HELLENIC COMPETITION COMMISSION

COMPETITION LAW FOR THE DIGITAL ERA

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Personal views – do not engage the HCC

Competition Law in a Complex Economy

- ➢ The Digital Economy is a complex system
  - ➢ 'intricate systems of interdependent feedback loops connecting micro-behaviours, interaction patterns and global (as opposed to just local) regularities' (Tesfatsion, 2005)

- Dynamic systems of interacting agents
  - Nonlinear: Small changes in inputs or parameters may produce large changes in behavior
  - Populated by a collection of heterogeneous agents whose state influenced and is influenced by the state of others (feedback loops), and
  - Characterised by constant adaptive learning

- Some concepts:
  - Increasing returns
  - Leverage points
  - Tipping points
  - Path dependence…

‘Prediction platforms’

Network effects, increasing returns to scale, learning effects, ‘winner-takes-most’ dynamics

- ‘Superstar firms’ command growing market shares and become highly profitable

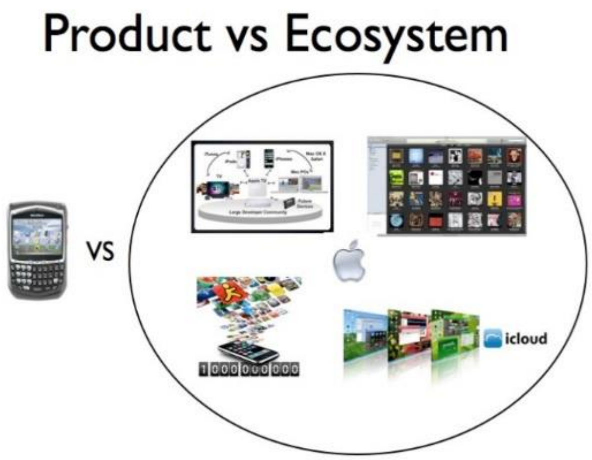
- Is this always the case in the presence of network and learning effects?

  - Successes: Windows, Google, iPhone, Facebook, Adobe, LinkedIn, Visa, MasterCard, Amex, Alibaba, WeChat (Tencent). BUT ALSO

  - Failures: Betamax, IBM OS/2, Blackberry, Discover Card , Symbian, Windows Phone

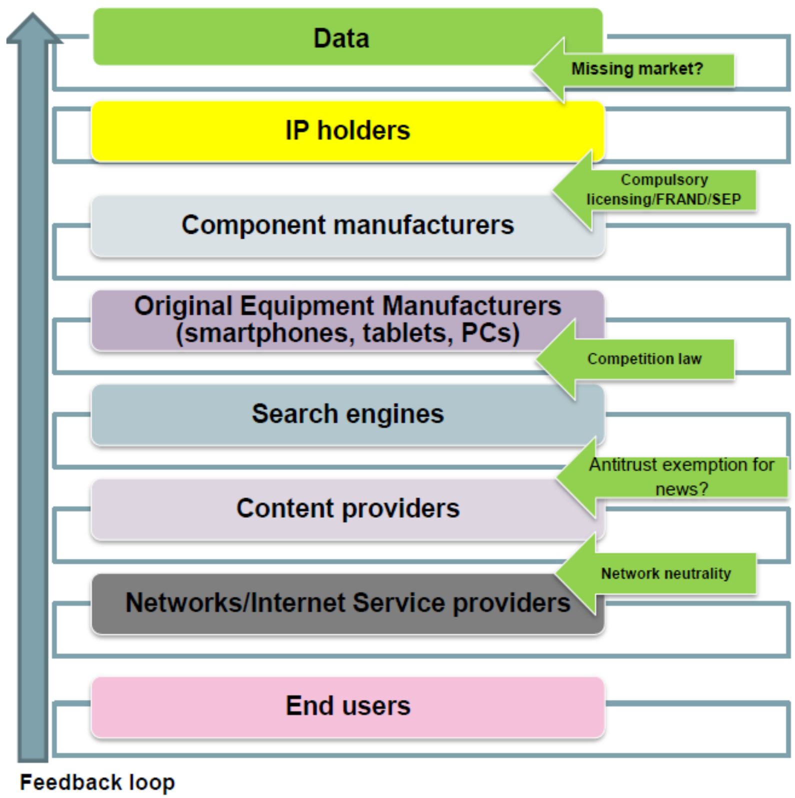
- Platforms have high fixed cost and low to zero marginal costs
- Data and network effects: data as a barrier to entry?
- Learning effects
- Network effects and learning effects create high inequality among companies in sales and profits
- Larger scale increases profits exponentially
- Very concentrated markets
- Top company has much higher sales and profits than the second one; second one much larger than third, etc.
- Often the fourth or fifth largest company are too small to make any difference in the market structure

