Detailed Business-Centric Explanation of the FDIC Ontology

This ontology is designed to **semantically enrich** the FDIC Summary of Deposits (SOD) dataset, transforming flat CSV fields into machine-understandable concepts. It enables repeatable integration, regulatory validation, and automated reasoning by aligning with financial industry ontologies such as **FIBO** and using W3C standards such as **OWL**, **SKOS**, and **RDFS**.

CLASSES

**1. fdic:Institution**

**Label:** *FDIC-covered Institution*  
**Purpose:**  
This is the top-level entity representing any financial institution insured by the FDIC, including both U.S.-chartered and insured U.S. branches of foreign institutions.

**Business Use Case:**  
Supports aggregation, analysis, and compliance reporting at the institution level (not just branches). Aligns with **FIBO’s FinancialInstitution** class to support external data linkage and semantic interoperability.

**2. fdic:BankBranch**

**Label:** *Bank Branch*  
**Comment:**  
*A branch location (office, LPO, etc.) of an FDIC-insured financial institution.*

**Purpose:**  
Represents operational outlets such as brick-and-mortar locations, drive-throughs, mobile branches, and digital-only entities.

**Business Use Case:**  
Central unit for geospatial analysis, service type mapping, and deposit tracking. Enables regional strategy, branch optimization, and market trend analysis.

**3. fdic:NationalBank, fdic:StateCharteredBank, fdic:FederalSavingsBank**

**Purpose:**  
Subclassifications of fdic:Institution to denote charter type and regulator.

**Business Use Case:**  
Used to interpret BKCLASS codes from the CSV, facilitating alignment with regulatory definitions.

* NationalBank: Federally chartered and regulated by OCC.
* StateCharteredBank: State chartered with FDIC oversight.
* FederalSavingsBank: Federally chartered savings institutions.

These distinctions are critical for **risk models**, **reporting rules**, and **legal compliance**.

**🔗 PROPERTIES**

**fdic:branchType**

**Type:** *DatatypeProperty*  
**Domain:** fdic:BankBranch  
**Range:** SKOS Concept  
**Comment:** Indicates the operational model of the branch.

**Business Use Case:**  
Maps values like "Full Service – Brick and Mortar" or "Retail" to a SKOS-based taxonomy. Enables filtering and benchmarking across branch types.

**fdic:hasGeographicLocation**

**Type:** *ObjectProperty*  
**Domain:** fdic:BankBranch  
**Range:** fdic:GeographicLocation  
**Comment:** Links a branch to its geospatial coordinates (latitude, longitude).

**Business Use Case:**  
Supports geospatial search, catchment area modeling, and location-based risk evaluation.

**fdic:hasGeographicPlace**

**Type:** *ObjectProperty*  
**Domain:** fdic:BankBranch  
**Range:** fdic:GeographicPlace  
**Comment:** Links branch to political entities (City, County, State, etc.)

**Business Use Case:**  
Enables regulatory and jurisdictional analysis. Example: determining branches per county or CSA for federal review.

**fdic:hasGeographicAddress**

**Type:** *ObjectProperty*  
**Domain:** fdic:BankBranch  
**Range:** fdic:GeographicAddress  
**Comment:** Links branch to its full postal address.

**Business Use Case:**  
Supports address validation, service zone definition, and physical correspondence.

**fdic:bankClassCode**

**Type:** *DatatypeProperty*  
**Domain:** fdic:Institution  
**Range:** SKOS Concept  
**Comment:** Maps the institution’s charter/regulatory type using codes like 'N', 'NM', 'OI', etc.

**Business Use Case:**  
Maps to FDIC-defined BKCLASS codes and links to SKOS taxonomy for standardized interpretations.

**fdic:hasServiceType**

**Type:** *DatatypeProperty*  
**Domain:** fdic:BankBranch  
**Range:** SKOS Concept  
**Comment:** Assigns a branch service model using FDIC’s taxonomy (SERVTYPE in CSV).

**Business Use Case:**  
Helps segment branches based on function (e.g., retail vs. ATM-only), supports network planning and customer service strategies.

**📚 SKOS Taxonomies**

**fdic:ServiceTypeScheme, fdic:BankClassificationScheme**

These are concept schemes that group the various SERVTYPE and BKCLASS values into SKOS hierarchies.

**Business Use Case:**  
These schemes provide authoritative controlled vocabularies for service type and institution class, which are **critical for regulatory mapping, UI dropdowns, AI models, and RDF queries**.

**🌍 Geospatial Modeling Classes**

**fdic:GeographicAddress**

Represents full structured addresses (street, ZIP, city).

**fdic:GeographicPlace**

Represents broader regions (state, county, CBSA, CSA).

**fdic:GeographicLocation**

Captures geocoordinates (latitude, longitude).

**Business Use Case:**  
Combined, these allow for **structured address reasoning**, map visualization, and regulatory analysis (e.g., CRA requirements, branch density heatmaps).

**🧩 Summary: Semantic Power Behind the Model**

This ontology transforms legacy CSV data into a **semantic asset** by:

* Standardizing ambiguous codes
* Mapping to international vocabularies (FIBO, SKOS, GeoNames)
* Enabling repeatable RDF generation
* Supporting rules-based validation (via SHACL)
* Providing a semantic foundation for **federated AI and compliance systems**