The monetary policy transmission that broke: the U.S. interagency conflict on mortgages

Hans-Joachim Dübel

26 September 2011

Ad-hoc commentary

Abstract

- The predominant U.S. callable fixed-rate mortgage product has been the primary monetary policy transmission mechanism during past monetary policy easing cycles. During this cycle, the pass-through of lower interest rates through refinancing has been limited due tore-underwriting which results in large upfront frictions. This stands in contrast to the predominant Western European index-linked products where pass-through is automatic, irrespective of leverage.
- Central are the strategies of the two key agencies absorbing mortgage credit risk, Fannie Mae and Freddie Mac. They have tightened credit standards and created new fees during the crisis in direct conflict with pump-priming efforts of the Federal Reserve and other agencies.
- The most likely solution to the conflicting strategies is to order Fannie Mae and Freddie Mac to accept existing borrowers that are current on their loans for refinancing. This will result in a reduction of unrealized capital gains at the Federal Reserve and other investors holding mortgage bonds that had built up due to low refinancing activity.
- The case delivers an interpretation of a liquidity trap for monetary policy that is resulting from high debt levels and pro-cyclical product characteristics and underwriting standards.

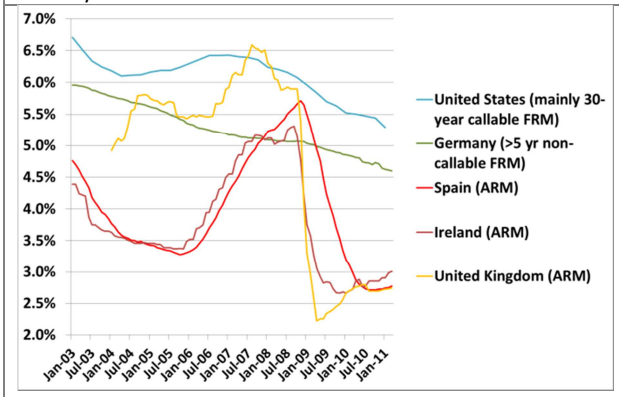
Mortgage product set and monetary policy transmission

At least in one respect, Western European countries facing their own severe housing market crises developing since 2007 have done better than the United States: mortgage interest rates paid by the existing borrower population have declined far more decisively, providing relief for borrower cash flows even as debt levels remained high and many consumers owe more than the house is worth.

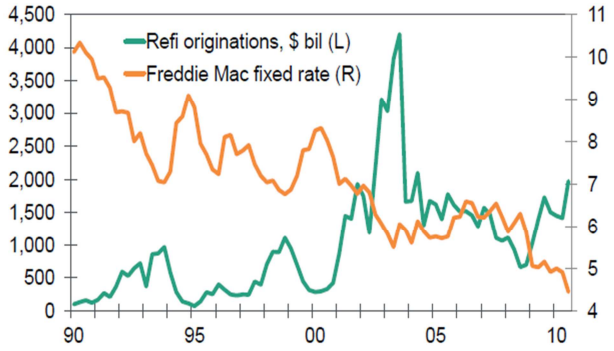
Fully comparable data on interest rates applicable to the existing mortgage stock are not available. Yet a comparison between the interest rates paid in the portfolio on the main products used in selected European countries and a measure of the U.S. portfolio average rate as shown in Figure 1 captures the order of magnitude of the difference in interest rate burden, as well as its time dynamics.

Figure 1. Western European vs. U.S. mortgage interest gap, U.S. refinancing history

Interest rates on outstanding loans in the dominant national mortgage portfolios in four European countries and the U.S., January 2003- March 2011



U.S. headline mortgage rates and refinancing originations 1990 – 2010



Notes: LHS – outstanding loans for housing purposes >5 years. ARM – adjustable rate mortgages defined as interest rate adjustment of 1 year and below. FRM – fixed-rate mortgage, with lower interest rate adjustment frequency. Callable FRM carry the prepayment option against an interest rate markup, non-callable FRM do not and the interest rate fixing period is therefore usually shorter. UK and Ireland data mix index tracker and reviewable-rate portfolio, Spain index-linked (Euribor). RHS – 30 year fixed-rate mortgage guaranteed by Freddie Mac.

