Kingston University London

Economics Discussion Papers 2017-1

FINANCIALIZATION: DIMENSIONS AND DETERMINANTS. A CROSS-COUNTRY STUDY

Ewa Karwowski — *Kingston University London, UK*

Mimoza Shabani — *University of East London & SOAS London, UK*

Engelbert Stockhammer — *Kingston University London, UK*

12 January 2017

Abstract

The financialisation literature has grown over the past two decades. While there is a generally accepted definition, effectively financialisation has been used to describe very different phenomena. This paper proposes a multi-faceted notion of financialisation by distinguishing between financialisation of non-financial companies, households and the financial sector and using activity as well as vulnerability measures of financialisation. We identify seven financialisation hypotheses in the literature and empirically investigate them in a cross-country analysis for 17 OECD countries for the 1997-2007 period. We find that different financialisation measures are only weakly correlated, which suggests the existence of distinct financialisation processes. There is strong evidence across all sectors that financialisation is closely linked to asset price inflation and correlated with a debt-driven demand regime. Financial deregulation encourages financialisation, especially in the financial and household sector. By contrast, there is limited evidence that market-based financial systems tend to be more financialised, meaning financialisation can occur with large banks. Foreign financial inflows do not seem to be a main driver. We do not find indication that a secular investment slowdown precedes financialisation. Overall, our findings suggest that financialisation should be understood as variegated process, playing out differently across economic sectors in different countries.

Keywords: Financialisation; Cross country analysis; Financial deregulation; Property prices

JEL codes: B50; B51; G10; G20; G30; P51

Acknowledgements: Earlier versions of this paper were presented at the International Conference on Economic Theory and Policy at Meiji University in Tokyo, September 2015, the FESSUD conference in Lisbon, October 2015, the FMM Research Network Conference in Berlin, October 2016, and to the Political Economy Study Group (PERG) at Kingston University, January 2016. The authors are grateful to the participants of the discussions there and to Rob Jump, Karsten Köhler and Alexis Stenfors for helpful comments. The usual disclaimers apply.

Address for correspondence: Ewa Karwowski: Kingston University School of Economics Penrhyn Road Kingston upon Thames Surrey KT1 2EE UK Email: e.karwowski@kingston.ac.uk

1. Introduction

Since the term was coined in the early 1990s financialisation has become a popular topic in academic research, expanding its reach even into the financial press, with Forbes magazine warning that financialisation is "running amok" (Denning, 2014). The established working definition sees financialisation as "the increasing role of financial motives, financial markets, financial actors and financial institutions in the operations of the domestic and international economies" (Epstein, 2005, p. 3). Because this definition is so broad, the term has been used to describe quite different phenomena. Bridging different social sciences, financialisation research can be broadly classified into the following three streams. Economists, especially those writing in the post-Keynesian or Marxist tradition, tend to either address the systemic (macroeconomic) level or adopt a firm-focused approach at the mesoeconomic level. Political scientists, in particular those close to the Varieties of Capitalism (VoC) approach, have also adopted the macroeconomic view, identifying financialisation as part of the market-based financial system. In both, the macro- and mesoeconomic analysis, the changing interaction between financial sector and non-financial companies (NFC) is the analytical focus. Cultural Political Economy (CPE) research, in contrast, stresses the (microeconomic) impact of financialisation on the everyday life of the individual. Here the research purpose is to assess the changing position of households vis-à-vis the financial sector. While this diversity has enriched the financialisation debate, it has adversely affected the clarity and coherence of the research agenda. Therefore, this paper aims at identifying the different interpretations of financialisation, clarifying the arguments and their explanatory power.

Empirically, financialisation research has focused either on changes within individual countries over time, with strong emphasis on the US as the archetypal financialised economy (Lazonick and O'Sullivan, 2000; Krippner, 2005), or on specific sectors across a small number of countries.[1] This has created an analytical gap in the area of cross-country comparison over time for larger samples of countries. Stockhammer (2004) found that a shift of management priorities towards financial profits resulted in dampened business investment in the US, UK, and France, but less so in Germany. Demir (2007) showed that financial liberalisation had an adverse impact on business investment in a firm-level analysis for Argentina, Mexico and Turkey. The need for more cross-country and sectoral analysis has been acknowledged in the literature and more comparative studies across countries have been published recently. Based on the VoC approach Gospel, Pendelton and Vitols (2014) discuss the effect of new investment funds on labour relations, employment and wages. For developing economies, Becker *et al.*, (2010) provide a comparison of financialisation experiences across four Latin American and Eastern European economies. Lapavitsas and Powell (2013) compare financialisation across five major advanced economies (the US, UK, France, Germany and Japan) for non-financial firms, banks and households. However, while there are cross-country comparisons, there is no systematic cross-country analysis.

The dominant focus on the US has introduced two biases in the literature. First, it has encouraged an understanding of financialisation that uses the US experience as the key reference point. Other countries are then evaluated against this experience as more or less financialised. Second,

[1] More recently, panel analyses for advanced economies have been used to investigate the effects of financialisation income inequality (Kus, 2012; Köhler, Guschanski and Stockhammer, 2017). This approach analyses changes over time within a country, but has not yet been used to discuss the determinants of financialisation.

financialisation has been regarded as driven by a central logic, implying different parts of the economy are experiencing financialisation in parallel. This view emerges from the idea that financialisation is a symptom of mature capitalism, which has at its core a 'stagist' understanding of capitalist development based on convergence. We will refer to this as the strong financialisation view.

