Supplementary Material (ESI) for Dalton Transactions

SUPPORTING INFORMATION

Silver(I) ions bridged by pyridazine: Doubling the ligand functionality for the design of unusual 3D coordination frameworks

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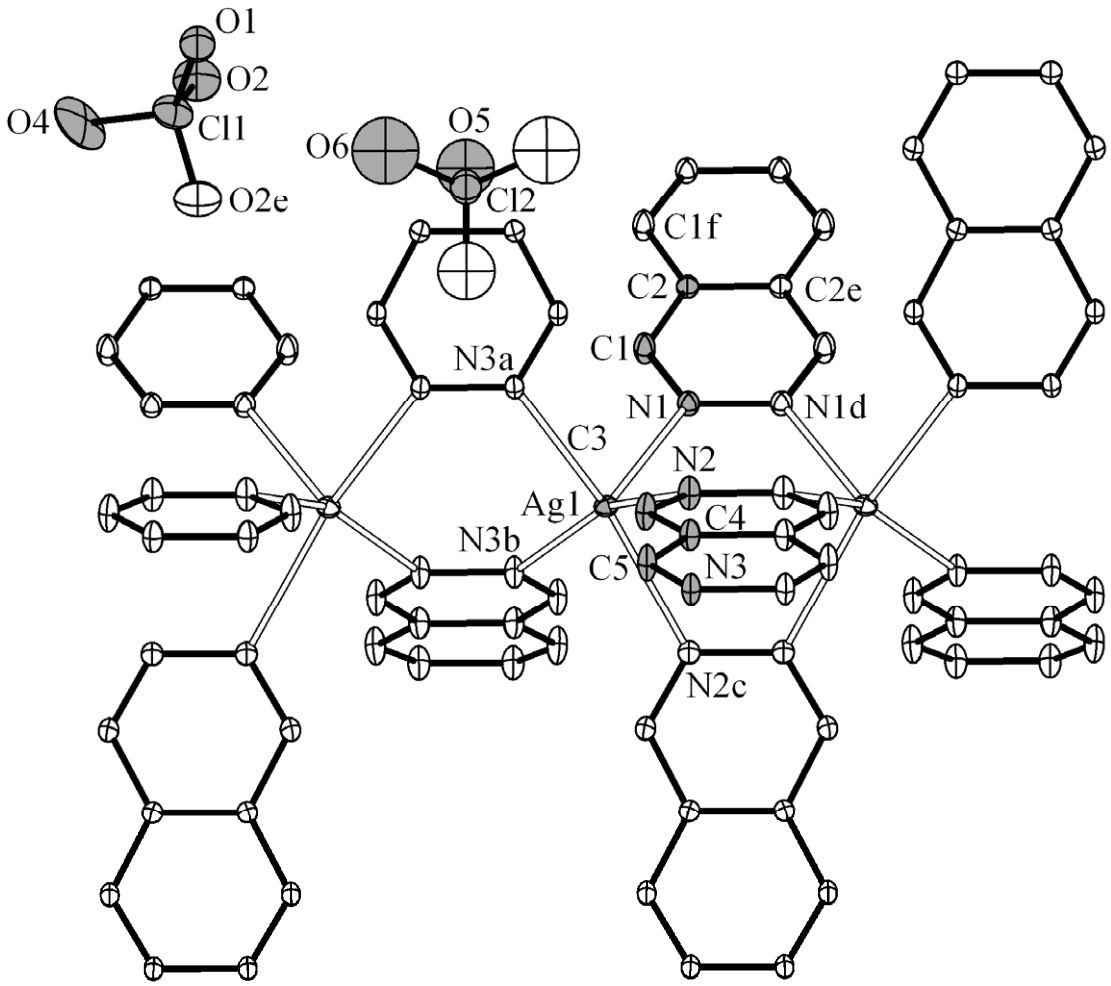

Figure S1. ORTEP diagram for **$Ag_4(pp)_5(ClO_4)_4$ (1)** showing atom labeling scheme. Thermal ellipsoids are drawn at 35% probability level and the hydrogen atoms are omitted for clarity. Unique part of the structure is marked grey. Symmetry transformation codes: a) 0.5-y, -0.5+x, 0.5-z; b) 1.5-x, 0.5+y, 0.5-z; c) 1-y, 1-y, z; d) 1-y, 1-x, 1-z; e) y, x, 1-z; f) 1-x, 1-y, z.

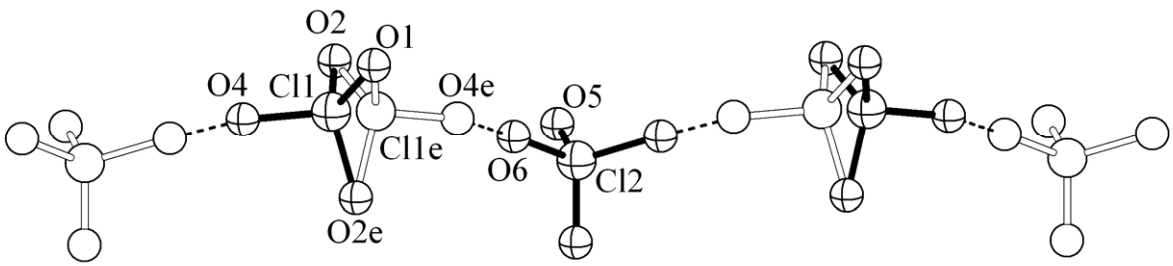

Figure S2. Refined disordering model for perchlorate anions in structure **$Ag_4(pp)_5(ClO_4)_4$ (1)**. Positions of O1 and O2 (and O2e) contribute to both components of the disorder, while sites Cl1 and O4 have partial occupancies 0.5.

