TDZ Fix: Finanzas SD Cost Catalog Route

Finanzas SD – Architecture, Flows & SOPs

Arquitectura, Flujos y Procedimientos

January 11, 2026

1 TDZ Fix: Finanzas SD Cost Catalog Route

1.1 Issue Summary

Route: `/finanzas/sdmt/cost/catalog`
Error: `ReferenceError: Cannot access 'B' before initialization`
Component: `src/features/sdmt/cost/Catalog/SDMTCatalog.tsx`
Date Fixed: 2025-11-17

1.2 Root Cause

The component had a **Temporal Dead Zone (TDZ) violation** where a variable was referenced before its declaration:

```
// ❌ BEFORE (lines 83-87): Using lineItemsError BEFORE declaration const lineItemsErrorMessage = lineItemsError ? lineItemsError instanceof Error ? lineItemsError.message : String(lineItemsError) : "";
// Line 114: lineItemsError declared here (TOO LATE!) const { error: lineItemsError, ... } = useProjectLineItems();
```

1.3 Solution

Moved the `useProjectLineItems()` hook call to execute **before** any usage of its returned values:

```
// ✅ AFTER: Hook called first (lines 105-111) const { lineItems: queryLineItems, isLoading: isLineItemsLoading, isFetching: isLineItemsFetching, error: lineItemsError, invalidate: invalidateLineItems, } = useProjectLineItems();
// Then compute dependent values (lines 113-118) const lineItemsErrorMessage = lineItemsError ? lineItemsError instanceof Error ? lineItemsError.message : String(lineItemsError) : "";
```

1.4 Why This Happened

JavaScript/TypeScript's const and let declarations have **block scope** with a TDZ, meaning: - The variable exists in the scope from the start - But it cannot be accessed until the line where it's declared and initialized - Accessing it before declaration throws `ReferenceError: Cannot access 'X' before initialization`

In minified code, variable names are shortened (e.g., `lineItemsError` → B), which is why the error message referenced variable B.

1.5 Prevention Guidelines

To avoid similar TDZ issues in React components:

1. **Declare all hooks at the top** of the component function, following React's Rules of Hooks
2. **Order declarations properly:**
   - State hooks (useState, etc.)
   - Context hooks (useContext, custom hooks like useProject())
   - Computed values that depend on hook results
3. **Never reference a variable before its declaration line**
4. **Be careful with destructuring** - ensure the source is declared first
5. **Watch for circular dependencies** between modules (though not the issue here)

1.6 Files Modified

- src/features/sdmt/cost/Catalog/SDMTCatalog.tsx: Reordered hook calls and variable declarations

1.7 Verification

- ☐ Build succeeds without errors
- ☐ TypeScript type-checking passes (no new errors)
- ☐ ESLint passes with no warnings
- ☐ Route renders without runtime errors

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2 TDZ Fix: Finanzas SD Cost Forecast Route - "Cuadrícula de Pronóstico 12 Meses"

2.1 Issue Summary

Route: /finanzas/sdmt/cost/forecast
Error: ReferenceError: Cannot access 'X' before initialization
Component: src/features/sdmt/cost/Forecast/components/ForecastRubrosTable.tsx
Date Fixed: 2026-01-11
Trigger: Clicking "Cuadrícula de Pronóstico 12 Meses" (12-Month Forecast Grid) to expand the collapsible section

2.2 Root Cause

The ForecastRubrosTable component had a **Temporal Dead Zone (TDZ) violation** where a function was called before its declaration:

```
[] // ❌ BEFORE: Function called inside useMemo (line 192) const visibleCategories
= useMemo(() => { // ...  filtering logic ...  const recalculatedTotals = recalculate-
CategoryTotals(filteredRubros); // ❌ Called here // ...  }, [searchFilter, categoryTotals,
categoryRubros, filterMode]);
  // Line 201: Function declared here (TOO LATE!) const recalculateCategoryTotals
= (rubros: CategoryRubro[]): CategoryTotals => { // ... implementation ... };
```

When the visibleCategories useMemo executes, it tries to call recalculateCategoryTotals, but that function hasn't been initialized yet because it's declared later in the code.

In minified production builds, recalculateCategoryTotals gets shortened to a single letter (e.g., X), causing the error:

```
ReferenceError: Cannot access 'X' before initialization
```

2.3 Solution

Moved the recalculateCategoryTotals function declaration **before** the visibleCategories useMemo:

```
[] // ✅ AFTER: Function declared first (line 159) const recalculateCategoryTotals =
(rubros: CategoryRubro[]): CategoryTotals => { // ... implementation ... };
  // Then used in useMemo (line 203+) const visibleCategories = useMemo(() => { //
... filtering logic ... const recalculatedTotals = recalculateCategoryTotals(filteredRubros);
// ✅ Now safe // ...  }, [searchFilter, categoryTotals, categoryRubros, filterMode]);
```

2.4 Why This Happened

JavaScript/TypeScript const and let declarations are hoisted but remain in the **Temporal Dead Zone (TDZ)** until the execution reaches the declaration line:

1. The variable name is reserved in scope from the start
2. But it cannot be accessed until the line where it's declared and initialized
3. Accessing it before declaration throws ReferenceError: Cannot access 'X' before initialization
4. In production builds, variable names are minified (e.g., recalculateCategoryTotals → X)

The issue only appeared when expanding the "Cuadrícula de Pronóstico 12 Meses" section because: - That's when `ForecastRubrosTable` component is first rendered - The `visibleCategories` useMemo executes immediately on mount - It tries to call `recalculateCategoryTotals` which is still in TDZ

2.5 Prevention Guidelines

To avoid similar TDZ issues in React components:

1. **Declare helper functions BEFORE they're used** in useMemo/useEffect/useCallback
2. **Order declarations properly:**

   - Imports
   - Type definitions
   - Helper functions (that don't depend on state/props)
   - State hooks (useState, etc.)
   - Context hooks (useContext, custom hooks)
   - Computed values (useMemo, useCallback) that use the helpers

3. **Never reference a const/let before its declaration line**
4. **Consider moving complex helper functions outside the component** if they don't need closure over state/props
5. **Use ESLint rules** to catch potential TDZ issues during development

2.6 Files Modified

- `src/features/sdmt/cost/Forecast/components/ForecastRubrosTable.tsx`: Moved `recalculateCategoryTotals` function declaration before `visibleCategories` use-Memo
- `docs/notes-finanzas-tdz.md`: Updated documentation with this case

2.7 Verification

- ☐ Build succeeds without errors
- ☐ TypeScript type-checking passes
- ☐ ESLint passes with no warnings
- ☐ Route loads without errors
- ☐ Clicking "Cuadrícula de Pronóstico 12 Meses" renders without TDZ error
- ☐ Component can be dynamically imported without throwing