



## Mortgage Lender Sentiment Survey Questionnaire Quarterly Tracking Study – Q1 2017

***/\* DISPLAY \*/*** Welcome to the *Mortgage Lender Sentiment Survey®*, a quarterly survey conducted by Fannie Mae among senior mortgage executives like you. We need your help to gather your views and experience with the mortgage market. Your participation is critical to ensure that results portray a representative view of key mortgage industry indicators. We hope this research will provide intelligence to help you manage your business practices.

The information you provide in this survey will be kept confidential. All results will be reported in the aggregate, and responses will not be linked to any individual person or company.

Thank you for taking part in this survey, your participation is greatly appreciated.

### **NHS Questions**

---

***/\* DISPLAY \*/*** This first series of questions asks about the overall economy and mortgage lending industry, nationwide. We're specifically interested in your opinion as a senior mortgage executive.

***/\* Q1 \*/*** In general, do you, as a senior mortgage executive, think the U.S. economy overall is on the right track or the wrong track?

- 1) Right track
- 2) Wrong track
- 3) Don't know

***/\* Q1A \*/*** Do you think it is very difficult, somewhat difficult, somewhat easy, or very easy for consumers to get a home mortgage today?

- 1) Very difficult
- 2) Somewhat difficult
- 3) Somewhat easy
- 4) Very easy
- 5) Don't know

***/\* Q2 \*/*** Nationally, during the next 12 months, do you, as a senior mortgage executive, think home prices in general will go up, go down, or stay the same as where they are now?

- 1) Go up
- 2) Go down
- 3) Stay the same
- 4) Don't know

***/\* Q4a \*/ ## IF Q2=C1 ##*** By about what percent do you, as a senior mortgage executive, think home prices nationally will go up on average over the next 12 months? ***/\* OPEN END NUMERIC (0 TO 100) \*/***

***/\* Q5a \*/ ## IF Q2=C2 ##*** By about what percent do you, as a senior mortgage executive, think home prices nationally will go down on average over the next 12 months? ***/\* OPEN END NUMERIC (0 TO 100) \*/***



## Consumer Demand

---

**/\* DISPLAY \*/** This section is about consumer demand for single-family mortgages. We will be asking you these questions across three market categories, GSE-Eligible, Non-GSE-Eligible, and Government. We will also be asking these questions separately by purchase market and refinance market.

**/\* DISPLAY \*/** Now, let's focus on the consumer demand for single-family purchase mortgages your firm has experienced over the past three months.

**/\* METRIC A \*/** Over the past three months, apart from normal seasonal variation, did your firm's consumer demand for single-family purchase mortgages go up, go down, or stay the same?

Hover over the terms "GSE Eligible," "Non-GSE Eligible," and "Government" in the table below to see the definitions.

### **Consumer Demand for Purchase Mortgages for the Past 3 Months**

- 1) Went up significantly
- 2) Went up somewhat
- 3) Stayed the same
- 4) Went down somewhat
- 5) Went down significantly
- 6) Not applicable

### **/\* REPEAT CODES \*/**

**/\* Q6a \*/** Purchase - [**/\* GSE Eligible \*/**] [- GSE Eligible Mortgages are defined as mortgages meeting the underwriting guidelines, including loan limit amounts, of the Government-Sponsored Enterprises (GSEs) (Fannie Mae and Freddie Mac). Exclude Government loans from this category. -]

**/\* Q6b \*/** Purchase - [**/\* Non-GSE Eligible \*/**] [- Non-GSE Eligible Mortgages are defined as mortgages that do not meet the GSE guidelines for purchase. These loans typically require larger down payments and typically carry higher interest rates than GSE loans. Exclude Government loans from this category. -]

**/\* Q6c \*/** Purchase - [**/\* Government \*/**] [- Government Mortgages primarily include Federal Housing Administration (FHA) and the Department of Veterans Affairs (VA) insured loans but also includes other programs such as Rural Housing Guaranteed and Direct loans. -]

### **/\* END SERIES \*/**

**/\* Q7 \*/** ## IF (Q6a=c1, c2, c4, c5) OR (Q6b= c1, c2, c4, c5) OR (Q6c= c1, c2, c4, c5) ## What do you think drove the change in your firm's consumer demand for single family purchase mortgages over the past three months? Please be as specific as possible. (Optional) **/\* OPEN END 1 BOXES 0 REQ \*/**

### **/\* END SERIES \*/**



**/\* METRIC A \*/ Now, let's focus on the purchase mortgages over the next three months.**

Over the next three months, apart from normal seasonal variation, do you expect your firm's consumer demand for single-family purchase mortgages to go up, go down, or stay the same?