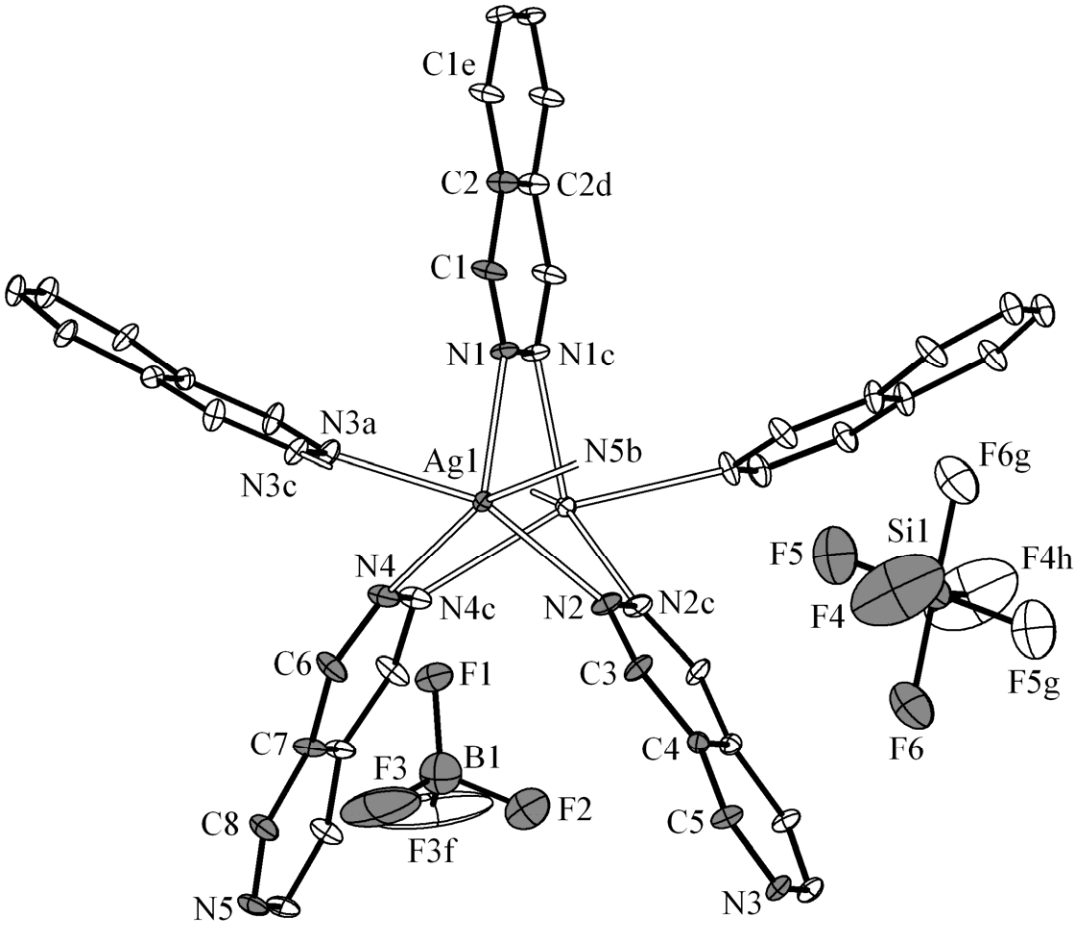

Figure S3. ORTEP diagram for $Ag_4(pp)_5(SiF_6)(BF_4)_2 \cdot 4H_2O$ (**2**) showing atom labeling scheme. Thermal ellipsoids are drawn at 30% probability level and the hydrogen atoms are omitted for clarity. Unique part of the structure is marked grey. Symmetry transformation codes: a) 0.5+x, 0.5-y, 0.5-z; b) 1.5-x, -0.5+y, 0.5-z; c) x, y, -z; d) 2-x, -y, -z; e) 2-x, -y, z; f) x. y, 1-z; g) 1-x, -y, z; h) 1-x, -y, -z.

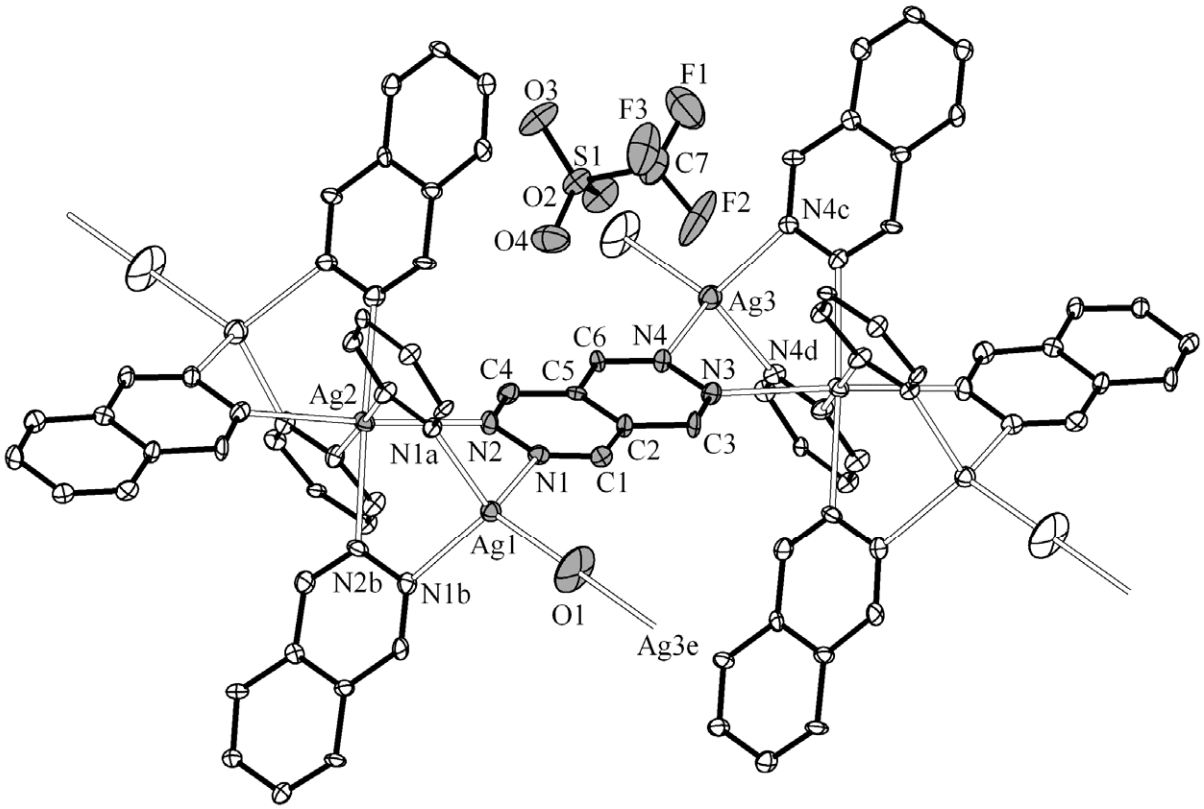

Figure S4. ORTEP diagram for $Ag_3(pp)_3(SO_3CF_3)_3 \cdot H_2O$ (**3**) showing atom labeling scheme. Thermal ellipsoids are drawn at 40% probability level and the hydrogen atoms are omitted for clarity. Unique part of the structure is marked grey. Symmetry transformation codes: a) 1-y, 1+x-y, z; b) –x+y, 1-x, z; c) –x+y, 2-x, z; d) 2-y, 2+x-y, z; e) -1/3+x, -2/3+y, 1/3+z.

