Ownership, Concentration and Investment[*]

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January 2018

Abstract

The US business sector has under-invested relative to profits, funding costs, and Tobin's Q since the early 2000s. Building on prior work, we argue that decreasing competition, rising intangibles, and tightening governance explain, respectively, about one half, one third, and one sixth of the investment gap. In particular, quasi-indexer ownership appears to lower investment and this effect is stronger in noncompetitive industries.

We study the interaction between four facts related to ownership, competition and investment:

1. Business investment in the US has been weak relative to measures of profitability, funding costs, and market values since the 2000s (Furman, 2015; Gutiérrez and Philippon, 2017b).

2. Concentration and profits have increased, particularly after 2000 (Grullon et al., 2016). Decreasing competition is responsible for a large share of the investment gap (Gutiérrez and Philippon, 2017a).

3. Payouts by US-incorporated public firms, including buybacks, have increased markedly since 2000. Figure 1(a) shows that annual payouts have exceeded 5% of assets almost every year since 2005.

4. The share of institutional ownership has increased – particularly for quasi-indexer institutions after 2000. Figure 1(b) shows the average share of institutional ownership across all US-incorporated firms in Compustat.[1]

Governance, Investment and Buybacks. Shareholders and managers can disagree about the optimal size of the firm. This conflict need not result in over-investment by managers; they may invest in the wrong projects instead. The conventional wisdom is that managers are often reluctant to return cash to shareholders and therefore that they might have an over-investment bias. A similar

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[1]Ownership types are as defined in Bushee (2001).

Figure 1: Payouts and Institutional ownership
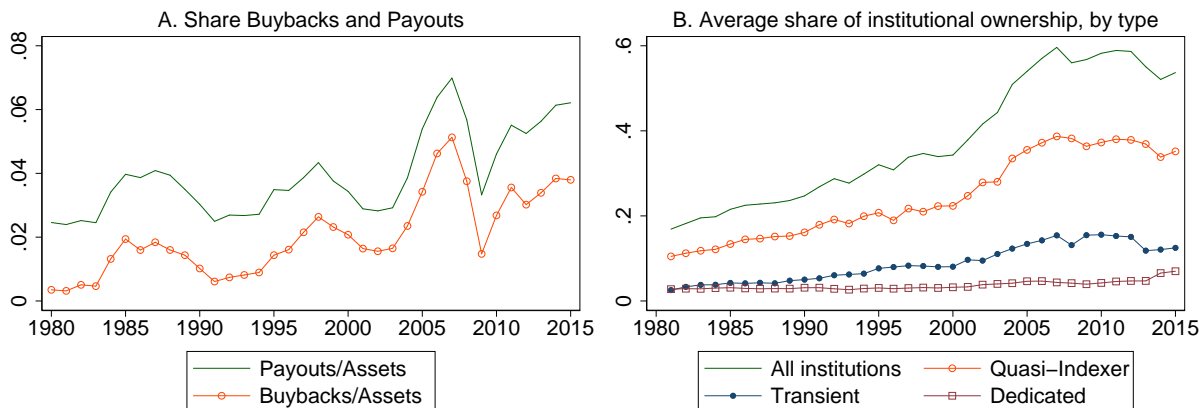
Notes: Annual data. Firm financials from Compustat; ownership from Thomson Reuters and Brian Bushee's website. Includes only US-incorporated firms.

conflict can arise about discount rates. If shareholders have higher discount rates than managers (due to, for example, an excessive emphasis on quarterly earnings), they prefer lower investment. But managers can also be short sighted and Kaplan (2017) argues against the idea that markets have a short-term bias. The nature of the potential bias is therefore an empirical question.

The joint evolution of investment, payouts, and market value can shed light on governance issues. Suppose the effective alignment of managers' and shareholders' preferences improves. Market values always increase since they reflect shareholders preferences. If managers' preferred investment level is higher than that of shareholders (because managers prefer large firms or because shareholders are short-termist), then investment will decrease. In that sense, a shift in governance can account for the gap between Tobin's Q and investment documented in Gutiérrez and Philippon (2017b).[2] Finally, as an accounting identity, any correctly identified change in governance that lowers investment must increase payout to shareholders.

