How Politics Impacts Financial Markets & Makes Harmony Discordant in Finance

Randall Morck
University of Alberta, NBER, Bank of Canada, ECGI, ABFER

Based on joint work with Hyunbae Chan, Art Durnev, Merritt Fox, Allaudeen Hameed, Mark Huson, Jungwook Kim, Kan Li, Fan Yang, Bernard Yeung, Wayne Yu, Paul Zarowin & Lu Zhang

The review article “R2 and the Economy” by Randall Morck, Bernard Yeung & Wayne Yu in the Annual Review of Financial Economics, Vol. 5: 143-166 includes much of the content of this talk and interactive graphics

These views are the author’s and may or may not reflect those of the Bank of Canada
Capitalism Works
“I confess to an uneasy Physiocratic suspicion, perhaps unbecoming in an academic, that we are throwing more and more of our resources, including the cream of our youth, into financial activities remote from the production of goods and services, into activities that generate high private rewards disproportionate to their social productivity.”

Tobin (1984)
Two kinds of competition in capitalism

1. Competition to steal customers by cutting price (This does drive IRRs down to cost of capital)
2. Competition to steal customers by innovation to produce better products (This doesn’t drive IRRs down to cost of capital)

Reason

- Innovators have temporary monopolies (until others replicate or best their innovations)

Major conclusions

- The search for NPV > 0 projects is really a search for innovations, broadly defined
- Positive NPVs are a disequilibrium phenomenon
- Growth requires creative destruction
- Creative innovators’ new firms rise up to destroy (totally or partially) old established firms

Joseph Schumpeter
Technological progress: More or more valuable output from same or cheaper inputs

Roughly 2/3 of economic growth in developed economies is due to technological progress, rather than more capital, labor, or raw materials.
Schumpeter & Finance

Schumpeter: **Social purpose of finance** = sustain creative destruction

- A functionally efficient (Tobin 1984) financial system directs capital to (creative) firms with NPV > 0 projects & away from (sleepy) firms with no NPV > 0 projects.
- More functionally efficient financial system ➔ more prosperous economy.

Schumpeter’s Circular Flow

**Entrepreneurs** (Ideas, no money)

The financial system should set asset prices so investors get a “fair” risk-adjusted return - at least on average.

**Capitalists** (Money, no ideas)
Creative destruction: Large old firms die off faster in economies that grow faster

Politics & Finance

Firm considers 2 investment projects ($r = 10\%$)

1. New technology

\[ K = \$1M, \quad \Delta cf = \$150K/yr \quad \text{indefinitely} \ldots \]

\[ NPV_{\text{technology}} = \frac{\$150K}{10\%} - \$1M = \$0.5M > 0 \]

- After: Economy has new technology
- Positive externality: Technological spillovers

2. Buy senator

\[ K = \$1M, \quad \Delta cf = \$200K/yr \quad \text{indefinitely} \ldots \]

\[ NPV_{\text{senator}} = \frac{\$200K}{10\%} - \$1M = \$1M > \$0.5M \]

- After: Politician has a Swiss bank account
- Negative externality: Economy has tariffs, subsidies & tax loopholes

Apply NPV rule $\Rightarrow$ buy the Senator!

- If cost of capital rises to $r > 15\% \Rightarrow NPV_{\text{senator}} > 0 > NPV_{\text{technology}}$

Capitalist Time Inconsistency


Established firms’ lobbying (after they have raised capital) for laws & regulations to keep capital away from upstart firms is especially effective in retarding creative destruction

The financial system should set asset prices so investors get a “fair” risk-adjusted return - at least.

Schumpeter’s Circular Flow

Entrepreneurs
(Ideas, no money)

Capitalists
(Money, no ideas)

