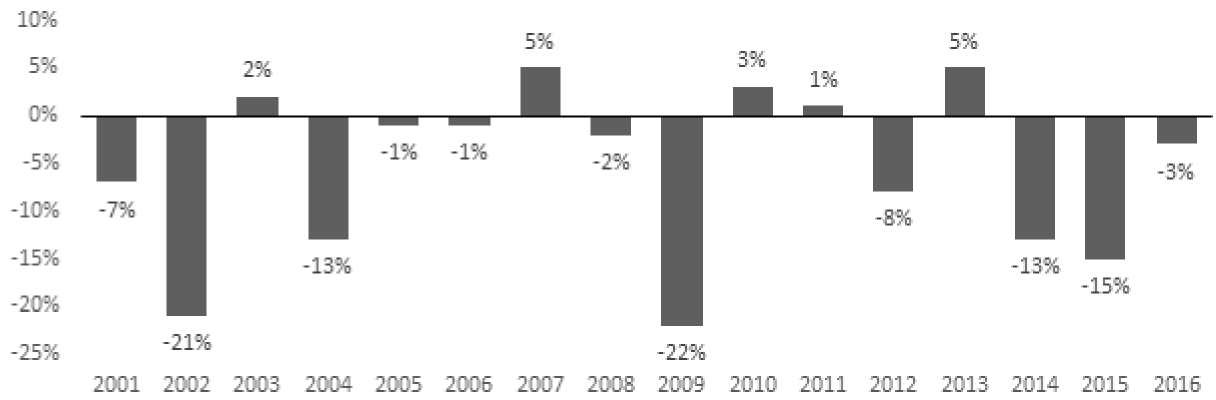
PM Crop Insurance Scheme – A Potential Game Changer? **April 2017**

India is an agrarian country with around 60% of its people and 18% of its GDP, depending directly or indirectly upon agriculture. With low penetration of irrigation, as much as 80% of India's farmlands rely on the monsoon season. Thus, inadequate rainfall can cause crop failure which inevitably leads to farmer suicides (they account for ~11.2% of all suicides in India).

Such a situation has a negative socio – economic impact as rural India suffers, which leads to a demand for farm loan waivers and other political populism. Loan waivers put a burden on government finances, limiting their usage for productive purposes like infrastructure development.

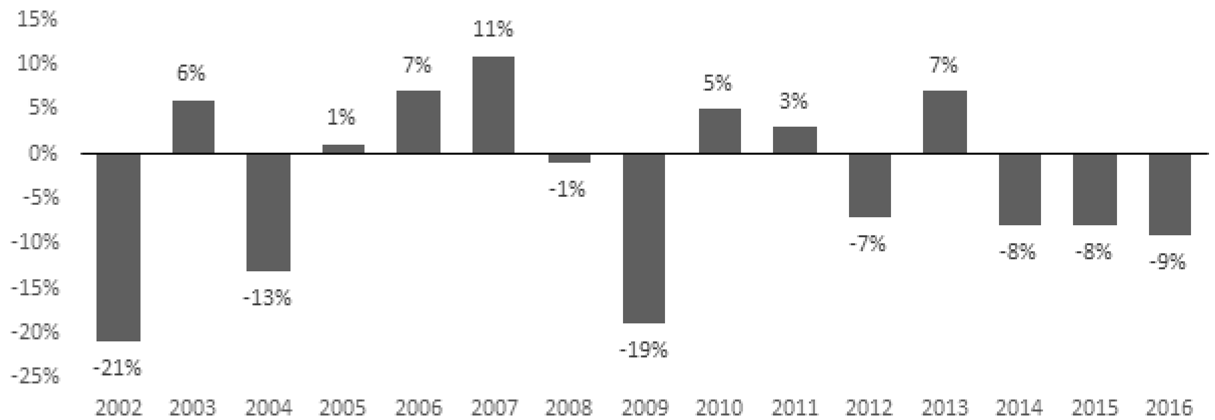
Figure 1: Extent of Monsoon deviation over Long Period Average (LPA) in past 16 years



Source: IMD

The high dependence on the vagaries of weather lead to weather forecasts attracting a lot of attention around the current time of the year. As with all predictions, there is only that much that one can accurately forecast. Despite the advancement of technology, weather forecasts are not the most reliable as far as crop sowing is concerned. The chart below highlights the deviation of the actual rainfall from the forecasts made before the onset of the monsoon season.