Interaction with Competition. Changes in ownership and governance interact with Product Market Competition. According to Giroud and Mueller (2011), governance is primarily an issue for firms in non-competitive industries. Managers in such firms tend to enjoy the "quiet life" and therefore avoid generating excessive competition. By contrast, managers of firms in highly competitive industries are under constant pressure to innovate. Thus, one may expect changes in ownership to disproportionately affect investment of firms in noncompetitive industries.[3]

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[2]It is worth noting that tighter governance moves firms towards the (firm-level) shareholder value optimum. This firm-level optimum may not coincide with the social optimum at the industry level or at the aggregate level only if other markets are imperfect (e.g., it is easy to see that a pro-investment bias can be socially optimal under imperfect competition).

[3]Rising institutional ownership coupled with the increased concentration in the asset management industry may have also introduced anti-competitive effects of common ownership. See Schmalz (2018) for a review of the literature. In unreported tests, we find that anti-competitive effects of common ownership disproportionately affect investment in industries that 'appear' competitive according to traditional measures (e.g., have low Herfindahls) but actually are not (because of common ownership).

1 Ownership and Investment

We want to test whether higher quasi-indexer institutional ownership leads to higher buybacks and lower investment. Establishing correlations (as in Gutiérrez and Philippon (2017b)) is not sufficient because ownership, buybacks and investment are endogenous. For instance, it might be that institutional investors prefer firms with high cash flows and low investment opportunities. To establish causality we need an instrument or natural experiment.[4]

Natural Experiment: Russell Index. Russell indices are re-constituted annually and result in differential weights for firms around the 1000/2000 cutoff. In 2005, for example, the ten smallest firms in the Russell 1000 had a combined index weight of 0.004%, and the next ten largest firms were in the Russell 2000 with a combined index weight of 2.3%. The differential weights lead to sharp exogenous variation in institutional ownership, which can be exploited to establish a causal relationship between ownership and payouts. The corporate finance literature has already used this identification strategy, although it has not made the connection with the investment puzzle that is the focus of our paper. Crane et al. (2016) find that more institutional ownership (and more quasi-indexer ownership) leads to higher payouts; and that this effect is economically important. Our results are quantitatively consistent with theirs, i.e., they imply similar elasticities.[5]

Instrumental Variable: Lagged Ownership. The results in Crane et al. (2016) provide robust identification, but apply to a small set of firms. Our second test broadens the sample to all firms at the expense of weaker identification. In particular, we use pre-2000 quasi-indexer ownership as an instrumental variable for post-2000 buybacks and investment, controlling for firm characteristics. This approach is supported by two facts: (i) firm ownership is highly persistent within quasi-indexer institutions;[6]; and (ii) activism – one of primary mechanisms through which quasi-indexer ownership affects buybacks – increased only after 2004. Figure 2 shows that buybacks increased faster for firms with high quasi-indexer ownership.[7]

Columns 1 to 3 of Table 1 present our base results. We instrument firm Q with industry average Q to mitigate measurement error, and buybacks with pre-2000 quasi-indexer ownership. We then use the portion of buybacks that is explained by ownership to predict investment. We include

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[4]Throughout this paper, we use the dataset of Gutiérrez and Philippon (2017b). It includes all U.S. incorporated firms in Compustat except Finance, Real Estate and Utilities. We focus on buybacks as opposed to payouts because the former explain most of the variation. But we also confirm that conclusions are robust to using total payouts. We also cap the ratio of buybacks to assets at 0.1 to deal with outliers.

[5]Crane et al. (2016) report a coefficient of 4.57 when regressing log-payouts on the percent of institutional ownership and 2.53 when regressing log-buybacks. We run a simple OLS regression of log-payouts and log-buybacks on institutional ownership across all firms in our sample and obtain coefficients of 2.58 and 3.68, respectively.

[6]For instance, a regression of ownership at t on ownership five years prior yields a coefficient above 0.8, even after controlling for firm characteristics such as market capitalization.