Stocks Up, by week - ‘96

<table>
<thead>
<tr>
<th>Week</th>
<th>China (N=308)</th>
<th>Malaysia (N=349)</th>
<th>Poland (N=38)</th>
<th>Denmark (N=233)</th>
<th>Ireland (N=57)</th>
<th>U.S. (N=6,889)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%Up</td>
<td>%Down</td>
<td>%Same</td>
<td>%Up</td>
<td>%Down</td>
<td>%Same</td>
</tr>
<tr>
<td>1</td>
<td>32</td>
<td>61</td>
<td>7</td>
<td>18</td>
<td>73</td>
<td>9</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>89</td>
<td>6</td>
<td>8</td>
<td>86</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>88</td>
<td>7</td>
<td>22</td>
<td>69</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>7</td>
<td>88</td>
<td>5</td>
<td>1</td>
<td>95</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>84</td>
<td>8</td>
<td>7</td>
<td>80</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>6</td>
<td>7</td>
<td>50</td>
<td>42</td>
<td>92</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>59</td>
<td>31</td>
<td>10</td>
<td>77</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>8</td>
<td>18</td>
<td>73</td>
<td>9</td>
<td>47</td>
<td>39</td>
<td>13</td>
</tr>
<tr>
<td>9</td>
<td>71</td>
<td>22</td>
<td>7</td>
<td>28</td>
<td>60</td>
<td>12</td>
</tr>
<tr>
<td>10</td>
<td>93</td>
<td>4</td>
<td>4</td>
<td>13</td>
<td>77</td>
<td>11</td>
</tr>
<tr>
<td>11</td>
<td>9</td>
<td>88</td>
<td>3</td>
<td>12</td>
<td>78</td>
<td>9</td>
</tr>
<tr>
<td>12</td>
<td>41</td>
<td>51</td>
<td>7</td>
<td>66</td>
<td>23</td>
<td>11</td>
</tr>
<tr>
<td>13</td>
<td>89</td>
<td>7</td>
<td>4</td>
<td>53</td>
<td>34</td>
<td>13</td>
</tr>
<tr>
<td>14</td>
<td>84</td>
<td>9</td>
<td>6</td>
<td>41</td>
<td>50</td>
<td>8</td>
</tr>
<tr>
<td>15</td>
<td>21</td>
<td>73</td>
<td>5</td>
<td>15</td>
<td>73</td>
<td>12</td>
</tr>
<tr>
<td>16</td>
<td>18</td>
<td>75</td>
<td>7</td>
<td>23</td>
<td>66</td>
<td>11</td>
</tr>
<tr>
<td>17</td>
<td>29</td>
<td>63</td>
<td>8</td>
<td>56</td>
<td>25</td>
<td>19</td>
</tr>
<tr>
<td>18</td>
<td>5</td>
<td>92</td>
<td>3</td>
<td>6</td>
<td>87</td>
<td>6</td>
</tr>
<tr>
<td>19</td>
<td>35</td>
<td>56</td>
<td>9</td>
<td>33</td>
<td>57</td>
<td>10</td>
</tr>
<tr>
<td>20</td>
<td>29</td>
<td>60</td>
<td>11</td>
<td>94</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>21</td>
<td>89</td>
<td>8</td>
<td>3</td>
<td>21</td>
<td>72</td>
<td>7</td>
</tr>
<tr>
<td>22</td>
<td>21</td>
<td>76</td>
<td>4</td>
<td>51</td>
<td>42</td>
<td>7</td>
</tr>
<tr>
<td>23</td>
<td>16</td>
<td>79</td>
<td>5</td>
<td>78</td>
<td>17</td>
<td>5</td>
</tr>
<tr>
<td>24</td>
<td>55</td>
<td>37</td>
<td>8</td>
<td>16</td>
<td>77</td>
<td>7</td>
</tr>
<tr>
<td>25</td>
<td>4</td>
<td>84</td>
<td>12</td>
<td>72</td>
<td>18</td>
<td>9</td>
</tr>
<tr>
<td>26</td>
<td>73</td>
<td>20</td>
<td>7</td>
<td>30</td>
<td>60</td>
<td>9</td>
</tr>
</tbody>
</table>
Stocks in low-income economies rise and fall like voices in a choir

The Economist on "harmony" in China
Stocks in high-income countries are like crowded cocktail parties, where everyone talks independently (white noise)
One researcher’s focus is another’s nuisance

Systematic (market-wide, undiversifiable) risk: stock moves with market

Focus of asset pricing models

Something to control for in event studies

Firm-specific (idiosyncratic, diversifiable) risk – stock moves independently

Focus of event studies

Residual in asset pricing model

Firm-specific return volatility as event intensity?

