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# Job Aid: Lender Underwritten DSCR per Guide Requirements: Guidance and Examples

Information Effective: October 24, 2022

**This purpose of this document is strictly for guidance and examples only. This document is not a replacement for the Multifamily Selling and Servicing Guide (the “Guide”). This guidance and examples are effective as of October 6, 2017 and are subject to change. Refer to the most recent Guide and Underwriting Standards (Form 4660) for complete details on the Lender Underwritten DSCR per Guide Requirements field.**

## Lender Underwritten DSCR per Guide Requirements

The ratio of underwritten Net Cash Flow (“NCF”) and the underwritten annualized debt service (see below for more guidance on how to calculate this debt service).

**Underwritten Net Cash Flow (Underwritten NCF)** = Underwritten Effective Gross Income less underwritten Property operating expenses including Capital Expenditures (Replacement Reserves) as required in the Multifamily Selling and Servicing Guide (the “Guide”).

However, for Cooperative Properties, Lender must calculate: (i) Cooperative Market Rental Basis (“Underwritten NCF”), and (ii) Actual Cooperative Property Basis (“Actual Cooperative Property NCF”), as follows:

- Cooperative Market Rental Basis Net Cash Flow (“Underwritten NCF”): Underwritten NCF calculated as described above, however, based on a Market Rental Basis as reflected in the Appraisal. The Cooperative Market Rental Basis NCF must include minimum economic vacancy and Capital Expenditures (Replacement Reserves) per unit, if any, as set forth in the Underwritten NCF calculation detailed in Part IIIA, Chapter 3 or Part IIIB, as required in the Guide; and
- Actual Cooperative Property Basis Net Cash Flow (“Actual Cooperative Property NCF”): calculated on actual Cooperative Property operations as required in the Guide.

**Underwritten Annualized Debt Service** = the following calculations for full and partial interest only Mortgage Loans:

- For Fixed Rate Mortgage Loans:

The annual debt service must be based on a level debt service payment with an Amortization term pursuant to the Multifamily Underwriting Standards, or other Amortization term approved by Fannie Mae, and the higher of:

- the Gross Note Rate; or
- the required Underwriting Interest Rate Floor (as identified in the “Underwriting Standards (Form 4660)”).



- For Adjustable Rate Mortgage Loans (ARM Loans)<sup>1</sup>:
  - Structured ARM Loans (“SARM Loans”): Based on the underwritten annualized monthly payment calculation using the overall Variable Underwriting Rate (as defined in Part IIIC Chapter 6 Section 605) of the “Guide”).
  - ARM 5-5 and ARM 7-6 Loans (i.e. “Embedded Cap ARM Loans”): Based on the annualized monthly payment calculated using the Maximum Lifetime Interest Rate (as defined in Part IIIC Chapter 5 of the “Guide”).
    - For Cooperative Property Mortgage Loans: the underwritten annual debt service must be calculated as stated above, with the following caveat: Cooperative Market Rental Basis: Debt service must be based on a level debt service payment with an Amortization term pursuant to the Multifamily Underwriting Standards, or other Amortization term approved by Fannie Mae, and the higher of:
      - the Gross Note Rate; or
      - the required Underwriting Interest Rate Floor; and
      - If Fannie Mae pre-approves subordinate debt as provided in the Guide, the annual debt service must also include principal and interest to cover the maximum principal amount of the subordinate debt outstanding.
    - Actual Cooperative Property Basis: Debt service must be based on a level debt service payment at the actual Gross Note Rate with an Amortization term pursuant to the Multifamily Underwriting Standards, or other Amortization term approved by Fannie Mae. If Fannie Mae pre-approves subordinate debt as provided in the Guide, the annual debt service must also include principal and interest to cover the actual loan balance of such subordinate debt outstanding at the time of underwriting. Interest-only payments may only be used for a full term interest-only Mortgage Loan.

- For Supplemental Mortgage Loans:

Based on the combined annual debt service amount of all Pre-Existing Mortgage Loans and the Supplemental Mortgage Loan based on the following:

Pre-Existing Mortgage Loans		
Interest Rate Type	Amortization Type	Debt Service Amount
Fixed Rate	Fully-amortizing Partial-term Interest-Only	Amortizing debt service amount based on the Gross Note Rate
	Full Term Interest-Only	Interest-Only debt service amount based on the Gross Note Rate
Adjustable Rate <sup>1</sup>	Fully-amortizing Partial-term Interest-Only	Amortizing debt service amount based on the origination loan amount, amortization term, and variable underwriting rate

<sup>1</sup> In addition to meeting the Lender Underwritten DSCR per Guide requirements described above, in no event shall the Mortgage Loan amount exceed the amount calculated in Part IIIA of the Guide for a fixed rate Mortgage Loan with equivalent term and Tier and using the Lender delegated pricing published in the DUS Pricing Memo or, if applicable, the Fannie Mae approved fixed rate pricing for the Mortgage Loan in effect at the time of Rate Lock



Pre-Existing Mortgage Loans		
	Full Term Interest-Only	Interest-Only debt service amount based on the origination loan amount, amortization term, and variable underwriting rate

Supplemental Mortgage Loan**		
Interest Rate Type	Amortization Type	Underwritten Annualized Debt Service Amount
Fixed Rate / Adjustable Rate <sup>2</sup>	All Amortization Types	Amortizing debt service amount based on the greater of the Gross Note Rate or: <ul style="list-style-type: none"> <li>■ for fixed rate Supplemental Mortgage Loans, the applicable Underwriting Interest Rate Floor in the applicable Multifamily Underwriting Standards; or</li> <li>■ for adjustable rate Supplemental Mortgage Loans, the variable underwriting rate determined in accordance with Part IIIC</li> </ul>

\*\*Please note, Supplemental Mortgage Loans must comply with New Loan Test in the Guide, which may further restrict proceeds. Please refer to Part IIIC – Chapter 2 for complete details on Supplemental Mortgage Loans and sizing requirements.

## Sample Calculations

### Example 1: \$10,000,000 Fixed Rate Mortgage Loan (Fully Amortizing)

#### Conventional Mortgage Loan

Gross Note Rate: 4.00  
 Underwriting Interest Rate Floor = 5.00  
 Loan Term: 120 months  
 Interest Only Term: 0 months  
 Amortization: 360 months  
 Underwritten NCF: \$1,000,000  
 Underwritten Debt Service (Amortizing @ 5.00% UW Interest Rate Floor): \$53,682 (monthly), \$644,186 (annualized)

**Lender Underwritten DSCR per Guide Requirements:**  
**1.55 = \$1,000,000 / \$644,186 (@ UW Interest Rate Floor)**

#### Cooperative Property Mortgage Loan

Gross Note Rate: 4.00  
 Underwriting Interest Rate Floor = 5.00  
 Loan Term: 120 months  
 Interest Only Term: 0 months  
 Amortization: 360 months

<sup>2</sup> In addition to meeting the Lender Underwritten DSCR per Guide requirements described above, in no event shall the Mortgage Loan amount exceed the amount calculated in Part IIIA of the Guide for a fixed rate Mortgage Loan with equivalent term and Tier and using the Lender delegated pricing published in the DUS Pricing Memo or, if applicable, the Fannie Mae approved fixed rate pricing for the Mortgage Loan in effect at the time of Rate Lock



Underwritten NCF (Market Rental Basis): \$1,000,000

Actual Cooperative Property NCF: \$573,000

Underwritten Debt Service (Amortizing @ 5.00% UW Interest Rate Floor): \$53,682 (monthly), \$644,186 (annualized)

Debt Service (Amortizing @ 4.00%): \$47,742 (monthly), \$572,898 (annualized)

**Lender Underwritten DSCR per Guide Requirements (Market Rental Basis):**

**1.55 = \$1,000,000 (Market Rental Basis NCF) / \$644,186 (@ UW Interest Rate Floor)**

**Actual Cooperative Property DSCR:**

**1.0 = \$573,000 (Actual Cooperative Property NCF) / \$572,898**

### **Example 2: \$10,000,000 Fixed Rate Mortgage Loan (Partial Interest Only)**

#### **Conventional Mortgage Loan**

Gross Note Rate: 4.00

Underwriting Interest Rate Floor = 5.00

Loan Term: 120 months

Interest Only Term: 60 months

Amortization: 360 months

Underwritten NCF: \$1,000,000

Underwritten Debt Service (Amortizing @ 5.00% \*UW Interest Rate Floor): \$53,682 (monthly), \$644,186 (annualized)