Sources: LHS - Germany (Series SUD008, Bundesbank), United Kingdom (Series CFMBI64, Bank of England), Ireland (Series MIR.M.IE.B.A22.J.R.A. 2250.EUR.O, European Central Bank), Spain (Series MIR.M.ES.B.A22. J.R.A.2250.EUR.O, European Central Bank), United States – Bureau of Economic Affairs, USMIRATE series. ECB data not available prior to 2003. LHS – DeRitis and Zandi (2011).

As of mid-2011 Irish, British or Spanish average mortgage rates paid by consumers are in the range of 2.5 - 3% while their U.S. counterparts, despite record low monetary policy and federal debt rates, face interest rates well in excess of 5%. German mortgagors lie in the middle with ca. 4.5%. The key reason for the differences is unlikely to be credit quality: in the U.S. subprime loans have either refinanced into federally insured low-interest rate loans, or defaulted. It is mainly the difference in the predominant products between Western Europe and the United States.

In Europe mortgage products are typically adjustable-rate (e.g. 3 months in Ireland, the UK and 1 year in Spain; in Eastern European countries in addition often tied to foreign currencies); the jurisdictions using longer rate fixings are now essentially limited to the 'core' of France, Belgium, the Netherlands, Denmark and Germany.[1] Even there, fixing is usually not to maturity but rather to term, e.g. typically for 10 years in Germany to be rolled over. Especially the adjustable-rate products lead to a swift pass-through of monetary policy rates when they are tied to an interbank index, let alone when policy rates themselves are the mortgage index. The credit-critical vintages of consumers that bought at peak house prices during 2006 – 2008 benefited in much of Western Europe from a simultaneous peak in index-linked lending: some four fifth of adjustable-rate lending in the UK and almost all lending in Spain in the period had been linked to interbank rates, while approx. two thirds of the Irish portfolio were tied to the ECB refinancing rate.

The dark side for lenders using indexation is the risk of severe profitability crunch: this exemplified in Ireland, where in the one third of the portfolio in which 'reviewable' rates adjusted quarterly by lender

[1] For a review, see Dübel and Rothemund (2011).

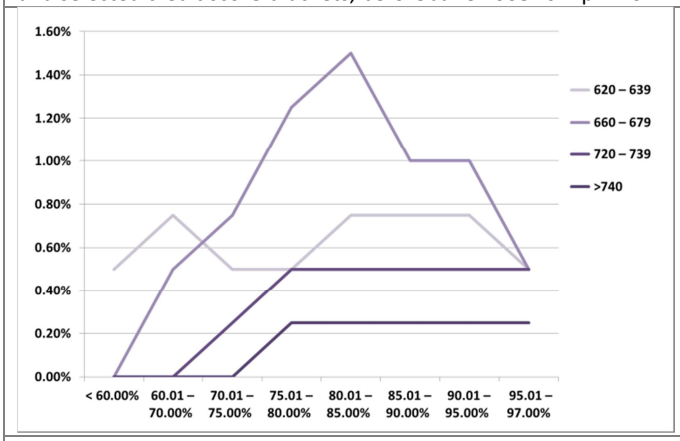
discretion rather than by using the ECB index consumers pay far more - between 5 and 6% instead of between 2 and 2.5%. Even such reviewable rates are not likely to match full lender cost of funds during the current crisis.

Agencies in conflict: prepayments have been prevented on U.S. fixed-rate mortgages

In the U.S. the standard product is the callable 30-year fixed-rate mortgage. It carries the prepayment option, a complex American call option that turns a fixed-rate loan more expensive for the borrower against providing him with the legal right (option) to refinance as interest rates drop. The product thus not only comes with a higher interest rate because they are fixed for longer terms. It also requires an option premium to be paid by consumers that compensates investors for the risk of being forced to reinvest at lower interest rates. The effect of both cost components – curve cost and options cost - is higher nominal mortgage rates, as shown in Figure 1.[2]

Figure 2. Fannie Mae Pro-Cyclical Credit Tightening

Change in haircuts charged from originators by loan-to-value ratio and selected credit score brackets, before June 2008 vs. April 2011



Notes: x-axis labels denote loan-to-value ratio brackets, lines denote credit score brackets (FICO), additional haircuts in % of the loan amount.

Source: Fannie Mae, own calculations.