**Consumer Demand for Purchase Mortgages for the Next 3 Months**

- 1) Go up significantly
- 2) Go up somewhat
- 3) Stay the same
- 4) Go down somewhat
- 5) Go down significantly
- 6) Not applicable

**/\* REPEAT CODES \*/**

**/\* Q14a \*/ Purchase - [/\* GSE Eligible \*/] [- GSE Eligible Mortgages are defined as mortgages meeting the underwriting guidelines, including loan limit amounts, of the Government-Sponsored Enterprises (GSEs) (Fannie Mae and Freddie Mac). Exclude Government loans from this category. -]**

**/\* Q14b \*/ Purchase - [/\* Non-GSE Eligible \*/] [- Non-GSE Eligible Mortgages are defined as mortgages that do not meet the GSE guidelines for purchase. These loans typically require larger down payments and typically carry higher interest rates than GSE loans. Exclude Government loans from this category. -]**

**/\* Q14c \*/ Purchase - [/\* Government \*/] [- Government Mortgages primarily include Federal Housing Administration (FHA) and the Department of Veterans Affairs (VA) insured loans but also includes other programs such as Rural Housing Guaranteed and Direct loans. -]**

**/\* END SERIES \*/**

**/\* METRIC A \*/ ## IF Q14a=C1, C2 ##** You mentioned that you expect your firm's consumer demand for GSE eligible loans will go up over the next three months. Which of the following housing marketplace factors do you think will drive the demand to go up? Please select up to two of the most important reasons and rank them in order of importance. **/\* RANDOM ROTATE CHOICES \*/**

- 1) Home prices are low
- 2) Mortgage rates are favorable
- 3) There are many homes available on the market
- 4) It is easy to qualify for a mortgage
- 5) Economic conditions (e.g., employment) overall are favorable
- 6) Other **/\* SPECIFY \*/ /\* DO NOT ROTATE \*/**

**/\* REPEAT CODES \*/**

**/\* Q46a \*/ 1 - Most important**

**/\* Q46b \*/ 2 - Second most important**

**/\* END SERIES \*/**



**/\* METRIC A \*/ ## IF Q14a=C4, C5 ##** You mentioned that you expect your firm's consumer demand for **GSE** eligible loans will go down over the next three months. Which of the following housing marketplace factors do you think will drive the demand down? Please select up to two of the most important reasons and rank them in order of importance. **/\* RANDOM ROTATE CHOICES \*/**

- 1) Home prices are high
- 2) Mortgage rates are not favorable
- 3) There are not many homes available on the market
- 4) It is difficult to qualify for a mortgage
- 5) Economic conditions (e.g., employment) overall are not favorable
- 6) Other **/\* SPECIFY \*/ /\* DO NOT ROTATE \*/**

**/\* REPEAT CODES \*/**

**/\* Q47a \*/** 1 - Most important

**/\* Q47b \*/** 2 - Second most important

**/\* END SERIES \*/**

**/\* METRIC A \*/ ## IF Q14b=C1, C2 ##** You mentioned that you expect your firm's consumer demand for **Non-GSE** eligible loans will go up over the next three months. Which of the following housing marketplace factors do you think will drive the demand to go up? Please select up to two of the most important reasons and rank them in order of importance. **/\* RANDOM ROTATE CHOICES \*/**

- 1) Home prices are low
- 2) Mortgage rates are favorable
- 3) There are many homes available on the market
- 4) It is easy to qualify for a mortgage
- 5) Economic conditions (e.g., employment) overall are favorable
- 6) Other **/\* SPECIFY \*/ /\* DO NOT ROTATE \*/**

**/\* REPEAT CODES \*/**

**/\* Q49a \*/** 1 - Most important

**/\* Q49b \*/** 2 - Second most important

**/\* END SERIES \*/**



**/\* METRIC A \*/ ## IF Q14b=C4, C5 ##** You mentioned that you expect your firm's consumer demand for **Non-GSE** eligible loans will go down over the next three months. Which of the following housing marketplace factors do you think will drive the demand down? Please select up to two of the most important reasons and rank them in order of importance. **/\* RANDOM ROTATE CHOICES \*/**

- 1) Home prices are high
- 2) Mortgage rates are not favorable
- 3) There are not many homes available on the market
- 4) It is difficult to qualify for a mortgage
- 5) Economic conditions (e.g., employment) overall are not favorable
- 6) Other **/\* SPECIFY \*/ /\* DO NOT ROTATE \*/**

**/\* REPEAT CODES \*/**

**/\* Q50a \*/** 1 - Most important

**/\* Q50b \*/** 2 - Second most important

**/\* END SERIES \*/**

**/\* METRIC A \*/ ## IF Q14c=C1, C2 ##** You mentioned that you expect your firm's consumer demand for **government** loans will go up over the next three months. Which of the following housing marketplace factors do you think will drive the demand to go up? Please select up to two of the most important reasons and rank them in order of importance. **/\* RANDOM ROTATE CHOICES \*/**