Limited effects of competition law to promote inter-platform competition



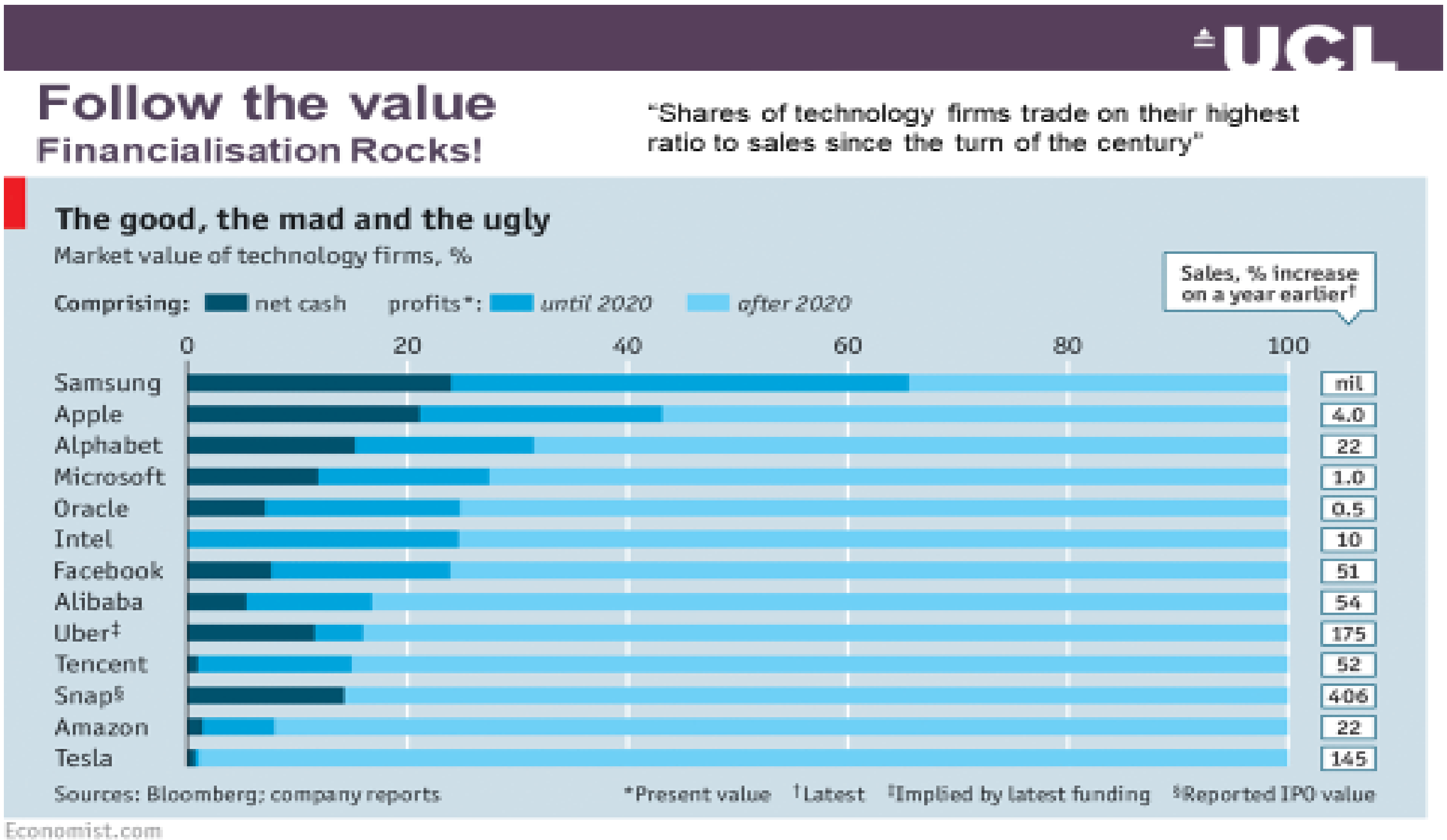
- **From Product Competition to Ecosystem Competition**
- In markets with strong network effects, once few firms are in operation, the addition of new competitors, even under free entry, does not change the market structure in any significant way
- Although eliminating barriers to entry can encourage competition, the resulting competition may not significantly affect market structure
- In markets with strong network effects, antitrust authorities may not be able to significantly affect market *structure* by eliminating barriers to entry