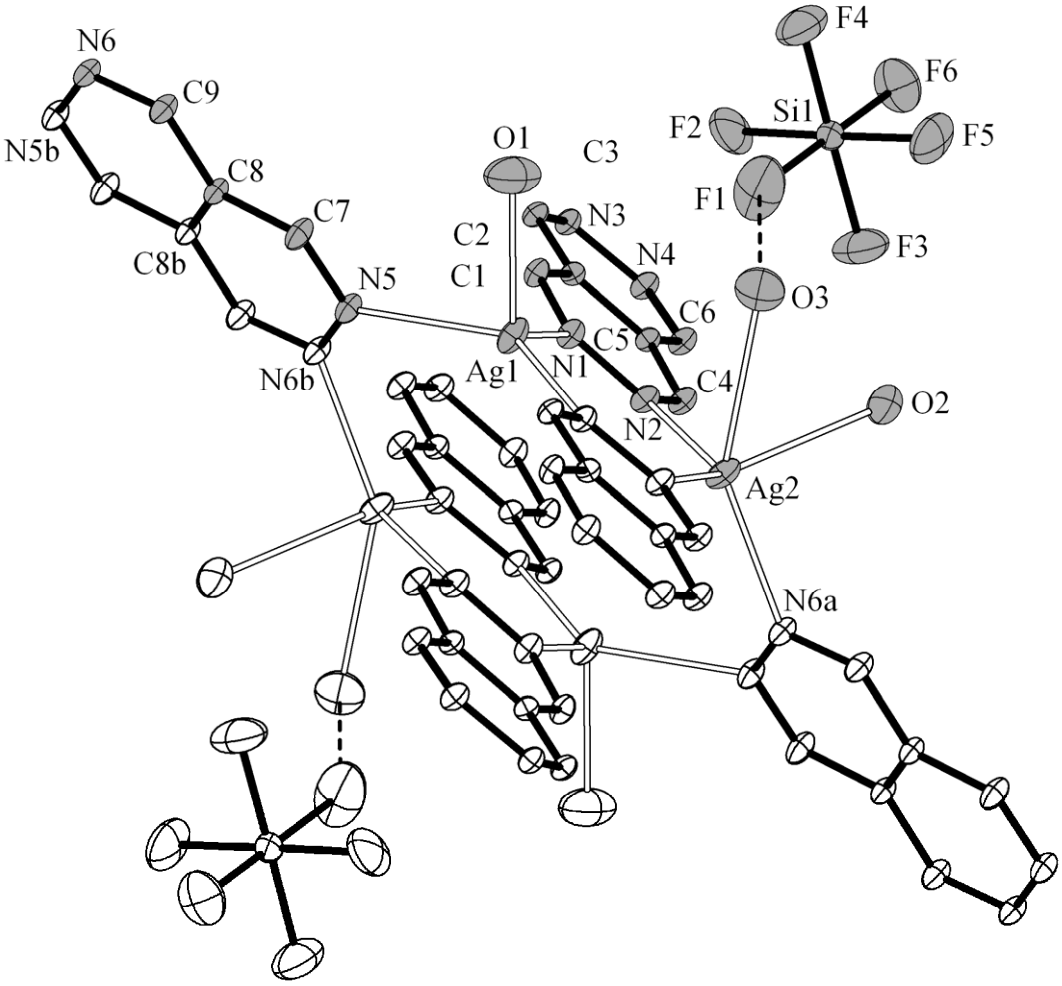

Figure S5. ORTEP diagram for $\mathbf{Ag_4(}\boldsymbol{pp}\mathbf{)_3(SiF_6)_2\cdot 10H_2O}$ (**4**) showing atom labeling scheme. Thermal ellipsoids are drawn at 40% probability level and the hydrogen atoms are omitted for clarity. Unique part of the structure is marked grey. Symmetry transformation codes: a) x, y, -1+z; b) 2-x, -y, 1-z.