- 1) Home prices are low
- 2) Mortgage rates are favorable
- 3) There are many homes available on the market
- 4) It is easy to qualify for a mortgage
- 5) Economic conditions (e.g., employment) overall are favorable
- 6) Other **/\* SPECIFY \*/ /\* DO NOT ROTATE \*/**

**/\* REPEAT CODES \*/**

**/\* Q51a \*/** 1 - Most important

**/\* Q51b \*/** 2 - Second most important

**/\* END SERIES \*/**



**/\* METRIC A \*/ ## IF Q14c=C4, C5 ##** You mentioned that you expect your firm's consumer demand for **government** loans will go down over the next three months. Which of the following housing marketplace factors do you think will drive the demand down? Please select up to two of the most important reasons and rank them in order of importance. **/\* RANDOM ROTATE CHOICES \*/**

- 1) Home prices are high
- 2) Mortgage rates are not favorable
- 3) There are not many homes available on the market
- 4) It is difficult to qualify for a mortgage
- 5) Economic conditions (e.g., employment) overall are not favorable
- 6) Other **/\* SPECIFY \*/ /\* DO NOT ROTATE \*/**

**/\* REPEAT CODES \*/**

**/\* Q52a \*/** 1 - Most important

**/\* Q52b \*/** 2 - Second most important

**/\* END SERIES \*/**

**/\* DISPLAY \*/** The next section is about consumer demand for refinance mortgages. Similarly, we will be asking these questions across three market categories, GSE-Eligible, Non-GSE-Eligible, and Government.

**/\* DISPLAY \*/** Now, let's focus on the consumer demand for single-family refinance mortgages your firm has experienced over the past three months.

**/\* METRIC A \*/** Over the past three months, apart from normal seasonal variation, did your firm's consumer demand for single-family refinance mortgages go up, go down, or stay the same?

#### **Consumer Demand for Refinance Mortgages for the Past 3 Months**

- 1) Went up significantly
- 2) Went up somewhat
- 3) Stayed the same
- 4) Went down somewhat
- 5) Went down significantly
- 6) Not applicable

**/\* REPEAT CODES \*/**

**/\* Q10a \*/** Refinance - **/\* GSE Eligible \*/** [- GSE Eligible Mortgages are defined as mortgages meeting the underwriting guidelines, including loan limit amounts, of the Government-Sponsored Enterprises (GSEs) (Fannie Mae and Freddie Mac). Exclude Government loans from this category. -]

**/\* Q10b \*/** Refinance - **/\* Non-GSE Eligible \*/** [- Non-GSE Eligible Mortgages are defined as mortgages that do not meet the GSE guidelines for purchase. These loans typically require larger down payments typically and carry higher interest rates than GSE loans. Exclude Government loans from this category. -]



**/\* Q10c \*/ Refinance - [ \* Government \* ] [- Government Mortgages primarily include Federal Housing Administration (FHA) and the Department of Veterans Affairs (VA) insured loans but also includes other programs such as Rural Housing Guaranteed and Direct loans. -]**

**/\* END SERIES \*/**

**/\* DISPLAY \*/ Now, let's focus on the refinance mortgages over the next three months.**

**/\* METRIC A \*/ Over the next three months, apart from normal seasonal variation, do you expect your firm's consumer demand for single-family refinance mortgages to go up, go down, or stay the same?**

### **Consumer Demand for Refinance Mortgages for the Next 3 Months**

- 1) Go up significantly
- 2) Go up somewhat
- 3) Stay the same
- 4) Go down somewhat
- 5) Go down significantly
- 6) Not applicable

**/\* REPEAT CODES \*/**

**/\* Q18a \*/ Refinance - [ \* GSE Eligible \* ] [- GSE Eligible Mortgages are defined as mortgages meeting the underwriting guidelines, including loan limit amounts, of the Government-Sponsored Enterprises (GSEs) (Fannie Mae and Freddie Mac). Exclude Government loans from this category. -]**

**/\* Q18a \*/ Refinance - [ \* Non-GSE Eligible \* ] [- Non-GSE Eligible Mortgages are defined as mortgages that do not meet the GSE guidelines for purchase. These loans typically require larger down payments and typically carry higher interest rates than GSE loans. Exclude Government loans from this category. -]**

**/\* Q18c \*/ Refinance - [ \* Government \* ] [- Government Mortgages primarily include Federal Housing Administration (FHA) and the Department of Veterans Affairs (VA) insured loans but also includes other programs such as Rural Housing Guaranteed and Direct loans. -]**

**/\* END SERIES \*/**

### **Profit Margin**

---

**/\* DISPLAY \*/ Now you will see some questions regarding your firm's profit margin outlook.**

**/\* Q22 \*/ Over the next three months, how much do you expect your firm's profit margin to change for its single-family mortgage production?**