Figure 2: IMD forecast has been higher from actual rains by 8-9% over the past three years



Source: IMD

Forecast accuracy notwithstanding, the spatial and temporal distribution of rainfall is another important consideration, especially for a country as large as ours. Even as the overall country may receive average rainfall, there could be some regions that receive excess rainfall whereas other regions could receive scanty rainfall – both regions potentially facing destruction of crops. Similarly, arrival of the monsoon earlier than anticipated may lead to inadequate sowing whereas a delayed monsoon may lead to drying of plants or shift from cash crops to short-cycle crops like grains which yield lower returns. All in all, the dependence on rainwater leads to significant volatility in farm incomes, with successive bad years leading to catastrophic results. Thus, it becomes all the more important to find ways to decouple farm income from the vagaries of the monsoon.

In light of the above, we discuss the New Crop Insurance Scheme known as Pradhan Mantri Fasal Bima Yojana (PMFBY). To be able to better comprehend the nuances of the scheme, we compare it to the previous 2 schemes launched in 1999 and 2010 respectively.

Figure 3: Key features of various crop insurance schemes

	National Agriculture Insurance Scheme (1999)	Modified National Agriculture Insurance Scheme (2010)	PM Fasal Bima Yojana (2016)
Premium	Government kept the premium uncapped	Maximum premium paid for the crop was capped	Different premium for seasons; fixed 1.5% for rabi and 2% for kharif and 5% for commercial crops
Insurance premium cover	Premium was subsidised upto 10% for farmers	Higher the premium; higher would be the government share	While total premium remains uncapped, premium paid by farmer is capped and balance is paid by government
Settlement period	No timeline for settlement	No timeline for settlement	25 days from the day of reporting loss to agencies
Coverage of farmers	All farmers including tenant farmers; however not mandatory for loanee farmers	All farmers including tenant farmers and mandatory for loanee farmers	All farmers including tenant farmers and mandatory for loanee farmers
Post-Harvest losses	No	Only loss due to cyclonic rains is covered	Covered upto 2 weeks post-harvest losses
Use of technology	No	No	Yes, like use of drones, satellite is mandatory

Source: PMFBY

The key reason why the 1999 crop insurance scheme failed was that the premium rate paid by farmers was kept uncapped. As a result, farmers were charged up to 25% premium rate, which made it unviable for them. In the 2010 MNAIS, the government put a cap on total premium charged for crop insurance. Since general insurance companies could not charge the actuary premium rate, they drastically reduced the sum insured, which failed to cover even the cost of cultivation. The current scheme addresses both these issues by allowing the insurance companies to charge an adequate risk premium and by putting a cap on the amount of premium to be paid by farmers (the difference being borne by the government).The insurance premium now varies significantly across states and districts based on the risk assessment of losses and past yields in those regions. The table below highlights the differences in premium/sum insured across states for the same crop. Even within a state, the premium varies widely based on historical yield and loss pattern.

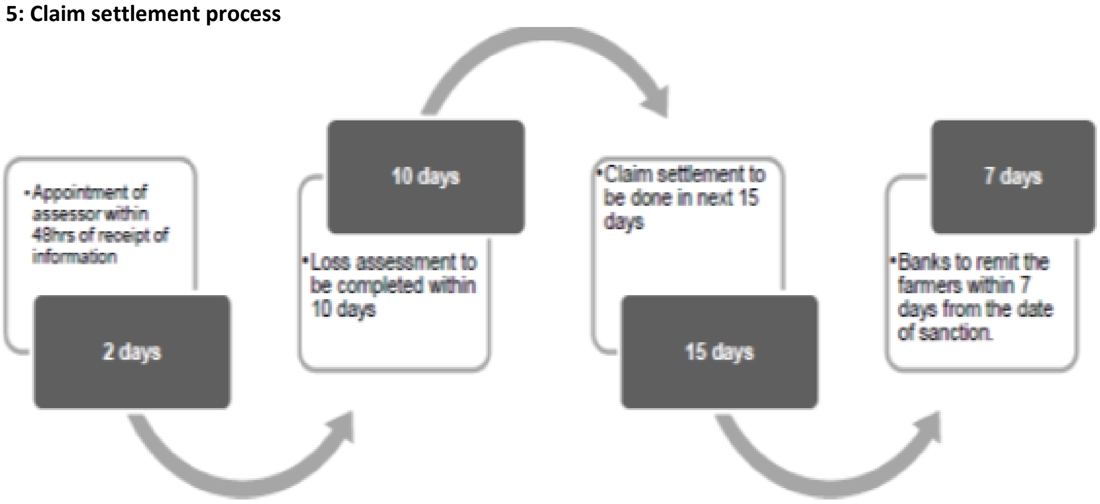
Figure 4: Illustrative example of premium calculation and farmer share for Wheat crop insurance

