

Preventive Health Assets

A Blended Finance Proposal for Sustainable Metabolic Screening

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1. Problem

Undiagnosed Type 2 Diabetes (T2D) is an actuarial liability with a severe intertemporal maturity mismatch. A CHF 27M front-loaded "Prevalence Tax" vs. a 40-year value horizon creates a liquidity trap^[1]; a 47% deficit probability in year 7 renders traditional models uninvestable for institutional capital^[2].

2. Research Questions

How might a blended finance (preventive Special Purpose Vehicle) resolve an operational risk of digital diabetes screening?

3. Methods

Based on observational health technology assessment and financial engineering via stochastic simulation. Value-at-Risk (VaR 95%) calibrates a first-loss Junior Tranche^[3]. Biomarker verification triggers escrow releases upon lab-confirmed HbA1c ($\geq 6.5\%$), while a prioritized waterfall reduces Senior default probability to $<20\%$ from 47%.

4. Results

Investability is an engineered choice. A Junior Buffer can secure a structural path for Senior Preferred Equity. Figure 2 shows the CHF 1.5M Pilot (18-22% IRR), designed to refine parameters empirically before national refinancing. This might enable the funding of national-level 27M Prevalence Tax by transforming clinical screening into a regulated infrastructure asset class.

Figure 1. Illustrative Tail-Risk truncation. Preventive SPV increases NPV and Junior Tranche absorbs deficit risk from original 47% to ensure institutional certainty for the national rollout.

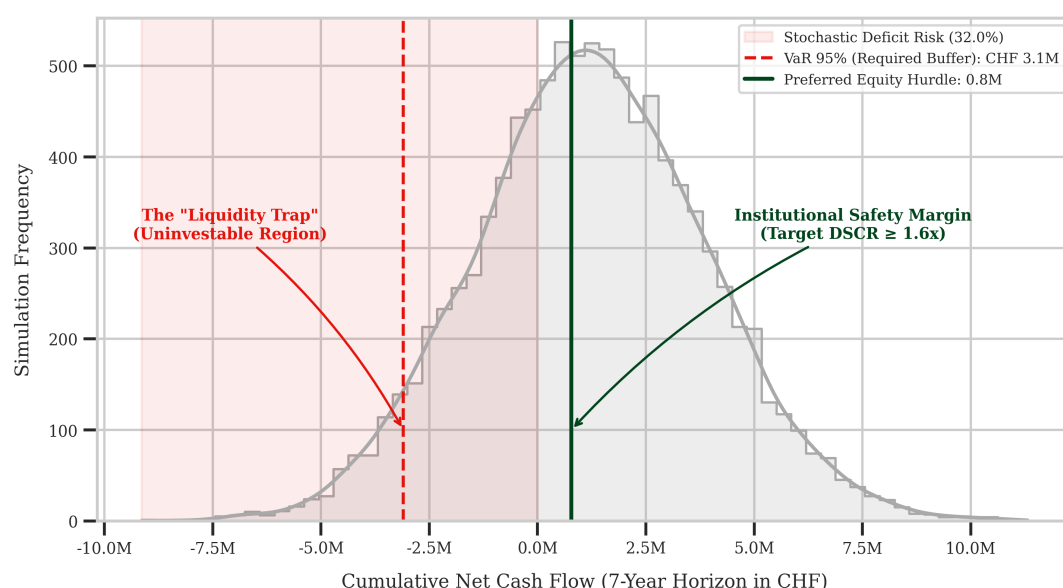
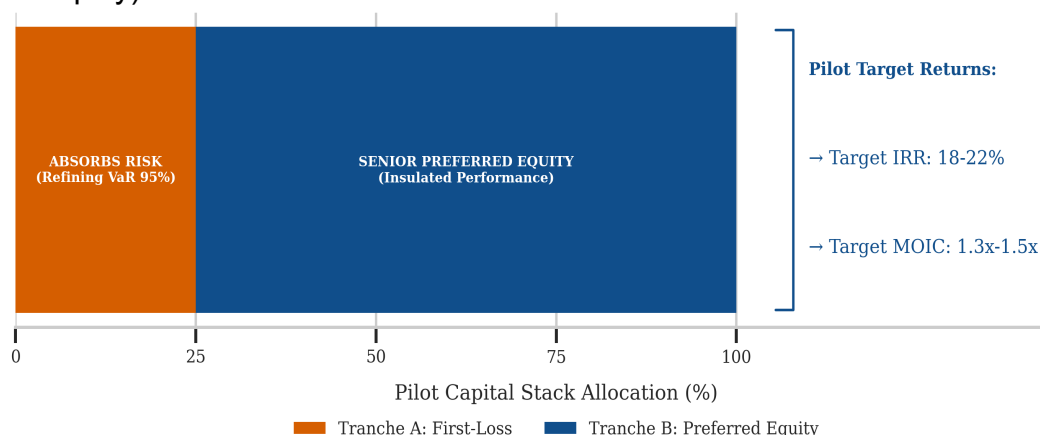


Figure 2. Longevity Capital Stack. Pilot Capital Stack (CHF 1.5M) showing Tranche A (First-Loss) protecting Tranche B (Preferred Equity) for the 12-month trial.



Sources

- Mekniran, W. et al. Early health technology assessment of digital diabetes screening in Switzerland: cost-effectiveness and budget impact analyses. Under review at Nature Health (2026) doi:10.64898/2026.02.10.26345992.
- Mekniran, W. & Kowatsch, T. Early viability assessment of a Business-to-Consumer (B2C) model for digital diabetes screening in Switzerland. BMC Health Serv Res (2026) doi:10.1186/s12913-026-14075-3.
- Mekniran, W. Financial Engineering for Preventive Health Assets: Investment Memo & Proposals (2026) <https://www.alexandria.unisg.ch/handle/20.500.14171/125441>

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