- 1) Increase significantly (25+ basis points)
- 2) Increase somewhat (5 - 25 basis points)
- 3) Remain about the same (0 - 5 basis points)
- 4) Decrease somewhat (5 - 25 basis points)
- 5) Decrease significantly (25+ basis points)
- 6) Not sure/Prefer not to answer/Not applicable



**/\* END SERIES \*/**

**/\* METRIC A \*/ ## IF Q22=4,5 ##** What do you think will drive the decrease in your firm's profit margin over the next three months? Please select the two most important reasons and rank them in order of importance. **/\* RANDOM ROTATE CHOICES \*/**

- 1) Consumer demand
- 2) Competition from other lenders
- 3) Government monetary or fiscal policy
- 4) Government regulatory compliance
- 5) GSE pricing and policies
- 6) Non-GSE (other investors) pricing and policies
- 7) Operational efficiency (i.e. technology)
- 8) Staffing (personnel costs)
- 9) Marketing expenses
- 10) Servicing costs
- 11) Market trend changes (i.e. shift from refinance to purchase)
- 12) Other **/\* DO NOT ROTATE \*/**

**/\* REPEAT CODES \*/**

**/\* Q24a \*/** 1 - Most important

**/\* Q24b \*/** 2 - Second most important

**/\* END SERIES \*/**

**/\* END SERIES \*/**

**/\* METRIC A \*/ ## IF Q22=1,2 ##** What do you think will drive the increase in your firm's profit margin over the next three months? Please select the two most important reasons and rank them in order of importance. **/\* RANDOM ROTATE CHOICES \*/**

- 1) Consumer demand
- 2) Less competition from other lenders
- 3) Government monetary or fiscal policy
- 4) Government regulatory compliance
- 5) GSE pricing and policies
- 6) Non-GSE (other investors) pricing and policies
- 7) Operational efficiency (i.e. technology)
- 8) Staffing (personnel costs) reduction
- 9) Marketing expense reduction
- 10) Servicing cost reduction
- 11) Market trend changes (i.e. shift from refinance to purchase)
- 12) Other **/\* DO NOT ROTATE \*/**

**/\* REPEAT CODES \*/**



**/\* Q26a \*/ 1 - Most important**

**/\* Q26b \*/ 2 - Second most important**

**/\* END SERIES \*/**

## **Credit Standards**

---

**/\* DISPLAY \*/ This section is about your firm's credit standards for approving applications from individuals for mortgage loans.**

**/\* METRIC B \*/ Now, let's focus on the past three months.**

Over the past three months, how did your firm's credit standards for approving consumer applications for mortgage loans change (across both purchase mortgages and refinance mortgages)? Please answer for GSE eligible mortgages, non-GSE eligible mortgages, and Government mortgages.

### **Credit Standards over the Past 3 Months**

- 1) Eased considerably
- 2) Eased somewhat
- 3) Remained basically unchanged
- 4) Tightened somewhat
- 5) Tightened considerably
- 6) Not applicable

**/\* REPEAT CODES \*/**

**/\* Q27a \*/ /\* GSE Eligible \*/ [- GSE Eligible Mortgages are defined as mortgages meeting the underwriting guidelines, including loan limit amounts, of the Government-Sponsored Enterprises (GSEs) (Fannie Mae and Freddie Mac). Exclude Government loans from this category. -]**

**/\* Q27b \*/ /\* Non-GSE Eligible \*/ [- Non-GSE Eligible Mortgages are defined as mortgages that do not meet the GSE guidelines for purchase. These loans typically require larger down payments and typically carry higher interest rates than GSE loans. Exclude Government loans from this category. -]**

**/\* Q27c \*/ /\* Government \*/ [- Government Mortgages primarily include Federal Housing Administration (FHA) and the Department of Veterans Affairs (VA) insured loans but also includes other programs such as Rural Housing Guaranteed and Direct loans. -]**

**/\* END SERIES \*/**

**/\* Q28 \*/ ## IF ANY (Q27a, Q27b, Q27c) = c1,c2,c4,c5 ## What do you think drove the change in your firm's credit standards for approving consumer applications for purchase and refinance mortgage loans over the last three months? Please be as specific as possible. (Optional) /\* OPEN END 1 BOXES 0 REQ \*/**



**/\* DISPLAY \*/ Now let's focus on the next three months.**

**/\* METRIC A \*/** Over the next three months, how do you expect your firm's credit standards for approving applications from individuals for mortgage loans to change (across purchase mortgages and refinance mortgages)?