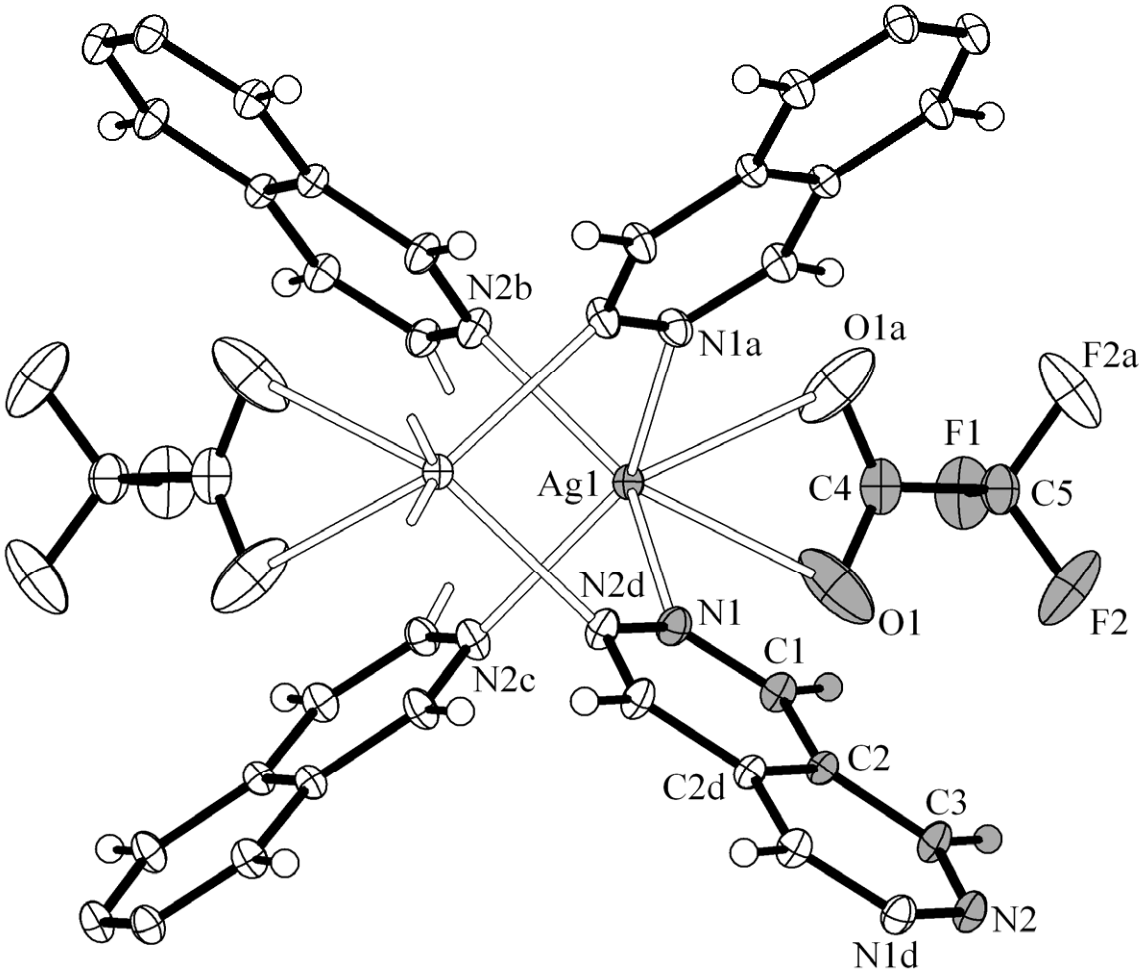

Figure S6. ORTEP diagram for **Ag(*pp*)(CF_3COO) (5)** showing atom labeling scheme. Thermal ellipsoids are drawn at 35% probability level. Unique part of the structure is marked grey. Symmetry transformation codes: a) x, 0.5-y, z; b) 0.5-x, -0.5+y, -0.5+z; c) 0.5-x, 1-y, -0.5+z; d) 1-x, 1-y, 2-z.

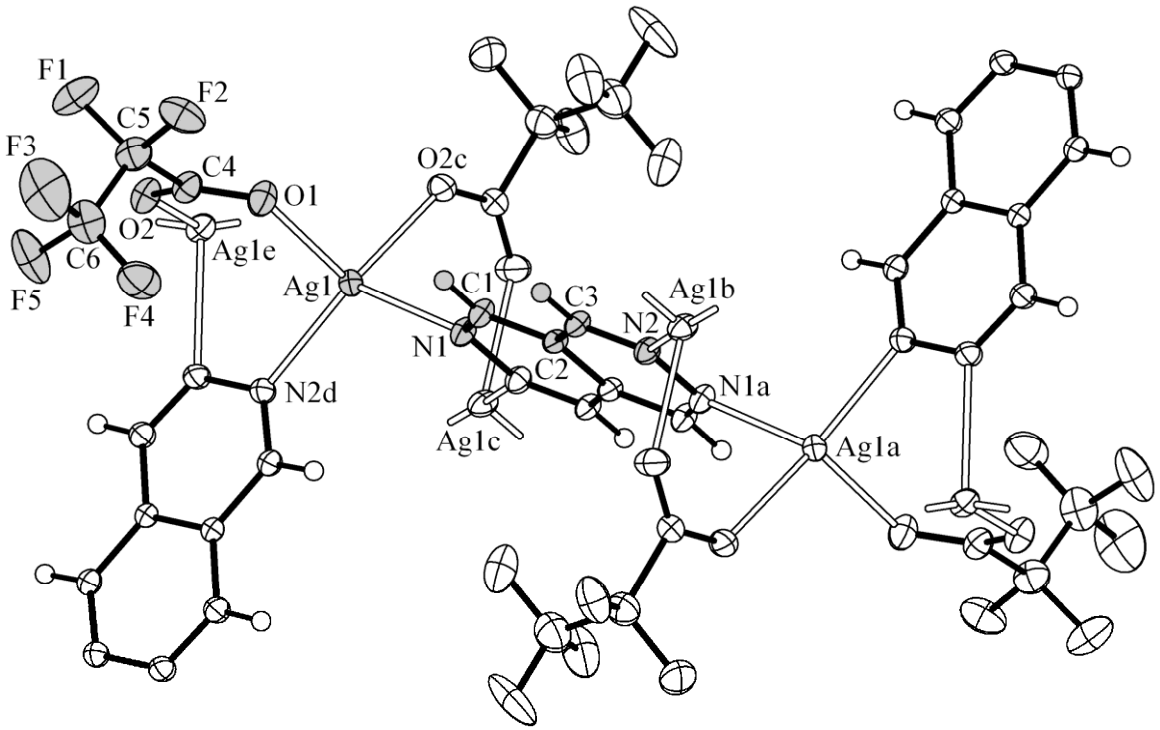

Figure S7. ORTEP diagram for **Ag_2(*pp*)$(C_2F_5COO)_2$** (**6**) showing atom labeling scheme. Thermal ellipsoids are drawn at 40% probability level. Unique part of the structure is marked grey. Symmetry transformation codes: a) 1-x, 2-y, -1-z; b) -1/3+y, 1/3-x+y, -2/3-z; c) 4/3-y, 5/3+x-y, -1/3+z; d) 2/3+x-y, 1/3+x, -2/3-z; e) -1/3-x+y, 4/3-x, 1/3+z.

