



Contents lists available at ScienceDirect

Journal of Asian Economics



Full length Article

## Does Money Have a Role in Monetary Policy for Price Stability under Inflation Targeting in Thailand?

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### ARTICLE INFO

#### Article history:

Received 8 August 2017

Received in revised form 18 October 2017

Accepted 20 October 2017

Available online xxx

#### JEL Classification:

C22

C52

E41

#### Keywords:

ARDL modelling

Inflation targeting

Money

Stability of the money demand function

Monetary policy for price stability

SVAR modelling

Thailand

### ABSTRACT

This paper deploys Thai quarterly data for the study period 1999q1–2014q4 to econometrically investigate the proposition that money growth is an important, if not the sole, determinant of inflation under inflation targeting and that *the money growth-inflation relation is not conditional on the stability of the money-demand function*. The autoregressive distributed-lag (ARDL) bounds-testing results suggest that, across the study period, the Thai money stock (narrow or broad), real output, prices, interest rates and exchange rates maintained a long-run equilibrium relationship. The associated error-correction model of inflation confirms the cointegral relationship among money (narrow or broad), real output, prices, interest rates and exchange rates. It also suggests that money growth has a significant distributed-lag impact on inflation. The presence of this money growth-inflation relationship was associated with a stable narrow money-demand function, whereas the broad money-demand function remained unstable. These results for the study period are consistent with the view that the causal relationship between money growth and inflation holds in Thailand under inflation targeting when the Bank of Thailand deploys a short-term policy interest rate, rather than a monetary aggregate, as the instrument of monetary policy and that this relationship is not conditional on the stability of the money-demand function.

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## 1. Introduction

The debate surrounding the role of money in monetary policy for price stability<sup>1</sup> is far from over, even when countries such as Thailand – whose capital markets are relatively shallow and whose financial institutions and systems are relatively less-developed – have emulated the shift of more developed economies over the last few decades to deploy a short-term policy interest rate as the instrument of monetary policy<sup>2</sup> under inflation targeting. As a strategy of monetary policy,

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<sup>1</sup> Price stability is defined in this study as low and stable inflation. Price stability is important because the presence of economic and financial stability is known to promote productive investment and, in turn, economic growth (Faria & Carneiro, 2001; Fischer, 1993, 1996; Schwartz, 1995). Accordingly, best-practice monetary policy aims to keep both the mean and variance of inflation within the bounds of their 'right levels'. The recent literature also emphasises that the conditional volatility of inflation should be kept to levels that keep the real interest rate and the real exchange rates stable. What remains to be determined is the appropriate strategy of monetary policy (exchange-rate targeting, monetary targeting or inflation targeting) to sustain price stability, especially in developing countries, which remain exposed to shocks of both domestic and foreign origin (Faust & Henderson, 2004; de Mendonca & de Guimaraes e Souza, 2012; Hossain, 2015).

<sup>2</sup> For discussion on the variants of inflation targeting and the inflationary experiences of many countries under inflation-targeting, see Svensson (2011) and the references therein.

<https://doi.org/10.1016/j.asieco.2017.10.003>

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inflation targeting is considered an improvement over monetary targeting, which deploys a monetary aggregate as the instrument of monetary policy (Walsh, 2009; Svensson, 2011; de Mendonca & de Guimaraes e Souza, 2012). The introduction of inflation targeting in many countries since the 1990s has indeed created an impression that money does not matter insofar as inflation, or its control, is concerned (Svensson, 2011; Woodford, 2000). However, this view has drawn criticism from many prominent economists because money and prices remain causally related, both in the short run and long run, irrespective of the strategy of monetary policy (Dwyer & Fisher, 2009; Lothian, 2014). Moreover, the recent literature strongly suggests that the money growth-inflation relationship is not conditional on the stability of the money-demand function (Lucas, 1996; King, 2003; McCallum & Nelson, 2011).<sup>3</sup>

