

# On the Distributional Consequences of Monetary Policy

Marco Di Maggio (Columbia Business School) and Amir Kermani (UC Berkeley)

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## Summary

Six years after the financial crisis, we still observe many debt-burdened households, widespread unemployment and relatively low growth, despite the highly expansionary monetary policy adopted by many Central Banks and international financial institutions across the globe. Therefore, it is not a surprise that there is disagreement among economists, as well as policy makers, about the effectiveness of the monetary policy measures implemented after the financial crisis.

Our research agenda is focused on the implications of the changes in the interest rates on households' consumption and savings behavior, and plan to produce a coherent set of papers on the different channels through which the unprecedented expansionary monetary policy have affected the aggregate economy and more importantly the income and consumption inequality.

## Main Contribution

Despite Bernanke and Gertler (1995) showing that households' expenditures on durable goods and residential investment are the components of GDP that respond most forcefully to changes in monetary policy, the existing literature has mainly focused on the effects of a decline in interest rates on firms and banks. For instance, existing studies have investigated the channels through which monetary policy impacts banks' lending decisions and risk-taking behavior (Jimenez et al. (2014), Jimenez et al. (2012) and Maddaloni and Peydró (2011)). Recent studies on the households' consumption behavior during the recent crisis include, among others, Mian and Sufi (2014a) which examines the households' borrowing and spending behavior resulting from rising house prices from 2002 to 2006; and Mian and Sufi (2014b) which investigates the elasticity of consumption with respect to housing net worth, during the 2006-2009 period. However, the impact of monetary policy on households' consumption behavior at the disaggregated level remains mostly understudied.<sup>1</sup>

We have three related projects at different stages on this theme. First of all, we establish that the households' consumption and saving decisions significantly respond to a reduction in interest rates.<sup>2</sup> Second, we investigate how the introduction of the Home Affordable Refinancing Program (HARP) helped homeowners benefiting from the low interest rates by allowing for easier refinancing. Third, we examine if the expansionary monetary policy have disproportionately benefited households in a specific income bracket, affecting then inequality in the U.S.

## Methodology

This grant will help us carrying on this project on inequality using both U.S. and Swedish data. In order to investigate the relation between monetary policy and inequality in the U.S. we plan to complement our data sources with data from the Nielsen Consumer Panel Data. This dataset tracks daily consumption of about 50,000 households with very different household demographics since 2004. Having high frequency consumption data on

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<sup>1</sup> Two recent studies have implications for the relation between monetary policy and inequality. Doepke and Schneider (2006) quantitatively assesses the effects of inflation through changes in the value of nominal assets. Coibion et al. (2012), instead, measure inequality using data from the Consumer Expenditures Survey (CEX) and document that monetary policy shocks have statistically significant effects on inequality.

<sup>2</sup> Di Maggio, Kermani and Ramcharan (2014) show that a drop in interest rates has heterogeneous effects across households in the US. For instance, the marginal propensity to consume is significantly higher for liquidity-constrained borrowers, as measured by their income and for those that had experienced a larger decline in housing wealth, e.g. those deeply underwater.

households with different levels of income enables us to perform an event study analysis on the effect of monetary policy on consumption behavior of different types of households.

Even if the data on U.S. households are not fully comprehensive, they will still allow us to estimate the effects of the changes in interest rates, as well as, of the forward guidance announcements on the households' consumption behavior depending on their balance sheet characteristics. Moreover, we can augment this information with more detailed data on their mortgage holdings. The Swedish data, instead, will give us the opportunity to assess the effect of changes in interest rates on households with different asset holdings and then track their consumption behavior over time, with the advantage of having access to the whole population.

The Swedish data contains detailed information on the balance sheet of all Swedish households as well information on these households' income and aggregate consumption.<sup>3</sup> We collect information on every stock, bond, mutual fund, and bank account each household owns at the end of the year during the period of 1999-2007. The Swedish Register data also contains information on labor, transfer, and financial income. The richness of the Swedish data and the detailed information about each household asset holdings will give us the opportunity to assess the effect of changes in interest rates on households with different asset and liability holdings, and then track their consumption behavior over time. This data will also enable us to have a measure of the importance of the valuation and the cash-flow (or liquidity) channel, separately.

## Conclusion

Our research agenda is currently focused on the implications of the prolonged period of low interest rates on households' consumption and savings behavior, and plan to produce a coherent set of papers on the different channels through which the unprecedented expansionary monetary policy have affected the aggregate economy and more importantly the income and consumption inequality.