The first contribution of the paper is to identify testable hypotheses about financialisation and test them econometrically. We distil seven causal hypotheses about financialisation from a diverse literature: First, the strong financialisation view argues that there is a single financialisation process and different sectoral financialisation measures will thus be correlated (H1). Second, some Marxists have argued that financialisation is the results of a (prior) secular slowdown in profitability and investment rates (H2). Third, financialisation is driven by financial deregulation (H3). Forth, financialisation is essentially a shift towards market based financial systems (H4). Fifth, some post-Keynesian authors have argued that financialisation should be understood as a part of a debt-driven demand regime (in contrast to export-driven or wage-led demand regimes) (H5). Sixth, development economists have argued that financialisation is driven by foreign financial inflows (H6). Seventh, Minskyans interpret financialisation as driven by asset price inflation (H7).

Secondly, we offer a cross-country analysis of financialisation across three private economic sectors, i.e. households, NFCs and the financial sector, for 17 OECD countries spanning the decade before the global financial crisis (1997-2007). This period is chosen due to data availability, in particular as regards the starting point. We end our investigation with the global financial crisis as a discussion of structural changes versus cyclical movement since the crisis is beyond the scope of this paper. We use activity as well as vulnerability measures of financialisation. Activity measures capture the financial flows such as the share of gross financial income in total income of NFCs and are habitually used in the literature (see e.g. Krippner, 2005). Vulnerability measures account for stocks of debt relative to income, exemplified in the ratio of household debt to disposable GDP. Vulnerability measures are inspired by Minskyan analysis, assessing the potential financial fragility of an economic unit in the face of falling asset prices or waning cash flow.

The cross-country approach is motivated primarily by the gap in the literature in this area. While this paper fills this analytical gap by providing the first systematic and sectoral analysis of a large number of economies, there are potential limitations of a cross-country approach. Since we concentrate on cross-country analysis we adopt a nation state-centric perspective. There are two weaknesses. First, such a perspective runs the danger of downplaying sub-national and super-national factors. We do not investigate financialisation of, say, regions, and international finance or global financial centres are not the focus of our analysis (although these aspects do play a role in H3 and H6). However, our analysis does not regard nation states as homogenous spaces as we emphasize the different sectoral dynamics of financialisation. Second, by focusing on relative positions of countries we run the danger of offering a static analysis, downplaying financialisation as a dynamic process of social and economic transformation. Our analysis synthesizes, clarifies and tests substantial parts of the financialisation debate, and thus shares the methodologically nationalist approach of most of the literature. Our cross-country analysis is part of the division of labour with other financialisation approaches. It is complementary to studies that go beyond the nation state and that investigate changes over time.

Our findings can be summarised as follows. We find that financialisation takes multiple forms across countries with little evidence for the strong view of financialisation. We do not find evidence to support the idea that the secular slowdown in investment is linked to financialisation. The claim that the market-based/bank-based distinction can help identify financialisation or that financial capital inflows drive financialisation can only be substantiated to a limited extent. We do find a general effect, i.e. evidence across different sectors, that financial deregulation contributes towards financialisation and that a debt-driven demand regime is linked to financialisation. Most notably, asset price bubbles (in housing markets) are strongly associated with financialisation, proving to be linked to the financialisation of households, non-financial firms and the finance sector.

The rest of the paper is organised as follows. The next section reviews the financialisation debate, tracing the emergence of the seven research hypotheses formulated by us. Section 3 states the research hypotheses in formal terms. Section 4 then discusses the data gathered and methodology used. Subsequently, our test results are put forward and discussed in detail in section 5. Finally, section 6 concludes.

2. Financialisation debates: An overview

As the phenomenon of financialisation has slowly moved into the focus of the academic mainstream (especially in sociology, see Tomaskovic-Devey and Lin, 2011), the concept has been refined and research foci have shifted over the past two decades. Tracing the origins of the concept, financialisation research can be broadly classified into three categories. Economists tend to address the concept on a systemic level, stressing changing macroeconomic structures and their impact on financial stability (see, for instance, Becker et al., 2010). Alternatively, they address the mesoeconomic level, focusing on the firm (see van Treeck, 2009, who makes a similar distinction between the two analytical levels). As far as its foundation in economic theory is concerned the financialisation debate is firmly rooted in non-mainstream approaches, with strong influences of post-Keynesian theory, especially Kaleckian theory of demand regimes and Minsky's analysis of financial instability, and Marxist theory. The systemic perspective is also shared by political scientists particularly proponents of the VoC approach (Hall and Soskice, 2001). Macro- and mesoeconomic analyses centre on the changing interaction between non-financial corporations and the financial sector. In contrast, research in the area of CPE has emphasised the increasing impact of financial institutions on everyday life (van der Zwan, 2014). Here the individual (and by extension the household) is in the microeconomic analytical focus.[2] Since the coining of the term 'financialisation' in the early 1990s, the three research agendas have widened, resulting in increasing overlap. The financial crisis has sparked increased interested in the question of household financialisation among economists (Barba and Pivetti, 2008; Stockhammer, 2013; Stockhammer and Wildauer, 2015), while sociologists reacted by integrating the non-financial corporate sector more into their analysis (Tomaskovic-Devey and Lin, 2011).