Vertical competition: Digital Value Chains



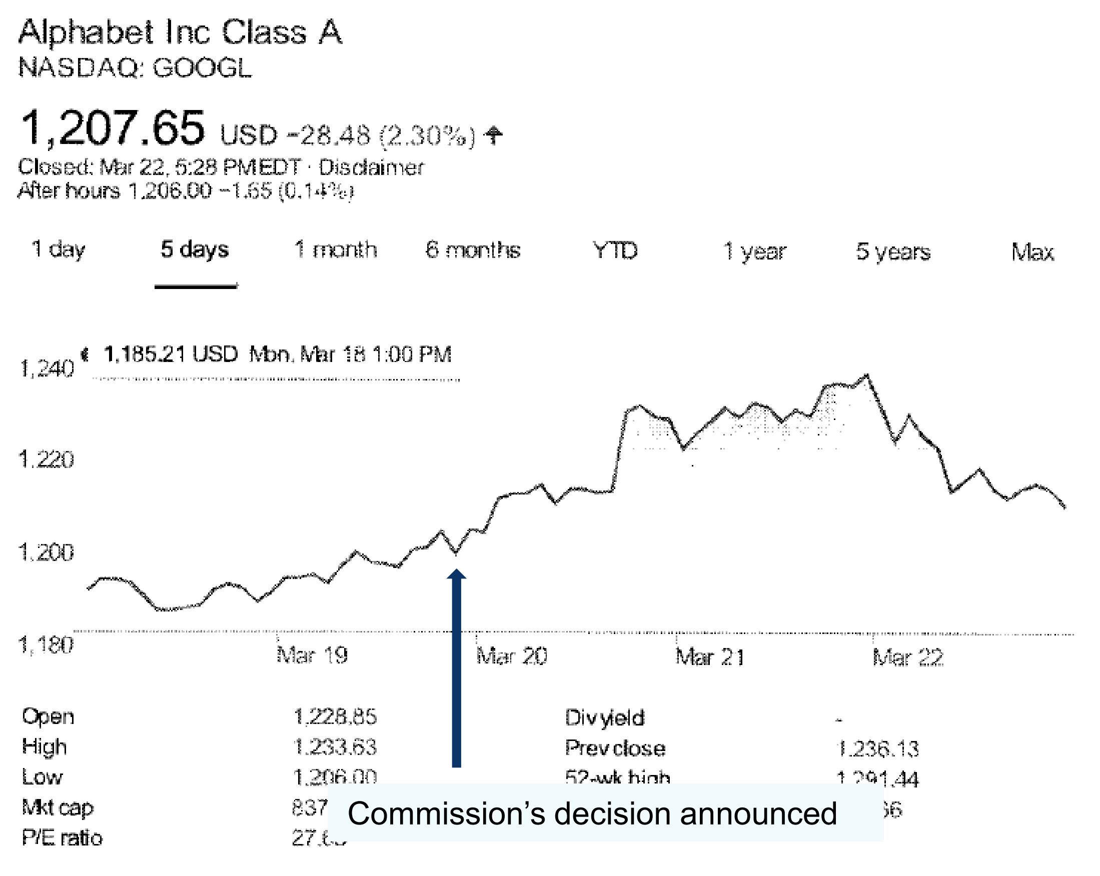
- **Business Eco-systems**: modular architecture, non-generic super-modular complementarities/they replace industries
- Market power in multiple segments of the chain
- Allocation of the total **surplus value** of the value chain: vertical competition
- **Extraction of revenue and capture of value**: limiting the market power of other segments of the value chain to increase your share
- Different ways of public action (competition law, net neutrality, compulsory licensing, regulation)