**Lender Underwritten DSCR per Guide Requirements:**

**1.55 = \$1,000,000 / \$644,186 (@UW Interest Rate Floor)**

#### **Cooperative Property Mortgage Loan**

Gross Note Rate: 4.00

Underwriting Interest Rate Floor = 5.00

Loan Term: 120 months

Interest Only Term: 60 months

Amortization: 360 months

Underwritten NCF (Market Rental Basis): \$1,000,000

Actual Cooperative Property NCF: \$573,000

Underwritten Debt Service (Amortizing @ 5.00% UW Interest Rate Floor): \$53,682 (monthly), \$644,186 (annualized)

Debt Service (Amortizing @ 4.00%): \$47,742 (monthly), \$572,898 (annualized)

**Lender Underwritten DSCR per Guide Requirements (Market Rental Basis):**

**1.55 = \$1,000,000 (Market Rental Basis NCF) / \$644,186 (@UW Interest Rate Floor)**

**Actual Cooperative Property DSCR:**

**1.00 = \$573,000 (Actual Cooperative Property NCF) / \$572,898**

### **Example 3: \$10,000,000 Fixed Rate Mortgage Loan (Full Interest Only)**

#### **Conventional Mortgage Loan**

Gross Note Rate: 4.00

Underwriting Interest Rate Floor = 5.00

Loan Term: 120 months

Interest Only Term: 120 months

Amortization: 360 months

Underwritten NCF: \$1,000,000

Underwritten Debt Service (Amortizing @ 5.00% UW Interest Rate Floor): \$53,682 (monthly), \$644,186 (annualized)



**Lender Underwritten DSCR per Guide Requirements:**  
**1.55 = \$1,000,000 / \$644,186 (@UW Interest Rate Floor)**

**Cooperative Property Mortgage Loan**

Gross Note Rate: 4.00  
Underwriting Interest Rate Floor = 5.00  
Loan Term: 120 months  
Interest Only Term: 120 months  
Amortization: 360 months  
Underwritten NCF (Market Rental Basis): \$1,000,000  
Actual Cooperative Property NCF: \$573,000  
Underwritten Debt Service (Amortizing @ 5.00% UW Interest Rate Floor): \$53,682 (monthly), \$644,186 (annualized)  
Debt Service (Interest Only @ 4.00%): \$33,333 (monthly), \$400,000 (annualized)

**Lender Underwritten DSCR per Guide Requirements (Market Rental Basis):**  
**1.55 = \$1,000,000 (Market Rental Basis NCF) / \$644,186 (@UW Interest Rate Floor)**

**Actual Cooperative Property DSCR:**  
**1.43 = \$573,000 (Actual Cooperative Property NCF) / \$400,000**

**Example 4: \$10,000,000 ARM Loans<sup>3</sup>:**

Please note, ARM Loan examples do not reflect Fixed Rate Test which further may impact proceeds and DSCR calculation, refer to Guide and Underwriting Standards (Form 4660) for further details.

**ARM 7-6 Loan: ARM Loan with embedded interest rate caps**

Initial Interest Rate: 2.00 (Guaranty Fee + Servicing Fee + 30 Day Average SOFR index)  
Lifetime Max Interest Rate: 8.00 (Initial Interest Rate + 6% embedded interest rate cap)  
Loan Term: 84 months  
Interest Only Term: 36 months  
Amortization: 360  
Underwriting NCF: \$1,000,000  
Debt Service using Lifetime Max Interest Rate: \$73,376 (monthly), \$880,517 (annualized)

**Lender Underwritten DSCR per Guide Requirements:**  
**1.14 = \$1,000,000 / \$880,517**

**STRUCTURED ARM Loan**

Initial Interest Rate: 2.77 (ex. Margin (Guaranty Fee, Servicing Fee plus Investor spread) + 30 Day Average SOFR index)  
Variable Underwriting Rate (as defined in the Guide): 5.77 (Initial Interest Rate + Underwriting Spread (i.e., 3%) + Cap Cost Factor)  
Term: 120 months  
Interest Only: 36 months  
Amortization: 360 months  
Underwriting NCF: \$1,000,000  
Underwritten Debt Service using Variable Underwriting Rate: \$58,484 (monthly), \$701,813 (annualized)

**Lender Underwritten DSCR per Guide Requirements:**  
**1.42 = \$1,000,000 / \$701,813**

<sup>3</sup> In addition to meeting the Lender Underwritten DSCR per Guide requirements described above, in no event shall the Mortgage Loan amount exceed the amount calculated in Part IIIA of the Guide for a fixed rate Mortgage Loan with equivalent term and Tier and using the Lender delegated pricing published in the DUS Pricing Memo or, if applicable, the Fannie Mae approved fixed rate pricing for the Mortgage Loan in effect at the time of Rate Lock



**Example 5: Hybrid ARM Loan:**

A 5-Year Hybrid ARM Loan for \$3,817,000.00 secured by a Property located in a Strong Market or Los Angeles-Long Beach-Anaheim, CA MSA:

Initial Fixed Interest Rate: 4.11  
 Underwriting Interest Rate Floor = Not Applicable for Hybrid ARM Loans  
 Interest Only Term: 0 months  
 Loan Term: 360 months  
 Amortization: 360 months  
 Underwritten NCF: \$277,000  
 Underwritten Debt Service (Amortizing @ 4.11%): \$18,466 (monthly), \$221,590 (annualized)

**Lender Underwritten DSCR per Guide Requirements:**  
**1.25 = \$277,000 / \$221,590 (@ Actual Interest Rate)**

A 7-Year Hybrid ARM Loan for \$1,720,000.00 secured by a Property located in a Nationwide Market:

Initial Fixed Interest Rate: 4.18  
 Minimum 1.00 DSCR Stress Test: 6.68 (Initial Fixed Interest Rate of 4.18 plus 2.50)  
 Underwriting Interest Rate Floor = Not Applicable for Hybrid ARM Loans  
 Underwritten Value: \$2,150,000.00  
 Interest Only Term: 0 months  
 Loan Term: 360 months  
 Amortization: 360 months  
 Underwritten NCF: \$142,140  
 Maximum Loan Amount per LTV at 80%: \$1,720,000.00  
 Maximum Loan Amount minimum 1.00 DSCR Stress Test @ 6.68: \$1,839,425  
 Underwritten Debt Service (Amortizing @ 4.18%) at maximum constrained loan proceeds \$1,720,000.00: \$8,391 (monthly), \$100,692 (annualized)

**Lender Underwritten DSCR per Guide Requirements:**  
**1.41 = \$142,140 / \$100,692 (@ Actual Interest Rate)**

**Example 6: Supplemental Mortgage Loan:**

Please note, Supplemental Mortgage Loans must comply with New Loan Test in the Guide, which may further restrict proceeds. Please refer to Part IIIC – Chapter 2 for complete details on Supplemental Mortgage Loans and sizing requirements.

Underwriting NCF = \$1,400,000

	Loan Amount and Loan Term	Rate / Amortization / Interest Only	Annualized Debt Service
Pre-Existing Mortgage Loan	\$10,000,000 Origination UPB; 5 years remaining	Gross Note Rate = 5.50%; Amortization = 360 months; Interest Only = 0 months	\$681,347
Supplemental Mortgage Loan	\$5,000,000; 5 years	Gross Note Rate = 5.00%; UW Interest Rate Floor = 6.75%; Interest Only = 0 months	\$389,159 (@UW Interest Rate Floor)
		Total Combined Annualized Debt Service	\$1,070,506



**Lender Underwritten DSCR per Guide Requirements:**

**1.31 = \$1,400,000 / \$1,070,506**

<sup>1</sup> In addition to meeting the Lender Underwritten DSCR per Guide requirements described above, in no event shall the Mortgage Loan amount exceed the amount calculated in Part IIIA of the Guide for a fixed rate Mortgage Loan with equivalent term and Tier and using the Lender delegated pricing published in the DUS Pricing Memo or, if applicable, the Fannie Mae approved fixed rate pricing for the Mortgage Loan in effect at the time of Rate Lock





## Job Aid: DSCR Training Aid for Currently Disclosed DSCR Fields

**\*\*Fields Retired/Disabled for Mortgage Loan deliveries on or after October 2022\*\***

### Actual DSCR

**Actual DSCR** is the ratio of underwritten Net Cash flow (“NCF”) and the annualized debt service.

**UW NCF** = Underwritten Effective Gross Income less underwritten Total Expenses.

**Annualized Debt Service** = For full and partial interest only Mortgage Loans use Initial Interest Rate multiplied by Actual UPB at Acquisition. For amortizing 30/360 and Actual/360 Mortgage Loans use monthly payment as stated in the Loan Documents multiplied by 12.