[2] van der Zwan (2014) provides a similar classification, identifying three main groups of financialisation theories. She, however, distinguishes among financialisation approaches that (1) address changing accumulation regimes, (2) are based on the concept of shareholder value and (3) focus on the financialisation of everyday life. These three categories correspond to our distinction between (1) macroeconomic, (2) mesoeconomic and (3) microeconomic approaches to financialisation.

Initial impulses for the financialisation debate came from the notable economic changes underway in OECD countries since the 1970s. These include the deregulation of financial markets, a wave of financial innovation, changes in corporate governance, and increases in household debt. Macroeconomically, over the same period investment rates declined, income inequality grew and financial instability increased.

An early predecessor of the financialisation debate can be found in historical analyses of institutional differences across financial systems. Inspired by Gerschenkron's work (1962) on economic development in Europe, a typology of countries emerged in the course of the 1980s (Carrington and Edwards, 1979; Zysman, 1983; Rybczynski, 1984; Berglöf, 1991), distinguishing between bank-based and market-based economies. Bank-based financial systems were characterised by tight rapports between big banks and large corporations, exemplified in the economies of Germany and Japan. By contrast, Anglo-Saxon economies with their more dispersed ownership structures and active capital markets were classified as market-based. Initially, the market-based financial system was blamed for slowing investment rates, for instance in the UK (Carrington and Edwards, 1979) vis-à-vis Germany and Japan. The slowdown in investment rates in Anglo-Saxon economies has also been in the centre of the Marxist debate on financialisation. Within the Marxist literature the idea emerged that dampened profitability of real production induced non-financial firms to concentrate on financial activity instead (Brenner, 2002; Krippner, 2005), explaining the observed investment slowdown. This provides us with H2, namely that financialisation is the result of a secular slowdown in investment rates.

In the 1990s, corporate finance researchers (Mayer, 1987, 1990; Corbett and Jenkinson, 1996, 1997) observed that these fundamental distinctions among countries' financial systems were increasingly blurred. Schaberg (1999) put forward the hypothesis that a shift from bank-based economies towards a more market-based set-up was under way, which dampened investment activity by non-financial corporations. This argument has left a lasting impression on the financialisation debate, in which the process of financialisation is often still understood as a shift from bank-based to market-based financial institutions (see Aglietta and Breton, 2001; Lapavitsas, 2009, 2013).

This line of research has been further pursued by the VoC literature. Hall and Soskice (2001) classify countries into liberal market economies (LMEs), where competitive markets direct economic activity, and coordinated market economies (CMEs), where non-market relations are more important for such coordination. The categorisation is closely linked to the bank-based/market-based dichotomy. LMEs are characterised by strong market activity, including active and deep financial markets, whereas in CMEs relationship banking is dominant. Here financial institutions are understood as functional with respect to productive structures. Because of the inherent complementarities LMEs should be more prone to financialisation, making the dichotomy a potential tool to identify financialised economies. However, the understanding of financialisation as shift from bank-based to market-based financial structures is controversial.[3] The dichotomous categorisation of countries' financial systems into ideal types has been challenged on conceptual as well as empirical grounds

[3] Within the VoC approach Vitols (2014) argues that the effects of financialisation, which he equates with the role of institutional investors, are mitigated by labour market institutions. This means even within VoC financialisation can have different outcomes in different countries.

(Corbett, 1987[4]; Lazonick, 2010; Dixon, 2012). We will investigate whether the process of financialisation is related to a shift from bank-based to market-based financial systems as H4.

In parallel to the research on systemic macroeconomic changes in financial institutions, a literature focusing on the interaction between non-financial corporations and the financial sector at the mesoeconomic level emerged. This strand of the financialisation debate stresses the modifications that the relationship between shareholders and other stakeholders in large corporations were undergoing since the 1980s, which saw a wave of mergers and acquisitions activity among listed non-financial firms, especially the US. In mainstream economics, this increase in stock market activity was hailed as a mechanism to increase market discipline among corporate managers (Jensen, 1986; see Shleifer and Vishny, 1997 for a survey). Thus, the changes in financial markets were interpreted as improvements to corporate governance, resulting in higher pressure on managing directors to act efficiently, maximising profits and reducing wastage. In contrast, critical voices among the management and organisations researchers (Froud et al., 2000) pointed towards the adverse impact of rising shareholder value orientation among listed non-financial firms. The new focus on financial pay-outs, necessitating short-term profits, was identified as a reason for the slowing investment and employment activity of listed companies (Lazonick and O'Sullivan, 2000).

The critical view on shareholder value orientation was backed up by post-Keynesian and Regulationist macroeconomic research, exploring the adverse impact of financialisation on macroeconomic stability and aggregate demand. Based on a post-Keynesian theory of the firm, Stockhammer (2004) showed that increased power of shareholders over listed companies has reduced capital accumulation among NFCs in major OECD countries in aggregate. In a Regulationist framework, Boyer (2000) put forward a theoretical model, analysing the conditions for financialised growth (or, to use Boyer's terminology, a finance-led growth regime) to occur and its impact on macroeconomic stability.