The refinancing wave of 2002 and 2003 showed the value to consumers of paying higher rates today for potentially lower rates tomorrow. As the right-hand side of Figure 1 shows, a historically unprecedented prepayment wave materialized when both short- and long-term interest rates declined (right-hand side). As a result of massive refinancing, average portfolio mortgage interest rates paid by U.S. consumers contracted by almost 150 basis points (1.5%, see left-hand side). This laid the ground for the following house price boom. According to Boyce (2011), upward of two thirds and possibly more than 85% of U.S. mortgages have prepaid during the time. With assistance from international investors that stepped up their investment in U.S. federal and agency debt after September 11, 2001, monetary policy worked as in the textbook.

As long as house prices in the U.S. appreciated, which was even the case during 2001-2003, loan-to-value ratios – the key underwriting variable in mortgage finance - were declining. Consumers were invited by mortgage lenders and credit brokers, who both stood to earn loan origination fees, to prepay, while the ultimate takers of credit risk in the U.S. system (see below) were indifferent. Yet, as more and more borrowers used the new lower interest rates to increase debt levels in their house, and new house purchases became unaffordable at rising prices unless higher debt levels were taken up, the system gradually moved into over-indebtedness.

That transmission mechanism has stopped working.[3] When house prices collapsed in 2007 and 2008, loan-to-value ratios in the outstanding U.S. mortgage stock ballooned, with by the end of 2010 nearly

[2] To get an an order of magnitude of options cost, compare the U.S. line in Figure 1 to the one for Germany, where mortgages with rates fixed to term carry curve cost, but not options cost, because they are usually non-prepayable.

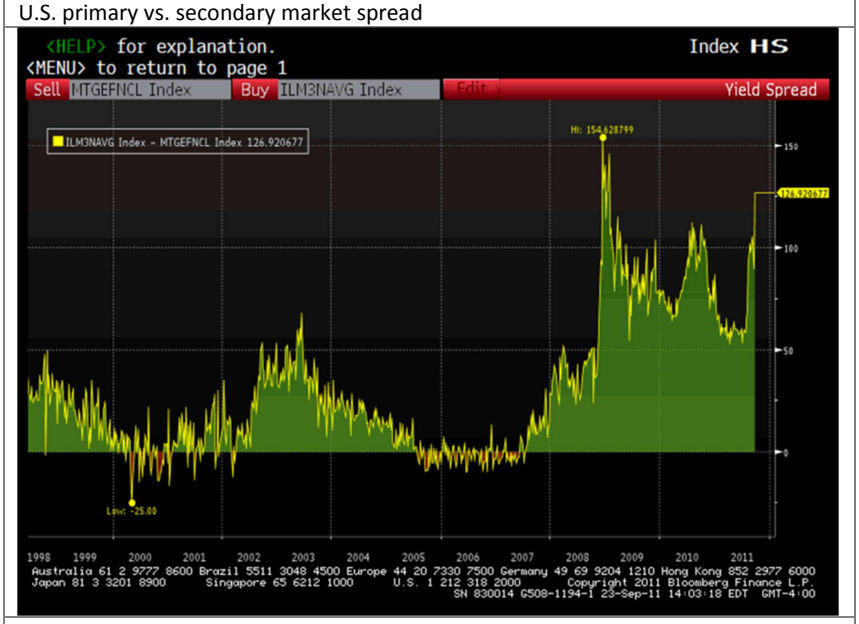
[3] Boyce, Hubbard and Mayer (2011) try to evaluate the figures: "According to data from HMDA [Home Mortgage Disclosure Act], about 25 million mortgages were refinanced and 10 million more were originated for home purchase in 2002 to 2003, out of a stock of about 47 million mortgages. While some of these mortgages likely overlap, these numbers suggest that upwards of two-thirds of the stock of home mortgages were originated in the last trough of mortgage rates. By comparison in

30% owing more than the house is worth. Such increases in loan-to-value ratios are always a credit concern, but these concerns do not pre-empt interest rate pass-through in the case of index-linked adjustable-rate products. However, in the case of the U.S. fixed-rate product, despite the prepayment option, lenders must re-underwrite borrowers before these can take advantage of an interest rates decline, i.e. verify income, check credit scores and loan-to-value ratios on their consistency with underwriting guidelines.