### **Product Variations:**

- **Partial and Full Interest Only Mortgage Loans:** this calculation will not include an amortization factor.
- **ARM Loans/Hybrid ARM Loans:** this calculation will be based on the initial interest rate.
- **Cooperative Properties:** Actual cooperative NCF effective gross income less underwritten Total Expenses.
- **Supplemental Mortgage Loans and Mortgage Loans with Subordinate Debt or Additional Debt (Combined):** The ratio of Underwritten Net Cash Flow (UW NCF) to the annualized combined monthly payments of all Pre-Existing Mortgage Loans.  
Combined monthly payments = the combined monthly payments for all supplemental, subordinate debt, and first liens (does not include soft debt). If the additional debt is partial IO and is still in its IO period, then the IO payment should be used. If the additional debt is partial IO and is in its amortization period, then the amortizing payment should be used.

### DSCR at Maximum Payment:

**DSCR at Maximum Payment** is the ratio of underwritten Net Cash Flow (“NCF”) and the debt service calculated as described below.

**UW NCF** = Underwritten Effective Gross Income less underwritten Total Expenses.

### **Partial Interest Only Mortgage Loans**

**DSCR** = Underwritten NCF/ annualized partial interest only amortizing payment.

### **ARM Loans/Hybrid ARM Loans**

**DSCR** = Underwritten NCF/ annualized monthly payment calculated using, the Lifetime Maximum Interest Rate, if applicable, for ARM Loans with an embedded cap or, the Variable Underwriting Rate for other ARM Loans (e.g., SARM Loans) with an amortization factor (except in the case of a full interest only Mortgage Loan – no amortization factor is used).



## Product Variations:

- **Interest Only Mortgage Loans:** For Fixed and ARM Loans, Partial Interest Only Mortgage Loans, DSCR at Maximum Payment will be different than Actual DSCR. For Fixed Rate, Full Interest Only Mortgage Loans DSCR at Maximum Payment will be the same as Actual DSCR but will be different for ARM Loans.
- **Amortizing Mortgage Loans:** For Fixed Rate, Amortizing Mortgage Loans, DSCR at Maximum Payment will be the same as Actual DSCR unless the Mortgage Loan is a Cooperative Property.
- **Cooperative Properties:**
  - This calculation will use the UW NCF = Rental equivalent NCF Effective Gross Income less underwritten Total Expenses.
  - The DSCR at Maximum Payment field will not contain the same figure as Actual DSCR field due to different NCFs being used in the calculations.
- **Supplemental Mortgage Loans and Mortgage Loans with Subordinate Debt or Additional Debt (Combined):** The ratio of Underwritten Net Cash (UW NCF) to the annualized combined monthly payments of all Pre-Existing Mortgage Loans.  
Combined monthly payments = the combined monthly payments for all supplemental, subordinate debt, and first liens (does not include soft debt). If the additional debt is partial IO and is in or out of its IO period the amortizing payment should be used.

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## Sample Calculations

### Example 1 Amortizing Mortgage Loan

**Loan \$10,000,000**

Interest Rate: 5.00

Fixed Rate

Term: 120

Amortization: 360

Underwritten NCF: \$1,000,000

Debt Service: \$53,682, annualized \$644,186

**Actual DSCR:**

**1.55 = \$1,000,000 / \$644,186**

**DSCR at Maximum Payment:**

**1.55**

**Cooperative Property:**

**Loan \$10,000,000**

Interest Rate: 5.00

Fixed Rate

Term: 120

Amortization: 360

Actual Cooperative NCF: \$750,000

Rental Equivalent NCF: \$1,000,000

Debt Service: \$53,682, annualized \$644,186

**Actual DSCR:**



**1.16 = \$750,000 (Actual Cooperative NCF) / \$644,186**

**DSCR at Maximum Payment:**

**1.55 = \$1,000,000 (Rental Equivalent NCF) / \$644,186**



## **Interest Only Mortgage Loan**

**Loan \$10,000,000**

Interest Rate: 5.00

Fixed Rate

Term: 120

Amortization: 0

Underwritten NCF: \$1,000,000

Debt Service:  $.0500 * \$10,000,000 = \$500,000$

**Actual DSCR:**

**2.00 = \$1,000,000 / \$500,000**

**DSCR at Maximum Payment:**

**2.00**

## **Partial Interest Only Mortgage Loans:**

**Loan: \$10,000,000**

Interest Rate: 5.00

Fixed Rate

Term: 120

Actual 360

Partial IO: 12 months

Original Amortization: 0

Amortization: 360

Underwritten NCF: \$1,000,000

Debt Service:  $.0500 * \$10,000,000 = \$500,000$

Amortizing Debt Service: \$53,682, annualized \$644,186

**Actual DSCR:**

**2.00 = \$1,000,000 / \$500,000**

**DSCR at Maximum Payment:**

**1.55 = \$1,000,000 / \$644,186**

## **Example 2 - ARM Loans:**

### **Amortizing**

**ARM 7-6 Loan: ARM Loan with embedded interest rate caps**

**Loan \$10,000,000**

Initial Interest Rate: 5.00 (Margin + 30 Day Average SOFR index)

Amortization: 360

Lifetime Max Interest Rate/Ceiling: 8.00

Underwriting NCF: \$1,000,000

Debt Service using initial interest rate: \$53,682, annualized \$644,186

Debt Service using lifetime max interest rate: \$73,377, annualized \$880,518

**Actual DSCR:**

**1.55 = \$1,000,000 / \$644,186**

**DSCR at Maximum Payment:**

**1.14 = \$1,000,000 / \$880,518**



## **Hybrid ARM Loans:**

### **Amortizing**

#### **Hybrid ARM Loan**

**Loan \$3,817,000.00**

Initial Fixed Interest Rate: 4.11

Underwriting Interest Rate Floor = Not Applicable for Hybrid ARM Loans

Lifetime Max Interest Rate (Initial Fixed Interest Rate + 5%): 9.11

Interest Only Term: 0 months

Loan Term: 360 months

Amortization: 360 months

Underwritten NCF: \$277,000

Debt Service using initial interest rate: \$18,466, annualized \$221,590

Debt Service using lifetime max interest rate: \$31,015 , annualized \$372,180

#### **Actual DSCR:**

**1.25 = \$277,000 / \$221,590**

#### **DSCR at maximum Payment:**

**0.74 = \$277,000 / \$372,180 (@ Maximum Lifetime Interest Rate)**



### **Example 3 – Structured ARM Loans:**

**Loan: \$12,500,000**

Initial Interest Rate: 2.770 (ex. Margin (G Fee, S Fee and Investor spread) + 30 Day Average SOFR index)

Variable Underwriting Rate (As defined in the Guide): 5.77 (Initial Interest Rate + Underwriting Spread + Cap Cost)

Applicable Fixed Rate for same term mortgage: 4.95

Term: 120 months

Amortization: 360 months, using a straight line over loan term based on Applicable Fixed Rate

Fixed Principal Payment: \$18,655

Lifetime Max Interest Rate/Ceiling: None

Underwriting NCF: \$1,000,000

Debt Service using initial interest rate: Interest ( $\$12,500,000 \times .02770 / 12 = \$28,854$ ) plus Fixed Principal (\$18,655) equals \$47,510, annualized \$570,118

Debt Service using variable underwriting rate: Interest ( $\$12,500,000 \times .0577 / 12 = \$60,104$ ) plus Fixed Principal (\$18,655) equals \$78,760, annualized \$945,118

**Actual DSCR:**

$$1.75 = \$1,000,000 / \$570,118$$

**DSCR at Maximum Payment:**

$$1.06 * = \$1,000,000 / \$945,118$$

- It is possible for the DSCR at Maximum Payment to be less than 1.0 due to differences in interest rates used to calculate the principal payment and the interest due.
- 

### **PARTIAL IO**

**Loan: \$12,500,000**

Initial Interest Rate: 2.770 (ex. Margin (G Fee, S Fee and Investor spread) + 30 Day Average SOFR index)

Variable Underwriting Rate (As defined in the Guide): 5.77 (Initial Interest Rate + Underwriting Spread + Cap Cost)

Applicable Fixed Rate for same term mortgage: 4.95

Term: 120 months

Amortization: 360 months, using a straight line over loan term based on Applicable Fixed Rate

Fixed Principal Payment: \$18,655

Lifetime Max Interest Rate/Ceiling: None

Underwriting NCF: \$1,000,000

Debt Service using initial interest rate: Interest  $\$12,500,000 \times .0277 = \$346,250$