While much of the early debate within heterodox economics centred on non-financial firms, the change in their investment behaviour was clearly linked to a changing financial sector, set off by financial deregulation. Here, the rise of institutional investors (Clark, 2000; Toporowski, 2000) and more recently the growth of the shadow banking industry (Pozsar, 2008; Adrian and Shin, 2009; Pozsar et al., 2010; Kessler and Wilhelm, 2013) have been central themes. Since the 1980s the assets of institutional investors such as pension funds, commercial insurers and investment companies have increased dramatically, especially in the UK and US. In both countries, institutional investors held assets twice the size of GDP by 2000, while this figure was a mere 50% of GDP in 1980 (Evans, 2009). Toporowski (2000) argued that these companies' financial investments contributed to share price inflation since their increasing demand for financial paper greatly outstripped listed firms' equity issuance. Similarly, the shadow banking industry, which broadly defined contains all non-traditional banking institutions, contributed towards the inflation of housing prices in the run-up to the global financial crisis. Traditional banking institutions, which were exposed to closer regulatory scrutiny, could move loans and more innovative financial instruments such as collateralised debt obligations off balance sheet, using financial companies that were part of shadow banking (Pozsar et

[4] Corbett (1987) argued that borrowing by Japanese non-financial firms effectively had an equity-like character since Japanese banks had considerable control over their clients' investment decisions. She challenged the dichotomy of bank borrowing and equity issuance by NFCs across countries and questioned whether financial institutions can easily be reduced to bank-based versus market-based systems.

al., 2010). The changes in the financial sector also manifested themselves geographically, giving rise to a rich literature around changing spatial dimensions of finance (see Wójcik, Sidaway, and Beaverstock, 2007; Leyshon and Thrift, 2007). The hypothesis emerges that financialisation is fostered by financial deregulation (see H3).

At least since the 1980s both advanced and developing countries have been advised by international organisations such as the IMF and the World Bank to pursue international financial deregulation and integration[5], based on the promise of greater financial sector efficiency and economic productivity (Levine and King, 1993). Increasingly frequent financial crises in emerging economies during the 1990s were taken as warning by some (Hellman, Murdock and Stiglitz, 1997; Wade and Veneroso, 1998) but conveniently overlooked by others (Levine, 2005; IMF, 2006). Financial liberalisation thus shaped financial institutions, especially in emerging economies. This point was convincingly made in the aftermath of the 1997-8 Asian Financial Crisis. Dymski (1999) and Arestis and Glickman (2002) showed that capital inflows into the economies of Southeast Asia set off a Minskyan process, inflating prices of equity and residential property. The process increased financial fragility and brought about financial and currency crises. This literature was the predecessor of a new research agenda, focusing on the distinctiveness of financialisation in developing countries. In this context, the destabilising impact of financial liberalisation has been critically explored in much detail by authors discussing financialisation in specific emerging markets (see Akyüz and Boratav (2005) for Turkey, Babb (2005) and Levy (2013) for Mexico, Barbosa-Filho (2005) for Brazil, and Demir (2007) for Argentina, Mexico and Turkey). This research strand, much like the early contributions of heterodox economists, focuses on non-financial corporations and the macroeconomic consequences of their increased orientation towards financial profit. This literature stresses that the financialisation experiences of developing and emerging economies are heterogeneous, both vis-à-vis the US experience (Zhang, 2009) but also within this country group (Becker et al., 2010). For instance, Becker et al. (2010) show that the crisis induced by foreign capital flows triggered a series of de-financialisation measures in Chile, while a similar crisis led to reforms favouring financialisation in Serbia. An important implication across this strand of literature is that financialisation is externally driven by foreign financial inflows (see H6). The question arises whether that is generally the case or specific to emerging markets.

Since the financial crisis heterodox economists have turned their attention to households and the macroeconomic impact of the growth in debt-financed consumption (Cynamon and Fazzari, 2008). This strand of research emerged among applied mainstream economists, mainly those working for economic policy institutions such as the OECD and the US Federal Reserve, who highlighted increasing household consumption levels since the 1990s. The falling saving rates (especially among US households) that worried these institutions were explained through wealth effects generated by rising equity prices in the 1990s (Ludvigson and Steindel, 1999) and by soaring residential property prices in the 2000s (Case and Quigley, 2006; Girouard et al., 2006). Since households were regarded as rational and financial markets as efficient, rising household debt was not perceived as a threat to economic stability. In fact, the wealth effects literature developed independently of the mainstream research on credit cycles that stressed the interplay between credit markets and economic instability (Bernanke, Gertler and Gilchrist, 1999; Matsuyama, 2007). In the heterodox tradition, however, the

[5] Many developing countries, especially in Africa, took on financial liberalisation as part of the IMF's and World Bank's structural adjustment programmes.

role of credit was elaborated in Minskyan models of the business cycle where financial deregulation exacerbates instability and creates credit cycles (Charles, 2008; Fazzari, Ferri and Greenberg, 2008; Zhang and Bezemer, 2014). Credit bubbles have also been described as central characteristic of financialised economies like the US, where capital gains on real estate and financial instruments become more lucrative than productive investment (Hudson, 2010). In short, this literature is, explicitly or implicitly, arguing that credit and asset price inflation, i.e. bubbles in equity or real estate prices, have been an important driver of financialisation (see H7).