State	Haryana	Madhya Pradesh
Sum insured (Rs per hectare)	55000	54000
Applicable actuarial rate (%)	3%	8%
Applicable rate (%) for farmer	1.5%	1.5%
Government share (%)	1.5%	6.5%
Indemnity level (%)	90%	80%
Premium calculations (Rs)		
Premium paid by farmer	413	810
Premium by state government	413	1755
Premium by central government	826	2565

Source: PMFBY

Additionally, the claim settlement process is less than 25 days, which increases farmer confidence to enroll for the scheme. The chart below summarises the claim process flow. Once the claim is approved, the insurance agency will credit the claim to a local authorized nodal bank which in turn, will credit the account of the individual farmers.

Figure 5: Claim settlement process



Source: PMFBY

Let us evaluate how the current crop insurance scheme has fared in the last 15 months of its existence. We believe that the success of the scheme has 2 important attributes - 1) % of farmers enrolling for the scheme and 2) growth in crop insurance market and allocation by the government for this scheme in budget estimates.

<u>Farmer enrollment for the scheme has received very good response</u>: The table below highlights enrollment of farmers across states for rabi and kharif season. While the comparison with previous crop insurance schemes is not available, kharif season insurance penetration is nearly 28% of total farmer population and ~12% for rabi season. Higher penetration of crop insurance for kharif season (compared to rabi) is mainly due to very high dependence on the monsoons.

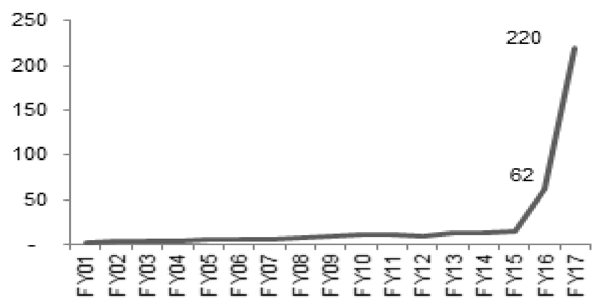
Figure 6: Farmer enrollment for crop insurance

Kharif 2016-17		Rabi 2016-17	
State	Farmers insured (mn)	State	Farmers insured (mn)
Maharashtra	11	Uttar Pradesh	3.6
Rajasthan	5	Rajasthan	3.1
Madhya Pradesh	4	Madhya Pradesh	2.9
Uttar Pradesh	3.4	Tamil Nadu	1.5
West Bengal	3.1	Karnataka	1.2
Gujarat	1.8	Bihar	1.2
Odisha	1.8	West Bengal	0.9
Karnataka	1.7	Maharashtra	0.8
Andhra Pradesh	1.6	Haryana	0.6
Bihar	1.5	Himachal Pradesh	0.2
Total: Top-10 states	35	Total: Top-10 states	15.9
Total	**39**	**Total**	**16.7**

Source: PMFBY

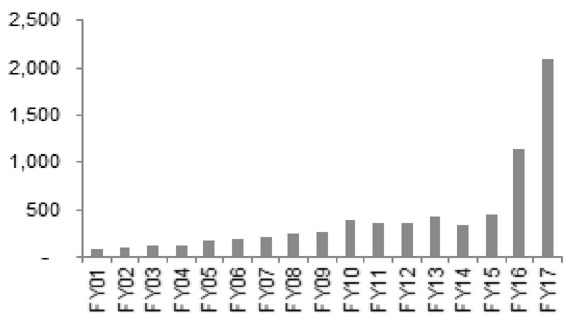
Crop insurance market has jumped manifold: In the earlier crop insurance schemes, the premium paid was not actuarial premium, leading to insurance companies reducing the sum assured and thereby making the scheme less attractive to farmers. Governments (centre and state) used to provide subsidy afterwards to insurance companies and implementation was not optimal. Therefore, private insurance companies were not aggressive in penetrating this market. Agriculture Insurance Company (AIC) held around 50% of the market share and other players were Bajaj, ICICI Lombard, Cholamandalam, HDFC, etc. Now, private sector companies are likely to participate more and this could further increase the market.