Futurity, Financial Markets and Value

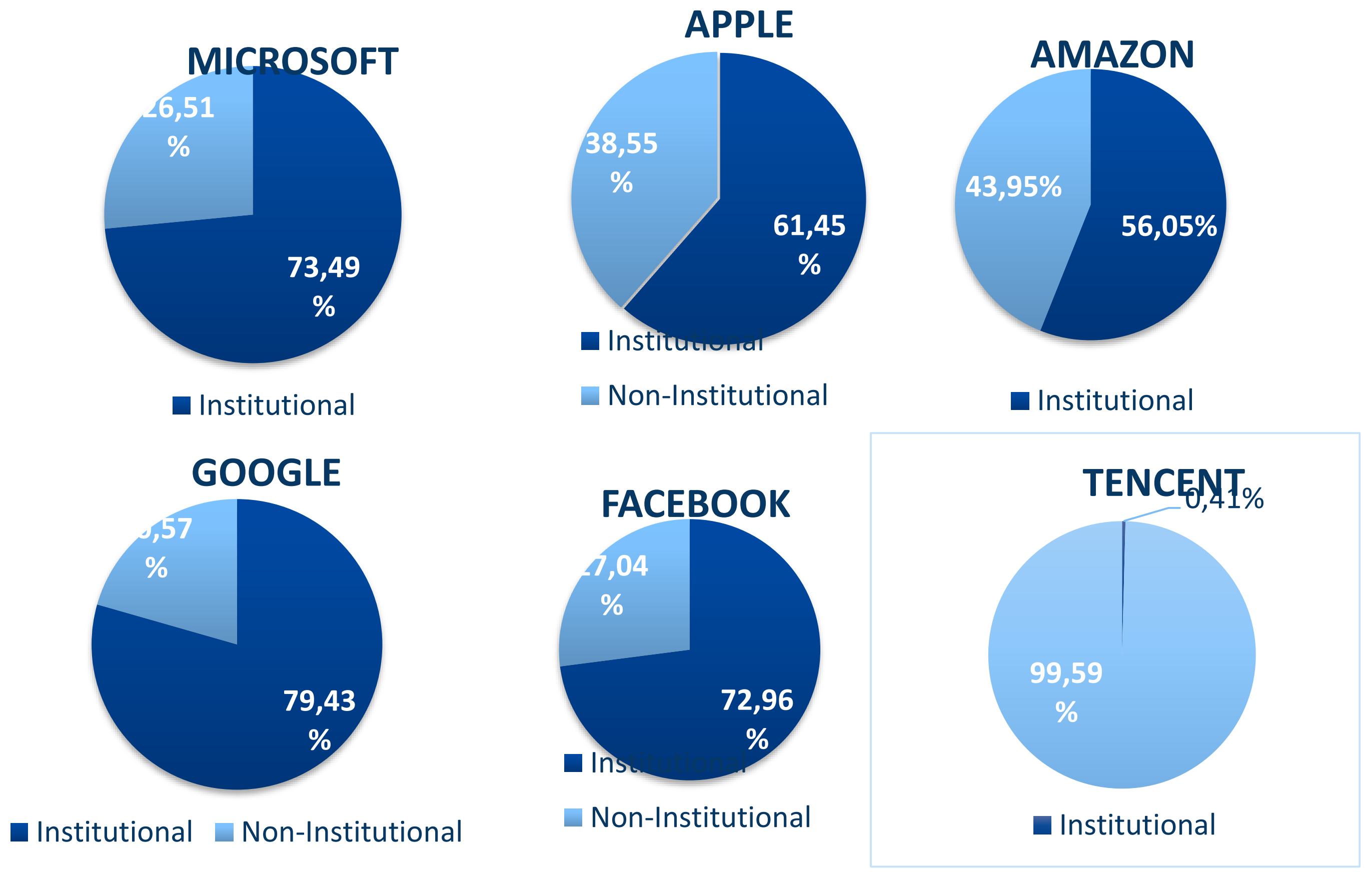


Schumpeter, Economist, February 23, 2017

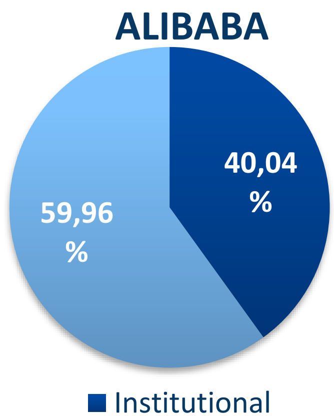
Google's stock value increased after the fine by the European Commission in *AdSense*!

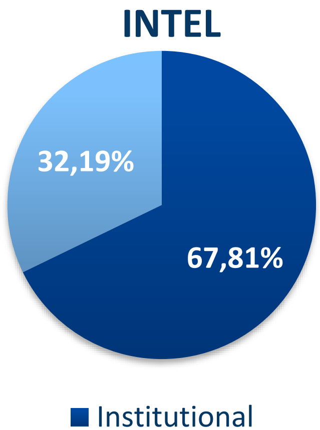


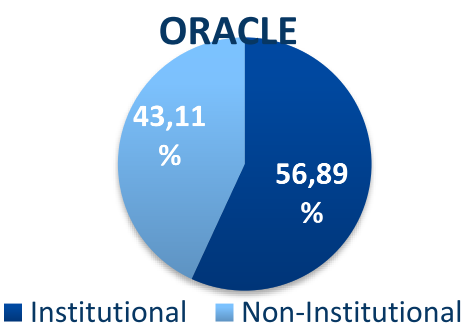
Financialisation: Institutional investors I

