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ProAg INVEST

Investing in Natural Capital

The Case of Farmland Investing

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Introduction

In the last two centuries we have witnessed what has probably been the greatest development in terms of economic growth in history and the improvement of living standards throughout the world. We cannot deny that first industrialization and then technology have been the main drivers of this growth.

It is curious that what this growth entailed can only be comparable to that experienced more than 10,000 years ago, precisely with the transition from hunting and gathering societies to the development of agricultural and farming practices, which led to the settlement of the population and its growth.

As happened then, this current growth is also having two fundamental demographic effects: enormous population growth, especially in emerging countries, and an aging population in developed countries thanks to advances in medicine and healthcare that have almost doubled life expectancy.

The latest data from the United Nations provides some illustrative figures: on November 15, 2022, the world population reached 8 billion people. The number of people who inhabit the planet has tripled in just seven decades, and estimates indicate that in the next 30 years there will be almost two billion more people, potentially reaching a peak of around 10.4 billion by mid-2080. This comes on top of the fact that, on average, we will live longer we used to just a few generations ago. Bridging the still significant gaps between countries in terms of longevity, it is estimated that the average life expectancy will increase by five years between now and 2050.

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Natural Capital

Both effects – population growth and ageing – have made us realize the importance of ensuring both food supply and its quality, while raising awareness about the need to care for the environment, the Natural Capital we live on: air, soil, the oceans and everything that lives in them, their biodiversity.

The soil is probably the main element of our Natural Capital. Taking care of it helps us take care of ourselves and our future, as well as that of future generations.

As investors we can contribute to this conservation objective by making a rational use of the land with modern farming techniques and technology, producing more with less, ensuring the protection of biodiversity and fighting climate change.

Agriculture is key in this fight, as it is one of the main sources of carbon emissions into the atmosphere, but it is also one of the main CO_2 sinks if it is properly managed.

As professional managers, the possibility of transcending merely financial objectives and at the same time achieving other social and environmental objectives is in our hands, obtaining both profitability for our investors and for society as a whole.

This article tries to explain the characteristics of investing in Natural Capital, focusing on the agricultural option, as well as the risks that we believe it entails, the different ways of investing in this asset class, and the impact that it can have on the risk profile and performance of investment portfolios.

2.1. Agriculture and Forestry (Natural Forests)

Investment in Natural Capital is not new. In countries like the US, Canada or Australia, insurance companies and pension funds have been investing in this type of real assets for decades (see TIAA CEFR table in the US) as have well-known investors such as Bill Gates. or Jeff Bezos.

According to a report by the TIIA Center for Farmland Research, the average annual return on farmland in the United States between 1970 and 2010 (9.8%) is higher than the S&P 500 (7.1%), MSCI EAFE (6.1%), gold (7.1%), 5%) or the CPI (3.8%).

In Europe, although with some delay due to the historical fragmentation of the market, we are beginning to see a growing interest in incorporating some exposure to this type of asset in investment portfolios, attracted by the **attractive historical profitability** of farmland, its great **decorrelation** compared to other classes of traditional liquid assets and/or the economic cycle, its low volatility, and its ability to protect against inflation.

If we look at the case of the US, where they have long-term statistics, in the last 30 years investment in agricultural holdings has achieved an annualized return similar to that of equity markets and with much less volatility, and much higher than that of the Bonds, between profitability of the operation and revaluation of the price of the land.

Regarding its correlation, we see that it is close to zero (0.01) for equity and even presents a negative correlation (-0.32) with US government bonds.

As regards their ability to hedge against inflation, agricultural products account for most of the basket of products that make up the consumer price indices, with which they move in unison.

Finally, the demand for food products is highly inelastic, and it is not usually affected by bad economic data, market volatility or the economic environment, thus providing a safe haven in times of recession.

In the case of Europe, we do not have such detailed statistics over such a long period. However, it is reasonable to estimate that it has had a very similar performance, although with material differences between geographical areas and types of crops.