Within financialisation research CPE has pioneered the analysis of financialisation and the household. CPE deals with the impact of finance on social and cultural norms. Financialisation of everyday life in this view is a cultural process constructing new subjectivities (de Goede, 2004; Langley, 2007). Due to its methodological approach CPE has not given rise to an analysis of the economic mechanisms associated with the financialisation of households, but rather focused on its impact on the construction of identities. Only of late, has heterodox economics analysed the links between wage stagnation and household debt (Barba and Pivetti, 2008) and between financialisation and inequality (ILO, 2008; Stockhammer, 2016) explicitly. Köhler, Guschanski and Stockhammer (2017) assess the causal effect of household debt on income inequality. These are important research areas, closely linked to the question whether financialisation is inherently connected to specific demand regimes. Thus, from this research strand the hypothesis emerges that a debt-driven demand regime (as opposed to an export-driven or wage-led demand regime) drives financialisation (see H5).

The empirical literature on financialisation is heavily skewed: first, most of the existing research has either investigated changes within a single country over time (Krippner, 2005; Davies, 2016) or focused on specific sectors across a small number of countries (Stockhammer, 2000; Demir, 2007; Lapavitsas and Powell, 2011). Second, most of the literature is on the US experience. Krippner's (2005) influential study of the financialisation of the US economy is a prime example (see also Lazonick and O'Sullivan, 2000; Orhangazi, 2008). The skewed focus of empirical analysis is in part due to the fact that the US is the archetypical case of a financialised economy; better data availability also invites this focus. The overemphasis of the US case encouraged an interpretation of financialisation as a uniform process, implying the correlation of financialisation across economic sectors. Lapavitsas and Powell (2013) for instance refer to financialisation as characteristic for mature capitalism. This implies a 'stagist' understanding of financialisation based on an underlying central logic that drives the process. In stark contrast, the literature on emerging markets financialisation discussed in relation to H6 stresses the varying and country-specific incarnations of financialisation (see Becker et al., 2010). Thus, the question arises whether there is one type of financialisation, i.e. the strong financialisation view, or whether the phenomenon varies across countries and sectors, i.e. variegated financialisation (see H1).

Overall, financialisation research provides a diverse picture in that there is general agreement on the definition of financialisation, while actual research analyses quite distinct phenomena and posits different causal mechanisms. This diversity is amplified by the fact that different streams within financialisation build on different theories and have different disciplinary backgrounds. This is, to some extent what makes financialisation so rich and interesting, but it begs the question of coherence. Do these authors really talk about the same phenomenon? Are the different theories applied complementary or contradictory? At present the field lacks a systematic integration that

identifies different analytical claims and it lacks an empirical evaluation of the explanatory power of the different arguments. The contribution of this paper is that it distils specific hypotheses from this literature that can be tested empirically.

3. Formalising the research hypotheses

The review of the literature on financialisation illustrates that while there is basic agreement on the phenomenon, different streams of the discussion use the term to describe varying aspects of it. We distinguish on the one hand between financialisation in different economic sectors and on the other hand between flow and stock measures. The sector, i.e. households, firms or the financial sector, matters because financialisation can proceed at different speeds and the economic and social effects of say, financialisation of households and the financialisation of firms differ. We also distinguish between activity (flow) indicators to assess the relative importance of financial vis-à-vis real activity, and vulnerability (stock) measures. The activity or flow measure refers to the financial incomes or payments relative to total income. Several studies have used such measures (e.g. Krippner, 2005; Stockhammer, 2004). Vulnerability is debt relative to income, which is used by post-Keynesian economists, pioneered by Hyman Minsky (1975), as a measure of financial fragility. Debt has to be serviced out of current income. An increase in interest rates or a fall in asset prices can easily push units with high debt to income ratios into or towards insolvency.

Sectoral financialisation is examined in the light of the seven financialisation hypotheses, which we have identified from the literature. Since the purpose of the analysis is to establish whether the growing financialisation of a specific sector is associated with increased financialisation of other sectors and dimensions, we employ one-tailed correlation tests. Thus, we test whether positive correlations among the identified financialisation measures exist, which would imply positive associations across different dimensions of financialisation.

First, given that the concept of financialisation has been used to refer to different phenomena, the question arises whether financialisation is best perceived as one process or whether financialisation in the different sectors proceeds relatively independently. In other words: Is there one financialisation process or are there several distinct and independent sectoral financialisation processes? This hypothesis (H1) will be operationalised by testing the correlation of all sectoral dimensions of financialisation across countries. Thus, if H1 is correct, country n should experience financialisation across the three sectors with similar relative intensity:

H1: $\left(F_n^i F_n^j\right) > 0$, where F_n^i is the ranking of a financialisation indicator for sector i in country n. Sectors are households (*HH*), non-financial companies (*NFC*) and the financial sector (*FIN*).

The second hypothesis assesses the link between the investment slowdown observed in many OECD countries since the 1980s and financialisation. Some Marxist authors argue that a slowdown of investment precedes financialisation (Brenner, 2003). Thus, if there is an association between the two, countries with lower growth in investment rates in the decade prior to our period of analysis (i.e. 1987-1997) should be the same ones that have high (stock and flow) measures of financialisation for the three sectors in the years running up to the financial crisis (1997-2007).

H2: $\left(F_n^i E_{n,t-1}^{INV}\right) > 0$, where $E_{n,t-1}^{INV}$ is the inverse ranking of countries based on their average growth rate for capital formation during the years 1987-1997. This means countries with lower growth rates are ranked higher.