Debt Service using variable underwriting rate: Interest ( $\$12,500,000 \times .0577 / 12 = \$60,104$ ) plus Fixed Principal (\$18,655) equals \$78,760, annualized \$945,118

**Actual DSCR:**

$$2.89 = \$1,000,000 / \$346,250$$

**DSCR at Maximum Payment:**

$$1.06 * = \$1,000,000 / \$945,118$$

- It is possible for the DSCR at Maximum Payment to be less than 1.0 due to differences in interest rates used to calculate the principal payment and the interest due.
-



## **FULL IO**

**Loan: \$12,500,000**

Initial Interest Rate: 2.770 (ex. Margin (G Fee, S Fee and Investor spread) + 30 Day Average SOFR index)

Variable Underwriting Rate (As defined in the Guide): 5.77 (Initial Interest Rate + Underwriting Spread + Cap Cost)

Applicable Fixed Rate for same term mortgage: 4.95

Term: 120 months

Amortization: 360 months, using a straight line over loan term based on applicable Fixed Rate

Fixed Principal Payment: None

Lifetime Max Interest Rate/Ceiling: None

Underwriting NCF: \$1,000,000

Debt Service using initial interest rate: Interest  $\$12,500,000 \times .0277 = \$346,250$

Debt Service using variable underwriting rate: Interest  $\$12,500,000 \times .0577 = \$721,250$

### **Actual DSCR:**

**2.89 = \$1,000,000 / \$346,250**

### **DSCR at Maximum Payment:**

**1.39 = \$1,000,000 / \$721,250**



# Job Aid: DSCR Training for Target State DSCR Fields

## Review of DUS and Bulk Deliveries Fields

Field	Definition
<b>UW NCF DSCR</b>	The ratio of (i) the annualized underwritten Net Cash Flow (NCF) of a mortgaged property to (ii) the annualized principal and interest payments (for Amortizing and Partial Interest Only include Principal & Interest payments or for Full Interest Only include Interest payments) due on the related mortgage loan and any debt service on pari passu debt, other Fannie Mae mortgage loan debt and subordinate third party debt, if applicable.
<b>UW NCF DSCR IO</b>	For a mortgage loan with interest only, the ratio of (i) the underwritten annualized Net Cash Flow (NCF) of a mortgaged property to (ii) the annualized interest payments due on the related mortgage loan (debt service) and any debt service on pari passu debt, other Fannie Mae mortgage loan debt and subordinate third party debt, if applicable. This field will be null for any loan that is not Interest Only.
<b>UW NCF DSCR at Cap</b>	For an Adjustable Rate Mortgage (ARM) loans, the ratio of (i) the underwritten annualized Net Cash Flow (NCF) of a mortgaged property to (ii) the annualized debt service of the ARM and any debt service on pari passu debt, other Fannie Mae mortgage loan debt and subordinate third party debt, if applicable. The Debt Service Coverage Ratio (DSCR) is calculated using the Loan Lifetime Cap Interest Rate for a capped ARM or the Strike Rate plus Mortgage Margin for a Structured ARM. This field will be null for any ARM loans without a cap or fixed rate loans.
<b>UW NCF DSCR All In (includes Mezzanine/ Preferred Equity debt) *</b>	The ratio of (i) the underwritten annualized Net Cash Flow (NCF) of a mortgaged property to (ii) the annualized principal and interest payments (for Amortizing and Partial Interest Only include Principal & Interest payments or for Full Interest Only include Interest payments) and payments on Mezzanine debt (inclusive of 3rd party Mezzanine debt) and any debt service on pari passu debt, other Fannie Mae mortgage loan debt, and subordinate third party debt, if applicable. This field will be null for any loan that does not have Mezzanine debt.

*\* Total Debt Service used in the calculation of UW NCF DSCR All In includes the annualized Mezzanine Payment. Since these scenarios are generally rare, they are not shown in the following scenario examples.*

*DSCR will be shown on a combined basis if subordinate/additional debt exists*





## Fixed Rate Mortgage Loan Scenarios

### Scenario Review: Fixed Rate Amortizing Mortgage Loans

The calculation method is the same as Actual DSCR. Leverage Scheduled P&I x 12 and the systems will validate data entry.

Loan Assumptions:		A/360	30/360
UPB:	\$10,000,000	UW NCF DSCR	UW NCF/(Scheduled P&I *12)
Scheduled P&I:	\$53,682		UW NCF/(Scheduled P&I *12)
Current Interest Rate:	5.00	<b>UW NCF DSCR:</b> $\$1,500,000 / (\$53,682 * 12) = 2.33$	
UW NCF:	\$1,500,000		

Loan Assumptions with Additional Debt - Fixed Rate No IO		A/360	30/360
Monthly Payment:	\$4,000	UW NCF DSCR	UW NCF/((Scheduled P&I *12) + (Add'l Debt-Max Monthly Payment * 12))
Max Monthly Payment:	\$4,000		UW NCF/((Scheduled P&I *12) + (Add'l Debt-Max Monthly Payment * 12))
		<b>UW NCF DSCR:</b> $\$1,500,000 / ((\$53,682 * 12) + (\$4,000 * 12)) = 2.17$	



## Scenario Review: Fixed Rate Interest Only Mortgage Loans

Loan Assumptions:		A/360	30/360
UPB:	\$10,000,000	UW NCF DSCR	UW NCF DSCR
Current Interest Rate:	5.00	UW NCF DSCR IO	UW NCF DSCR IO
UW NCF:	\$1,500,000		
		<b>UW NCF DSCR &amp; UW NCF DSCR IO:</b> $\$1,500,000 / (\$10,000,000 * (5.00/100 * 365/360)) = 2.96$	<b>UW NCF DSCR &amp; UW NCF DSCR IO:</b> $\$1,500,000 / (\$10,000,000 * (5.00/100)) = 3.00$
Loan Assumptions with Additional Debt - Fixed Rate		A/360	30/360
Additional Debt Monthly Payment:	\$4,000	UW NCF DSCR	UW NCF DSCR
Additional Debt Max Monthly Payment:	\$4,000	UW NCF DSCR IO	UW NCF DSCR IO
		<b>UW NCF DSCR &amp; UW NCF DSCR IO:</b> $\$1,500,000 / ((\$10,000,000 * (5.00/100 * 365/360)) + (\$4,000 * 12)) = 2.70$	<b>UW NCF DSCR &amp; UW NCF DSCR IO:</b> $\$1,500,000 / ((\$10,000,000 * (5.00/100)) + (\$4,000 * 12)) = 2.74$



## Scenario Review: Fixed Rate Partial Interest Only Mortgage Loans

Loan Assumptions:		A/360		30/360	
UPB:	\$10,000,000	UW NCF DSCR	$UW\ NCF / (\text{Max Monthly Payment} * 12)$	UW NCF DSCR	$UW\ NCF / (\text{Max Monthly Payment} * 12)$
Max Monthly Payment*:	\$53,682	US NCF DSCR IO	$UW\ NCF / (UPB * (\text{Current Interest Rate} / 100 * 365 / 360))$	US NCF DSCR IO	$UW\ NCF / (UPB * (\text{Current Interest Rate} / 100))$
Current Interest Rate:	5.00	<b>UW NCF DSCR:</b> $\$1,500,000 / (\$53,682 * 12) = 2.33$ <b>UW NCF DSCR IO:</b> $\$1,500,000 / (\$10,000,000 * (5.00 / 100 * 365 / 360)) = 2.96$		<b>UW NCF DSCR:</b> $\$1,500,000 / (\$53,682 * 12) = 2.33$ <b>UW NCF DSCR IO:</b> $\$1,500,000 / (\$10,000,000 * (5.00 / 100)) = 3.00$	
UW NCF:	\$1,500,000				
*Max Monthly Payment = Amortizing payment using current interest rate					
Loan Assumptions with Additional Debt - Fixed Rate No IO		A/360		30/360	
Additional Debt Monthly Payment:	\$4,000	UW NCF DSCR	$UW\ NCF / ((\text{Max Monthly Payment} * 12) + (\text{Add'l Debt} - \text{Max Monthly Payment} * 12))$	UW NCF DSCR	$UW\ NCF / ((\text{Max Monthly Payment} * 12) + (\text{Add'l Debt} - \text{Max Monthly Payment} * 12))$
Additional Debt Max Monthly Payment:	\$4,000	US NCF DSCR IO	$UW\ NCF / ((UPB * (\text{Current Interest Rate} / 100 * 365 / 360)) + (\text{Add'l Debt} - \text{Monthly Payment} * 12))$	US NCF DSCR IO	$UW\ NCF / ((UPB * (\text{Current Interest Rate} / 100)) + (\text{Add'l Debt} - \text{Monthly Payment} * 12))$
		<b>UW NCF DSCR:</b> $\$1,500,000 / ((\$53,682 * 12) + (\$4,000 * 12)) = 2.17$ <b>UW NCF DSCR IO:</b> $\$1,500,000 / ((\$10,000,000 * (5.00 / 100 * 365 / 360)) + (\$4,000 * 12)) = 2.70$		<b>UW NCF DSCR:</b> $\$1,500,000 / ((\$53,682 * 12) + (\$4,000 * 12)) = 2.17$ <b>UW NCF DSCR IO:</b> $\$1,500,000 / ((\$10,000,000 * (5.00 / 100)) + (\$4,000 * 12)) = 2.74$	