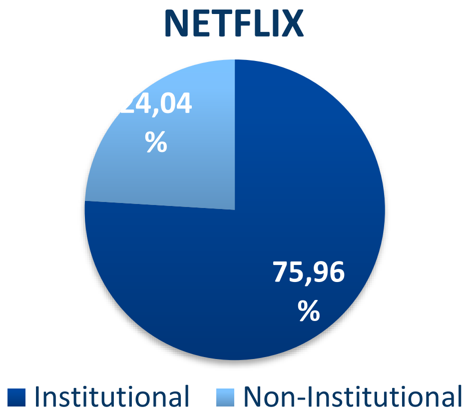


Financialisation: Institutional investors II









Institutional v non institutional investors Google

INSTITUTIONAL V. NON-INSTITUTIONAL OWNERSHIP			
	Ownership Share		
Institutional	79.43%		
Non-Institutional	20.57%		
	100.00%	YES	
TOP FIVE INSTITUTIONAL INVESTOR SHAREHOLDERS			
Investor	No. of Shares	Ownership Share	
Vanguard	21,943,224	7.33%	
BlackRock	18,767,367	6.27%	
Fidelity	15,954,994	5.33%	
State Street	10,742,476	3.59%	
Price T Rowe	7,059,368	2.36%	
INSIDER AND OTHER MAJOR SHAREHOLDINGS			
Investor	No. of Shares	Ownership Share	
Larry Page	19,952,558	6.66%	
Sergey Brin	19,236,666	6.42%	
Eric Schmidt	4,197,033	1.40%	
Combined all directors and executive officers (including Page, Schmidt and Brin)	44926174	15.00%	

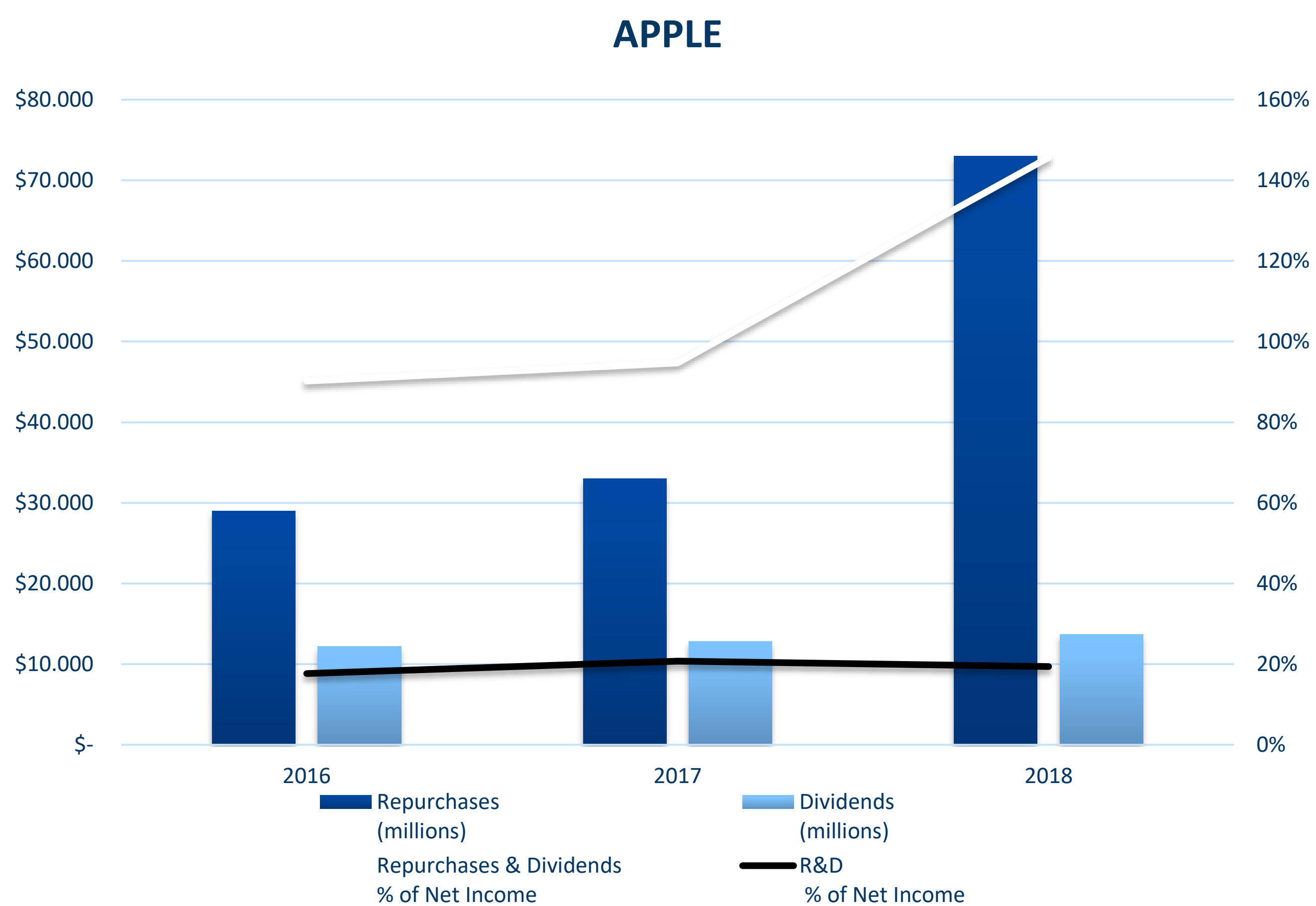
Institutional v non institutional investors Microsoft