More or larger events ➔ more or more valuable information being capitalized into share prices
The economic meaning of a familiar statistic

The Capital Asset Pricing Model (CAPM) says a stock’s return is explained by

$$r_{it} = r_f + \beta_i (r_{mt} - r_f) + \varepsilon_i$$

- **Stock Price Move**
- **Base Interest Rate**
- **Moves with Other Stocks** (i.e. with the Market)
  - **Undiversifiable** (Market Risk)
- **Moves on Its Own** (i.e. idiosyncratically)
  - **Diversifiable** (Firm-specific Risk)

A regression’s $R^2$ is not just a measure of “goodness of fit”, it also has an economic meaning

$$R^2_i = \frac{\text{movement with market}}{\text{movement with market} + \text{movement on its own}}$$
The economic meaning of a familiar statistic

Capital Asset Pricing Model (CAPM) says a stock’s return is explained by

\[ R_{it} = R_f + \beta_i (R_m - R_f) + \epsilon_i \]

- \( R_{it} \) is the return of stock \( i \) at time \( t \)
- \( R_f \) is the risk-free rate
- \( \beta_i \) is the stock's beta, indicating its market risk
- \( R_m - R_f \) represents the excess market return
- \( \epsilon_i \) is the idiosyncratic or firm-specific risk

A regression’s \( R^2 \) is not just a measure of “goodness of fit”, it also has an economic meaning

\[ R^2_i = \frac{\text{Explained Variance}}{\text{Total Variance}} = \frac{\text{Sum of Squares of Regression (SSR)}}{\text{Total Sum of Squares (SST)}} \]

Moves with Other Stocks (i.e. with the Market)
Moves on Its Own (i.e. idiosyncratically)
Undiversifiable
Diversifiable
Stock Prices Move More Independently

- In more developed (higher income, less corrupt) economies
- In US in late 20th century (also 1920s, 1960s)

Not explained by

- Country size or stock market size
- Regional effect, e.g. Latin America
- Macroeconomic volatility, crises
- Country industrial structure
- Mean firm diversification
- Natural resources dependence

...

- Replicates our finding, far more statistically sophisticated
- Effective diversification requires more stocks
Economists believe investors, firms solve this optimization

\[
NPV_{t_0} = E \left[ \int_t^\infty e^{-r_t} \left( p_t y_t - \sum_{j=1}^J p_{j,t} x_{j,t} - T_t \right) dt \bigg| \Omega_{t_0} \right] - K_{t_0}
\]

by solving a system of stochastic differential first order conditions

Tobin’s concept of “functional efficiency” of the financial system: How well does the financial system direct capital to its highest value uses?
By solving a system of stochastic differential first order conditions:

How well does a country’s financial system reliably channel capital spending into industries where its value-added is highest?

Wurgler’s functional efficiency proxy:

\[
\eta = \frac{\partial \ln(\text{value added})}{\partial \ln(\text{capital spending})}
\]
1. **Economics of information**

Veldkamp, Laura. 2006. Information markets & the comovement of asset prices. Review of Economic Studies 73(3)823-845

- Theoretical basis: information is a good produced by profit-maximizing information intermediary firms (Grossman & Stiglitz)
- Assume a large fixed cost to information production
  - Produce readily sellable information first
  - Produce niche-market information if doing so is economically viable

\[
\frac{\partial C}{\partial I} = \frac{\partial R}{\partial I}
\]

- Market-related information has more buyers, so higher information fixed costs shift production away from information relevant to individual firms & towards information relevant to many firms
- \( R^2 \) measures relative intensity of systematic and firm-specific information production in a time window
- Information about the economy has more potential buyers than does information about any individual firm
1. Economics of information

Veldkamp, Laura. 2006. Information markets & the comovement of asset prices. Review of Economic Studies 73(3)823-845

Evidence re information specialist firms & informed investors

- Analysts’ forecasts contain mainly industry & economy-level info (Schutte & Unlu 2009; Crawford et al. 2012).
- More firm-specific return variation if institutional investors own more (Malkiel & Xu 2002; Chung, Fung, Shilling & Simmons-Mosley 2011), esp. hedge funds (Chun et al. 2011) more important, or trade more (Piotroski & Roulstone 2004)

Evidence re. informed arbitrage intensity

- $R^2$ falls with FPI barriers (Li, Morck, Yang & Yeung 2004; Bae, Bailey & Mao 2006), FPI inflow (Bae et al. 2006), x-listing in US (Bae et al. 2006) or HK (Gul, Kim & Qiu 2010)
- $R^2$ falls with easier short sales, esp. on downside (in US Bris, Goetzmann & Zhu 2007) and HK Chang, Cheng, Pinegar & Yu (2012)