## ARM Loan Scenarios

### Scenario Review: Amortizing ARM Loans

Loan Assumptions:		A/360		30/360
UPB:	\$10,000,000	Uw NCF DSCR	Uw NCF/(Scheduled P&I * 12)	Uw NCF/(Scheduled P&I * 12)
Scheduled P&I Payment:	\$53,682	Uw NCF DSCR IO	N/A	N/A
Current Interest Rate:	5.00	Uw NCF DSCR at Cap <small>Only applicable for ARM loans with Lifetime Max Interest Rate or Hedge Type is Cap</small>	Uw NCF/(Calculated Amortizing Payment using Lifetime Max Interest Rate * 12)	Uw NCF/(Calculated Amortizing Payment using Lifetime Max Interest Rate * 12)
Lifetime Max Interest Rate:	8.00	<b>A/360 &amp; 30/360</b>		
Uw NCF:	\$1,500,000	<b>Uw NCF DSCR:</b> $\$1,500,000 / (\$53,682 * 12) = 2.33$ <b>Uw NCF DSCR at Cap:</b> $\$1,500,000 / (\$73,376 * 12) = 1.70$		
<b>Loan Assumptions with Additional Debt - Capped ARM Partial IO Still in its interest only period:</b>				
		A/360		30/360
Additional Debt Monthly Payment:	\$3,500	Uw NCF DSCR	Uw NCF / ((Scheduled P&I * 12) + (Current Amortizing Payment for Prior Lien * 12))	Uw NCF / ((Scheduled P&I * 12) + (Current Amortizing Payment for Prior Lien * 12))
Additional Debt Max Monthly Payment:	\$5,000	Uw NCF DSCR IO	N/A	N/A
Additional Debt Monthly Payment at Cap:	\$5,000	Uw NCF DSCR at Cap	Uw NCF / (Calculated Amortizing Payment using Lifetime Max Interest Rate * 12) + (Add'l Debt - Monthly Payment Amount at Cap * 12)	Uw NCF / (Calculated Amortizing Payment using Lifetime Max Interest Rate * 12) + (Add'l Debt - Monthly Payment Amount at Cap * 12)
Current Amortizing Payment for Prior Lien:	\$4,000	<b>A/360 &amp; 30/360</b>		
<b>Uw NCF DSCR:</b> $\$1,500,000 / ((\$53,682 * 12) + (\$4,000 * 12)) = 2.17$				

Note: See Additional Debt Max Monthly Payment Transition Alert Job Aid for details.



## Scenario Review: Full Interest Only ARM Loans

Loan Assumptions:	A/360	30/360
UPB: \$10,000,000	UW NCF DSCR $UW\ NCF / (UPB * (Current\ Interest\ Rate / 100 * 365 / 360))$	$UW\ NCF / (UPB * (Current\ Interest\ Rate / 100))$
Current Interest Rate: 5.00	UW NCF DSCR IO $UW\ NCF / (UPB * (Current\ Interest\ Rate / 100 * 365 / 360))$	$UW\ NCF / (UPB * (Current\ Interest\ Rate / 100))$
Lifetime Max Interest Rate: 8.00	UW NCF DSCR at Cap <small>Only applicable for ARM loans with Lifetime Max Interest Rate or Hedge Type is Cap</small> $UW\ NCF / (UPB * (Lifetime\ Cap\ Interest\ Rate / 100 * 365 / 360))$	$UW\ NCF / (UPB * (Lifetime\ Cap\ Interest\ Rate / 100))$
UW NCF: \$1,500,000		

  

**UW NCF DSCR & UW NCF DSCR IO:**  
 $\$1,500,000 / (\$10,000,000 * (5.00 / 100 * 365 / 360)) = 2.96$   
**UW NCF DSCR at Cap:**  
 $\$1,500,000 / (\$10,000,000 * (8.00 / 100 * 365 / 360)) = 1.85$

**UW NCF DSCR & UW NCF DSCR IO:**  
 $\$1,500,000 / (\$10,000,000 * (5.00 / 100)) = 3.00$   
**UW NCF DSCR at Cap:**  
 $\$1,500,000 / (\$10,000,000 * (8.00 / 100)) = 1.88$



## Scenario Review: Full Interest Only ARM Loans cont.



### Scenario Review: ARM Full Interest Only Loans cont.

Loan Assumptions:	
UPB:	\$10,000,000
Current Interest Rate:	5.00
Lifetime Max Interest Rate:	8.00
UW NCF:	\$1,500,000

#### Loan Assumptions with Additional Debt – Capped ARM Partial IO still in its interest only period:

Additional Debt Monthly Payment:	\$3,500
Additional Debt Max Monthly Payment:	\$5,000
Additional Debt Monthly Payment at Cap:	\$5,000
Calculated Payment using Current Interest Rate	\$4,000

	A/360	30/360
UW NCF DSCR	$UW\ NCF / ((UPB * (Current\ Interest\ Rate / 100 * 365 / 360)) + (Current\ Amortizing\ Payment\ for\ Prior\ Lien * 12))$	$UW\ NCF / ((UPB * (Current\ Interest\ Rate / 100)) + (Current\ Amortizing\ Payment\ for\ Prior\ Lien * 12))$
UW NCF DSCR IO	$UW\ NCF / ((UPB * (Current\ Interest\ Rate / 100 * 365 / 360)) + (Add'l\ Debt-Monthly\ Payment * 12))$	$UW\ NCF / ((UPB * (Current\ Interest\ Rate / 100)) + (Add'l\ Debt-Monthly\ Payment * 12))$
UW NCF DSCR at Cap <small>Only applicable for ARM loans with Lifetime Max Interest Rate or Hedge Type is Cap</small>	$UW\ NCF / ((UPB * (Lifetime\ Cap\ Interest\ Rate / 100 * 365 / 360)) + (Add'l\ Debt-Monthly\ Payment\ at\ Cap * 12))$	$UW\ NCF / ((UPB * (Lifetime\ Cap\ Interest\ Rate / 100)) + (Add'l\ Debt-Monthly\ Payment\ at\ Cap * 12))$

**UW NCF DSCR:**  
 $\$1,500,000 / ((\$10,000,000 * (5.00 / 100 * 365 / 360)) + (\$4,000 * 12)) = 2.70$

**UW NCF DSCR IO:**  
 $\$1,500,000 / ((\$10,000,000 * (5.00 / 100 * 365 / 360)) + (\$3,500 * 12)) = 2.73$

**UW NCF DSCR at Cap:**  
 $\$1,500,000 / ((\$10,000,000 * (8.00 / 100 * 365 / 360)) + (\$5,000 * 12)) = 1.72$

**UW NCF DSCR & UW NCF DSCR IO:**  
 $\$1,500,000 / ((\$10,000,000 * (5.00 / 100)) + (\$4,000 * 12)) = 2.74$

**UW NCF DSCR IO:**  
 $\$1,500,000 / ((\$10,000,000 * (5.00 / 100)) + (\$3,500 * 12)) = 2.77$

**UW NCF DSCR at Cap:**  
 $\$1,500,000 / ((\$10,000,000 * (8.00 / 100)) + (\$5,000 * 12)) = 1.74$

Note: See Additional Debt Max Monthly Payment Transition Alert Job Aid for details.