This grant will be essential in pursuing this direction further.

**Timeline:** We expect to work on these projects for the next two years.

### Budget

	Cost of project \$	Funding required \$	Other sources
Research Assistants	2000	2000	N/A
Data	8000	8000	N/A
Travel	2000	2000	N/A
Overheads	-	-	-
Total	12000	12000	-

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<sup>3</sup> We can back out households' consumption as a residual from the household's budget constraint as in the paper by Koijen, Van Nieuwerburgh, and Vestman (2013). This methodology avoids many of the problems with standard survey-based data. The basic idea is that consumption is the part of the total income that was not invested.

## References

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- Coibion, O., Gorodnichenko, Y., Kueng, L., & Silvia, J. (2012). *Innocent bystanders? Monetary policy and inequality in the US* (No. w18170). National Bureau of Economic Research.
- Di Maggio, M., Kermani, A., & Ramcharan, R. (2014). Monetary Policy Pass-Through: Household Consumption and Voluntary Deleveraging. *Columbia Business School Research Paper*, (14-24).
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- Fuster, A., & Willen, P. S. (2013). *Payment size, negative equity, and mortgage default* (No. w19345). National Bureau of Economic Research.
- Jiménez, G., & Ongena, S. (2012). Credit supply and monetary policy: Identifying the bank balance-sheet channel with loan applications. *The American Economic Review*, 102(5), 2301-2326.
- Jiménez, G., Ongena, S., Peydró, J. L., & Saurina, J. (2014). Hazardous Times for Monetary Policy: What Do Twenty-Three Million Bank Loans Say About the Effects of Monetary Policy on Credit Risk-Taking?. *Econometrica*, 82(2), 463-505.
- Maddaloni, A., & Peydró, J. L. (2011, November). The low monetary rates paradox, banking stability and credit: evidence from the euro area. In *12th Jacques Polak Annual Research Conference at the International Monetary Fund, Washington, November* (pp. 10-11).
- Mian, A., & Sufi, A. (2014a). *House Price Gains and US Household Spending from 2002 to 2006* (No. w20152). National Bureau of Economic Research.
- Mian, A. R., & Sufi, A. (2014b). What Explains the 2007-2009 Drop in Employment?. *Econometrica*, forthcoming.
- Parker, J. A., Souleles, N. S., Johnson, D. S., & McClelland, R. (2011). *Consumer spending and the economic stimulus payments of 2008* (No. w16684). National Bureau of Economic Research.
- Romer, C. D., & Romer, D. H. (2004). A New Measure of Monetary Shocks: Derivation and Implications. *American Economic Review*, 1055-1084.
- Judging the Quality of Survey Data by Comparison with "Truth" as Measured By Administrative Records: Evidence from Sweden, R Koijen, S. Van Nieuwerburgh, R. Vestman, in *Improving the Measurement of Consumption Expenditures*, NBER Book Series in Income and Wealth, University of Chicago Press, edited by C. Carroll, T. Crossley, and J. Sabelhaus, 2013

**MARCO DI MAGGIO**  
**COLUMBIA BUSINESS SCHOOL**

Division of Economics and Finance  
Columbia Business School  
3022 Broadway, Uris 819  
New York, NY 10027

Phone: 212-851-0159  
Email: [mdimaggio@columbia.edu](mailto:mdimaggio@columbia.edu)

**Academic Position**

2013-present            Assistant Professor, Columbia Business School  
Division of Finance and Economics

**Education**

Massachusetts Institute of Technology (MIT), 2013  
PhD, Economics  
DISSERTATION: “*Essays on Amplification Mechanisms in Financial Markets*”  
Committee: Daron Acemoglu, Stephen Ross, Andrey Malenko and Abhijit Banerjee

Northwestern University, Visiting Scholar, 2006-2007

University of Naples Federico II, 2003-2008  
B.A. in Economics *summa cum laude* (110/110 *cum laude*)

**Honors, Scholarships, and Fellowships**

NBER Household Finance Grant Award (Sloan Foundation) (joint with Amir Kermani)  
Inquire Europe Research Grant (joint with Marcin Kacperczyk)  
J. A. Chazen Institute of International Business Research Grant  
Dissertation Grant, Shultz Fund  
American Finance Association, PhD Travel Grant  
European Economic Association, Travel Grant  
George and Obie Shultz Fund Grants  
"F. Adipietro" Prize for an outstanding research thesis  
MIT Department of Economics, Supplemental Fellowship  
"Giovanna Crivelli" Fellowship, Unicredit Group  
"Ando-Modigliani" Fellowship, Bank of Italy (declined)

**Professional Activities****Invited Seminars:**

2016: Stanford University (Econ and GSB), UCLA Econ, HEC, Fed Board.