**Credit Standards over the Next 3 Months**

- 1) Ease considerably
- 2) Ease somewhat
- 3) Remain basically unchanged
- 4) Tighten somewhat
- 5) Tighten considerably
- 6) Not applicable

**/\* REPEAT CODES \*/**

**/\* Q31a \*/** **/\* GSE Eligible \*/** [- GSE Eligible Mortgages are defined as mortgages meeting the underwriting guidelines, including loan limit amounts, of the Government-Sponsored Enterprises (GSEs) (Fannie Mae and Freddie Mac). Exclude Government loans from this category. -]

**/\* Q31b \*/** **/\* Non-GSE Eligible \*/** [- Non-GSE Eligible Mortgages are defined as mortgages that do not meet the GSE guidelines for purchase. These loans typically require larger down payments and typically carry higher interest rates than GSE loans. Exclude Government loans from this category. -]

**/\* Q31c \*/** **/\* Government \*/** [- Government Mortgages primarily include Federal Housing Administration (FHA) and the Department of Veterans Affairs (VA) insured loans but also includes other programs such as Rural Housing Guaranteed and Direct loans. -]

**/\* END SERIES \*/**

**/\* Q32 \*/** **## IF ANY (Q31a, Q31b, Q31c) = c1,c2,c4,c5 ##** What do you think will drive the change in your firm's credit standards for approving consumer applications for purchase and refinance mortgage loans over the next three months? Please be as specific as possible. (Optional) **/\* OPEN END 1 BOXES 0 REQ \*/**

**/\* QR83 \*/** Does your firm originate or acquire loans through wholesale channels such as mortgage brokers or correspondent channels?

- 1) Yes
- 2) No
- 3) Not sure/don't know

**/\* QR84 \*/** **## IF QR83=c1 ##** Does your firm apply credit overlays when originating or acquiring loans through wholesale channels?

- 1) Yes
- 2) No
- 3) Not sure/don't know



**/\* QR84a \*/ ## IF QR84=c1##** How does your firm anticipate changing your credit overlays to brokers/correspondents over the next 6 months?

- 1) We plan on reducing credit overlays
- 2) We plan on increasing credit overlays
- 3) We plan on keeping credit overlays about the same

## **Mortgage Execution Share**

---

**/\* DISPLAY \*/** The next series of questions is about your firm's mortgage-origination execution strategy.

**/\* METRIC A \*/** Approximately, what percent of your firm's total mortgage originations goes to each of the following categories? Please enter a percent in each box below. If a category is not applicable to your firm, please enter 0. The percentages below must add up to 100%. **/\* OPEN END NUMERIC (0 TO 100) \*/**

**/\* REPEAT CODES \*/**

**/\* Q35a \*/** Portfolio Retention

**/\* Q35b \*/** GSE (Fannie Mae and Freddie Mac)

**/\* Q35c \*/** Ginnie Mae (FHA/VA)

**/\* Q35d \*/** Private Label Securities / Non-Agency Securities

**/\* Q35e \*/** Whole Loan Sales to NON-GSE (Correspondent)

**/\* Q35f \*/** Other

**/\* END SERIES \*/**

**/\* q35fother \*/ ## IF Q35f > 0 ##** On the previous page you indicated "other." Please specify your firm's other post mortgage-origination execution category. **/\* OPEN END 1 BOXES 1 REQ \*/ ## QUESTION IS REQUIRED ##**

**/\* METRIC A \*/** Looking forward, what percent of your firm's total mortgage originations over the next 12 months will go to each of the following categories? Please enter a percent for each category. If a category is not applicable to your firm, please enter 0. The percentages below must add up to 100%. **/\* OPEN END NUMERIC (0 TO 100) \*/**

**/\* REPEAT CODES \*/**

**/\* Q44a \*/** Portfolio Retention

**/\* Q44b \*/** GSE (Fannie Mae and Freddie Mac)

**/\* Q44c \*/** Ginnie Mae (FHA/VA)

**/\* Q44d \*/** Private Label Securities / Non-Agency Securities

**/\* Q44e \*/** Whole Loan Sales to NON-GSE (Correspondent)

**/\* Q44f \*/ ## INSERT RESPONSE FROM q35fother ##**

**/\* END SERIES \*/**



## Mortgage Servicing Rights

---

**/\* DISPLAY \*/** Now, we will be asking you about your firm's mortgage servicing rights (MSR) strategy.

**/\* METRIC A \*/** Approximately, what percent of your mortgage servicing rights (MSR) goes to each of the following categories? Please enter a percent in each box below. If a category is not applicable to your firm, please enter 0. The percentages below must add up to 100%. **/\* OPEN END NUMERIC (0 TO 100) \*/**

**/\* REPEAT CODES \*/**

**/\* Q38a \*/** MSR retained, serviced in-house

**/\* Q38b \*/** MSR retained, serviced by a subservicer

**/\* Q38c \*/** MSR sold

**/\* END SERIES \*/**

**/\* METRIC A \*/** Looking forward, what percent of your firm's mortgage servicing rights (MSR) over the next 12 months will go to each of the following categories? Please enter a percent for each category. If a category is not applicable to your firm, please enter 0. The percentages below must add up to 100%. **/\* OPEN END NUMERIC (0 TO 100) \*/**