Evidence re. market liquidity

- Price co-moves with liquidity, esp. in bear markets (Chordia, Roll & Subrahmanyam 2000, 01, 02, 05). Liquidity dries up across all securities in bear markets (Hameed et al. 2010)
- Chinese reforms reduced this correlation (Qian et al. 2014)
- Liquidity co-moves more in more volatile markets (Brockman et al. 2009; Karolyi et al. 2012)
1. Economics of information

Veldkamp, Laura. 2006. Information markets & the comovement of asset prices. Review of Economic Studies 73(3)823-845

Evidence re. public news announcement intensity

- Computer text analysis (Boudoukh et al. 2013) links more SSE to public news than Roll (1988)
- Higher SSE if accounting more trusted (Jin & Myers 2006; Lau et al. 2012); IFRS bigger improvement (Bissessur & Hodgson ‘12; Kim & Shi ‘12); ’80 FASB reform matters more (Fox et al. 2003); less accruals mgt., pre-SOX only (Marcus & Tehranian ‘09); voluntary disclosure better in US (Haggard, Martin & Pereira 2008) & China (Gul, Kim & Qiu 2010), governance better (Ferreira & Laux 2007); more foreign and less state ownership in China (Gul et al. ‘10)
- Bust of SSE just before SEO or x-listing (Dasgupta, Gan & Gao 2010)

Evidence re. SSE & insider trading intensity

- SSE higher if more insider trading in US (Piotroski & Roulstone 2004), stronger insider trading law across countries (Durnev & Nain ‘07)
- Reconciliation: US bans insider trading until material inside information is public & requires disclosure. Incidence of disclosed firm-specific events correlates with subsequent insider trades under US-style rules, but not where insiders freely trade on undisclosed information.
  - 1st insider trading enforcement lifts SSE in DCs, but not LDCs (Fernandes & Ferreira 2009)
  - Regardless of sporadic enforcement, firm-specific information in some LDCs seeps slowly into prices via insider trading well before public disclosure (Bhattacharya, Daouk & Kehr 2000)?
Some Proposed Explanations

1. Economics of information

2. Corporate governance


- Corporate insiders “divert” profits if they can
- Easier to divert firm-specific profits than market-wide profits
Some Proposed Explanations

1. Economics of information

2. Corporate governance


Evidence re corporate insider corruption

- $R^2$ lower is less corruption (Morck et al. 2000); cleaner accounting (Jin & Myers 2006; … ibid.

Evidence re corporate fundamentals

- Fundamentals SSE higher if return SSE higher (Pastor & Veronesi 2003; Jin & Myers 2006; Wei & Zhang 2006; Chun et al. 2008; Irvine & Pontiff 2009); competition stiffer (Irvine & Pontiff 2009; Gasper & Massa 2006)
  - Japan an outlier: SSE low (Morck & Yeung 2003) & falling in ‘90s (Hamao, Mei & Xu 2007). Banker influence & higher risk aversion (Morck, Nakamura & Shivdasani 2000); SSE higher in family firms (Nguyen 2011), which are well governed (Mehrotra et al. 2014)

- Higher SSE if higher valuation (Cao et al; Zhang 2010; Bekaert, Hodrick & Zhang 2012), CG score (Ferreira & Laux 2007), CG mechanisms (Khandaker 2011), smaller board (Cheng 2011), institutional investor (Malkiel & Xu 2002); institutional trading (Ferreira & Laux 2007), more foreign & less state ownership in China (Gul et al. ‘10), x-listing (Fernandes & Ferreira 2008), founder control (Adams, Almeida & Ferreira 2005), shareholder rights (Morck et al. 2000), Independence from business groups in Japan (Hamao, Mei,& Xu 2007) & elsewhere (Khana & Thomas 2009)
1. Economics of information

2. Corporate governance

3. Herding
   - Investors (Keynes 1936; Kindleberger 1978; DeLong et al. 1990; Shiller 2000; Reinhart & Rogoff 2011) & CEOs (Keynes 1936) herd

Theoretical work
   - Information cascades about macro prospects (Devenow & Welch 1996)
   - To “matter”, noise traders must elevate systematic risk.
   - Delong et al (1999) model noise traders creating their own space: their herding elevates systematic risk, increasing arbitrageurs’ costs of capital

\[
\begin{align*}
    r_{i,t} &= r_f + \beta_{i,m} \lambda_{m,t} + \beta_{i,n} \lambda_{n,i,t} + \varepsilon_{i,t} \\
    R^2 &= \frac{\text{var}(\beta_{i,m} \lambda_{m,t} + \beta_{i,n} \lambda_{n,i,t})}{\text{var}(r_{i,t})}
\end{align*}
\]