Underwriting policy in the U.S. mortgage market is dominated by two de-facto fiscal policy agencies: Fannie Mae and Freddie Mac. Both agencies entered federal conservatorship in September 2008 when they ceased to be merely 'government-sponsored' enterprises (GSE). Before the year 2008 had ended, both agencies had tightened their credit standards, raised bond guarantee fees and increasing the up- front fees paid by borrowers for loans with higher loan-to-value ratios and lower credit scores. While this happened, the Federal Reserve in parallel reduced policy rates to near zero and the Federal Housing Administration, the low-income mortgage lending agency, encouraged the refinancing of subprime loans. In effect, the right arm of the U.S. government was leading the credit crunch while her left arm was trying to ease credit conditions.

Figure 3. U.S. mortgage industry increasingly uncompetitive

U.S. primary vs. secondary market spread



Notes: Spread between mortgage loans issued by banks eligible for and mortgage-backed securities issued by Fannie Mae and Freddie Mac.

Source: Bloomberg, Boyce (2011)

Four years later, by the fall of 2011, the situation has not gotten worse: house prices have further declined and unemployment has risen, Fannie Mae's and Freddie Mac's guarantee fees have risen, underwriting standards have tightened and haircuts have further increased. Figure 2 shows the total change of haircut levels between 2008 and 2011. While the Federal Reserve in addition to keeping policy rates low has embarked upon an extensive mortgage bond purchase program supporting Fannie Mae's and Freddie Mac's funding side, both mortgage credit agencies continue to tighten mortgage credit availability. By September 2011, their regulator, the Federal Housing Finance Agency (FHFA), is discussing a further increase in guarantee fees in line with a January 2011 administration proposal to de-nationalize the U.S. mortgage market. The proposal intends to attract private risk-taking into mortgages via higher fees; as prices risk stays high through 2011. This appears ill-timed at best. [4]

2010 and the first five months of 2011, fewer than 10 million mortgages were originated according to Lender Processing Services, about one-third the rate of the previous refinancing boom."

[4] Source: Statement of Edward J. Demarco, head of the Federal Housing Finance Agency, on CNBC on September 19, 2011.

In addition, the post-crisis bank consolidation process has led to a far less competitive mortgage origination process. The spread between mortgage loan rates charged by banks eligible for Fannie and Freddie bond insurance, and the mortgage bonds issued by the agencies, has ballooned from some 30 bp at the end of 2007 to as much as 150 basis points today. At the same time, banks and other investors, for example the Federal Reserve, benefit from slow prepayments, which allow them to benefit longer from holding high-yield mortgage bonds as well as mortgage servicing. Due to lower prepayments than embedded in the typical pricing models, mortgage bond prices during 2011 are artificially inflated by some 7% (see Figure 4 below).

Despite historical lows in monetary policy rates, therefore, far fewer U.S. borrowers than in 2002 and 2003 took advantage through prepayments when the Federal Reserve cut down interest rates again to record lows after 2007 (right-hand side in Figure 1). Headline mortgage rates, while declining, remain higher than they should be due to lack of bank competition, and far fewer mortgage borrowers can take advantage of the headline due to the credit crunch policies implemented by Fannie Mae and Freddie Mac. This has dramatically reduced the effectiveness of monetary policy to support household balance sheets, consumption and aggregate demand.

Mass refinancing program as a resolution of the agency conflict

An agency theorist reviewing Fannie Mae and Freddie Mac's conflict of goals with the Federal Reserve would conclude that the main reason is implausible charter restrictions. In fact,

- unlike other mortgage financiers in the world, as bond guarantors Fannie and Freddie cannot take advantage of a steepening yield curve created by the Federal Reserve, via profits generated from an asset-liability mismatch, to compensate for ballooning credit cost.[5] Facing mounting public alarm over credit while being forced to refinance ever increasing shares of new originations, the decision to keep tight credit policies appears perfectly rational in the individual agency perspective. Also, by restricting the ability of existing, current borrowers to refinance, the agencies can make their own portfolios more profitable.
- the Federal Reserve, through her massive investment in mortgage bonds and low cost short-term funding is realizing the asset-liability mismatch profits that Fannie Mae and Freddie Mac are denied by their charter. At the same time, the Fed – unlike the European Central Bank - has avoided taking credit risk that in the U.S. case could help to reduce credit cost for her sister agencies.