**/\* REPEAT CODES \*/**

**/\* Q45a \*/** MSR retained, serviced in-house

**/\* Q45b \*/** MSR retained, serviced by a subservicer

**/\* Q45c \*/** MSR sold

**/\* END SERIES \*/**

**/\* Q45d \*/** **## IF Q38C does not equal Q45C ##** What do you think will drive the change in your firm's percentage of MSR sold over the next 12 months? Please be as specific as possible. (Optional) **/\* OPEN END 1 BOXES 0 REQ \*/**



## Rotating Questions – APIs and Chatbots

---

**/\* DISPLAY \*/** Last, we have a few quick questions about your firm’s experience with two advanced technologies.

Over the past few years, businesses across industries have started leveraging new technologies to help digitize transactions and streamline or even transform business processes with partners, suppliers or end customers, with the goal to reduce errors and costs, speed up transactions, and provide a better customer service.

**/\* DISPLAY \*/** First, let’s talk about your general views about using new technologies.

**/\* QR175 \*/** When it comes to new technologies, which of the following statements best describes your organization?

- 1) My firm is usually one of the last companies to use new technologies.
- 2) My firm usually uses new technologies when most people have used them.
- 3) My firm loves new technologies and is among the first to experiment and use them.

**/\* QR176 \*/ ## IF USES TECHNOLOGIES WHEN MOST HAVE OR IS LAST TO USE THEM: QR175 = C1, C2 ##** You mentioned that your firm **## INSERT RESPONSE FROM QR175 ##**. Which of the following reasons is the major barrier for your firm to being an early adopter of new technologies? **/\* RANDOM ROTATE CHOICES \*/**

- 1) Costs/lack of available investment funds
- 2) Lack of in-house technology staff/talent
- 3) Concerns with technology integration, functionalities, reliability, scale, etc.
- 4) Lack of customer or borrower demand
- 5) Other **/\* SPECIFY \*/ /\* DO NOT ROTATE \*/**

**## DISPLAY QR177, QR178, AND QR179 ON ONE PAGE ##**

**/\* QR177 \*/** To what extent do you agree with the following statement?

***“My organization is making the best use of technology.”***

- 1) Strongly agree
- 2) Somewhat agree
- 3) Somewhat disagree
- 4) Strongly disagree

**/\* QR178 \*/** How well do you think the mortgage industry is doing at innovating?

- 1) Very well
- 2) Somewhat well
- 3) Not very well
- 4) Not at all well



**/\* QR179 \*/** Do you think technological innovation in the mortgage industry is happening...

- 1) Too slow
- 2) About right
- 3) Too fast

**## DISPLAY QR197 AND QR198 ON ONE PAGE ##**

**/\* QR197 \*/** When it comes to data-related activities (e.g., analytics, management), which of the following statements best describes your organization?

- 1) My firm outsources a majority of our data-related activities.
- 2) My firm addresses data-related activities on an ad-hoc basis, but does not have a dedicated internal data team.
- 3) My firm has a dedicated internal data team, but does not have a formal data strategy.
- 4) My firm has a formal data strategy and a dedicated internal data team.

**/\* QR198 \*/** To what extent do you agree with this statement?

***“My organization is making the best use of data for my mortgage business.”***

- 1) Strongly agree
- 2) Somewhat agree
- 3) Somewhat disagree
- 4) Strongly disagree

**/\* DISPLAY \*/** In this section, we would like to gather your views and experiences with the following two emerging technologies. The questions in this section can still be answered regardless of your level of knowledge about each technology.

- **Web Application Programming Interfaces (APIs):** software that enables diverse software programs to communicate and work together. Examples include embedding business partners' APIs such as Zillow, Google Maps, and FedEx location/tracking into the firm's applications.
- **Chatbots:** a software program, powered by artificial intelligence, that understands and responds to questions and commands. Banks, airlines, and some other industries are developing “virtual assistants” to interact like humans to answer customer questions or help customers complete tasks.



**/\* DISPLAY \*/ Now, let's start with Application Programming Interfaces [\* APIs \*] [-Software that enables diverse software programs to communicate and work together. Examples include embedding business partners' APIs such as Zillow, Google Maps, and FedEx location/tracking into the firm's applications -].**

**/\* QR180 \*/ Which of the following statements best describes your firm's current status with [\* APIs \*] [-Software that enables diverse software programs to communicate and work together. Examples include embedding business partners' APIs such as Zillow, Google Maps, and FedEx location/tracking into the firm's applications -] for your mortgage business?**

- 1) We have not yet looked into APIs for our mortgage business.
- 2) We have started investigating APIs, but have not yet used any, for our mortgage business.
- 3) We have started using APIs (developed internally or by others), but on a limited or trial basis, for our mortgage business.
- 4) We have used APIs and incorporated some into our mortgage process.