In the financialisation debate, an important role in bringing about the phenomenon is assigned to financial deregulation. Thus, H3 states that financialisation is associated with financial deregulation. If the hypothesis is correct the rankings of sectoral financialisation measures should correlate positively with our measure of financial deregulation. This can be formalised as follows:

H3: $\left(F_n^i E_n^{FRI}\right) > 0$, where E_n^{FRI} is the ranking of countries based on the financial reform index.

A substantial part of the literature, in particular within the VoC approach, uses financialisation in the sense of a shift to more market-based forms of financial intermediation (Dore, 2008). If the distinction between market-based and bank-based financial systems is useful to identify financialised countries, sectoral financialisation should be associated with our market-based/bank-based indicator. This leads to our fourth hypothesis:

H4: $\left(F_n^i E_n^{MBB}\right) > 0$, where E_n^{MBB} is the ranking of countries based on the market based/bank based measure.

The recent post-Keynesian literature distinguishes between debt-driven and export-driven demand regimes (Lavoie and Stockhammer 2013; Hein and Mundt 2013). Regulationists have proposed a similar, if analytically less rigorous, distinction (Becker and Jäger, 2012). We investigate whether this distinction is associated with financialisation, testing the association between a debt-driven demand regime and financialisation measures across economic sectors.

H5: $\left(F_n^i E_n^{DED}\right) > 0$, where E_n^{DED} is the ranking of countries based on the indictor for debt-driven/export-driven demand regimes that we have constructed.

As discussed in section 2, research on emerging economies, in part based on Minskyan analyses, has argued that financialisation is often caused by the liberalisation of capital accounts allowing for unhindered inflows of financial capital, especially portfolio investment, from abroad (e.g. Blecker, 2000; Arestis and Glickman, 2002). Thus, we investigate to what extent financialisation positively correlates with financial inflows.

H6: $\left(F_n^i E_n^{FFI}\right) > 0$, where E_n^{FFI} is the ranking of countries based on the foreign financial inflow measure.

Finally, we want to explore the Minsky-inspired hypothesis that financialisation is associated with bubbles in asset prices, testing the association between real property prices and sectoral financialisation.

H7: $\left(F_n^i E_n^{PP}\right) > 0$, where E_n^{PP} is the ranking of countries based on real house price inflation.

To test these hypotheses, we have calculated the correlation among average values for 1997-2007, for the five sectoral financialisation indicators and the seven explanatory measures that account for H2-H7. The next section discusses our data and methodology.

4. Data and methodology

Table 1 below summarises the activity and vulnerability measures of financialisation by economic sector. We distinguish between households, NFCs and financial companies, represented in the rows of Table 1. The second and third columns of the table provide the distinction between activity (flow) measures and financial vulnerability (stock) measures.

Table 1. Financial activity and financial vulnerability measures of financialisation by sector

Indicator / Sector	**Activity measure**	**Vulnerability measure**
Households	Gross financial income (% of total income)	Household debt (% of disposable income)
Non-financial companies	Gross financial income (% of total income)	Non-financial companies' debt (% of total income)
Financial sector	Financial sector value added (% of GDP)	Financial sector debt (% of GDP)

The activity measures suggested are gross financial income of households (as % of total income), gross financial income (as share of total income) by NFCs and value added[6] as share of GDP for the financial sector. These measures capture the importance of financial activity vis-à-vis real activity. The indicators of financial vulnerability adopted are households' and NFCs' debt as share of their income and financial sector debt as share of GDP. The financialisation indicators for the finance sector are expressed as share of GDP (rather than sectoral income) since they capture the financial activity and vulnerability of the entire economy relative to its productive capacity. Data availability constrains the variables that can be compiled. Specifically, data on households' income stream from their financial operations, which could serve as activity measure for households' financialisation, is not available for a sufficient number of countries.[7] Thus, we are limited to five sectoral financialisation measures, namely household debt, gross financial income of NFCs, NFCs' debt, financial sector value added as well as financial sector debt.

In order to test the seven hypotheses identified in the literature we use a cross-correlation analysis. The Spearman rank-order correlation has been employed to test the relationship between the different financialisation measures and the explanatory variables across our dataset, which consists of 17 OECD countries (Australia, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Netherlands, Portugal, Spain, Sweden, the UK and the US).[8]

[6] Gross operating surplus for the financial sector was considered as alternative measures. Gross operating surplus and value added for the sector are, however, highly correlated. Hence, the measures can be expected to yield very similar results.

[7] Financial income data are available for households from Eurostat. Unfortunately, the data only cover 10 of our 17 sample countries and were consequently not included in the analysis.

[8] For Canada only one of our five sectoral financialisation measures, household debt, was available. Luxembourg is a small country and an international financial centre. It is therefore not readily comparable to the other OECD countries examined and was excluded as special case from this study. However, it raises an interesting point. Tax havens and international financial centres do feature high in cross country financialisation measures. But the main financialisation theories do not usually treat such cases explicitly.

The Spearman rank-order correlation test allows us to assess the degree to which a country and its individual economic sectors are financialised relative to other economies in the sample without defining rigid financialisation thresholds. Looking at the relative positions of economies vis-a-vis each other makes sense for the group of OECD countries chosen because as advanced economies they share similar institutions. The Spearman test is a non-parametric test and can, therefore, be used in our small sample of 17 countries. Itis a more general test of correlation than alternatives as Pearson's correlation index, since normality and linearity are not required (Corder and Foreman, 2014).