## Scenario Review: Partial Interest Only ARM Loans

Loan Assumptions:		A/360	30/360
UPB:	\$10,000,000	UW NCF DSCR	UW NCF / ((Calculated Amortizing Payment using Current Interest Rate * 12))
Calculated Amortizing Payment using Current Interest Rate:	\$53,682	UW NCF DSCR IO	UW NCF / (UPB * (Current Interest Rate / 100 * 365 / 360))
Current Interest Rate:	5.00	UW NCF DSCR at Cap <small>Only applicable for ARM loans with Lifetime Max Interest Rate or Hedge Type is Cap</small>	UW NCF / ((Calculated Amortizing Payment using Lifetime Max Interest Rate * 12))
Lifetime Max Interest Rate:	8.00		
UW NCF:	\$1,500,000		

  

**UW NCF DSCR:**  
 $\$1,500,000 / (\$53,682 * 12) = 2.33$

**UW NCF DSCR IO:**  
 $\$1,500,000 / (\$10,000,000 * (5.00 / 100 * 365 / 360)) = 2.96$

**UW NCF DSCR at Cap:**  
 $\$1,500,000 / \$73,376 * 12 = 1.70$

**UW NCF DSCR:**  
 $\$1,500,000 / (\$53,683 * 12) = 2.33$

**UW NCF DSCR IO:**  
 $\$1,500,000 / (\$10,000,000 * (5.00 / 100)) = 3.00$

**UW NCF DSCR at Cap:**  
 $\$1,500,000 / \$73,376 * 12 = 1.70$



## Scenario Review: Partial Interest Only ARM Loans cont.

Loan Assumptions:		A/360	30/360
UPB: \$10,000,000	UW NCF DSCR	$UW\ NCF / ((\text{Calculated Amortizing Payment using Current Interest Rate} * 12) + (\text{Current Amortizing Payment for Prior Lien} * 12))$	$UW\ NCF / ((\text{Calculated Amortizing Payment using Current Interest Rate} * 12) + (\text{Current Amortizing Payment for Prior Lien} * 12))$
Calculated Amortizing Payment using Current Interest Rate: \$53,682	UW NCF DSCR IO	$UW\ NCF / ((UPB * (\text{Current Interest Rate} / 100 * 365 / 360)) + \text{Add'l Debt Monthly Payment} * 12))$	$UW\ NCF / ((UPB * (\text{Current Interest Rate} / 100) + (\text{Add'l Debt Monthly Payment} * 12))$
Current Interest Rate: 5.00	UW NCF DSCR at Cap <small>Only applicable for ARM loans with Lifetime Max Interest Rate or Hedge Type is Cap</small>	$UW\ NCF / ((\text{Calculated Amortizing Payment using Lifetime Max Interest Rate} * 12) + (\text{Add'l Debt Monthly Payment at Cap} * 12))$	$UW\ NCF / ((\text{Calculated Amortizing Payment using Lifetime Max Interest Rate} * 12) + (\text{Add'l Debt Monthly Payment at Cap} * 12))$
Lifetime Max Interest Rate: 8.00		<b>UW NCF DSCR:</b> $\$1,500,000 / ((\$53,682 * 12) + (\$4,000 * 12)) = 2.17$ <b>UW NCF DSCR IO:</b> $\$1,500,000 / ((\$10,000,000 * (5.00 / 100 * 365 / 360) + (\$3,500 * 12)) = 2.73$ <b>UW NCF DSCR at Cap:</b> $\$1,500,000 / ((\$73,376 * 12) + (\$5,000 * 12)) = 1.60$	<b>UW NCF DSCR:</b> $\$1,500,000 / ((\$53,683 * 12) + (\$4,000 * 12)) = 2.17$ <b>UW NCF DSCR IO:</b> $\$1,500,000 / ((\$10,000,000 * (5.00 / 100)) + (\$3,500 * 12)) = 2.77$ <b>UW NCF DSCR at Cap:</b> $\$1,500,000 / ((\$73,376 * 12) + (\$5,000 * 12)) = 1.60$
UW NCF: \$1,500,000			
<b>Loan Assumptions with Additional Debt - Capped ARM Partial IO still in its interest only period:</b>			
Additional Debt Monthly Payment: \$3,500			
Additional Debt Max Monthly Payment: \$5,000			
Additional Debt Monthly Payment at Cap: \$5,000			
Calculated Payment using Current Interest Rate: \$4,000			

*Note: See Additional Debt Max Monthly Payment Transition Alert Job Aid for details.*





## SARM Loan Scenarios

### Scenario Review: Amortizing SARM Loans

Loan Assumptions:		A/360	30/360
UPB:	\$10,000,000	UW NCF/((UPB*(Current Interest Rate/100*365/360))+ (Structured ARM Principal Payment*12))	UW NCF/((UPB*(Current Interest Rate/100))+ (Structured ARM Principal Payment*12))
Current Interest Rate:	5.00	UW NCF DSCR IO	NA
Cap Strike Rate:	5.00	UW NCF DSCR at Cap <small>Only applicable for ARM loans with Lifetime Cap or Hedge Type is Cap</small>	UW NCF/((UPB*(Cap Strike Rate/100+ Mortgage Margin/100))+ (Structured ARM Principal Payment*12))
Mortgage Margin:	2.40		
Structured ARM Principal Payment:	\$12,000		
UW NCF:	\$1,500,000		

  

A/360	30/360
<p><b>UW NCF DSCR:</b></p> $\frac{\$1,500,000}{((\$10,000,000 * (5.00/100 * 365/360)) + (\$12,000 * 12))} = 2.30$ <p><b>UW NCF DSCR at Cap:</b></p> $\frac{\$1,500,000}{((\$10,000,000 * ((5.00/100 + 2.40/100) * 365/360)) + (\$12,000 * 12))} = 1.68$	<p><b>UW NCF DSCR:</b></p> $\frac{\$1,500,000}{((\$10,000,000 * (5.00/100)) + (\$12,000 * 12))} = 2.33$ <p><b>UW NCF DSCR at Cap:</b></p> $\frac{\$1,500,000}{((\$10,000,000 * (5.00/100 + 2.40/100)) + (\$12,000 * 12))} = 1.70$



## Scenario Review: Amortizing SARM Loans cont.

Loan Assumptions:	
UPB:	\$10,000,000
Current Interest Rate:	5.00
Cap Strike Rate:	5.00
Mortgage Margin:	2.40
Structured ARM Principal Payment:	\$12,000
UW NCF:	\$1,500,000

### Loan Assumptions with Additional Debt – Capped ARM Partial IO still in its interest only period:

Additional Debt Monthly Payment:	\$3,500
Additional Debt Max Monthly Payment:	\$5,000
Additional Debt Monthly Payment at Cap:	\$5,000
Current Amortizing Payment for Prior Lien	\$4,000

Debt Service Coverage Ratio

	A/360	30/360
UW NCF DSCR	$UW\ NCF / ((UPB * (Current\ Interest\ Rate / 100 * 365 / 360)) + (Structured\ ARM\ Principal\ Payment * 12) + (Current\ Amortizing\ Payment\ for\ Prior\ Lien * 12))$	$UW\ NCF / ((UPB * (Current\ Interest\ Rate / 100)) + (Structured\ ARM\ Principal\ Payment * 12) + (Current\ Amortizing\ Payment\ for\ Prior\ Lien * 12))$
UW NCF DSCR IO	NA	NA
UW NCF DSCR at Cap <small>Only applicable for ARM loans with Lifetime Cap or Hedge Type is Cap</small>	$UW\ NCF / ((UPB * ((Cap\ Strike\ Rate / 100 + Mortgage\ Margin\ Rate / 100) * 365 / 360)) + (Structured\ ARM\ Principal\ Payment * 12) + (Add'l\ Debt-Monthly\ Payment\ at\ Cap * 12))$	$UW\ NCF / ((UPB * (Cap\ Strike\ Rate / 100 + Mortgage\ Margin / 100)) + (Structured\ ARM\ Principal\ Payment * 12) + (Add'l\ Debt-Monthly\ Payment\ at\ Cap * 12))$

**UW NCF DSCR:**  

$$\frac{\$1,500,000}{((\$10,000,000 * (5.00 / 100 * 365 / 360)) + (\$12,000 * 12) + (\$4,000 * 12))} = 2.15$$

**UW NCF DSCR at Cap:**  

$$\frac{\$1,500,000}{((\$10,000,000 * ((5.00 / 100 + 2.40 / 100) * 365 / 360)) + (\$12,000 * 12) + (\$5,000 * 12))} = 1.57$$

**UW NCF DSCR:**  

$$\frac{\$1,500,000}{((\$10,000,000 * (5.00 / 100)) + (\$12,000 * 12) + (\$4,000 * 12))} = 2.17$$

**UW NCF DSCR at Cap:**  

$$\frac{\$1,500,000}{((\$10,000,000 * (5.00 / 100 + 2.40 / 100)) + (\$12,000 * 12) + (\$5,000 * 12))} = 1.59$$

Note: See Additional Debt Max Monthly Payment Transition Alert Job Aid for details.