**/\* QR182 \*/ ## USE APIs FOR MORTGAGE LENDING: QR180 = C3, C4 ## You mentioned that your firm has started using [\* APIs \*] [-Software that enables diverse software programs to communicate and work together. Examples include embedding business partners' APIs such as Zillow, Google Maps, and FedEx location/tracking into the firm's applications -] for your mortgage business. In the space provided below, can you share examples of some specific functions for which your firm uses APIs for mortgage lending, such as embedding business partners' appraisal or e-mortgage APIs into your process? (Optional) /\* OPEN  
END 1 BOXES 0 REQ \*/**



**/\* METRIC A \*/** Listed below are several key functional areas based on the mortgage lending cycle. What are the most important functional areas where you see **/\* APIs \*/** [-Software that enables diverse software programs to communicate and work together. Examples include embedding business partners' APIs such as Zillow, Google Maps, and FedEx location/tracking into the firm's applications -] have the greatest potential to be applied to streamline processes, reduce costs and errors, and/or deliver a better customer experience?

Please select up to three functional areas and rank them in order of potential levels.

**/\* Loan Production \*/** [- Origination or producing new loans that are consistent with the product design set by the investor -]

- 1) Originating loan applications (including Point of Sale systems and appraisal)
- 2) Processing: verifying borrower information and documents
- 3) Underwriting: analyzing whether the lending risk is acceptable
- 4) Closing: delivering disclosures and closing documents, signing, and settlement (including e-delivery and e-sign)

**/\* Warehousing, Quality Control, and Shipping & Delivery \*/** [- Funding the loan before the mortgage is sold to a permanent investor, performing quality control checks, and then shipping and delivering the loan to the investor -]

- 5) Funding the loan
- 6) Managing the warehouse line
- 7) Performing quality control (QC) checks
- 8) Shipping and delivering the loans to an investor

**/\* Secondary Marketing \*/** [- Selling mortgage loans and mortgage-backed securities to investors -]

- 9) Managing the loans in process but not closed ("pipeline")
- 10) Negotiating investor commitments
- 11) Setting prices for loans
- 12) Managing market risks

**/\* Loan Administration \*/** [- Servicing the loan after the sale -]

- 13) Receiving payments from borrowers
- 14) Remitting funds for principal and interest (less a "servicing fee" for the lender)
- 15) Paying taxes and insurance from escrow accounts
- 16) Handling loan payoffs, assumptions, loss mitigation, and foreclosures
- 17) Responding to customer inquiries

**18) General Regulatory Compliance**

**19) Analytics/Business Intelligence**

**20) Other (please specify) /\* SPECIFY \*/**

**/\* REPEAT CODES \*/**

**/\* QR183a \*/** 1 – Greatest Potential

**/\* QR183b \*/** 2 - 2<sup>nd</sup> Greatest Potential

**/\* QR183c \*/** 3 - 3<sup>rd</sup> Greatest Potential

**/\* END SERIES \*/**



**/\* QR184 \*/** Are there any specific areas or functions for which you think API solutions could be developed or further improved to streamline business processes, reduce costs and errors, and/or deliver a world-class customer experience? And, if so, how? (Optional) **/\* OPEN END 1 BOXES 0 REQ \*/**

**/\* DISPLAY \*/** Now, let's focus on [**\* Chatbots \***] [- A software program, powered by artificial intelligence, that understands and responds to questions and commands. Banks, airlines, and some other industries are developing "virtual assistants" to interact like humans to answer customer questions or help customers complete tasks -].

**/\* QR185 \*/** Which of the following statements best describes your firm's current status with [**\* Chatbots \***] [- A software program, powered by artificial intelligence, that understands and responds to questions and commands. Banks, airlines, and some other industries are developing "virtual assistants" to interact like humans to answer customer questions or help customers complete tasks -] for your mortgage business?

- 1) We have not yet looked into chatbots for our mortgage business.
- 2) We have started investigating chatbots technology, but have not yet used any, for our mortgage business.
- 3) We have started using chatbots, but on a limited or trial basis, for our mortgage business.
- 4) We have used chatbots and incorporated them into our current mortgage process or customer service.

