
Discussion of
Why Are Returns to Private Business Wealth So Dispersed?
Boar, Gorea, Midrigan (2023)

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► **What this paper is about.** Understanding

1. why returns to private business wealth are so dispersed.
2. the implications of this dispersion at micro- and macro level.

► **What this paper does:**

- Take standard model of entrepreneurial dynamics.
 - With ingredients from Lucas 1978, Hopenhayn 1992, Kiyotaki Moore 1997.
- Calibrate model to match empirical moments in ORBIS data, 1995–2018.
- Use model to:
 1. Quantify sources of return dispersion (fixed factor + uninsurable risk + collateral constraints.)
 2. Assess impact of financial frictions on economic outcomes.

BGM Findings

1. Returns to private business wealth very dispersed and persistent.

- Average returns: mean 0.08, std. dev. 0.22 (in data; also in model.)
- Marginal returns: mean 0.05, std. dev. 0.06 (in model.)

2. Majority of dispersion in returns explained by risk.

- Collateral constraint binds for $< 10\%$ of entrepreneurs.

3. Macro-level impact of financial frictions:

- Collateral constraints: None.
- Uninsurable risk: Huge.

Why Are These Findings Important?

▶ Big literature emphasizes macro effects of binding collateral constraints:

(Kiyotaki Moore 1997; Bernanke Gertler Gilchrist 1999, Quadrini 2000, Cagetti DeNardi 2007, Buera 2009, Jermann Quadrini 2012, Buera Shin 2013, Banerjee Duflo 2014, Moll 2014, Gopinath et al 2017, ...)

- Business cycles.
- Development.
- Entrepreneurship.
- Wealth inequality.
- Monetary policy.

▶ This paper says *collateral constraints not important for key macro outcomes.*

My Discussion

▶ **Three points:**

1. No precautionary savings for production reasons may lead to overstate importance of risk.
2. Limited heterogeneity in BGM entrepreneurs may lead to overstate importance of risk.
3. Lack of insurance by BGM entrepreneurs may lead to overstate importance of risk.

▶ **BGM relative to literature.**

The Model

BGM Entrepreneurs

► Choose $\{\mathbf{c}, \mathbf{k}, \mathbf{l}, \mathbf{a}\}$ to solve:

$$\max \mathbb{E}_0 \sum_{t=0}^{\infty} \beta^t \frac{c_t^{1-\theta}}{1-\theta}$$

$$\text{s.t. } c_t + \underbrace{a_{t+1} - a_t}_{\text{change in equity}} \leq \underbrace{ra_t + z_t \varepsilon_t (k_t^\alpha l_t^{1-\alpha})^\eta - Wl_t - (\delta + r)k_t}_{\text{net income, } \pi_t}$$

$$k_{t+1} \leq \left(\frac{1}{1-\xi} \right) a_{t+1}$$

$$\log z_{t+1} = \rho \log z_t + u_{t+1}$$

k, l chosen before shocks

► Who are these guys?

BGM Entrepreneurs

► Choose $\{\mathbf{c}, \mathbf{k}, \mathbf{l}, \mathbf{a}\}$ to solve:

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k, l chosen before shocks

► Who are these guys? **Single owners**

BGM Entrepreneurs

► Choose $\{\mathbf{c}, \mathbf{k}, \mathbf{l}, \mathbf{a}\}$ to solve:

$$\begin{aligned} \max \quad & \mathbb{E}_0 \sum_{t=0}^{\infty} \beta^t \frac{c_t^{1-\theta}}{1-\theta} \\ \text{s.t.} \quad & c_t + \underbrace{a_{t+1} - a_t}_{\text{change in equity}} \leq \underbrace{ra_t + z_t \varepsilon_t (k_t^\alpha l_t^{1-\alpha})^\eta - Wl_t - (\delta + r)k_t}_{\text{net income, } \pi_t} \\ & k_{t+1} \leq \left(\frac{1}{1-\xi} \right) a_{t+1} \\ & \log z_{t+1} = \rho \log z_t + u_{t+1} \\ & k, l \text{ chosen before shocks} \end{aligned}$$

► **Who are these guys?** Single owners, with only business income

BGM Entrepreneurs

► Choose $\{\mathbf{c}, \mathbf{k}, \mathbf{l}, \mathbf{a}\}$ to solve:

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k, l chosen before shocks

► **Who are these guys?** Single owners, with only business income and wealth $a = k - b$

BGM Entrepreneurs

- Choose $\{c, k, l, a\}$ to solve:

$$\max \mathbb{E}_0 \sum_{t=0}^{\infty} \beta^t \frac{c_t^{1-\theta}}{1-\theta}$$

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- **Who are these guys?** Single owners, with only business income and wealth, with homogeneous user costs