The Spearman rank-order correlation analysis requires that the data are in ordinal scale. That is, for each indicator ranks are assigned to the countries in the order from high to low.[9] Table 2 exemplifies this ordering for the five financialisation measures. The ranks shown refer to the average level of each measure for the period 1997-2007. Average values are provided in brackets for each country.

Table 2. Country rankings for sectoral financialisation measures (average 1997-2007)

Rank	Households	Non-financial companies		Financial sector	
	Debt (% disposable income)	Gross financial income (dividends+interest received, % income)	Debt (% income)	Value added (% GDP)	Debt (financial liabilities % GDP)
1	Denmark (254%)	Sweden (38%)	Netherlands (490%)	Ireland (8.24%)	Ireland (1138%)
2	Netherlands (214%)	France (32%)	UK (474%)	Australia (8.22%)	Netherlands (701%)
3	Ireland (174%)	Belgium (24%)	Sweden (436%)	US (7.32%)	UK (653%)
4	Australia (161%)	Denmark (22%)	Finland (411%)	UK (6.76%)	Belgium (422%)
5	UK (143%)	Netherlands (21%)	Portugal (398%)	Netherlands (6.57%)	Germany (404)
6	Japan (138%)	UK (18%)	Greece (386%)	Portugal (6.48%)	Denmark (393%)
7	Sweden (125%)	US (17%)	Denmark (383%)	Belgium (5.69%)	France (272%)
8	US (117%)	Finland (16%)	France (377%)	Japan (5.61%)	Sweden (269%)
9	Portugal (114%)	Portugal (14%)	Belgium (376%)	Austria (5.01%)	Austria (267%)
10	Germany (110%)	Italy (14%)	Ireland (375%)	Denmark (4.92%)	Portugal (265%)
11	Spain (110%)	Germany (11%)	Spain (363%)	Germany (4.92%)	Spain (220%)
12	Finland (82%)	Austria (11%)	Italy (338%%)	Italy (4.91%)	Italy (195%)
13	France (81%)	Spain (10%)	Germany (270%)	Spain (4.76%)	Greece (157%)
14	Austria (80%)	Greece (8%)	Austria (247%)	Greece (4.43%)	Finland (152%)
15	Greece (76%)	Japan (7%)		Sweden (4.21%)	
16	Belgium (73%)	Ireland (3%)		France (3.79%)	
17	Italy (61%)			Finland (2.99%)	

In our sample household debt (displayed in column 2 of Table 2) has been highest in Denmark where it amounted to 254% of households' disposable income on average for the years 1997-2007. The Scandinavian country is followed by the Netherlands (214% of disposable income) and then three Anglo-Saxon economies: Ireland (174%), Australia (161%) and the UK (77%). Greece (76%), Belgium (73%) and Italy (61%) have the lowest levels of household debt in this group. Similarly, countries

[9] If measures show exactly the same level of financialisation for two or more countries the same rank is assigned to these economies. This is only the case for the financial reforms index and the measure of demand regimes (see Table 3). The financial reforms index is normalised between 0 and 1, which explains why several countries are assigned the value 1, for a completely liberalised financial system. The demand regime indicator is a composite measure composed of two ordinal rankings, which means the same rank can be obtained for more than one country.

have been ranked with respect to the financial income and the debt that their non-financial corporations hold (columns 3 and 4 in Table 2) as well as value added and debt within the financial sector (columns 5 and 6). Data on household debt, NFCs and the financial sector value added are from the OECD. Financial sector debt is from Eurostat. A detailed overview of data sources and coverage is provided in table A.1 in the appendix. If the strong financialisation view (H1) is correct, the different financialisation measures will be highly correlated across all sectors.

The explanatory factors representing H2-H7 are summarised in Table 3. H2 is captured by the OECD's measure of annual change in gross capital formation. For H3, a normalised financial reform index obtained from the IMF has been utilised to capture financial deregulation (Abiad, Detragiache, and Tressel, 2008). The higher the index, the more financially deregulated a country with the value 1 assigned to economies that are perceived to be perfectly 'reformed' (or completely deregulated). To assess H4, the indicator for market-based/bank-based financial systems has been obtained from the World Bank's Financial Development and Structure Database. We employ the activity measure, also used by Beck, Demirgüç-Kunt, and Levine (2009), which is the ratio of stock market value traded relative to bank credit as percent of GDP.

Table 3. Indicators for testing hypothesis H2-H6

Hypothesis	**Indicator**
H2: Growth in investment rates	Gross capital formation (annual % change)
H3: Financial deregulation	Financial reform index[10] (range: 0-1)
H4: Market-based vs. bank-based financial systems	Ratio: stock market value traded (% GDP)/bank credit (% GDP)
H5: Debt-driven vs. export-driven demand regimes	Household debt and inversed raking of net export position (both % GDP)
H6: Foreign financial inflows	Inflow of portfolio and other investment (excluding FDI), % of GDP
H7: Asset price bubbles	Real house price index (base year 1997=100)

