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Abstract

This paper starts with the Allen and Lueck (2004) framework and uses it as a pendulum to discuss the relative forces shifting the pendulum towards single owner structures or corporate structures. These pendulum forces include irrigation and new technologies that insulate production from climate, existing and changing climate patterns and big data's impact on nimble decision making. Within corporate capital, variables such as its patience, desired rate of return, the ability to tolerate return volatility and the bundling of capital with other services will impact the means by which it finds its way into agriculture. Further, Bain (2012) argues that a world awash with capital has a number of effects and two those of them appear pertinent to this discussion. The first is that hurdle rates on returns need to be adjusted down. The second is that an overabundance of capital implies that the greatest returns will flow to the execution of good ideas over longer time horizons. Agriculture is a long term investment and it could be reconfigured away from value created on land ownership to new models involving the splitting of operations and land ownership, linking capital to value chain creation with target markets and specific inputs and so on. Allen and Lueck's insight into the family farm's dominance when seasonality is high will still pertain to operational control, but this may not always necessitate land ownership where it is not central to operational control.

Australia has a naturally highly variable climate. In cropping, it appears there is a strong correlation between an area's climatic stability and corporate capital's willingness to invest and that this is modified by irrigation technologies. Climatic variability is increasing and is forecast to have major productivity impacts on agricultural output. This suggests all other things equal, that the importance of nimbleness in decision making is likely to become more important, favoring family farm structures. Thus far, for instance, the loss of 25% of rainfall in Western Australia has not reduced aggregate crop outputs, partly in response to new technology.

Australian farms are on average large, particularly in export sectors, partly because of its poor resource endowment and largely because of its very low levels of public subsidy for agriculture. Large farms are more conducive to corporate investment as there are scale advantages to large transactions. Large scale holdings in cattle industry are related to spatial diversification against drought as many of these holdings are vertically integrated into feedlots and sometimes abattoirs.

Output is skewed towards a small number of highly efficient producers able to invest in the technology required to drive productivity gains. In grain production, these can be up to around 100,000 ha. Big data suggests that increasingly functions can be specialized and outsourced within family farm structure and there appears to be an emerging trend of these structures adopting many of the characteristics of corporate farms, such as boards of management, as they access external skill bases. However, a slowing farm consolidation rate and a growing productivity divide between those farmers able to access new technology suggests a need for external capital investment especially as debt loads are high by historical standards. In all, it suggests a growing need for new forms of capital, aside from traditional bank debt, to lift productivity growth. Land is the traditional

asset class for agricultural investment and other investment forms could include separating land ownership from farm operations (to various extents) and capital linked to productivity innovations, particularly around identified market opportunities. It also suggests a growing need for the development of an index to better facilitate the leasing of farm land.

Larger scale farmers are better able to access external capital via equity partnerships. There has been far less adoption in Australia of multi farmer equity models such as those widely existing in the New Zealand dairy industry. This may be related to the lack of liquidity in Australian lease markets compared to New Zealand. These models also require very tight aligned business objectives, which is a hallmark of entrepreneurial intent.

Corporate interest in all forms of agriculture is growing strongly. Data suggests that farmland returns appear to be higher than stock markets and have lower variability, when measured over long enough time horizons. Especially since 2007's soft commodity boom, interest has grown by many forms of corporate capital (such as superannuation, listed stocks, sovereign wealth funds and a myriad of private equity types) to enter Australian agriculture. The recent decline in the Australian dollar appears to be fueling further strong interest.

However, within corporate capital, variables such as its patience, its target rate of return, its ability to tolerate return volatility and other objectives, such as securing food security, impact on the means by which it finds its way into agriculture. Australian investors, including pension funds, generally demand higher returns than comparable foreign capital providers. An acceptance of lower returns implies a greater willingness by foreigners to pay more for assets and is reflected in the gathering pace of foreign investment in recent years. Foreigners own significant proportions in post farm gate agribusiness as the businesses are mature and have proven returns. The most patient form of capital – the form demanding the lowest return – appears to be the sovereign wealth fund investing in land as it seeks food security.

Australia's enormous pension funds hold only 0.3% of their funds in Australian agriculture. In part, this appears to be related to Australia's chequered history of corporate investment in agriculture and the lack of transparent measurement indices. Stock market structures have not proven to be generally a good fit with Australian agricultural investment, in part as there appears to be a miss match between the volatility of agricultural returns and investor expectations. A small number of specialist management funds have emerged to operate Australian pension funds investment in agriculture. Although some evidence suggests that these could produce returns as good as the best family structures, on average it appears that corporate farms have struggled to outcompete well run family structures. Passive lease models provide farmers with a means to gain scale and implement new technology; the use of these models implies significant productivity improvements must accrue to farmers to compensate for the loss of capital appreciation. This appears to be a more patient form of capital - if it can find the right farmer partners – compared to investors that operate their farms.

The highest returning capital is the type of early stage private equity that is financing the expansion of Sundrop Farm in South Australia. This protected environment horticulture glasshouse development combines energy efficiency (solar thermal for desalination of seawater, electricity production and heating), with water efficiency and agricultural management, resulting in very high productivity improvement, low cost production and long term offtake product contracts. The

Sundrop case is an example of the pendulum swinging to the most aggressive of corporate equity forms because of innovation, sophisticated value added management, high constant returns and the opportunity for global scale up.