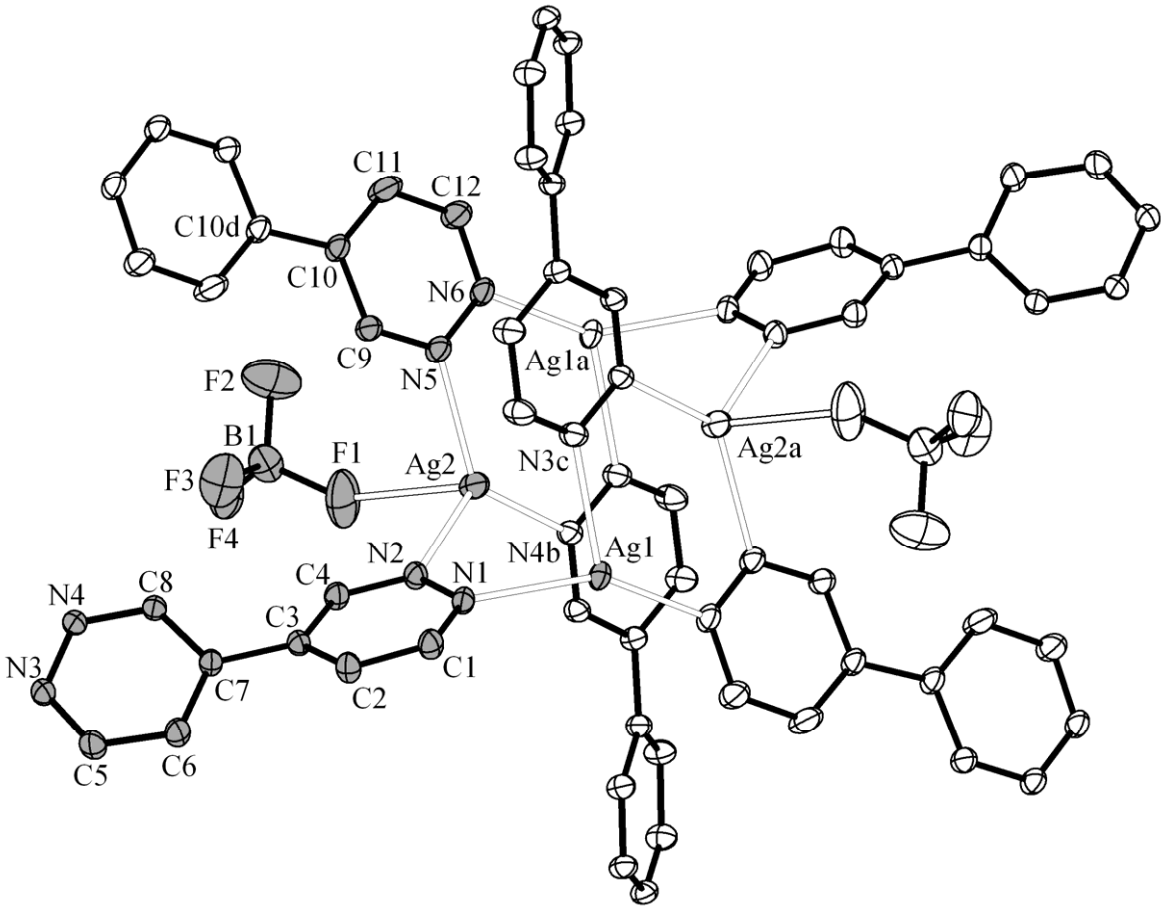

Figure S8. ORTEP diagram for $Ag_4(bpdz)_3(BF_4)_4 \cdot H_2O$ (**7**) showing atom labeling scheme. Thermal ellipsoids are drawn at 40% probability level and the hydrogen atoms are omitted for clarity. Unique part of the structure is marked grey. Symmetry transformation codes: a) 1-x, 1-y, -z; b) 1.5-x, 0.5+y, 0.5-z; c) -0.5+x, 0.5-y, -0.5+z; d) 1-x, -y, -z.