[7]Our results are broadly consistent with a small literature studying the effects of institutional ownership on investment. It is closest to Aghion et al. (2013) and Harford et al. (2017). Aghion et al. (2013) find that greater transient and dedicated ownership increase R&D investment, while a shift towards quasi-indexer ownership decreases it. Harford et al. (2017) find a negative effect of long term institutional ownership on CAPX and Intangible investment (partially offset by an increase in R&D productivity).

Figure 2: Mean Buyback Rate by Quasi-indexer Ownership
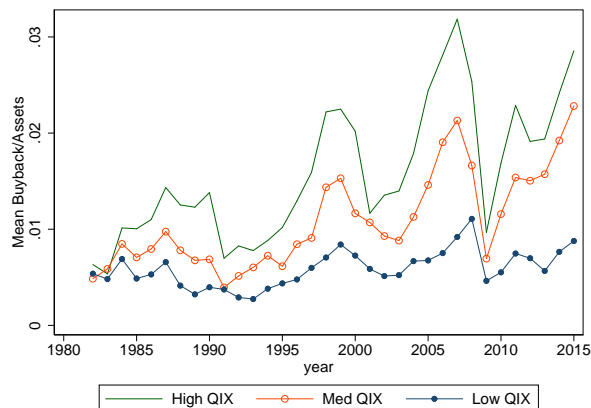
Notes: Annual data for all US incorporated firms in our Compustat sample. Firm financials from Compustat; ownership from Thomson Reuters and Brian Bushee's website. To ensure a constant industry mix, we first compute mean buyback rates within industries and QIX terciles, and then average them across industries.

industry and year fixed effects and a wide range of pre-2000 firm-level controls (e.g., size, market capitalization, etc.). As shown, higher pre-2000 quasi-indexer ownership appears to cause higher buybacks and lower investment.[8] In unreported tests, we interact pre-2000 quasi-indexer ownership with the aggregate buyback-to-assets ratio and find that firms with higher quasi-indexer ownership are more sensitive to aggregate buyback trends.

2 Interaction between competition and ownership

Let us move on to the second hypothesis: that ownership (and therefore governance and short-termism) affect primarily firms in noncompetitive industries. We test this by interacting the pre-2000 quasi-indexer ownership with the Modified-Herfindahl in our regressions.[9] The results are shown in columns 4 to 9. As shown, the interaction term is positive and significant in column 5 suggesting that quasi-indexer ownership disproportionately affects firms in non-competitive industries. Columns 7-9 further interact with the aggregate buyback-to-assets trend $\left(B\bar{B}A(t)\right)$ to show that firms with higher quasi-indexer ownership in less competitive industries are more sensitive to aggregate buyback trends. We conclude that ownership has an outsized effect on investment for firms in non-competitive industries.

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[8]Note that we regress the ratio of buybacks to assets in order to include firms with zero buybacks. Crane et al. (2016) consider log-buybacks, which yields a higher coefficient.

[9]In unreported tests, we replace the Modified Herfindahl with Excess Entry (an IV for competition defined in Gutiérrez and Philippon (2017a)) and find consistent results. The Modified Herfindahl is defined as $MHHI = HHI + HHI^{adj}$, where HHI denotes the import-adjusted Herfindahl and HHI^{adj} adjusts for anti-competitive effects of common ownership. See Gutiérrez and Philippon (2017b,a) for additional details.

Table 1: Regression results

Table shows the results of firm-level 2SLS regressions of net I/K. Q instrumented by mean industry Q; and buybacks instrumented by pre-2000 quasi-indexer ownership. Columns 1 to 6 based on random effects model Firm-level controls in columns 1 to 6 include lagged firm age; log-assets, log-market capitalization and 5-year sales volatility as of 1999 and average Q, OS/K, dividend/assets, cash-flow/assets, R&D/assets, annual sales growth and book leverage from 1996 to 1999. Columns 7-9 include only log-age given the use of firm fixed effects. Data primarily from Compustat. Standard errors in brackets. + $p<0.10$, * $p<0.05$, ** $p<0.01$. F-stat for columns 7-9 is 43.86. F-stat for columns 1-6 not available given the use of a random effects model.