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## Scenario Review: Full Interest Only SARM Loans

	A/360	30/360
<b>Loan Assumptions:</b>		
UPB: \$10,000,000	UW NCF DSCR $UW\ NCF / (UPB * (Current\ Interest\ Rate / 100 * 365 / 360))$	$UW\ NCF / (UPB * (Current\ Interest\ Rate / 100))$
Current Interest Rate: 5.00	UW NCF DSCR IO $UW\ NCF / (UPB * (Current\ Interest\ Rate / 100 * 365 / 360))$	$UW\ NCF / (UPB * (Current\ Interest\ Rate / 100))$
Cap Strike Rate: 5.00	UW NCF DSCR at Cap <small>Only applicable for ARM loans with Lifetime Cap or Hedge Type is Cap</small> $UW\ NCF / (UPB * ((Cap\ Strike\ Rate / 100 + Mortgage\ Margin\ Rate / 100) * 365 / 360))$	$UW\ NCF / (UPB * (Cap\ Strike\ Rate / 100 + Mortgage\ Margin / 100))$
Mortgage Margin: 2.40		
Structured ARM Principal Payment: \$12,000		
UW NCF: \$1,500,000		
	<b>UW NCF DSCR &amp; UW NCF DSCR IO:</b> $\$1,500,000 / (\$10,000,000 * (5.00 / 100 * 365 / 360)) = 2.96$ <b>UW NCF DSCR at Cap:</b> $\$1,500,000 / (\$10,000,000 * ((5.00 / 100 + 2.40 / 100) * 365 / 360)) = 2.00$	<b>UW NCF DSCR &amp; UW NCF DSCR IO:</b> $\$1,500,000 / (\$10,000,000 * (5.00 / 100)) = 3.00$ <b>UW NCF DSCR at Cap:</b> $\$1,500,000 / (\$10,000,000 * (5.00 / 100 + 2.40 / 100)) = 2.03$



## Scenario Review: Full Interest Only SARM Loans cont.

	A/360	30/360
<b>Loan Assumptions:</b>		
UPB: \$10,000,000	UW NCF DSCR	UW NCF/((UPB*(Current Interest Rate/100)+Current Amortizing Payment for Prior Lien*12))
Current Interest Rate: 5.00	UW NCF DSCR IO	UW NCF/((UPB*(Current Interest Rate/100)+Add'l Debt-Monthly Payment*12))
Cap Strike Rate: 5.00	UW NCF DSCR at Cap <small>Only applicable for ARM loans with Lifetime Cap or Hedge Type is Cap</small>	UW NCF/((UPB*(Cap Strike Rate/100 + Mortgage Margin Rate/100)+Add'l Debt-Monthly Payment at Cap*12))
Mortgage Margin: 2.40		
Structured ARM Principal Payment: \$12,000		
UW NCF: \$1,500,000		

**Loan Assumptions with Additional Debt – Capped ARM Partial IO still in its interest only period:**

Additional Debt Monthly Payment:	\$3,500
Additional Debt Max Monthly Payment:	\$5,000
Additional Debt Monthly Payment at Cap:	\$5,000
Current Amortizing Payment for Prior Lien	\$4,000

**UW NCF DSCR:**

$$\frac{\$1,500,000}{((\$10,000,000 * (5.00/100 * 365/360)) + (\$4,000 * 12))} = 2.70$$

**UW NCF DSCR IO:**

$$\frac{\$1,500,000}{((\$10,000,000 * (5.00/100 * 365/360)) + (\$3,500 * 12))} = 2.73$$

**UW NCF DSCR at Cap:**

$$\frac{\$1,500,000}{((\$10,000,000 * ((5.00/100 + 2.40/100) * 365/360)) + (\$5,000 * 12))} = 1.85$$

**UW NCF DSCR:**

$$\frac{\$1,500,000}{((\$10,000,000 * (5.00/100)) + (\$4,000 * 12))} = 2.74$$

**UW NCF DSCR IO:**

$$\frac{\$1,500,000}{((\$10,000,000 * (5.00/100)) + (\$3,500 * 12))} = 2.77$$

**UW NCF DSCR at Cap:**

$$\frac{\$1,500,000}{((\$10,000,000 * (5.00/100 + 2.40/100)) + (\$5,000 * 12))} = 1.88$$

Note: See Additional Debt Max Monthly Payment Transition Alert Job Aid for details.



## Scenario Review: Partial Interest Only SARM Loans

Loan Assumptions:	A/360	30/360
UPB: \$10,000,000	UW NCF DSCR $\frac{\text{UW NCF}}{((\text{UPB} * (\text{Current Interest Rate} / 100 * 365 / 360)) + (\text{Structured ARM Principal Payment} * 12))}$	UW NCF $\frac{\text{UW NCF}}{((\text{UPB} * (\text{Current Interest Rate} / 100)) + (\text{Structured ARM Principal Payment} * 12))}$
Current Interest Rate: 5.00	UW NCF DSCR IO $\frac{\text{UW NCF}}{(\text{UPB} * (\text{Current Interest Rate} / 100 * 365 / 360))}$	UW NCF $\frac{\text{UW NCF}}{(\text{UPB} * (\text{Current Interest Rate} / 100))}$
Cap Strike Rate: 5.00	UW NCF DSCR at Cap <small>Only applicable for ARM loans with Lifetime Cap or Hedge Type is Cap</small> $\frac{\text{UW NCF}}{(\text{UPB} * ((\text{Cap Strike Rate} / 100 + \text{Mortgage Margin Rate} / 100) * 365 / 360))}$	UW NCF $\frac{\text{UW NCF}}{(\text{UPB} * (\text{Cap Strike Rate} / 100 + \text{Mortgage Margin} / 100))}$
Mortgage Margin: 2.40		
Structured ARM Principal Payment: \$12,000		
UW NCF: \$1,500,000		

  

**UW NCF DSCR:**

$$\frac{\$1,500,000}{((\$10,000,000 * (5.00 / 100 * 365 / 360)) + (\$12,000 * 12))} = 2.30$$

**UW NCF DSCR IO:**

$$\frac{\$1,500,000}{(\$10,000,000 * (5.00 / 100 * 365 / 360))} = 2.96$$

**UW NCF DSCR at Cap:**

$$\frac{\$1,500,000}{(\$10,000,000 * ((5.00 / 100 + 2.40 / 100) * 365 / 360))} = 2.00$$

**UW NCF DSCR:**

$$\frac{\$1,500,000}{((\$10,000,000 * (5.00 / 100)) + (\$12,000 * 12))} = 2.33$$

**UW NCF DSCR IO:**

$$\frac{\$1,500,000}{(\$10,000,000 * (5.00 / 100))} = 3.00$$

**UW NCF DSCR at Cap:**

$$\frac{\$1,500,000}{(\$10,000,000 * (5.00 / 100 + 2.40 / 100))} = 2.03$$

  

*The debt calculation methodology for UW NCF DSCR at Cap uses only the interest payment for partial I/O SARMS*



## Scenario Review: Partial Interest Only SARM Loans cont.

Loan Assumptions:	A/360	30/360
UPB: \$10,000,000	UW NCF DSCR $\frac{\text{UW NCF}}{((\text{UPB} * (\text{Current Interest Rate} / 100 * 365 / 360)) + (\text{Structured ARM Principal Payment} * 12) + (\text{Current Amortizing Payment for Prior Lien} * 12))}$	UW NCF DSCR $\frac{\text{UW NCF}}{((\text{UPB} * (\text{Current Interest Rate} / 100)) + (\text{Structured ARM Principal Payment} * 12) + (\text{Current Amortizing Payment for Prior Lien} * 12))}$
Current Interest Rate: 5.00	UW NCF DSCR IO $\frac{\text{UW NCF}}{((\text{UPB} * (\text{Current Interest Rate} / 100 * 365 / 360)) + (\text{Add'l Debt-Monthly Payment} * 12))}$	UW NCF DSCR IO $\frac{\text{UW NCF}}{((\text{UPB} * (\text{Current Interest Rate} / 100)) + (\text{Add'l Debt-Monthly Payment} * 12))}$
Cap Strike Rate: 5.00	UW NCF DSCR at Cap <small>Only applicable for ARM loans with Lifetime Cap or Hedge Type is Cap</small> $\frac{\text{UW NCF}}{((\text{UPB} * ((\text{Cap Strike Rate} / 100 + \text{Mortgage Margin Rate} / 100) * 365 / 360)) + (\text{Add'l Debt-Monthly Payment at Cap} * 12))}$	UW NCF DSCR at Cap $\frac{\text{UW NCF}}{((\text{UPB} * (\text{Cap Strike Rate} / 100 + \text{Mortgage Margin Rate} / 100)) + (\text{Add'l Debt-Monthly Payment at Cap} * 12))}$
Mortgage Margin: 2.40		
Structured ARM Principal Payment: \$12,000		
UW NCF: \$1,500,000		