INSTITUTIONAL V. NON-INSTITUTIONAL OWNERSHIP			
	Ownership Share		
Institutional	73.49%		
Non-Institutional	26.51%		
	100.00%	YES	
TOP FIVE INSTITUTIONAL INVESTOR SHAREHOLDERS			
Investor	No. of Shares	Ownership Share	
Vanguard	603102597	7.87%	
BlackRock	507006157	6.62%	
State Street	303610380	3.96%	
Fidelity	254905697	3.33%	
Price T Rowe	192592815	2.51%	
INSIDER AND OTHER MAJOR SHAREHOLDINGS			
Investor	No. of Shares	Ownership Share	
Bill Gates	102992934	1.34%	
Combined all executive officers and directors (including Gates)	106111414	1.38%	

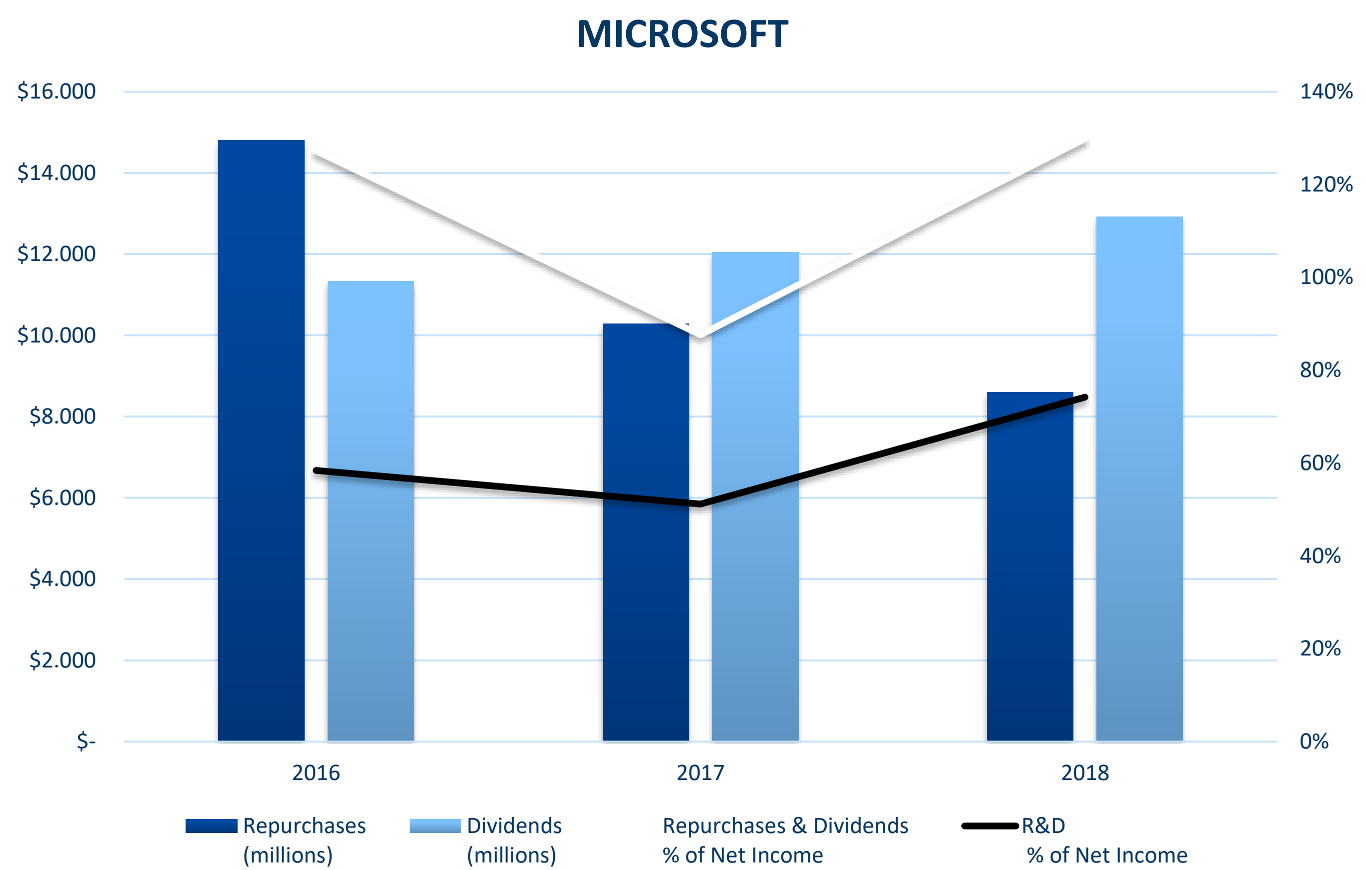
Institutional and non institutional investors Facebook