Figure 7: Insurance Premium Paid



Source: PMFBY

Figure 8: Sum Insured (Rs. Bn)



Source: PMFBY

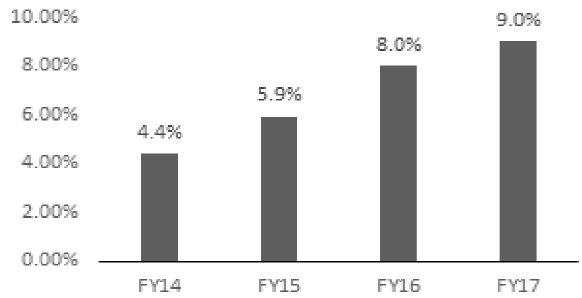
The amount of total premium has increased from earlier schemes (sum insured has increased), which has led to a growth in market size. At present, almost 96-97% of insured farmers comprise loan-taking farmers. Once the scheme becomes popular, it is expected that additional farmers could also enroll for insurance, thereby increasing the market size. The central government had allocated Rs 30bn for the crop insurance programme during FY16, Rs 55bn in FY17 (FY17RE: Rs 132bn) and Rs 90bn for FY18.

Conclusion

This scheme could structurally change the fortunes of rural economy, which is vastly linked to farm income, thus decoupling farm income from monsoon vagaries. A prosperous and less volatile rural economy would ensure relatively strong GDP growth for the overall economy. Higher farm income coupled with other government initiatives to improve rural infrastructure and productivity would have non-linear impact on rural consumption and investment cycles over the years.

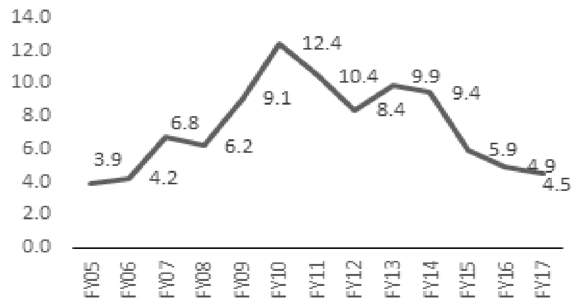
Consider the following: Recently, India faced 3 years of below average monsoon during FY11-FY15 (refer Figure 1). This has resulted in formation of NPA (Non-Performing Assets), implying farmer indebtedness level, which constraints their ability and willingness to spend – as depicted in Figure 9. Further, lower crop produce also leads to persistent high inflation, eating into purchasing power as shown in Figure 10.

Figure 9: GNPA of M&M financial (rural focused NBFC)



Source: Company

Figure 10: India CPI inflation (FY05-FY17)



Source: RBI

The above results into lower consumption expenditure (refer Table 4 below). Fear psychology also plays a critical role - since farmers perceive their cash flows as uncertain, they not only sharply cut their consumption in bad years, but they tend to spend less in good years in order to provide for the bad years. Smoothening of income could therefore not only increase their propensity to spend but also help them to plan their cash flows better, leading to better channeling of any potential savings in to the formal channels.

Figure 6: Farmer enrollment for crop insurance

	FY12	FY13	FY14	FY15	FY16	FY17	5 Yr CAGR
Domestic Tractor Sales (Industry; '000 units)	536.89	527.77	634.15	551.46	493.76	582.84	**1.7%**
Motorcycles Sales (Hero Motors; mn units)	5.65	5.36	5.42	5.68	5.60	5.69	**0.2%**

Source: SIAM

From an equity investor perspective, this will give more opportunity (and confidence too) to invest in rural based themes with high growth and low volatility, a classic mix for long only money managers like us. If successful, this scheme can have the same impact as the Green Revolution had a few decades back.

Until next month,
On Behalf of Team Tamohara,
Sheetal Malpani

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