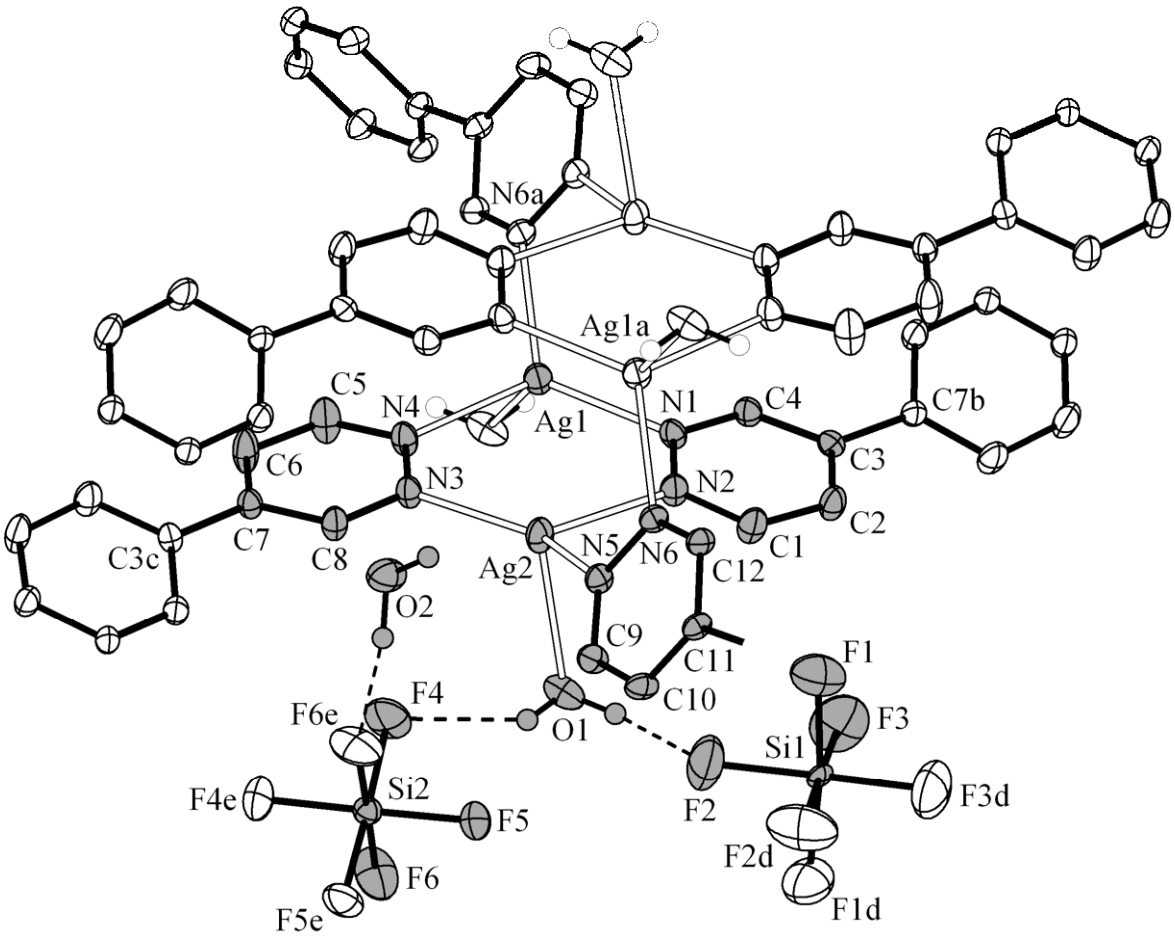

Figure S9. ORTEP diagram for $Ag_4(bpdz)_3(SiF_6)_2 \cdot 3H_2O$ (**8**) showing atom labeling scheme. Thermal ellipsoids are drawn at 40% probability level and the CH hydrogen atoms are omitted for clarity. Unique part of the structure is marked grey. Symmetry transformation codes: a) 1.5-x, 0.5-y, 2-z; b) ¼+x, ¼+y, 2-z; c) -1/4+x, -1/4+y, 2-z; d) ¾-x, y, 1.75-z; e) ¼-x, ¼-y, z.

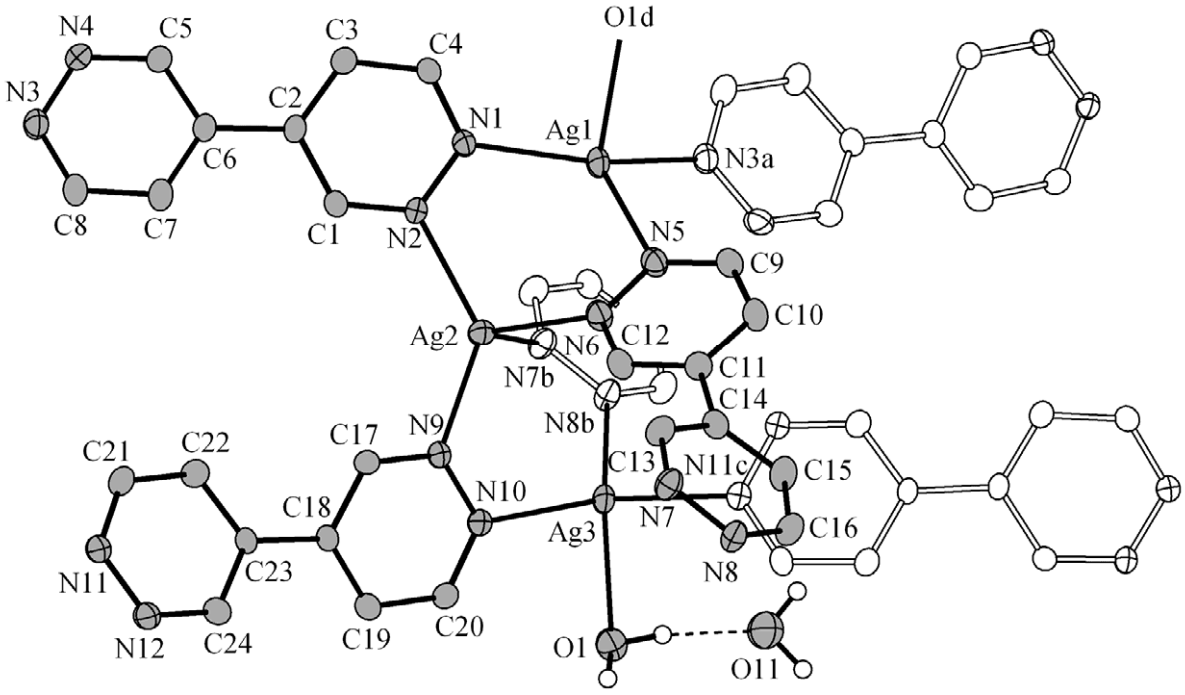

Figure S10. ORTEP diagram for $Ag_3(bpdz)_3(SO_3CF_3)_3{\cdot}2H_2O$ (**9**) showing atom labeling scheme (without three unique triflate anions). Thermal ellipsoids are drawn at 40% probability level and the CH hydrogen atoms are omitted for clarity. Unique part of the structure is marked grey. Symmetry transformation codes:

a) 1-x, 0.5+y, 1-z;

b) 1+x, y, z;

c) -x, 0.5+y, 2-z;

d) x, y, -1+z.