Some Proposed Explanations

$\Rightarrow$ increasing opacity $\Rightarrow$
1. Economics of information
2. Corporate governance
3. Herding

Evidence from sociology

- A “tight” culture has narrow tolerance for deviation from social norms, a “loose” culture accepts eccentrics, oddballs (Pelto 1968; Triandis 1989; Gelfand et al. 2006, 2011)
- In a tight culture, investors find & process similar info ➔ similar valuations
- Share experiences & view ➔ similar behavioral biases
- Value conformity ➔ discount discordant views

Several Proposed Explanations ...

1. Economics of information
2. Corporate governance
3. Herding

More evidence

- Higher systematic volatility in bear markets (Ribeiro & Veronesi 2002; Brockman, Liebenberg & Shcutte 2010), esp. in LDCs (Brockman, Liebenberg & Shcutte 2010), fits panicky noise traders depressing equity prices & elevating operating (Veldcamp 2006) & financial leverage, systematic risk & cost of capital
- Peress (2014) DSGE model uses synchronicity to infer ratio of noise traders to informed traders, implications re. functional efficiency & TFP growth?
- Liquidity comovement related to institutional investors’ incentives to trade individual securities & sentiment (Brockman et al. 2009; Karolyi et al. 2012)
Coalesce into One Explanation?


A more functionally efficient financial system?

![Graph showing relationship between Wurgler's Functional Efficiency Proxy and Market Model R-squared across various countries.](image)
Tobin’s investment model

\[ \text{capex} = a + bQ + e \]

Finding: Larger \( b \) if

- \( R^2 \) lower (more firm-specific events)
  - Note: Higher firm-specific volatility could reflect either
    1. More public news announcements
    2. More private information-driven trading moving the price

- PIN (probability of informed trading) higher
  - Note: Higher adverse selection component of bid-ask spread \( \rightarrow \) market maker more worried about private information

Bottom line: More firm-specific information getting into stock price, then capex more driven by stock price
To see how “informative” stock prices are about firms’ prospects, run regressions of current stock price changes (returns) on future earnings deviations from forecasts:

\[ r_{it} = b_0 + b_1 (E_{t+1} - E[E_{t+1}]) + b_2 (E_{t+2} - E[E_{t+2}]) + b_3 (E_{t+3} - E[E_{t+3}]) + \ldots \]

Regression R^2 is stock’s “earnings response coefficient” or ERC.

A higher ERC means:

- The stock’s price changes better forecast the firm’s future earnings
- The stock price is more informative about the true value of the firm
- The stock price is “more efficient”

Finding:

Stocks with higher ERCs also more more idiosyncratically (lower market model R^2’s)

Back to Capital Budgeting

Inframarginal project has NPV >> 0

Keep investing until all NPV > 0 projects are used up
Then stop!
1. More information
2. Better governance
3. Less Herding

Better financial system
Stronger “circular flow”
Faster creative destruction

Entrepreneurs (Ideas, no money)

The financial system should set asset prices so investors get a “fair” risk-adjusted return - at least on average

Capitalists (Money, no ideas)
Growth in developed economies depends mostly on creative destruction

Creative firms’ stocks rise to reflect their success

Destroyed (or damaged) sleepy firms’ stocks fall to reflect their failure

Faster paced creative destruction widens gap between winners & losers

This should appear in stock returns data as firm-specific risk, i.e. “events”
Creative destruction in action

Gap between winner & loser ends up in “firm-specific” returns
R&D & Growth Options

Intangibles spending

- R&D tied to earnings volatility (Kothari, Laguerre & Leone 2002)
- Intangible investment linked to earnings variability; R&D esp. correlated with earnings variability in industries where patents are better protected (Brown & Kimbrough 2011)
- Advertising correlates with firm-specific return volatility in pharmaceuticals (Osinga, Leeflang, Srinivasan & Wieringa 2011)

Does heavy advertising

- Have winner-take-all characteristics akin to R&D races?
- Follow innovative success?