**Loan Assumptions with Additional Debt – Capped ARM Partial IO still in its interest only period:**

Additional Debt Monthly Payment:	\$3,500
Additional Debt Max Monthly Payment:	\$5,000
Additional Debt Monthly Payment at Cap:	\$5,000
Current Amortizing Payment for Prior Lien	\$4,000

**UW NCF DSCR:**

$$\frac{\$1,500,000}{((\$10,000,000 * (5.00 / 100 * 365 / 360)) + (\$12,000 * 12) + (\$4,000 * 12))} = 2.15$$

**UW NCF DSCR IO:**

$$\frac{\$1,500,000}{((\$10,000,000 * (5.00 / 100 * 365 / 360)) + (\$3,500 * 12))} = 2.73$$

**UW NCF DSCR at Cap:**

$$\frac{\$1,500,000}{((5.00 / 100 + 2.40 / 100) * 365 / 360) + (\$5,000 * 12)} = 1.85$$

**UW NCF DSCR:**

$$\frac{\$1,500,000}{((\$10,000,000 * (5.00 / 100)) + (\$12,000 * 12) + (\$4,000 * 12))} = 2.17$$

**UW NCF DSCR IO:**

$$\frac{\$1,500,000}{((\$10,000,000 * (5.00 / 100)) + (\$3,500 * 12))} = 2.77$$

**UW NCF DSCR at Cap:**

$$\frac{\$1,500,000}{((5.00 / 100 + 2.40 / 100) + (\$5,000 * 12))} = 1.88$$

*Note: See Additional Debt Max Monthly Payment Transition Alert Job Aid for details.*

*The debt calculation methodology for UW NCF DSCR at Cap uses only the interest payment for partial I/O SARMS*



## Credit Facilities

### Review of Credit Facilities DSCR Fields

Field	Definition
<b>UW NCF DSCR at Facility Level</b>	For Credit Facilities, the ratio of a) the underwritten net cash flow from all properties in the facility at the time of a new issuance of a loan in the facility to b) the debt service amount, specifically the total principal and interest, for all active loans that are in the facility. Full interest-only loans will reflect only interest, and partial interest-only mortgage loans will reflect both principal and interest.
<b>UW NCF DSCR IO at Facility Level</b>	For Credit Facilities with at least one active partial interest-only loan still in its interest-only period, the ratio of a) the underwritten net cash flow from all properties in the facility at the time of a new issuance of a loan in the facility to b) the debt service amount, specifically the total principal and interest, for all active loans that are in the facility. Both full interest-only and partial interest-only mortgage loans will reflect only interest. If all partial interest-only loans are no longer in the interest only period, the field is null.

*UW NCF DSCR is a constant while UW NCF DSCR IO is applicable only when one of the loans in the facility is a partial IO still in its interest period*



## UW NCF DSCR at Facility Level – Example Deal 1

In MSFMS, the system will validate the two new DSCR values to ensure accuracy

Loans	BED	Fixed/ Variable	Interest Only	Still in Interest Only Period	UPB	Original Interest Rate	Interest Accrual	Structured ARM Principal Payment	Current Annualized Payment used for existing loans Target State Debt Calculation used for new loans	Debt	UW NCF DSCR at Facility Level
A	2012	SARM	Partial	Yes	\$ 10,000,000	3.14	A360	\$60,000	Annualized Amortizing Payment	\$ 1,038,361	
B	2012	SARM	Partial	Yes	\$152,362,500	2.41	A360	\$100,000	Annualized Amortizing Payment	\$ 4,922,935	
C	2016	Fixed	No	----	\$151,367,593	4.30	A360		(Amortizing Payment * 12)	\$ 8,988,900	
										<b>\$14,950,196</b>	<b>2.87</b>

		Total NCF for Active (Existing and New) Collateral as of Most Current Issuance
Property 1	Existing	\$20,100,000
Property 2	Existing	\$15,000,000
Property 3	New	\$ 7,832,966
<b>Total NCF</b>		<b>\$42,832,966</b>

\$14,950,196 will be entered in the new field  
"Total Annual P&I Payments for Loans in the  
Facility (includes amortizing payment for Partial  
IO loans)"

**UW NCF DSCR at Facility Level:**  
\$42,832,966/\$14,950,196 = 2.87





## UW NCF DSCR IO at Facility Level – Example Deal 1

UW NCF DSCR IO is required in this scenario since the two existing partial IO loans are in their interest period

Loans	BED	Fixed/ Variable	Interest Only	Still in Interest Only Period	UPB	Original Interest Rate	Interest Accrual	Current Annualized Payment used for existing loans Target State Debt Calculation used for new loans	Debt	UW NCF DSCR at Facility Level
A	2012	SARM	Partial	<b>Yes</b>	\$ 10,000,000	3.14	A360	Annualized Interest Payment	\$ 318,361	
B	2012	SARM	Partial	<b>Yes</b>	\$ 152,362,500	2.41	A360	Annualized Interest Payment	\$ 3,722,935	
C	2013	Fixed	No	----	\$ 151,367,593	4.30	A360	(Amortizing Payment * 12)	\$ 8,988,900	
									<b>\$13,030,196</b>	<b>3.29</b>

\$13,030,196 will be entered in the new field  
"Total Annual P&I Payments for Loans in the  
Facility (includes interest only payment for Partial  
IO loans, if applicable"

$$\$42,832,966 / \$13,030,196 = 3.29$$



## UW NCF DSCR at Facility Level – Example Deal 2

In this scenario, only the UW NCF DSCR at Facility Level is required

Total NCF for Active (Existing and New) Collateral as of Most Current Issuance			Loans	BED	Fixed/Variable	Interest Only	UPB	Original Interest Rate	Interest Accrual	Current Annualized Payment used for existing loans Target State Debt Calculation used for new loans	Debt	UW NCF DSCR at Facility Level
Property 1	Existing	\$4,591,096	A	2015	Fixed	Full IO	\$ 75,000,000	3.5	A360	Annualized Interest Payment	\$ 2,661,458	
Property 2	Existing	\$3,207,985	B	2015	Fixed	Full IO	\$ 75,000,000	3.72	A360	Annualized Interest Payment	\$ 2,828,750	
Property 3	Existing	\$5,309,791	C	2015	Fixed	Full IO	\$125,000,000	3.93	A360	Annualized Interest Payment	\$ 4,980,729	
Property 4	New	\$2,960,233	D	2016	Variable - SARM	Full IO	\$ 25,000,000	1.48	A360	(UPB*(Original Int. Rate/100*365/360))	\$ 375,139	
<b>Total NCF</b>		<b>\$25,910,118</b>									<b>\$10,846,076</b>	<b>2.39</b>

\$10,846,076 will be entered in the new field "Total Annual P&I Payments for Loans in the Facility (includes amortizing payment for Partial IO loans)"

$$25,910,118 / 10,846,076 = 2.39$$



## Debt Service Coverage Ratio Summary and Conclusion

### Salient takeaways to remember

- For amortizing fixed rate loans, the calculation of Actual DSCR is the same as UW NCF DSCR
- For amortizing ARM loans with lifetime caps, the calculation of DSCR at Maximum Payment is the same as UW NCF DSCR at Cap
- For Full and Partial IO Loans the Actual 360 DSCR calculations are slightly different
- When subordinate/additional debt exists and that debt is a Fixed Rate or an uncapped ARM loan UW NCF DSCR at Cap field should not be populated. However, when the subordinate/additional debt is a capped ARM or a SARM, then UW NCF DSCR at Cap field should be populated. *It's all or nothing.*
- For SARM loans, the calculation of UW NCF DSCR at Cap will use Strike Rate plus Mortgage Margin
- We've added new fields, some items have name changes only, and other fields are going way

### Need More Information prior to implementation?

- E-mail [MF\\_Lender\\_Change\\_Management@fanniemae.com](mailto:MF_Lender_Change_Management@fanniemae.com)

### Have Questions or Need Assistance going forward after implementation?

- Contact the Acquisitions Team Representative