2014-2015: NYU Stern, Federal Reserve Bank of NY, University of Toronto, Cornell

University, Einaudi Institute of Economics and Finance, Federico II University, Kellogg School of Management, Olin Business School, University of Illinois Urbana-Champaign, University of Minnesota Carlson School of Management, Catholic University of Milan.

2013: Stanford GSB, Chicago Booth, Boston College Carroll, Duke Fuqua, Northwestern Kellogg, Harvard Business School, Columbia Business School, UNC Kenan-Flagler, New York University (Stern), Berkeley Haas, Federal Reserve Boards of Governors, Federal Reserve of New York, Federal Reserve Bank of Philadelphia, EIEF, Collegio Carlo Alberto.

Conference Presentations:

2016: American Finance Association (x4), NBER Monetary Economics Spring Meeting in NY\*

2015: Wharton Liquidity and Financial Crises, NBER Summer Institute Corporate Finance, Monetary Economics, Household Finance and Public Economics Meetings, EFA, FIRS 2015, Macro-Finance Society at the Boston Fed, Real Estate Symposium, UMN Carlson Junior Conference, SED 2015, Jackson Hole Finance Conference, UBC Winter Finance Conference, Adam Smith Conference Asset Pricing, Adam Smith Conference Corporate Finance, 2015 UNC/Duke Corporate Finance Conference, the New York Fed-NYU conference on "Mortgage Contract Design: Implications for Households, Monetary Policy, and Financial Stability", 8th Swiss Winter conference on Financial Intermediation, Fed "Day Ahead" Conference on Financial Markets and Institutions.

2014: NBER Monetary Economics Fall Meeting, Tel Aviv Finance Conference, FMA Meeting, NBER Summer Institute Real Estate, NBER Summer Institute Monetary Economics, Western Finance Association, Bank of Canada "Monetary Policy and Financial Stability" Conference, European Summer Symposium in Economic Theory (Gerzensee), International Finance and Macro finance Workshop, Sciences Po Paris, Barcelona GSE Summer Forum, 3rd ITAM Finance Conference 2014, The Financial Intermediation Research Society Meeting Quebec City, CSEF-IGIER Conference - June 2014, 2014 SFS Finance Cavalcade, Texas Finance Festival | McCombs Business School, Adam Smith Conference Asset Pricing, American Finance Association (Asset Pricing Theory), Econometric Society (Financial Regulation and Information).

2013: Sixth Erasmus Liquidity Conference, Rotterdam, The Netherlands, European Finance Association, Cambridge, UK, Ninth CSEF-IGIER Symposium on Economics and Institutions, Capri, Italy, SFS Finance Cavalcade, Miami, FL, Financial Intermediation Research Society, Dubrovnik, Croatia.

2012: North American Summer Meeting of the Econometric Society, Evanston, IL, MOOD 12th Workshop in Economic Theory and Econometrics, Rome, Italy, CREI-CEPR conference on "Decision Theory and its Applications".

2011: NBER Summer Institute 2011, Workshop on Information in Networks, NYU Stern School of Business, 2011 European Finance Association. Stockholm, Sweden, European Economic Association, Oslo, Norway, Conference on The Economics of Intellectual Property, Software and the Internet, Toulouse.

Referee:

Quarterly Journal of Economics, American Economic Review, Econometrica, Journal of Political Economy, Journal of Finance, Review of Economic Studies, Review of Financial Studies, Journal of Economic Theory, Journal of Law, Economics, and Organization, Management Science.

Program Committee

Western Finance Association, European Finance Association, Midwest Finance Association, Financial Intermediation Research Society.