Asset / Index	Annual average return	Standard deviation	Coefficient of variation	Correlation	Minimum return	Maximum return
	←	1970 - 2019	→			
U.S. ag 32 states	**10.2%**	**6.5%**	**0.64**	**1.00**	**-5.8%**	**27.0%**
U.S. equities	7.1%	16.5%	2.31	-0.25	-48.6%	29.3%
European equities	6.1%	20.3%	3.35	-0.23	-59.9%	51.2%
U.S. corporate bonds	7.5%	2.6%	0.35	0.09	3.4%	14.2%
U.S. 10-year bonds	6.3%	3.0%	0.48	0.15	1.8%	13.9%
U.S. 30-year mortgages	7.7%	3.6%	0.46	0.14	0.0%	16.6%
U.S. listed real estate	10.9%	16.8%	1.53	-0.08	-47.4%	38.9%
Gold	7.53%	22.2%	2.95	0.28	-39.5%	90.2%
PPI	3.40%	4.9%	1.44	0.60	-7.4%	19.0%
CPI	3.84%	2.8%	0.73	0.65	0.1%	12.5%

U.S. Equities: S&P 500 index: **European equities:** MSCI EAFE Index: **U.S. corporate bonds:** Moody's Seasoned Corporate AAA rated bonds; **U.S. 10-year bonds:** U.S. 10-year Treasury Constant Maturity Rate; **U.S. 30-year mortgages:** Average rate on 30-year fixed rate mortgage; **U.S. listed real estate:** FTSE NAREIT All Equity REITS Index; **Gold:** London Bullion Market Association Gold Price; **PPI:** Producer Price Index; **CPI:** Consumer Price Index.
Source: TIAA Center for Farmland Research.

2.2. Annual vs. permanent crops

In agricultural investment, the first strategic decision hinges on the crop you choose: annual or perennial, and within those, farms or forestry.

We have not considered several other alternatives (such as vertical orchards and greenhouses or berries, stone fruits, etc.) that will be the subject of analysis in other articles.

	 Annual Crops	 Permanent Crops	 Forestry
Type of Crops	Bulk staple crops, traded in global markets	Higher value crops that involve a long-term asset, such as fruit trees, nuts, etc.	Higher value crops that involve a long-term asset, such as a tree for wood and pulp production
Harvest & Production Cycle	Annual	Annual harvest, cycle over decades	Multi-year harvests, cycles over several decades
Crop examples	Corn, Wheat, Cotton, Vegetables	Oranges, Almonds, Apples, Avocados	Trees for Wood
Estimated IIR	Medium/high (6-10%)	High (+10%)	Average (4-8%)
Performance Volatility	Low	Medium	Low
Performance sources	Product sale Carbon credit sales (RegenAg)	Product sale Land price appreciation Carbon credits sale	Production sale Land price appreciation Carbon credits sale (++)
Advantages ("Store of Value" = secure minimum price due to stable land value = permanent asset owned)	Stable IIR, annual crop choice High protection against inflation	High performance Uncorrelated Protection against inflation	Medium/high performance Uncorrelated Protection against inflation
Considerations	Poor pricing capacity Volatility of results	Risk of change in consumer demand Time to start production (3 to 7 years)	Time to enter production
Scalability	High	Possible in greenfield operations	Possible in greenfield operations

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Why invest in Agriculture?

Population growth requires more food.

- According to the FAO, by 2050 we will have to produce enough food to supply the planet's more than 9.7 billion inhabitants.
- In addition, higher quality and freshness is demanded in developed countries.

The amount of productive land available is limited, so a hefty investment is necessary to boost productivity and ensure its sustainability.

- The *Global Harvest Initiative 2019 GAP Report* estimates that agricultural production should double from 2010 levels.
- In addition to fighting deforestation, it is necessary to make fields more productive and produce food more efficiently, while taking care of the health and quality of the land to ensure its sustainability.

Institutional demand for solutions to climate change.

- Pastures, permanent crops, and forests are a net CO_2 sink, which allows the investor to offset the emissions of the rest of his portfolio and meet climate objectives without sacrificing profitability.
- As with forests, the verification of CO_2 capture by agriculture, certified by approved entities, allows the commercialization of the rights generated (Carbon Credits) and increase the profitability of **farms**.