INSTITUTIONAL V. NON-INSTITUTIONAL OWNERSHIP			
	Ownership Share		
Institutional	72.96%		
Non-Institutional	27.04%		
	100.00%	YES	
TOP FIVE INSTITUTIONAL INVESTOR SHAREHOLDERS			
Investor	No. of Shares	Ownership Share	
Vanguard	176,427,337	7.34%	
BlackRock	149,675,571	6.23%	
Fidelity	116,022,748	4.83%	
Price T Rowe	90,094,802	3.75%	
State Street	86,216,867	3.59%	
INSIDER AND OTHER MAJOR SHAREHOLDINGS			
Investor	No. of Shares	Ownership Share	
Mark Zuckerberg	377,901,839	15.73%	
Combined all directors and executive officers (including Zuckerberg)	414,874,690	17.27%	
Dustin Moskovitz	32595276	1.36%	
Eduardo Saverin	53433148	2.22%	

The 'expand and distribute' model? Repurchases – dividends- R&D spend Apple



The ‘expand and distribute’ model? Repurchases – dividends- R&D spend Microsoft



Different dimensions of power in a complex economy

- Modernising the law on abuse of market power - Report (2017)
  - ❑ 'Intermediation power'
    - A significant ability to steer "information consumers" to certain offers, and thereby to affect – and possibly restrain – competition'
    - Relevance of a platform in mediating access to sales or supply markets even vis-à-vis firms that do not have a market relationship with the platform
  - ❑ Furman Report (2019)
    - 'Strategic market status'

Dimensions of power relevant for competition law analysis

- ❑ Resource dependency - horizontal or vertical (e.g. market share, bottleneck power, economic dependence, technological dependence)
- ❑ Panopticon power (being at the centre of a network)
- ❑ Power to set the agenda/manipulate preferences (on personalised markets)
- ❑ 'Architectural advantage': Being in a position to influence the way the industry is organised/structured and the value allocation between the industry (or ecosystem) actors.
  - Power emerging out of central positioning in networks and informational asymmetries
  - Positioning not necessary in adjacent vertical markets
  - Advanced Social Network Analysis
  - See I. Lianos et al. , Vertical Power: Theory and Metrics (forth., 2019)

Vertical Power I

Power family	Type of power	Source of power	Modality of power exertion	Scope of power sourcing exertion	Existence of standard metrics or modellin g
Process-based	Process-based	Capacity to apply credible sanctions that affect another agent's gains	Credible sanctions that affect another agent's gains	Vertical and horizontal	Yes
Resource dependenc e	Standard market power	Market structure	Affecting equilibrium quantities or prices in a market	Vertical and horizontal	Yes
Resource dependenc e	Exclusionary /bottleneck	Supply-side (e.g. an essential facility or input, a technology) and demand-side (e.g. high switching costs, strong positive network effects) conditions creating a bottleneck	Exclusion from the bottleneck resource	Vertical	Yes