**Publications**

- (1) [\*\*The Unintended Consequences of the Zero-Lower Bound\*\*](#) (with Marcin Kacperczyk)

Accepted by the *Journal of Financial Economics*

**Research Papers**

- (2) [\*\*Monetary Policy Pass-Through: Household Consumption and Voluntary Deleveraging\*\*](#)

(with Amir Kermani and Rodney Ramcharan)

Revision requested by *The American Economic Review*

- (3) [\*\*Credit-Induced Boom and Bust\*\*](#)

(with Amir Kermani)

Revision requested by *The Review of Financial Studies*

- (4) [\*\*Collateral Shortages and Intermediation Networks\*\*](#)

(with Alireza Tahbaz-Salehi)

Revision requested by *The Review of Financial Studies*

- (5) [\*\*Market Turmoil and Destabilizing Speculation\*\*](#)

- (6) [\*\*The Importance of Unemployment Insurance as an Automatic Stabilizer\*\*](#)

(with Amir Kermani)

- (7) [\*\*Deregulation, Competition and the Race to the Bottom\*\*](#)

(with Amir Kermani and Sanket Korgaonkar)

- (8) [\*\*The Value of Trading Relationships in Turbulent Times\*\*](#)

(with Amir Kermani and Zhaogang Song)

- (9) [\*\*Information Sharing, Social Norms and Performance\*\*](#)

(with Marshall Van Alstyne)

Revision requested by *Management Science*

(10) [Financial Disclosure and Market Transparency with Costly Information Processing](#)

(with Marco Pagano)

(11) [Fake Alphas, Tail Risk and Reputation Traps](#)

**Research in Progress**

Unconventional Monetary Policy and the Allocation of Credit  
(with Amir Kermani and Christopher Palmer)

The Real Effects of HARP  
(with Amir Kermani and Gene Amromin)

**Teaching**

MBA Elective - Advanced Corporate Finance

Cases:

*Six Flags: The Bankruptcy Roller-coaster*  
Columbia CaseWorks ID#160302 with Barry Ridings (Vice Chairman of Lazard Frères & Co. LLC)

*Alibaba: "Don't Facebook This"*  
with Doug Baird and Sarah Bayer (Chairman and Director of Citi's Equity Capital Markets Group)

**AMIR KERMANI**  
[kermani@berkeley.edu](mailto:kermani@berkeley.edu)

**OFFICE CONTACT INFORMATION**

Haas School of Business  
University of California, Berkeley  
545 Student Services Building #1900  
Berkeley, CA 94720-1900

Phone: 510-664-4139  
[kermani@berkeley.edu](mailto:kermani@berkeley.edu)  
<http://faculty.haas.berkeley.edu/amir/>

**ACADEMIC POSITION**

Assistant Professor  
Haas School of Business, UC-Berkeley  
Department of Economics, UC-Berkeley (by courtesy)

July 2013-present  
July 2013-June 2015

**EDUCATION**

Ph.D in Economics, Massachusetts Institute of Technology, June 2013.  
M.S. in Economics, London School of Economics and Political Science, June 2008.  
M.S. in Managerial Economics, Sharif University of Technology, June 2007.  
B.S. in Electrical Engineering, University of Tehran, June 2006.

<b>GRANTS, FELLOWSHIPS, HONORS, AND AWARDS</b>	NBER Household Finance Grant Award (Sloan Foundation) (with Marco Di Maggio) Clausen Center Grant MIT Department of Economics Fellowship HAND Foundation Scholarship Ithmaar Bank Scholarship Gold Medal of 33 <sup>rd</sup> International Physics Olympiad (IPhO 2002)	2013-2014  2013-2014 2008-2009 2008 2007 2002
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<b>TEACHING EXPERIENCE</b>	ECON 236 B: Aggregate Economics, PhD (7/7) PHDBA 289A: Real Estate Seminars, PhD (7/7) UGBA 183: Real Estate Finance and Securitization, Undergraduate (6.4/7) MBA/EWMBA 183: Real Estate Finance and Securitization, MBA
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<b>PUBLICATIONS</b>	<b>“The Value of Connections in Turbulent Times: Evidence from the United States”</b> , with Daron Acemoglu, Simon Johnson, James Kwak and Todd Mitton. <i>Journal of Financial Economics</i> , forthcoming.
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<b>WORKING PAPERS</b>	<b>“Monetary Policy Pass-Through: Household Consumption and Voluntary Deleveraging”</b> with Marco Di Maggio and Rodney Ramcharan <i>R&amp;R American Economic Review</i>  <b>“Credit Induced Boom and Bust”</b> with Marco Di Maggio <i>R&amp;R Review of Financial Studies</i>  <b>“The Importance of Unemployment Insurance as an Automatic Stabilizer”</b> with Marco Di Maggio
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**“Unconventional Monetary Policy and the Allocation of Credit”** with Marco Di Maggio and Christopher Palmer