A well-managed "field" is a very profitable business.

- Attractive risk/return profile, depending on the type of crop and operating model chosen.
- Low or no correlation with traditional markets.
- It provides a hedge against inflation, since agricultural production (food) accounts for a large part of the basket of items included in the CPI calculation. Thus, it is highly correlated with this price index.

Investing in Sustainable Agriculture also allows us to go beyond financial targets and achieve specific social and environmental goals:

- Transform farms into profitable and sustainable businesses, promoting local economic development, which encourages people to remain in their communities.
- Make a more rational and efficient use of natural resources, promoting the use of organic fertilizers and fighting pests with biological methods, reducing the use of pesticides and chemical products.
- Take advantage of the most modern technologies and digitization to optimize water and energy consumption, promoting the use of energy from renewable sources.
- The development of permanent crops with a long useful life and vegetation cover, favoring the sequestration and retention of CO_2, developing reforestation plans for unusable plots and making use of colonies of bees and pollinating insects, which is the basis of biodiversity.

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Investing in Agriculture

4.1. Size of the market

According to the Boston Consulting Group study, "The $100 Trillion Machine" Global Asset Management 2021, of the USD103 trillion invested worldwide, approximately 15% is in alternative assets. Of these, 1%, some USD154,000 million, goes to agricultural assets *(farmland)*.

Total agricultural assets are estimated at around USD9 trillion worldwide, of which the vast majority are managed directly by their owners, with only 5% held by institutional investors and investment operators.

In this regard, investment through *Private Equity* investment funds in Agriculture has grown strongly in Europe in recent years, attracted by the compelling returns it offers, its low correlation with traditional markets and its high correlation with inflation, acting as a hedge against rising prices.

The funds are a new, more modern, and efficient way of approaching the management of a business such as agriculture. At the helm of a fund there is always a team of managers, in this case professional farmers with vast experience, who invite many small savers to join forces to jointly make investments in certain large-scale projects that they would never be able to undertake individually.

These large projects tend to be more profitable, precisely because of their ability to have the best managers and professionals, use the latest technology, and achieve economies of scale, which allows them to be more competitive and sustainable from all points of view: financial, social, and environmental.

4.2. Correlation between the price of land and the profitability of the crop

In general terms, there is a direct relationship between the profitability of crops and the price of the land on which they are grown. The more profitable the crop, the higher the price that the market will be willing to pay for that land.

Among the sources of yield, in addition to the profitability of each crop, in the case of *greenfield* projects that involve the transformation of a farm and the introduction of crops, we find that the revaluation of land prices has a material added impact.

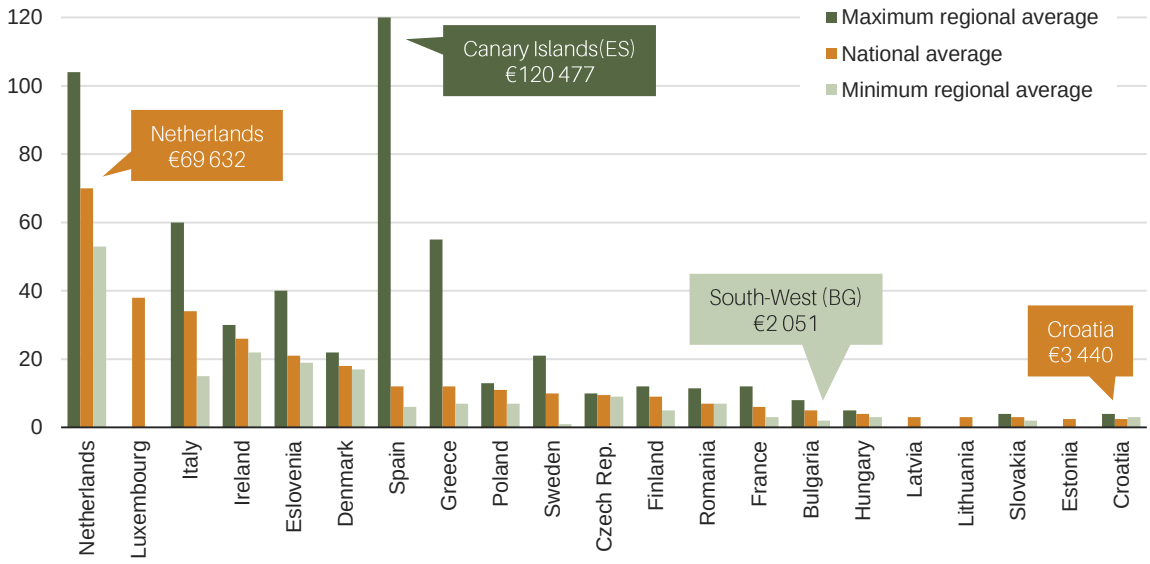
Mediterranean crops such as olive and almond trees might be an exception, as extensive experience in management, family tradition, and even the social status they endow generate an inelastic demand that reduces the correlation between the price of land and a crop's profitability.

