes		yes		yes		yes	
δ_h	yes		yes		yes		yes	
#cba	126,481		24,133		36,334		45,251	
#obs _{pc}	25,446		25,446		25,446		25,446	
ln L_{pc}	-57,827		-22,132		-26,051		-30,357	
$H_{\alpha_{st}}$	30.53		63.89		60.90		6113.4	

Notes: The dependent variable is the number (count) of CBAs $n_{sh,t}$. Estimation of the panel Poisson count regression with fixed effect α_{st} is by maximum likelihood. A conditional logit model with dependent variable $d_{sh,t}^i$ yield identical estimates for the coefficients β . Elasticities, defined in (8), determine the marginal effect of a change in $x_{sh,t}$ on $n_{sh,t}$. The corresponding elasticity values are here reported at the average of $x_{sh,t}$ (or $\bar{x}_{sh,t}$). The standard deviation of the elasticity value has been calculated by means of the delta method. The 5% cutoff level is used for \bar{V}_{η} to define FDI strategies reported in blocks 2 to 4 (see section 2). The data cover a common sample of CBAs for the 1995 to 2010 period from 31 source and 58 host countries. Furthermore, #cba is the number of deals, #obs is the number of observations, likelihood function. H_{fc} is the Hausman test statistic between the random and fixed effects Poisson count regression. α_{st} are reported in parantheses. * Significant at the 10% level; ** Significant at the 5% level; *** Significant at the 1%

Table 5: Adding Financial Determinants

Corporate Tax:	All CBAs		Horizontal CBAs		Vertical CBAs		Conglomerate CBAs	
	(1)		(2)		(3)		(4)	
	Coefficient β	Elasticity η	Coefficient β	Elasticity η	Coefficient β	Elasticity η	Coefficient β	Elasticity η
Σ GDP	-0.013 (0.009)	-0.03 (0.02)	0.078** (0.035)	0.19** (0.05)	-0.016 (0.012)	-0.04 (0.03)	-0.105*** (0.021)	-0.27*** (0.05)
SWP	0.125*** (0.016)	0.19*** (0.02)	0.036 (0.059)	0.05 (0.07)	0.158*** (0.021)	0.23*** (0.03)	0.109*** (0.036)	0.16*** (0.06)
Distance	-0.184*** (0.001)	-1.13*** (0.006)	-0.221*** (0.005)	-1.35*** (0.02)	-0.179*** (0.002)	-1.10*** (0.01)	-0.192*** (0.003)	-1.18*** (0.02)
Trade Freedom	-0.691*** (0.224)	-0.56*** (0.18)	-0.695 (0.770)	-0.49 (0.42)	-0.629** (0.301)	-0.51** (0.24)	1.647*** (0.499)	-1.34*** (0.41)
Investment Fd.	0.148*** (0.064)	0.11*** (0.04)	-0.399* (0.228)	-0.29* (0.12)	0.227*** (0.086)	0.17*** (0.06)	0.190 (0.146)	0.14 (0.11)
Corruption	-0.175*** (0.075)	0.03*** (0.01)	-0.038 (0.245)	-0.01 (0.03)	-0.203** (0.102)	-0.04** (0.02)	-0.284 (0.163)	-0.05* (0.03)
Exchange Rate	-0.734*** (0.045)	-0.66*** (0.05)	-0.299* (0.167)	-0.31* (0.17)	-0.673*** (0.059)	-0.70*** (0.06)	-0.577*** (0.102)	-0.60*** (0.10)
MtB(over/under)	0.733*** (0.138)	0.73*** (0.13)	0.413 (0.478)	0.41 (0.48)	0.718*** (0.184)	0.71*** (0.18)	1.121*** (0.310)	1.21*** (0.31)
MtB(wealth)	0.0004*** (0.0001)	0.0004*** (0.0001)	0.001*** (0.0003)	0.001*** (0.0003)	0.0004*** (0.0001)	0.0003*** (0.0001)	0.0003 (0.0002)	0.0003 (0.002)
α_{st}	yes		yes		yes		yes	
δ_h	yes		yes		yes		yes	
#cba	84,760		6,724		48,157		16,356	
#obs _{pc}	5,700		5,700		5,700		5,700	
$\ln L_{pc}$	-23,338		-6,705.8		-9,766		-9,543.5	
$H_{\alpha_{st}}$	57.23		192.4		47.93		162.0	

Notes: The dependent variable is the number (count) of CBAs $n_{sh,t}$. Estimation of the panel Poisson count regression with fixed effect α_{st} is by maximum likelihood. A conditional logit model with dependent variable $d_{sh,t}^i$ yield identical estimates for the coefficients β . Elasticities, defined in (8), determine the marginal effect of a change in $x_{sh,t}$ on $n_{sh,t}$. The corresponding elasticity values are here reported at the average of $x_{sh,t}$ (or $\bar{x}_{sh,t}$). The standard deviation of the elasticity value has been calculated by means of the delta method. The 1% cutoff level is used for \bar{V}_{α} to define FDI strategies reported in blocks 2 to 4 (see section 2). The data cover a common sample of CBAs for the 1995 to 2010 period and incl from 20 (source and host) countries. Furthermore, #cba is the number of deals, #obs is the number of observations, and $\ln L$ the likelihood function. H_{fc} is the Hausman test statistic between the random and fixed effects Poisson count regression. Standard error α_{st} are reported in parantheses.. * Significant at the 10% level; ** Significant at the 5% level; *** Significant at the 1% level.

Next Question: Who participates in M&As?

- What are the main differences between target and acquiror firms?
- Does this vary across domestic and CBAs (the 'lucky few')?
- Does this vary by type?

How? Key feature is the data

- We can tie the (public) firms we observe in merger deals to various firm and performance indicators by tracing them in other data sets
- Measures would include Market-to-Book, Tobin's q , Assets, Sales, Sales Growth, Cash Reserves, Leverage

Acquiror Characteristics: UK Food Manufacturing

Acquiror	No. of deals	MTB	Tobin's q	Sales	Cash	Total assets
All	339	3.02	1.78	14298	1112	11763
Horizon	135	1.92	1.31	9130	616	8752
Vertical	36	2.01	1.30	21839	1461	17693
Conglomerate	86	5.84	2.97	21210	1600	14618
Domestic	167	3.42	2.04	3233	253	3504
Horizon	79	1.24	1.08	3533	171	4010
Vertical	13	1.52	1.20	2590	228	2801
Conglomerate	30	12.43	5.88	4336	590	4294
CBA	172	2.63	1.53	25041	1946	19782
Horizon	56	2.87	1.64	17026	1244	15441
Vertical	23	2.29	1.36	32719	2158	26110
Conglomerate	56	2.31	1.41	30250	2141	20148

Mean differences between acquirors and targets by deal

Mean difference by deals	Mean differences	Test statistics
N	19	
MV	46950	3.30
BV	13835	3.14
MTB	-3.08	-2.47
Tobin's q	-0.77	-2.41
Sales	29522	3.39
Growth of sales	0.01	0.15
Cash	4362	3.29
Total Assets	28400	3.33
Current ratio	-0.20	-1.15

Mean Differences Across Domestic and CB Acquirors

Mean comparison (All)	Acquirors		
	Domestic	CBA	test statistics
N	167	172	
MV	2276	14240	14.20
BV	1520	5801	10.95
MTB	3.42	2.63	-0.41
Tobin's q	2.04	1.53	-0.61
Sales	3233	25041	12.41
Growth of sales	0.14	0.03	-1.77
Cash	253	1946	8.85
Total Assets	3504	19782	12.18
Current ratio	1.61	1.77	1.88