Pavlov I. V., Tsvetkova I. V. (Rostov-on-Don, Russia) **Ranking of variables in order of their smallness when solving systems of inequalities for finding weakly interpolating martingale measures.**

Consider a measurable space $(\Omega, \mathcal{F})$ and a filtration $\mathbf{F} = (\mathcal{F}_k)_{k=0}^1$ on Ω: $\mathcal{F}_0 = \{\Omega, \varnothing\}$, $\mathcal{F}_1 = \sigma(B_1, B_2, \dots)$, where $\{B_1, B_2, \dots\} \subset \mathcal{F}$ is a decomposition of Ω. For a process $Z = (Z_k, \mathcal{F}_k)_{k=0}^1$ let us denote $a := Z_0|_\Omega$, $b_i := Z_1|_{B_i}$, $i = 1, 2, \dots$. Let $\mathcal{P}(Z, \mathbf{F})$ be the set of probability measures P on $(\Omega, \mathcal{F})$, 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. Assume that the sequence $\{b_i\}_{i=1}^\infty$ contains $r\,(3 < r < \infty)$ different values (for example, $b_1 < b_2 < ... < b_r$), m_i is the order of the value b_i, $1 \le i \le r$, $1 \le m_i \le \infty$. Denote the set of weakly interpolating martingale measures by WIMM(Z) [1]. We shall be interesting in the question, under which conditions ОУНБ$(Z) \neq \varnothing$ without suppositions on the rationality of numbers $\{b_i\}_{i=1}^r$ (if all these numbers are rational, then WIMM$(Z) \neq \varnothing$ [1]). It was proved: 1) WIMM$(Z) \neq \varnothing$, when $r = 3$, at least two of the numbers m_1, m_2, m_3 are infinite and $b_1 < a < b_2$ or $b_2 < a < b_3$ [1]; 2) WIMM$(Z) \neq \varnothing$ if $r = 4$, $m_1 = m_2 = m_3 = m_4 = \infty$, $b_1 < a < b_2$ [2]. **The new result**: WIMM$(Z\ ) \neq \varnothing$ if $3 < r < \infty$, $m_1 < \infty, \dots, m_{r-2} < \infty$, $m_{r-1} = m_r = \infty$, $b_1 < a < b_2$. The idea leading to this result is that in a special system of inequalities that gives measures from WIMM(Z), unknown variables are subdivided by degree of smallness into 3 groups, which allows to solve this system.

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