**“Does Skin-in-the-Game Affect Security Performance? Evidence from the Conduit CMBS Market”** with Adam Ashcraft and Kunal Gooriah

**“Cheap Credit, Collateral and the Boom-Bust Cycle”**

**“Deregulation, Competition and the Race to the Bottom”** with Marco Di Maggio and Sanket Korgaonkar

**“The Value of Trading Relationships in Turbulent Times”** with Marco Di Maggio and Zhaogang Song.

**RESEARCH IN  
PROGRESS**

**“The Real Effect of HARP”** with Gene Amromin and Marco Di Maggio

**CONFERENCES  
AND SEMINARS**

Northwestern Kellogg\*, Federal Reserve Board\*, USC\*, NBER 2016  
Monetary Economics spring meeting\*, St. Louis Fed\*,  
Singapore Management University\*, National University of  
Singapore\*

Stanford GSB, Harvard Economics department and HBS, NY 2015  
Fed, SED 2015, NY Fed- NYU Conference on Mortgage  
Design, NY Fed-NYU conference on Financial Intermediation,  
NBER SI Monetary Economics, NBER SI Corporate Finance,  
NBER SI Household Finance, Economic Network and Finance-  
LSE, Macro-Finance Society at the Boston Fed, 11th CSEF-  
IGIER Symposium on Economics and Institutions, CFPB  
Research Conference, Jackson Hole Finance Conference, UBC  
Winter Finance Conference, Adam Smith Conference Corporate  
Finance, Real Estate Symposium,, FIRS 2015, 2015 UNC/Duke  
Corporate Finance Conference

NBER Monetary Economics Fall meeting, San Francisco 2014  
Federal Reserve, UC Berkeley, Real Estate Summer  
Symposium, Orfalea College of Business, NBER SI Monetary  
Economics, NBER SI Real Estate, Conference on Housing and  
Monetary Policy (SF Fed), UCSC

University of Michigan, UC Berkeley Economics Department, 2013  
UC Berkeley Haas, London School of Economics, London  
School of Business, UT Austin McCombs, Federal Reserve  
Board

**REFEREEING**

American Economic Review, Econometrica, Journal of Political Economy,

Review of Economic Studies, Journal of Finance, Review of Economics and Statistics, American Economic Journal: Economic Policy, Review of Finance, Journal of Public Economics, Quantitative Economics, Journal of Law, Economics, and Organization

**CONFERENCE  
DISCUSSIONS**

Meisenzahl, Ralf R. and Rustam Irani, “Loan Sales and Bank Liquidity Management”, Federal Reserve Day Ahead Conference, Jan 2016.

Favara , Giovanni and Marisassunta Gianetti, “Forced Asset Sales and the Concentration of Outstanding Debt: Evidence from the Mortgage Market”, AFA 2016

Garriga , Carlos, Finn E. Kydland and Roman Sustek, , “Mortgages and Monetary Policy”, Monetary Policy and the Distribution of Income and Wealth Conference, St. Louis Fed, Sep 2011.

Chi-Fong Kuong , John, “Self-fulfilling Fire Sales: Fragility of Collateralised Short-term Debt Markets”, 2nd Conference on “Bank performance, financial stability and the real economy”, Capri, Italy, June 2016.

Agarwal, Sumit, Jessica Pan, and Wenlan Qian. “Age of Decision: Pension Savings Withdrawal and Consumption and Debt Response.” , NBER East Asian Seminar on Economics, in SF Fed, June 2015

Christensen, Jens HE, Jose A. Lopez, and Glenn D. Rudebusch. "A probability-based stress test of Federal Reserve assets and income." . NBER East Asian Seminar on Economics, in SF Fed, June 2015

Monica Piazzesi and Martin Schneider. “Housing and Macroeconomics”, Handbook of Macroeconomics Volume 2 in Stanford, April 2015

Adelino, Manuel, Antoinette Schoar, and Felipe Severino. “Changes in buyer composition and the expansion of credit during the boom”, UNC, April 2015

Amromin, Gene, and Caitlin Kearns. "Access to Refinancing and Mortgage Interest Rates: HARPing on the Importance of Competition.", MFA meeting, Chicago, March 2015.

Giglio, Stefano, Matteo Maggiori, and Johannes Stroebel, “Very long-run discount rates” , NBER Financing Housing Capital Meeting in Chicago, April 2014