In Thailand, the role of monetary policy in price stability has increased since the East Asian financial crisis of 1997–1998. By implementing the International Monetary Fund's stabilization program on July 2nd 1997, Thailand stopped pegging its currency, the baht, to the US dollar, replacing the peg with a system that combined a 'managed float' exchange-rate regime with some episodic controls over international capital flows.<sup>4</sup> The new exchange-rate system equipped the Bank of Thailand (the central bank of Thailand) with some autonomy, which it could deploy to establish a rule-based monetary policy for price stability. Operating under some form of monetary targeting from July 1997 to May 2000, the Bank was successful in stabilising the price level. It then switched its monetary policy strategy to one of 'flexible' inflation targeting, which was meant to keep inflation stable without affecting output. The main reason for this shift away from monetary targeting was the alleged instability in the money-demand function, owing to the financial crisis of 1997–1998 that 'arguably' loosened the causal relation between money growth and inflation.<sup>5</sup> Discarding the monetary aggregate, in May of 2000, the Bank of Thailand began deploying a short-term policy interest rate (i.e., a one-day bilateral repurchase rate) to manage aggregate demand despite continuing uncertainty in the transmission mechanisms of monetary policy due to the underdeveloped state of the Thai money and capital markets. Under these circumstances, one major outcome of inflation targeting was excessive volatility of money growth that kept the rate of inflation volatile. Inflation volatility in turn made the real interest and exchange rates volatile, adversely affecting economic growth (Hossain, 2015). This has raised the crucial question of how effectively a short-term policy interest rate can be deployed to demand management in the unstable economic environment of a country, such as Thailand, whose managed float leaves it exposed to external shocks. Moreover, the question remains as to whether, in Thailand, the real policy interest rate is adjusted using the Taylor principle, a principal theoretical requirement under a forward-looking inflation targeting strategy for price stability (Baqir, 2002; Charoenseang & Manakit, 2007; Disyatat & Vongsinsirikul, 2002). This question is paramount; when monetary policy is not applied in a systematic way following a simple, transparent rule, it may lead to or magnify the problems posed by domestic- and foreign-generated boom-bust cycles (Taylor, 2012).

This paper employs quarterly data for Thailand over the period 1999q1–2014q4 to econometrically investigate the proposition that money growth remains an important, if not the sole, determinant of inflation even when a country operates under inflation targeting with a short-term policy interest rate as the instrument of monetary policy and that the money growth and inflation relation holds irrespective of whether the money-demand function remains stable.<sup>6</sup> The remainder of the paper is organised as follows: Section 2 outlines a monetary framework for establishing some testable relationships – contemporaneously and dynamically – among money, output, prices, interest rates and exchange rates. Section 3 deploys the autoregressive distributed-lag (ARDL) bounds-testing approach to establish long-run equilibrium relationships among money, real output, prices, interest rates and exchange rates. The associated error-correction model of inflation is then used to identify the sources of inflation and for ex-post forecasting of inflation. Section 4 outlines a structural vector autoregressive (SVAR) model for two purposes: (1) to investigate the dynamic interactions among money, real output, prices, interest rates and exchange rates in the presence of two external exogenous variables – namely, US manufacturing output and the US Treasury bill rate<sup>7</sup> – and (2) to analyse the impulse responses and forecast-error-variance decompositions of all endogenous variables in the system. Section 5 investigates the issue of instability in the money-demand function in Thailand and draws inferences concerning whether the money growth-inflation relationship in this country is conditional on the stability of the money-demand function. Section 6 summarises the key findings, draw policy implications and present concluding remarks.

<sup>3</sup> Although the money growth-inflation relationship remains strong in high-inflation economies, the relationship could be strong even in low- or moderately-high-inflation economies.

<sup>4</sup> The paper uses the concept of the managed float, rather than the full-float, as the better representation of the present exchange-rate regime in Thailand.

<sup>5</sup> 'Arguably' according to the Bank of Thailand annual reports published around this time and the Bank of Thailand (2008). Section 5 of this paper details an investigation of money-demand behaviour and its stability in Thailand.

<sup>6</sup> The paper has estimated a real-interest-rate reaction function to determine whether the Bank of Thailand follows the Taylor principle as required under a rule-based, forward-looking inflation targeting for price stability. The empirical results (not reported to conserve space) suggest that the Bank of Thailand does not conduct rule-based, forward-looking inflation targeting.

<sup>7</sup> To represent the foreign interest rate, the paper uses alternatively, in different monetary relations, the US Treasury bill rate, the US Federal funds rate or the US government bond yield. US manufacturing output is used as a proxy for foreign real output.

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