	1st stage		2nd	1st Stage		2nd	1st Stage		2nd
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Q(t-1)	Buyb/Ass(t) $\geq$2000	Net I/K(t)	Q(t-1)	Buyb/Ass(t) $\geq$2000	Net I/K(t)	Q(t-1)	Buyb/Ass(t) $\geq$2000	Net I/K(t)
Industry Mean Q (t-1)	0.536**	0.0003		0.536**	-0.0001		0.702**	-0.000	
	[0.018]	[0.0004]		[0.019]	[0.0004]		[0.035]	[0.0005]	
% QIX owners(96-99)	0.326**	**0.020****		0.428**	0.002				
	[0.091]	**[0.002]**		[0.162]	[0.004]				
$MHHI$(t-1)				0.031	0.001		-0.346	0.003	
				[0.162]	[0.004]		[0.247]	[0.004]	
$QIX_{96-99}(i) \times MHHI$(t-1)				-0.283	**0.048****				
				[0.361]	**[0.009]**				
$QIX_{96-99}(i) \times B\bar{B}A$(t)							-13.05+	0.786**	
							[6.87]	[0.181]	
$QIX_{96-99}(i) \times B\bar{B}A(t) \times MHHI$(t-1)							-33.30*	**1.24****	
							[16.04]	**[0.396]**	
Q(t-1)			0.105**			0.104**			0.141**
			[0.01]			[0.01]			[0.01]
Buyback/Assets (t)			**-3.132***			**-2.726****			**-1.941****
			[1.23]			**[0.97]**			**[0.72]**
Firm-level controls (96-99)	Yes			Yes			No†		
Year FE	Yes			Yes			Yes		
Industry FE	Yes			Yes			No		
Firm FE	No			No			Yes		
Observations	27789			27789			35244		
Between/OverallR^2	10.0% / 4.7%			10.6% / 5.1%			22.8% / 13.6%		

3   Conclusion

We show that increased quasi-indexer ownership causes higher buybacks and lower investment – particularly in noncompetitive industries. Together with the results of Gutiérrez and Philippon (2017b) and Gutiérrez and Philippon (2017a), we conclude that the recent under-investment in the US economy is driven by a combination of rising intangibles, decreased competition and tighter governance. Regression estimates suggest that intangibles explain a quarter to a third of the investment gap; decreasing competition about half and tighter governance about one sixth.[10]

References

Aghion, P., J. Van Reenen, and L. Zingales (2013, February). Innovation and institutional ownership. *American Economic Review 103*(1), 277–304.

Bushee, B. J. (2001). Do institutional investors prefer near-term earnings over long-run value? *Contemporary Accounting Research 18*(2), 207–246.

Crane, A. D., S. Michenaud, and J. P. Weston (2016). The effect of institutional ownership on payout policy: Evidence from index thresholds. *Review of Financial Studies*.

Furman, J. (2015). Business investment in the united states: Facts, explanations, puzzles, and policies. Technical report, Council of Economic Advisers.

Giroud, X. and H. M. Mueller (2011). Corporate governance, product market competition, and equity prices. *The Journal of Finance 66*(2), 563–600.

Grullon, G., Y. Larkin, and R. Michaely (2016). Are us industries becoming more concentrated. Technical report, Working paper.

Gutiérrez, G. and T. Philippon (2017a). Declining competition and investment in the u.s.

Gutiérrez, G. and T. Philippon (2017b). Investment-less growth: An empirical investigation. *Brookings Papers on Economic Activity Fall*.

Harford, J., A. Kecskesb, and S. Mansi (2017). Do long-term investors improve corporate decision making? *Journal of Corporate Finance*.

Kaplan, S. N. (2017, June). Are u.s. companies too short-term oriented? some thoughts. Working Paper 23464, National Bureau of Economic Research.

Schmalz, M. C. (2018). Common ownership concentration and corporate conduct. *Annual Review of Financial Economics*.

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[10]In particular, we measure the distance to zero of year fixed effects from panel regressions including measures of intangibles, competition and governance sequentially; confirming that the order of inclusion does not affect the portion of the investment gap explained.