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k, l chosen before shocks

- **Who are these guys?** Single owners, with only business income and wealth, with homogeneous user costs, **with identical span of control**

BGM Entrepreneurs

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k, l chosen before shocks

- **Who are these guys?** Single owners, with only business income and wealth, with homogeneous user costs, with identical span of control, with same CRRA

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k, l chosen before shocks

- **Who are these guys?** Single owners, with only business income and wealth, with homogeneous user costs, with identical span of control, with same CRRA, **equally impatient**

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k, l chosen before shocks

- **Who are these guys?** Single owners, with only business income and wealth, with homogeneous user costs, with identical span of control, with same CRRA, equally impatient, **have no precautionary demand for liquidity for production reasons.**

Some Thoughts

► **Point 1: No precautionary demand for liquid assets for production reasons.**

- Entrepreneurs could suffer from collateral constraints even if they hold lots of assets.
 - Eg, they may hold on to cash to pay for intermediate goods, to pay workers, taxes, etc.
- Some support for this idea in Banerjee Duflo 2014.
 - Show that large firms that appeared not constrained were actually severely constrained.

→ If entrepreneurs demand liquid assets for production reasons, collateral constraints more important than what BGM suggest.

• **Suggestions:**

- Plot impulse response function for capital after large shock. How much does k_{t+1} respond?
- Compute how many assets entrepreneurs have relative to costs of materials and wage bill.
- Consider gross output rather than value-added production function.
- Make different assumptions on when workers gets paid.

Some Thoughts

► **Point 2: BGM entrepreneurs relatively homogeneous.**

(No differences in CRRA, impatience, span of control, user costs.)

- How much of return dispersion explained by ex-ante heterogeneity?
 - Empirical work uncovers large heterogeneity (Hasenzagl Perez 2024, Perez 2024.)
 - Span of control
 - Depreciation rates
 - Structural work calls for heterogeneity in risk aversion and impatience to match portfolio choices (Azzalini Kondziella Racz 2023.)

→ Failure to capture ex-ante heterogeneity may lead BGM model to overstate role of risk.

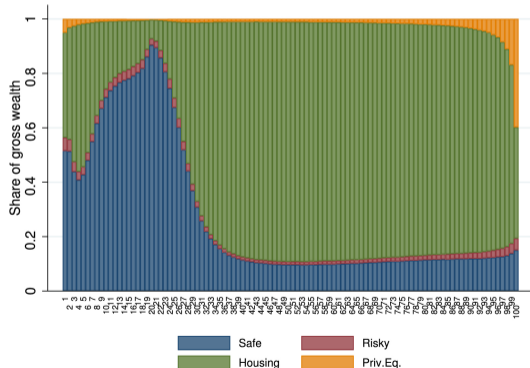
- **Suggestion:** Calibrate model for different sectors, compute returns with risk corrections, look at return dispersion across sectors.

Some Thoughts

► **Point 3: BGM entrepreneurs do not have access to much insurance.**

(No other businesses, no other fin. assets, no housing, no spousal or other family income, no gvt transfers, no possibility of paid employment, ...)

- In reality, entrepreneurs have more insurance: wealth \neq priv. business wealth.



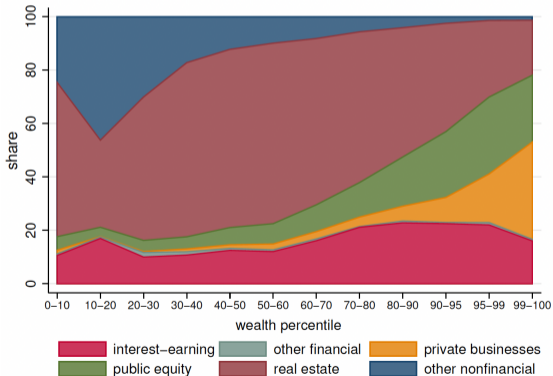
Source. Fagereng et al 2020. Norwegian households, 2004–2015. Based on admin. data.

Some Thoughts

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Source. Xavier 2021. US households, 2019. Based on SCF.

Some Thoughts

► **Point 3: BGM entrepreneurs do not have access to much insurance.**

(No other businesses, no other fin. assets, no housing, no spousal or other family income, no gvt transfers, no possibility of paid employment, . . .)

- In reality, entrepreneurs have more insurance: wealth \neq priv. business wealth.
 - Private business wealth < 40% of (European and US) entrepreneurs' portfolios.
(See Fagereng et al 2020, Bach et al 2020, Gentry Hubbard 2000, Xavier 2021)
- Response to shocks in business depends on overall portfolio.
- How could this lack of insurance affect BGM results?
 1. If entrepreneurs have more diversified portfolios (ie, negative beta wrt private business,) BGM model will overstate importance of risk.
 2. If entrepreneurs have more assets than what ORBIS suggests (only business wealth data,) calibrated parameters may change, and BGM could now understate or overstate role of risk.
- **Suggestion:** Make adjustments to match data based on total wealth, do same exercise.