Growth options

- Higher Tobin’s average Q ratios or market-to-book ratios tied to higher firm-specific returns and/or fundamentals volatility (Cao et al; Zhang 2010; Bekaert, Hodrick & Zhang 2012).
- This has Implications for growth options if Tobin’s marginal Q ($\dot{q} = \frac{\partial V}{\partial K}$), a measure of growth options, equals Tobin’s average Q ($q = \frac{V}{K}$), properly a measure of shareholder valuations.
“A wave of innovation across a broad range of technologies, combined with considerable deregulation & a further lowering of barriers to trade, fostered a pronounced expansion of competition & creative destruction. The result through the 1990s of all this seeming-heightened instability for individual businesses, somewhat surprisingly, was an apparent reduction in the volatility of output & in the frequency & amplitude of business cycles for the macroeconomy.”

Zhang, Lu. 2015. Creative Destruction and Firm-Specific Return Variation: Evidence from the 1920s and 1930s

- Major new GPT rollouts: electrification, cinema, automobiles, aviation, telephone networks, radio, ...
- \( \log(1 - R^2) \) on industry-level patents. 1920 – 39, US data

<table>
<thead>
<tr>
<th></th>
<th>( \log(PT10y) )</th>
<th>( \log(PTstock) )</th>
<th>( \log(PT1y) )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \text{Ind. patents} )</td>
<td>0.870** (2.56)</td>
<td>0.751** (2.47)</td>
<td>0.515** (2.13)</td>
</tr>
<tr>
<td>( \log(MV) )</td>
<td>-0.333*** (-4.36)</td>
<td>-0.335*** (-4.37)</td>
<td>-0.338*** (-4.34)</td>
</tr>
<tr>
<td>( \log(Age) )</td>
<td>-0.214 (-1.44)</td>
<td>-0.216 (-1.46)</td>
<td>-0.218 (-1.46)</td>
</tr>
<tr>
<td>( HHI )</td>
<td>-1.455*** (-3.69)</td>
<td>-1.450*** (-3.70)</td>
<td>-1.445*** (-3.64)</td>
</tr>
<tr>
<td>( \text{Adj. } R^2 )</td>
<td>0.744</td>
<td>0.743</td>
<td>0.742</td>
</tr>
<tr>
<td>( N )</td>
<td>510</td>
<td>510</td>
<td>510</td>
</tr>
</tbody>
</table>
Monday, March 16, 2015 - 4:30pm

There are too many scientific studies, new study reports

So much science, so little time. A new study published on the preprint server arXiv reports that the ballooning number of scientific studies may be overwhelming scientists, preventing them from keeping up with current literature in their field. The citation rate of papers is declining because researchers can't devote enough attention to each paper, CNET reports. That means that of the massive numbers of studies published each year, many will quickly fade away into scientific obscurity.
A good model is as simple as possible, but not simpler.

A. Einstein

\[ \sigma^2 = \sigma^2 \]
Less Simple Models

1. Sooner or later, information has to come out?
   - In a transparent world, info all comes out right away
   - In an opaque world, info all comes out with a delay
   - Either way, the stock price (eventually) moves the same amount

*Bottom line: If observation window long enough \(\rightarrow\) price movement same \(\rightarrow R^2\) same?*

2. Information intermediaries
   2a. Information depreciates?
   - In an opaque world, by the time information comes out it could be irrelevant to valuations
   - Earnings are mean reverting (Barber and Lyon 1996, JFE; Fama & French 2000, JB)

*Bottom line: More mean reversion in more information rich stock markets*

2b. Informed trading causes firm-specific risk for everyone else?
   - You gather information, take large position, price moves \(\rightarrow \downarrow R^2\)
   - I see price moving, worry stock is risky, look elsewhere for potential arbitrage profits (Pontiff, Shleifer & Vishny) \(\rightarrow \uparrow R^2\)

*Bottom line: A period of intense informed arbitrage (causes lots of idiosyncratic price movement) causes subsequent period of neglect (stock mainly moves with market)?*

4. More functional efficiency allows accelerated creative destruction?
   - More intense creative destruction \(\rightarrow\) lower \(R^2\)
   - Young dynamic firm \(\rightarrow\) lots happening (lots of news) \(\rightarrow\) low \(R^2\) (moves a lot on its own)
   - Old sleepy firm \(\rightarrow\) little happening (little news) \(\rightarrow\) high \(R^2\) (moves mostly with the market)

*Bottom line: Younger firms’ stocks should be more idiosyncratically volatile*
Some findings

Davis, Haltiwanger, Jarmin & Miranda (2006) use plant-level labor data on all US firms, listed & private, and find falling employment growth total volatility for unlisted firms, which drives overall pattern for all firms.
Corporate Demography

Some findings
- Brown & Kapadia (2007) link rising US idiosyncratic volatility to IPOs; persistently higher idiosyncratic volatility in later IPO cohorts therefore its younger riskier firms listing, not smaller firms.
- Fink, Fink, Grullon & Weston (2010) report steady drop in firm age at IPO - from ca. 40 years in early 1960s to < 5 years by 2000.