On the contrary, in crops with higher added value such as subtropical crops, citrus fruits, vines, etc., land prices are tightly correlated to the profitability of the crop they support. These crops pose a greater risk because it is more difficult to manage them, as they require greater knowledge and dedication and, in return, their potential for profitability is higher.

On the other hand, southern Europe has the unique advantage, derived from its privileged climate, of being able to grow a wide variety of crops, from annual crops such as rainfed cereals or vegetables, to permanent crops such as citrus and subtropical crops, to greenhouse crops.

This generates a much wider range of land prices than in the rest of Europe, as can be seen in the Eurostat 2019 table attached.

Average price per hectare of arable land
(Thousands of Euros, 2020)



Note: Belgium, Germany, Cyprus, Malta, Austria and Portugal info not available
Source: Eurostat

In the lower end of the price range we find rainfed pastures or herbaceous, with prices between €4,500 and €7,000/Hectare, according to the 2020 Land Price Survey published by the Ministry of Agriculture, Fisheries and Food.

According to this survey, in the high end of the price range we find land dedicated to greenhouses and highly profitable permanent crops, such as avocados, citrus, etc., which are properties with very specific climate conditions that are difficult to find in Europe.

Portugal does not appear in the table, but it follows a price distribution pattern very similar to the case of Spain.

This creates a very interesting opportunity to even find rental farms suitable for operation with highly profitable crops.

4.3. Operation models: Buy & Lease versus Direct Operation

In the management of farms, we see several management options: Purchase and lease to an external operator or management by own teams.

Both options involve different management models, each one with its advantages and disadvantages. As always, both models allow for several combinations.

The Buy & Lease model tends to be used more frequently in farms with annual crops, such as cereals or vegetables, where decision-making is renewed every year based on market demand and the characteristics of the land.

For its part, the Direct Operation model is more frequent in the case of permanent crops that usually require greater investment and long-term planning.

		Buy & Lease Model	Direct Operation Model
		Passive management model, based on leasing land in exchange for a flow of income	**Active** management model, with the income generated by the operation of the farms
Opportunity	**Type of asset**	Land	Land
	Management	External (lease to operator)	Internal operation team
	Shareholders	No	Yes
	Added Value	Low / Negative	Medium / High
Return	**Source of Return**	Lease income flows + Capital appreciation	Flows generated by the operation + Capital appreciation
	Potential Return	Low / Medium	Medium / High
Execution	**Implementation**	Fast / Moderate	Moderate
	Complexity	Low	Moderate

4.4. Investment vehicle alternatives in agriculture

If you are looking to gain some exposure to agriculture, there are liquid funds in the market that invest in listed companies related to the sector. However, their performance is not so much related to the profitability of farms but rather to the progress of the specific business of the companies in which it invests (agricultural, technology, fertilizers, etc.). Therefore, they are highly correlated with equity markets.

As was the case with real estate investment in its early days, there is still no investable index for agriculture as such.