Yet, fixing the general U.S. agency setup after decades of debate especially on Fannie and Freddie is hard to do. The gradual alternative would entail cutting back on Federal Reserve (and by extension banks') interest rate profits while inducing Fannie and Freddie to take greater credit risk via an order of the administration, its de-facto owner. This is the essence of a mass refinancing program proposal put forward by Boyce, Hubbard, and Mayer (2011).

Specifically, the authors ask for waiving all traditional underwriting limits and documentation standards for a mortgage prepayment except for the condition that the consumer is at least three months current on the loan. To prevent an expansion of the risk to taxpayers, this would be limited to only those loans

[5] The history behind this statutory rigidity is Fannie Mae and Freddie Mac's vast balance sheet expansion during the 1990s and early 2000s, which the Bush administration considered as risky and curbed in 2003. As the balance sheets are gradually unwound, tight asset-liability management restrictions remain in place and leave little room for intermediation profit.

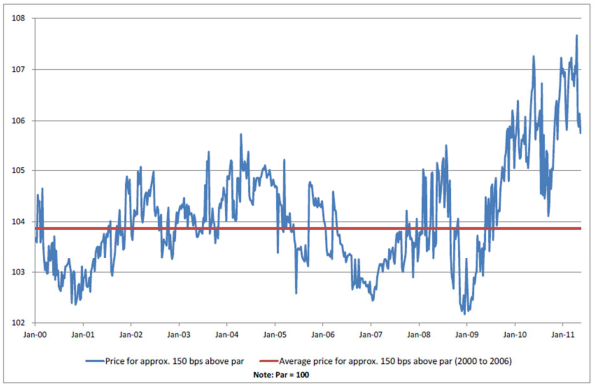
that currently benefit from an agency guarantee. In particular absolute loan-to-value ratio limits and pricing policies, as the haircuts charged for high loan-to-value ratios from originators, are proposed to be waived to allow the inclusion of highly leveraged or under water home financings.

Boyce, Hubbard and Mayer suggest that the program would enable some 25 million households currently prevented from refinancing to prepay their loans. This would release some 65 billion USD annually for consumption/investment and deliver substantial net savings for the U.S. government. Estimates made by Remy, Lucas and Moore (2011) for the Congressional Budget Office argue for additional gains due to lower incidence of delinquency and default. The CBO report argues for a smaller amount of borrowers being able to refinance, yet, the difference seems to crucially hinge on the base assumptions of U.S. Treasury bond rates and the value of eliminating the underwriting frictions. Other estimates by Wall Street analysts fall in the range of 20-50 billion USD annually. As the boom in Treasuries continues during the fall of 2011 it seems increasingly likely that the positive effects of mass refinancing could be large and substantial.

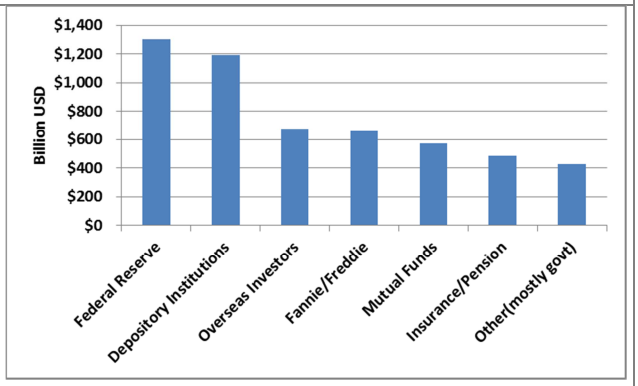
When using the U.S. government balance sheet for pump-priming purposes during crisis, a second key question is international investor response. These would not benefit from credit risk mitigation and pump-priming effects associated with the program. The distribution of mortgage-backed securities (MBS) issued by Fannie Mae and Freddie Mac is shown at the right-hand side in Figure 4 . Because international investors only own some $675 billion in agency MBS for structural reasons[6], the risk of adverse investor reaction that could impair the general U.S. government's liquidity risk picture is limited.

Figure 4. Recent Agency MBS Pricing History, Investor Distribution

Pricing history of Fannie Mae – guaranteed 30-year MBS – 2000 – 2011



Ownership of Fannie / Freddie – guaranteed MBS



Sources: LHS – Remy, Lucas and Moore (2011), based on Bloomberg data. RHS – DeRitis and Zandi (2011) estimate based on data provided by Moody's Analytics and Inside Mortgage Finance.