**/\* QR187 \*/ ## USE CHATBOTS FOR MORTGAGE LENDING: QR185 = C3, C4 ##** In the space provided below, can you share examples of some specific functions for which your firm uses [**\* Chatbots \***] [- A software program, powered by artificial intelligence, that understands and responds to questions and commands. Banks, airlines, and some other industries are developing "virtual assistants" to interact like humans to answer customer questions or help customers complete tasks -] for mortgage lending, such as a specific type of customer service or servicing? (Optional) **/\* OPEN END 1 BOXES 0 REQ \*/**



**/\* METRIC A \*/** Listed below are several key functional areas based on the mortgage lending cycle. What are the most important functional areas where you see **/\* Chatbots \*/** [- A software program, powered by artificial intelligence, that understands and responds to questions and commands. Banks, airlines, and some other industries are developing “virtual assistants” to interact like humans to answer customer questions or help customers complete tasks -] have the greatest potential to be applied to streamline processes, reduce costs and errors, and/or deliver a world-class customer experience?

Please select up to three functional areas and rank them in order of potential levels.

**/\* Loan Production \*/** [- Origination or producing new loans that are consistent with the product design set by the investor -]

- 1) Originating loan applications (including Point of Sale systems and appraisal)
- 2) Processing: verifying borrower information and documents
- 3) Underwriting: analyzing whether the lending risk is acceptable
- 4) Closing: delivering disclosures and closing documents, signing, and settlement (including e-delivery and e-sign)

**/\* Warehousing, Quality Control, and Shipping & Delivery \*/** [- Funding the loan before the mortgage is sold to a permanent investor, performing quality control checks, and then shipping and delivering the loan to the investor -]

- 5) Funding the loan
- 6) Managing the warehouse line
- 7) Performing quality control (QC) checks
- 8) Shipping and delivering the loans to an investor

**/\* Secondary Marketing \*/** [- Selling mortgage loans and mortgage-backed securities to investors -]

- 9) Managing the loans in process but not closed (“pipeline”)
- 10) Negotiating investor commitments
- 11) Setting prices for loans
- 12) Managing market risks

**/\* Loan Administration \*/** [- Servicing the loan after the sale -]

- 13) Receiving payments from borrowers
- 14) Remitting funds for principal and interest (less a “servicing fee” for the lender)
- 15) Paying taxes and insurance from escrow accounts
- 16) Handling loan payoffs, assumptions, loss mitigation, and foreclosures
- 17) Responding to customer inquiries

**18) General Regulatory Compliance**

**19) Analytics/Business Intelligence**

**20) Other (please specify) /\* SPECIFY \*/**

**/\* REPEAT CODES \*/**

**/\* QR188a \*/** 1 – Greatest Potential

**/\* QR188b \*/** 2 - 2<sup>nd</sup> Greatest Potential

**/\* QR188c \*/** 3 - 3<sup>rd</sup> Greatest Potential

**/\* END SERIES \*/**



**/\* QR189 \*/** Are there any specific areas or functions for which you think chatbot technology solutions could be developed or further improved to help transform the mortgage industry to be more efficient? And, if so, how? (Optional) **/\* OPEN END 1 BOXES 0 REQ \*/**

**## DISPLAY QR193-QR194 AS A GRID, WITH THE QUESTIONS ON THE LEFT AND THE ANSWER CHOICES ACROSS THE TOP ##**

**/\* METRIC A \*/** For each of the two emerging technologies covered in this survey, what do you think the status of your firm's adoption will be in two years for your mortgage business?

- 1) Not Using (Wait and See)
- 2) Investigating
- 3) Using on a Trial Basis
- 4) Rolling Out More Broadly

**/\* QR193 \*/** **/\* APIs \*/** [-Software that enables diverse software programs to communicate and work together. Examples include embedding business partners' APIs such as Zillow, Google Maps, and FedEx location/tracking into the firm's applications -]

**/\* QR194 \*/** **/\* Chatbots \*/** [- A software program, powered by artificial intelligence, that understands and responds to questions and commands. Banks, airlines, and some other industries are developing "virtual assistants" to interact like humans to answer customer questions or help customers complete tasks -]

**/\* QR196 \*/** What are the major concerns, if any, your firm has with adopting either of these two emerging technologies (APIs and Chatbots)? (Optional) **/\* OPEN END 1 BOXES 0 REQ \*/**

**/\* Q43 \*/** This is the last question. Are there other topics that you think would be interesting or useful to be included in the future quarterly survey among senior mortgage executives like yourself? (Optional) **/\* OPEN END 1 BOXES 0 REQ \*/**



**/\* DISPLAY \*/** This now completes the survey. We really appreciate you taking the time to contribute to this important industry research.

You can find the previous quarters' results as well as special topic analyses on the [Mortgage Lender Sentiment Survey®](#) page on FannieMae.com.

Please note that responses to the survey questions will be aggregated and analyzed solely to identify important topics, trends, and issues surrounding the mortgage industry. Fannie Mae will not publish respondent names or affiliated institutions.

At this point, you may close your browser window or **click below** to enter your email address if you would like to receive a copy of the Q1 2017 Mortgage Lender Sentiment Survey® report when it's released. To ensure that your survey responses remain anonymous, after clicking on the link you will be directed to a separate website to enter your email address.