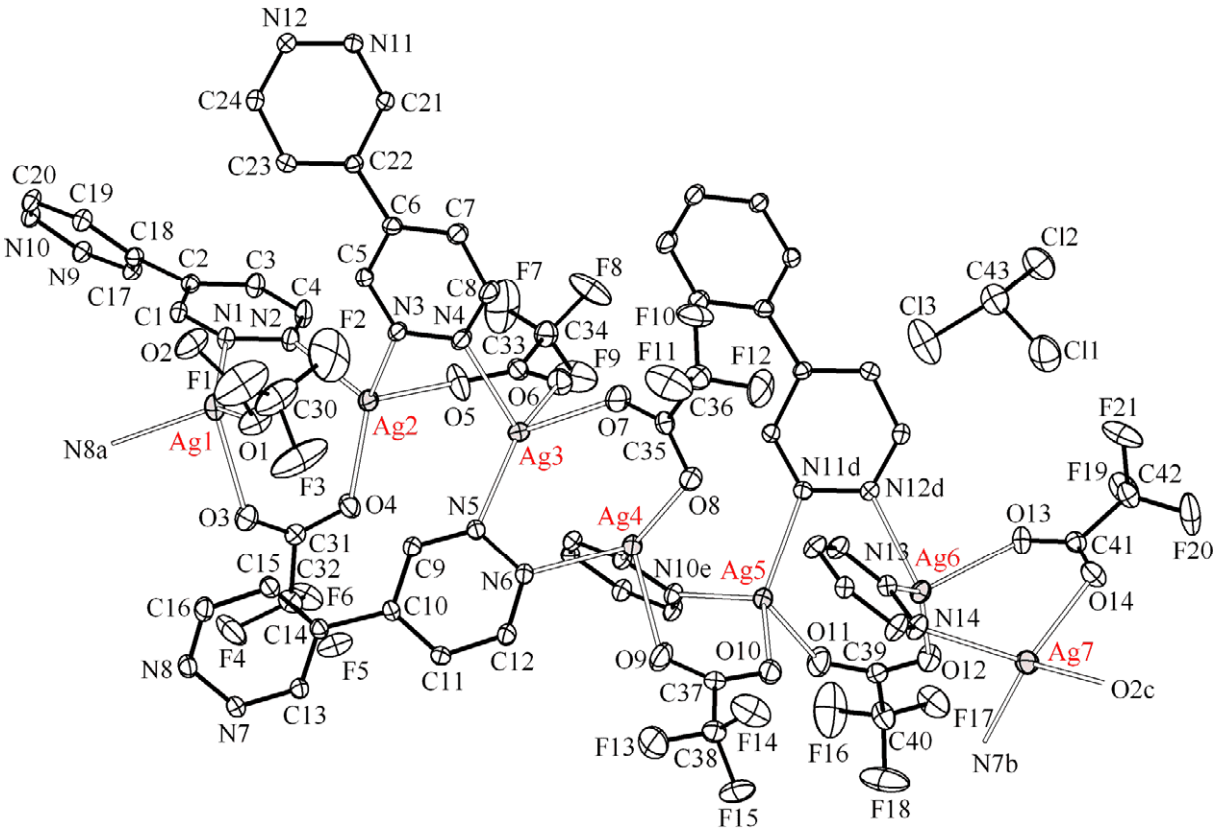

Figure S11. ORTEP diagram for $\mathbf{Ag_{14}(\textit{bpdz})_7(CF_3COO)_{14}\cdot 2CHCl_3}$ **(10)** showing atom labeling scheme [seven unique Ag atoms and trifluoroacetate groups; 3.5 unique bipyridazine molecules (three are in the general position and one across center of inversion) and one unique solvate chloroform]. Thermal ellipsoids are drawn at 40% probability level and the hydrogen atoms are omitted for clarity. Symmetry transformation codes:

a) -x, 1-y, 2-z; b) -x, -y, 1-z; c) x, -1+y, -1+z; d) 1-x, -y, 2-z; e) 1-x, -y, 2-z.

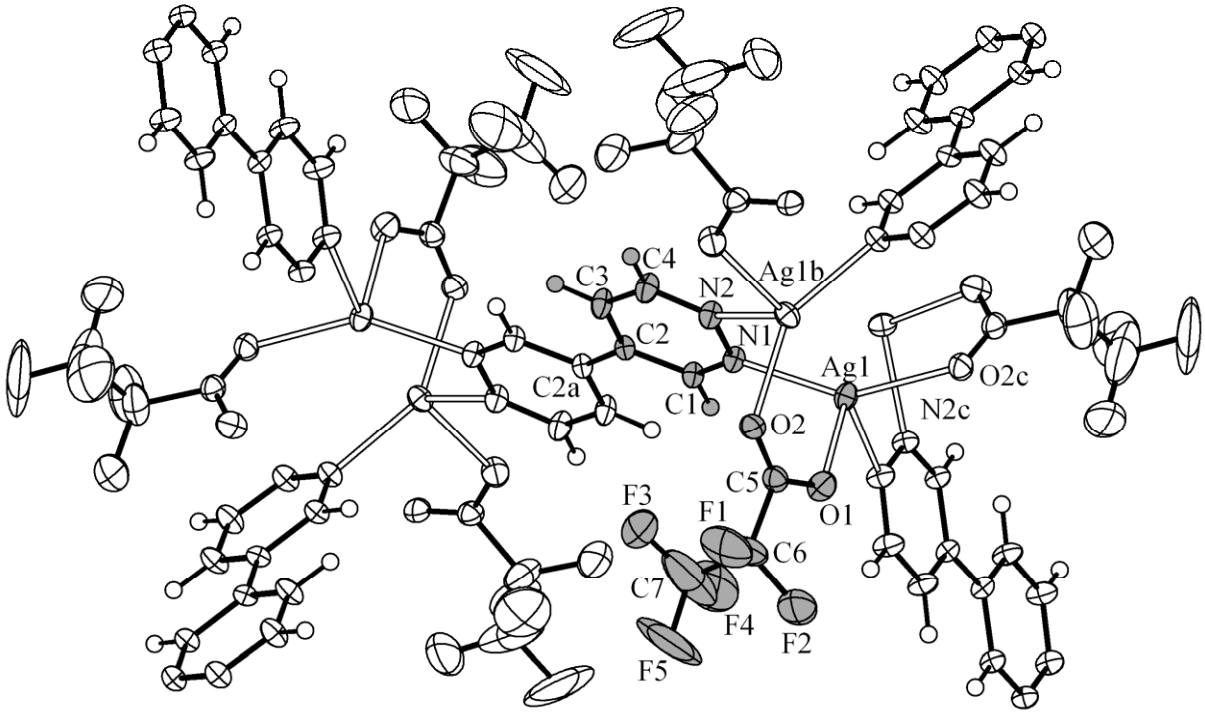

Figure S12. ORTEP diagram for **Ag_2(*bpdz*)($C_2F_5COO)_2$ (11)** showing atom labeling scheme Thermal ellipsoids are drawn at 30% probability level and the unique part of the structure is marked grey. Symmetry transformation codes: a) -1/3-x, 1/3-y, 4/3-z; b) -1/3-x+y, 1/3-x, 1/3+z; c) 1/3-y, 2/3+x-y, -1/3+z.