Regarding the cost-benefit picture for U.S. banks, an essential part of Boyce, Hubbard and Mayer (2011) is the reduction in so-called 'Reps and Warranties' liability. Banks are worried that hundreds of billions of USD worth of loans may be contested and put back to their balance sheets. Also, with lower debt

6 Note that only the prices of mortgage-backed securities, i.e. pools of loans carrying the prepayment option, would suffer from larger prepayments, and not other bonds issued by the agencies that are not prepayable. Because of their lesser complexity, the latter are more widely held with international investors than the former.

service the large amounts of second mortgage and other 'home equity' loans could see improved performance.
Concerning Fannie Mae and Freddie Mac's credit risk position, reducing debt service could reduce the probability of default in the portfolio while the loss given default exposure is unlikely to materially change as they keep funding the same properties with the same loan amounts. Re-subordination of second mortgages held by banks would be one of the few preconditions for the agencies. With substantially lower debt service, there could be room for a moderate increase of guarantee fees that compensates for losses on mortgage bonds held on their own balance sheet. Other government sectors could benefit from greater resilience of the housing market and consumption. The largest net loser in government would be the Federal Reserve whose mortgage bond holdings would reduce in value.

U.S. President Obama after Labor Day 2011 announced an initiative in the same spirit of the above proposal, whose detail is still under development. It would expand the refinancing initiative already targeted to low-income mortgage borrowers (HARP) to the middle-income market. In contrast to refinancing, larger scale loan modification beyond the relatively small and so far unsuccessful HAMP program has disappeared from the agenda. As of July 2011 the Case Shiller house price index is down 4.3% over July 2010. The number of homeowners owing more debt than their house is worth that stood just under 20% in Q4 2010 has likely further risen. It is questionable whether cash flow relief alone, even if at larger scale, will be sufficient to diffuse the ongoing debt crisis, in particular when house prices do not recover. Yet, it would be hard to forgive if ongoing misalignment of federal agency incentives would preempt one of the few options for supporting the housing market that do not burden the federal budget significantly.

Conclusion

The interagency conflict described here delivers an interpretation of a liquidity trap for monetary policy that is resulting from over-indebtedness and its interaction with traditional mortgage lending standards and the main mortgage product in use. The conclusion is that expanding liquidity ought to go along with revisiting and if necessary fast-track modifying these structural credit market features. Yet, as the case shows, this requires a level of co-ordination that is hard to reach even in the case of public agencies, let alone between public agencies and commercial banks.

Clearly, modifying products and underwriting standards for the sake of enabling greater pass-through of lower rates ought to remain a crisis resolution feature. In fact, pass-through via product features such as prepayment and downward rate adjustment has been directly responsible for house price inflation both in the U.S. and Western Europe that led directly to the current crisis. Arguably, the U.S. could have experienced an even greater house price boom-bust and resulting financial crisis if adjustable-rate products that provide greater pass-through in crisis would have completely dominated the mortgage market, as e.g. was the case in Ireland. Yet, this would have not been a desirable outcome. The quest for optimal product and underwriting design balancing the risks therefore is still on.

Sources

BOYCE, ALAN (2011), "Time to Fix the US Mortgage Market", Presentation, The Absalon Project, 22 August. Download from: HTTP://WWW4.GSB.COLUMBIA.EDU/REALESTATE/RESEARCH/HOUSINGCRISIS/

BOYCE, ALAN, HUBBARD, GLEN AND CHRIS MAYER (2011), "Streamlined Refinancings for up to 37 Million Borrowers", draft, 24 August.

DERITIS, CHRIS AND MARK ZANDI (2010), "Restringing HARP: The Case for More Refinancing Now", *Moodys Economic and Consumer Credit Analytics*, 7 October.

DÜBEL, ACHIM AND MARC ROTHEMUND (2011), "A New Mortgage Credit Regime For Europe – Setting the Right Priorities", *CEPS special report*, 6 July. Download: http://ceps.be/book/new-mortgage-credit-regime-europe-setting-right-priorities

REMY, MITCHELL, LUCAS, DEBORAH AND DAMIEN MOORE (2011), " An Evaluation of Large-Scale Mortgage Refinancing Programs", Congressional Budget Office Working Paper Series, Working Paper 2011-4, September.