Danekyants A. G., Neumerzhitskaia N. V. (Rostov-on-Don, Russia) **Generalization of a result on the existence of weakly interpolating martingale measures.**

Consider a one-step filtration $(\Omega, \mathcal{F}_0 = \{\Omega, \emptyset\}, \mathcal{F}_1 = \sigma(B_1, B_2, \dots))$, where $\{B_1, B_2, \dots\}$ are nonintersecting subsets of Ω, $\bigcup_{i=1}^{\infty} B_i = \Omega$. Consider a process $Z = (Z_k, \mathcal{F}_k)_{k=0}^{1}$ and denote $a := Z_0$, $b_i := Z_1|_{B_i}$, $i = 1, 2, \dots$. Let $\mathbf{F} = (\mathcal{F}_k)_{k=0}^{1}$ and $\mathcal{P}(Z, \mathbf{F})$ be a set of probability measures P on $(\Omega, \mathcal{F}_1)$, for which $P(B_i) > 0$ $(i = 1, 2, \dots)$ and the process $Z = (Z_k, \mathcal{F}_k, P)_{k=0}^{1}$ is a martingale. We suppose that $\mathcal{P}(Z, \mathbf{F}) \neq \emptyset$. We shall consider the case, when the sequence $\{b_i\}_{i=1}^{\infty}$ **contains a countable number** of different values. Denote the set of weakly interpolating martingale measures by WIMM(Z) [1]. In [2] the following rather difficult result is proved: if the number a is irrational and all the numbers $\{b_i\}_{i=1}^{\infty}$ are rational, then WIMM$(Z) \neq \varnothing$. This work generalizes the mentioned result in the following manner.

Theorem. Let the number a be irrational. Let in the sequence $\{b_i\}_{i=1}^{\infty}$ only finite number of terms be irrational and the other terms be rational. If $\{b_i\}_{i=1}^{\infty}$ does not contain a finite collection $\{b_{i_j}\}_{j=1}^{k}$ such that for some rational numbers $d_0, d_1, \dots, d_k$ the equality $a = d_0 + d_1 b_{i_1} + \dots + d_k b_{i_k}$ is fulfilled, then WIMM$(Z) \neq \varnothing$.

REFERENCES

1. *Pavlov I. V., Tsvetkova I. V, Shamrayeva V. V.* On the existence of martingale measures satisfying the weakened condition of noncoincidence of barycenters in the case of countable probability space. Theory Probab. Appl., 2017, Vol. 61, Issu 1, pp. 167-175.
2. *Pavlov I. V.* New family of one-step processes admitting special interpolating martingale measures. Global and Stochastic Analysis, 2018, vol. 5, № 2, pp. 111-119.

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