Some explanations
- Existing firms have vested interest in old technology (Bower & Christensen 1995), so innovators found own firms, which need vast capital very quickly.
- Listing uniquely provides large injections of risk-tolerant equity capital.
- Private equity that funds innovation (venture capital funds) exits via IPOs or via M&A by listed firms (Gompers & Lerner).
- Unlisted firms not prone to dynamic innovation (Steve Kaplan’s LBO targets need stable industries, stable cash flows, low risk, ... )

As firm ages, investors have learned more about its time-invariant characteristics, so $R^2$ rises even though the firm is more transparent.
Analysts Following & $R^2$


More analysts following $\rightarrow$ higher $R^2$


In Australia, France, Germany, UK & US, higher $R^2$ correlates with more accurate analyst forecasts


Low-$R^2$ stocks are small, young, followed by few analysts, and have high spreads, high price impact, greater short-sale constraints and less frequent trading
There are “bellwether” stocks

- When these move, other similar stocks move similarly
- When other similar stocks move, bellwether stocks do not move

Veldkamp, Laura. 2006. Information markets & the comovement of asset prices. Review of Economic Studies 73(3)823-845

Information producers produce information with

- Market-wide relevance first because this has the most buyers
- Industry-specific relevance second because this has the next most buyers
- Information producers produce information about bellwether firms second because this has as many buyers as industry-relevant information
- Information producers produce information with firm-specific relevance last because this has the next most buyers
Nonlinearity


Nonlinear relation of synchronicity & public information

Public information measured by

- $\ln(\text{voluntary disclosures})$ i.e. managerial earnings forecasts beyond mandatory quarterly announcements
- 1st principal component of $\ln(\# \text{ voluntary disclosures})$, firm size & $\ln(1 + \text{analysts following})$
- Dummy for recent IPOs

Fuller public disclosure $\rightarrow$ less profit for arbitrageurs

Fuller public disclosure $\rightarrow$ complete updating of price

Most synchronicity at 50% largest block

More synchronicity correlated with
- Largest shareholder being state-related
- Less foreign ownership, lower quality auditor
- Returns less well explained by earnings
Use of intellectual property rights (trademark applications per firm) varies across China
Rule of Law (lawyers / 10K pop.) varies across China
Pluralism (non-Party members in People’s Cong.) varies across China
$R^2$ lower if firm based in provinces with more use of intellectual property rights, stronger rule of law, more pluralism.

- **Synchronicity remains high in China**


- **Proxies for better corporate governance correlate with lower synchronicity**


- **More loans from SOE banks → more synchronicity**


- **Higher dividend → more synchronicity**


- **Mutual fund analysts affiliated with brokerage firms produce more firm-specific information (lower synchronicity for covered firms)**

esp. if stock has heavy weight in mutual fund’s portfolio

Affiliated analysts also do more site visits


- **Chinese data: Better regulatory environment → less synchronous, but foreign investors correlate with higher synchronicity (foreigners herd in & out?)**


- **Increased asynchronicity & reduced cost of capital after adopt IFRS**
Tentative Bottom Lines

More functionally efficient financial systems let more creative innovators get more capital faster

- More idiosyncratically volatile stocks & fundamentals of listed firms in countries & eras of better capital allocation

Creative destruction winners & losers

- Gap evident as high firm-specific returns & fundamentals variation
- Both correlate with TFP & GDP growth

Financial system functional efficiency $\Rightarrow$ creative destruction

- Exiting firms have vested interest in preserving value of existing human & physical capital
- Innovators must found new firms to realize value of their IP
- Public equity is uniquely risk-tolerant source of large capital injections
- Even VC funds rely on exiting via IPOs (Gompers & Lerner)

Politics $\Rightarrow$ functional efficiency

Zingales, Luigi. 2012. Capitalism for the People

- Pro-business political policies are often not pro-market policies
Reliance on creative destruction for economic growth
Slowing pace of US innovation? Secular stagnation?

= Eras Intense Creative destruction (Jovanovic & Rousseau 2005)
Thank you