Source: B. Carballa & I. Lianos: Vertical Power: Concept and Metrics

Vertical Power II

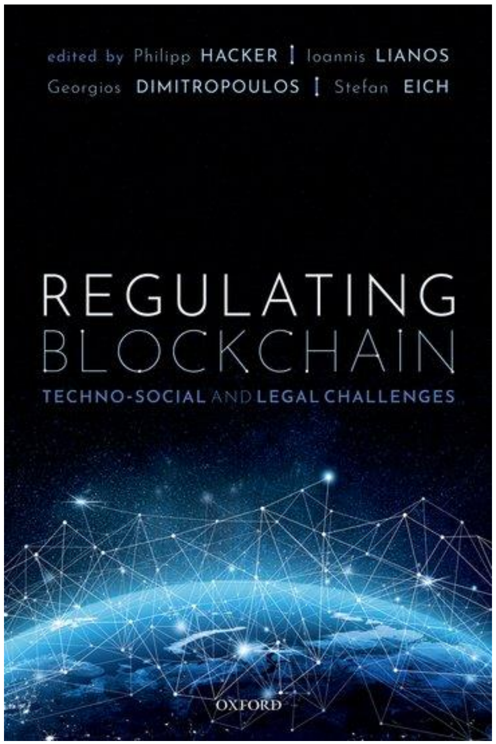
Power family	Type of power	Source of power	Modality of power exertion	Scope of power sourcing exertion	Existence of standard metrics or modelling
Resource dependence	Social exchange theory	Differential dependency between value co-creators	Obtaining a high share of the co-created value through bargaining	Fully vertical	No
Positional	Panopticon	A position in the network of value co-creation that allows to collect valuable information	Strategic use of the information to obtain a higher share of value	Fully vertical	No
Positional	Architectural	Capacity to influence the industry architecture by affecting at least one of its interphases (technological, institutional, social)	Influencing the industry architecture to obtain a higher share of the value created in the industry	Fully vertical	No

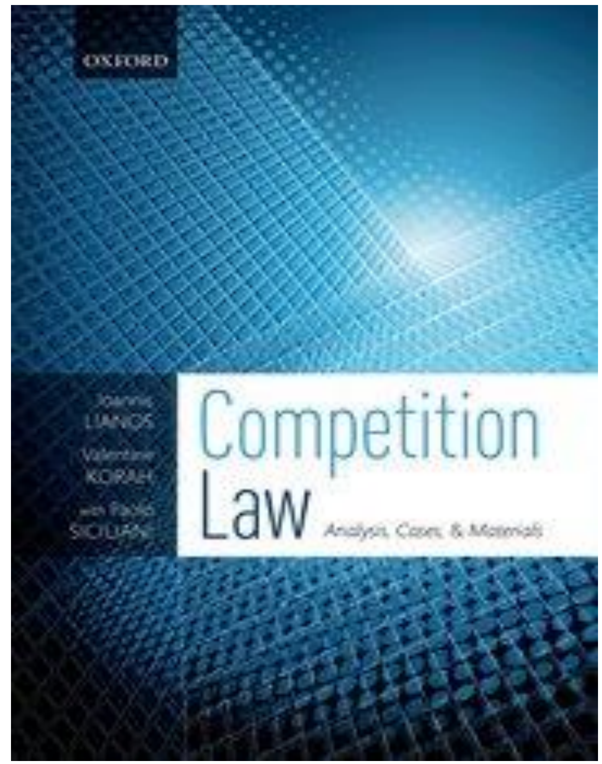
Source: B. Carballa & I. Lianos: Vertical Power: Concept and Metrics

A Legal institutionalist perspective

- The institutional/legal foundations of value extraction in digital capitalism
- A toolkit approach
  - ✓ Pervasive utilities' style regulation (but is it a natural monopoly?)
  - ✓ Soft regulation via codes of conduct
  - ✓ Creation of missing data markets and increasing commodification (of attention)
    - ✓ Establishing property rights for the new fictitious commodities (data, attention) or data portability
    - ✓ More than just property rights : Indian Draft National e-Commerce Policy (2019) pp. 14-15 '(t)he data of a country, therefore, is best thought of a collective resource, a national asset, that the government holds in trust, but rights to which can be permitted. The analogy of a mine of natural resource or spectrum works here'
  - ✓ Countervailing powers – collective bargaining
    - ✓ Collective bargaining from freelancers/users etc.
  - ✓ Polycentric competition law

Some extra reading… ☺





BRICS Digital Era Competition Report:
http://www.bricscompetition.org/materials/news/digital-era-competition-brics-report/

Some recent papers available at
https://papers.ssrn.com/sol3/cf_dev/AbsByAuth.cfm?per_id=565608
In particular this one
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3492730