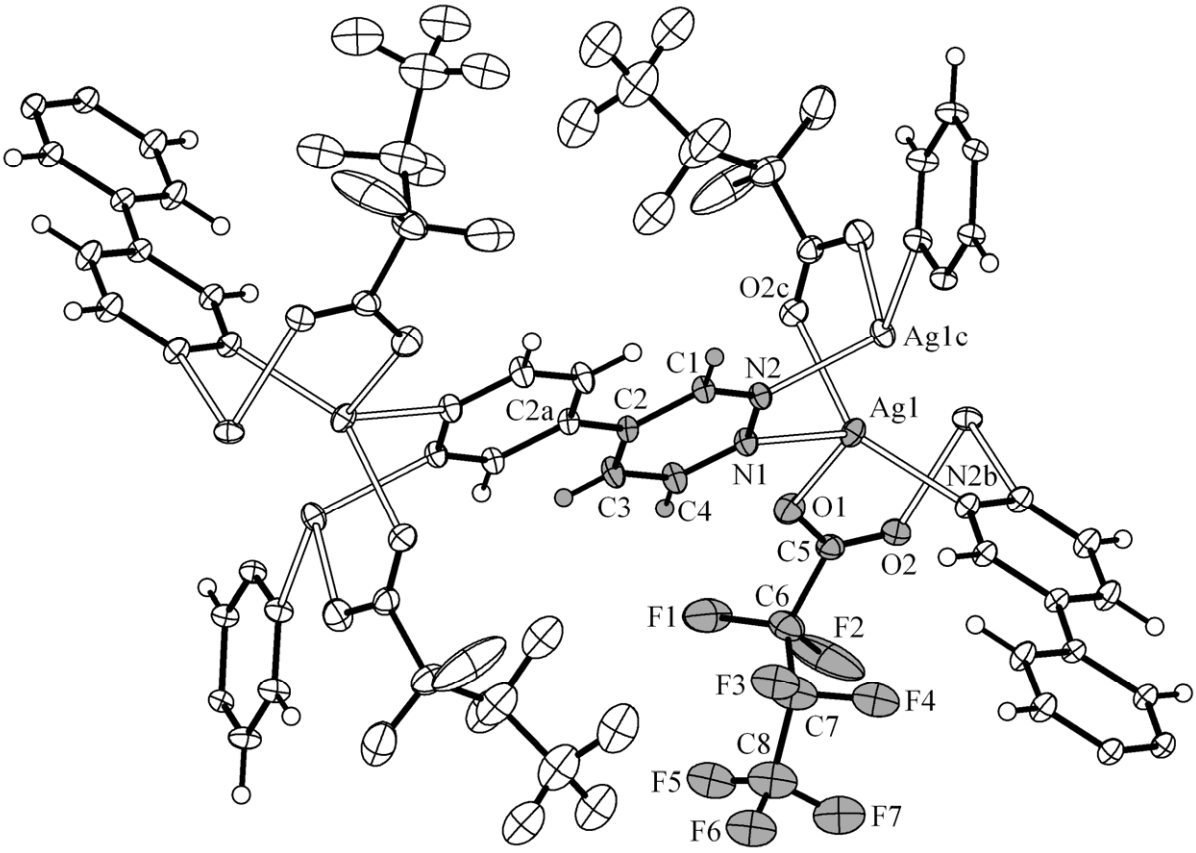

Figure S13. ORTEP diagram for **Ag_2(*bpdz*)($C_3F_7COO)_2$ (12)** showing atom labeling scheme Thermal ellipsoids are drawn at 30% probability level and the unique part of the structure is marked grey. Symmetry transformation codes: a) 2/3-x, 1/3-y, 2.333-z; b) 1/3-y, -1/3+x-y, -1/3+z; c) 2/3-x+y, 1/3-x, 1/3+z.

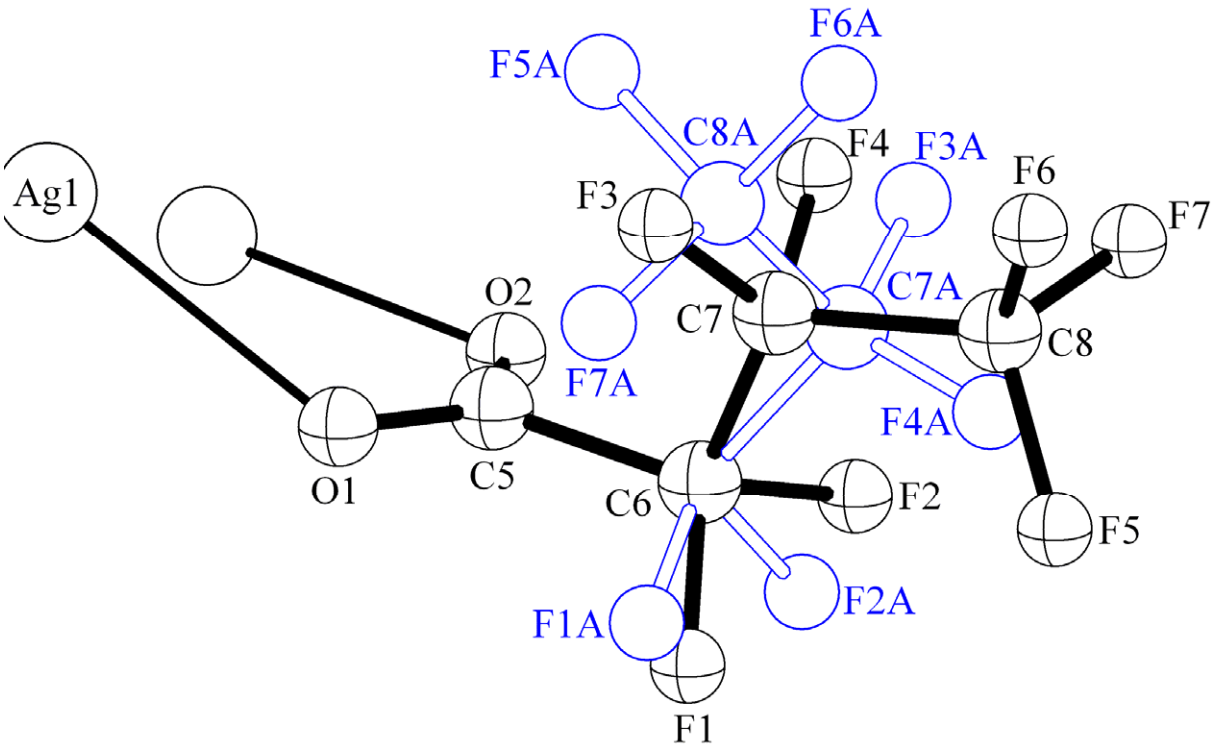

Figure S14. Refined disordering model for fluoalkyl linkage of the coordinated carboxylate anion in structure **Ag_2(*bpdz*)($C_3F_7COO)_2$ (12)**.