Investment in farms can be done either directly by acquiring the farms and operating them (which requires significant investment and management skills), or through portfolios and investment funds such as private equity funds managed by professional managers.

It is precisely this type of management through funds that is growing strongly in Europe. Funds are the most modern and efficient way of approaching the management of a business such as agriculture, diversifying risk, and professionalizing management.

How to invest in Natural Capital: Agriculture and Forestry

	Direct	Segregated Account	Closed-Ended Fund	Open-Ended Fund	Investment Fund
Description	Direct investment in agricultural or forestry farms (owned) whose management can be owned or subcontracted to an operator	The farms are acquired on behalf of investors and managed by professional agricultural and forestry managers.	Portfolio of properties with an Investment Club structure (reduced number of investors with the same objectives), managed by professional managers	Portfolio of farms with a larger number of investors, managed by professional agricultural and forestry managers	Funds that invest mainly in (listed) shares of companies in the agricultural sector including producers, distributors and suppliers of material, machinery and technology.
Term	Undefined	Undefined	With Exit	Without Exit (Evergreen)	With or without exit
Diversification	Reduced, usually few farms	Reduced, usually few farms	High, the volume of investment allows for geographical and crop diversification	High, the larger volume of investment allows for a greater geographical and crop diversification	Mid/High, indirect investment in companies, listed or not on regulated markets in the sector
Liquidity	Very low, OTC market between investors	Low, institutional market	Low, institutional market	Low, institutional market	Daily for listed companies
Correlation with markets	Un-Correlated	Un-Correlated	Un-Correlated	Un-Correlated	High Correlation
Potential return	High	High	High	High	Equity market returns
Risk	Very high concentration risk	High concentration risk	Medium, Volatility 6-8%	Medium, Volatility 6-8%	Equity market risk, Vol 15-20%

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Risk management in agricultural investment

As an institutional asset class, farmland is a less developed, more illiquid, and inefficient than traditional asset classes. Many of the purchase and sale transactions take place outside the market, which makes the reputation and knowledge of the local market of vital importance in accessing and closing transactions. It is difficult to compare performances as there is no established benchmark yet.

The main risks facing agriculture are climate and disease, so it is essential to manage risk through diversification by geography, type of crop, and strategy.

However, the most important factor is being able to count on the right management team, either internally or through specialized operators, who have in-depth knowledge and proven experience in farm management, which allows crops to be developed to their full potential.

On the other hand, institutional investment through regulated vehicles provides an important component of transparency, regulatory compliance, and supervision when it comes to addressing environmental, legal, accounting and control issues, as well as sustainability and adequate labor practices, among other factors.

In any case, investors should understand that while historically agricultural performance has had a low correlation to traditional assets, the correlations between any two asset classes can increase during extended periods of market downturns, significantly limiting the diversification benefits of any class asset, including agricultural investments.

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Conclusions

Investing in real assets, and specifically in farmland, can be really profitable. As with any investment, there are multiple alternatives, each with a different risk and return profile.

In exchange for relative illiquidity, it is presented as a source of attractive returns, totally uncorrelated, stable and predictable in the long term.

In agriculture, risks such as weather or diseases must be managed to minimize the possible negative impact. The key is the experience of agricultural managers, their ability to manage these risks, as well as the selection of the ideal location and variety of crops and their proper management.

But we have to keep in mind that we are managing a living being, the Soil, the source of that return, so we better take good care of it.

Nowadays, the sustainability of investments is no longer an option but an obligation to guarantee the future of the planet.

Investing in Natural Capital sustainably means incorporating nature into investment decisions so that, in addition to achieving financial returns, we achieve a positive impact on natural resources and ecosystems.

Private investment plays a fundamental role in the shift towards more sustainable land use methods, which are necessary to restore nature's regenerative capacity, support living standards and ensure our basic means of subsistence.

Investing in Natural Capital offers a pathway for investors to make a positive contribution to global sustainability solutions, enhance climate resilience, and restore air, land, water, and biodiversity.

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