Findings

BGM Findings

Understanding Sources of Return Dispersion

► Expected average returns to wealth:

$$\frac{\mathbb{E}_{t-1} \pi_t}{a_t} = \underbrace{r}_{\text{risk-free rate}} + \underbrace{(1 - \eta) \frac{\mathbb{E}_{t-1} y_t}{a_t}}_{\text{fixed factor}} - \underbrace{\eta \frac{\text{Cov}(c_t^{-\theta}, z_t \varepsilon_t)}{\mathbb{E}_{t-1} c_t^{-\theta}}}_{\text{risk premium}} + \underbrace{\mu_{t-1}}_{\text{borrowing constraint}}$$

financial frictions

- On aggregate, 36% accounted for fixed factor, 42% for financial frictions (mostly risk.)
- Easy to see that lack of insurance matters, span of control is a key parameter.

► Similar point for marginal returns, where risk also main source of dispersion.

- Exercise reveals < 10% of firms suffer from collateral constraints. **Very surprising.**

BGM Findings

Macro Impact of Financial Frictions

- ▶ **Counterfactual.** *Eliminating collateral constraints* leads to:
 - ↑ 0.02% in TFP.
 - ↑ 0.15% in output.
 - ↑ 0.02% in wages.

- ▶ *Negligible changes.*

- ▶ *Very interesting finding.* Even more interesting if similar result with:
 - Precautionary demand for liquid assets for production reasons.
 - More ex-ante heterogeneity.
 - More insurance.

BGM Relative to Literature

Existing Literature

How does BGM fit into literature on wealth inequality?

Two strands of literatures.

- ▶ Empirical: carefully estimates distribution of assets and returns of *individuals*; shows:
(Fagereng et al 2020, Bach et al 2020, Xavier 2021, ...)

1. Private business wealth, highly concentrated at the top.
2. Returns to wealth very dispersed, especially those of private businesses.
3. Returns highly persistent (type dependence) and scale with wealth (scale dependence.)

- ▶ Structural: studies inequality and looks to fix problems of Aiyagari-style models to replicate top shares of wealth distribution.

(Bisin et al 2011, 2015, Gabaix et al 2016, Krusell Smith 2018, Hubmber et al 2021, Guvenen et al 2023, ...)

- ▶ Emphasizes role of return heterogeneity.
- ▶ Does not investigate deep causes of return heterogeneity.

My Take

▶ BGM ask important, challenging questions.

- Relevance: Returns to priv. business wealth important contributor to wealth heterogeneity; return heterogeneity matters for efficiency, inequality, etc.
- Challenges: theory and measurement.

▶ Fill an important gap:

- Little known about deep, underlying sources of return dispersion.

▶ Nice combination of data and model + transparent analysis.

▶ More work needed:

- + precautionary demand for liquid assets for production reasons.
- ↑ ex-ante heterogeneity.
- ↑ insurance.

Thank You!

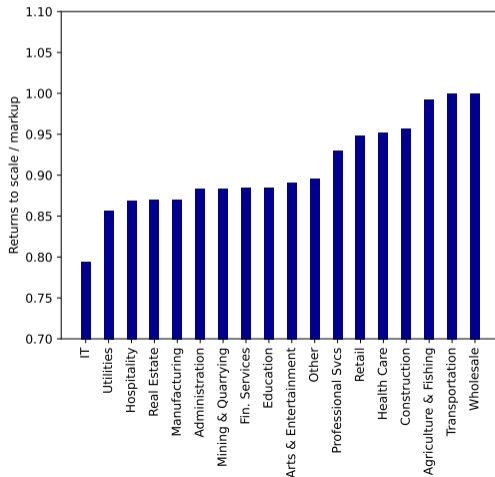
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(Website: <https://sites.google.com/umn.edu/luisperez>)

Extra Slides

Heterogeneity in “Span of Control” [▶ Back](#)

- ▶ Data from *The Micro–Aggregated Profit Share* (Hasenzagl and Perez, 2024).
- ▶ US Compustat, 2019.



Heterogeneity in Depreciation Rates [▶ Back](#)

- ▶ Data from *The Evolution of TFP in Spain and Italy* (Perez, 2024):
- ▶ Compute sector-specific depreciation rates (using asset-specific depreciation rates from BEA and data on capital types from KLEMS) according to:

$$\delta_{it} = \sum_j \frac{K_{jit}}{K_{it}} \times \delta_{jt}.$$

j: capital type *i*: sector *t*: time

US Sector, 2010	Depr. rate
Hospitality	0.07
Post & Communications	0.09
Construction	0.13
IT	0.17