For H5, we have constructed a demand-regime indicator, which is the arithmetic mean of the rank in terms of household debt and its inverse ranking with respect to net exports. Thus, the indicator is an ordinal measure, indicating whether a country possesses a more debt-driven or a more export-driven demand regime (Hein, 2013). The higher a country is ranked with respect to the indicator, the more debt-driven its demand regime in relation to the other 17 economies in our sample. Foreign financial inflows (for H6) are accounted for in terms of financial capital inflows, namely portfolio and other financial inflows, which have been identified as potentially fragility-inducing in the literature around financial liberalisation of emerging economies. Since foreign direct investment (FDI) tends to be long-term investment and less volatile, it has not been included in this measure. The individual

[10] The financial reform index compiled by the IMF is multi-dimensional containing information on seven different dimensions of the financial sector, i.e. credit controls and reserve requirements, interest rate controls, entry barriers, state ownership, policies on securities markets, banking regulation, and restrictions on the capital account.

components of the measure have been obtained from the Lane and Milesi-Ferretti dataset (Lane and Milesi-Ferretti, 2011). Finally, for H7 we utilise real house price indices sourced from the BIS to capture bubbles in residential property.

5. Hypotheses testing and results

Hypothesis 1 posits that financialisation occurs across all three economic sectors concurrently. To test this hypothesis, the Spearman correlation coefficients are calculated for our financialisation measures. If H1 holds, we should see strong positive correlations in financialisation measures across all sectors. Table 4 shows ten correlation coefficients between five sectoral financialisation dimensions. Only household debt, our measure for household financialisation, correlates strongly with financialisation indicators for NFC (with a correlation coefficient of 0.486), the financial sector value added financial sector debt (with correlation coefficients of 0.544 and 0.578, respectively). The activity measure for NFC financialisation is, however, not correlated with household financialisation (0.088). Most notably, we cannot detect any correlation between NFC and financial sector financialisation measures. Overall, five out of ten correlations are statistically significant. Given that one would expect some explanatory variables (as tested in H2 to H7) to drive these variables, we regard this as low and conclude that the evidence is not fully supportive of the strong financialisation view.

Table 4. Spearman rank-order correlation coefficients for economic sectors (1997-2007)

	Household debt	**NFC gross financial income**	**NFC debt**	**Financial sector value added**	**Financial sector debt**
Household debt	1				
NFC gross financial income	0.088	1			
NFC debt	0.486**	0.499**	1		
Financial sector value added	0.544**	-0.171	0.051	1	
Financial sector debt	0.578**	0.213	0.125	0.728***	1

***, ** and * denote statistical significance at the 1%, 5% and 10% level, respectively, for one-tailed tests

The lack of significant association between financialisation measures for the financial sector and NFCs is surprising given the origins of the financialisation research agenda. The early financialisation studies focused on the interaction between financial and corporate sector, be it from the perspective of falling corporate investment rates or rising shareholder value orientation (reviewed in

section 2). Similarly, the VoC literature and its idea of complementarity between financial and productive structures in different types of market economies would suggest a close link between financialisation of NFCs and financial sector financialisation. In contrast, our results suggest that the impact of the financial sector on households' financialisation seems to be more important since household financialisation is associated with financial sector value added. Overall, the three economic sectors are not moving in lockstep in terms of financialisation, providing evidence for a variegated financialisation view.

To illustrate this point further Table 5 visualises the rankings of our five sectoral financialisation measures by colour coding. The 17 sample countries are arranged in quartiles with respect to their relative position in the country ranking for each financialisation indicator. We will refer to these as 'high' (top quartile), 'medium high' (second quartile), 'medium low' (third quartile) and 'low' (bottom quartile), respectively.[11] The quartile labels in the table have been colour-coded, with darker shadings indicating higher levels of financialisation. Strikingly the three Anglo-Saxon countries Australia, UK and US show signs of financialisation across all three sectors, figuring either high or medium high on all sectoral measures. In contrast, Austria, Italy and Spain rank low or medium low on our five financialisation measures. However, most countries simultaneously figure high/medium high and low/medium low on at least one of the sectoral financialisation indicators. This means generally we do not find supporting evidence that financialisation has happened simultaneously across all economic sectors. Thus, we reject H1, concluding that financialisation is not a uniform process, but diverges across sectors in different countries.

Table 5. Sample countries arranged by ranking quartiles for 5 sectoral financialisation indicators (1997-2007)

[11] In our sample of 17 economies four countries have been labelled 'high', 'mhigh' and 'low', respectively, while the groups medium low (labelled 'mlow') contains five countries. For the ranking for financial deregulation five countries (Australia, France, Ireland and the UK) have been labelled as 'high' because all five have the same average value for the indicator for the period 1997-2007, namely 1.0.

	Households	Non-financial firms		Financial Sector	
	Debt	Financial income	Debt	Value added	Debt
Australia	high			high	
Austria	low	mlow	low	mlow	mlow
Belgium	low	high	mlow	mhigh	mhigh
Denmark	high	high	mhigh	mlow	mhigh
Finland	mlow	mhigh	mhigh	low	low
France	mlow	high	mlow	low	mhigh
Germany	mlow	mlow	low	mlow	mhigh
Greece	low	low	mhigh	low	low
Ireland	high	low	mlow	high	high
Italy	low	mlow	low	mlow	low
Japan	mhigh	low		mhigh	
Netherlands	high	mhigh	high	mhigh	high
Portugal	mlow	mlow	mhigh	mhigh	mlow
Spain	mlow	low	mlow	mlow	mlow
Sweden	mhigh	high	high	low	mlow
UK	mhigh	mhigh	high	high	high
US	mhigh	mhigh		high	

Note: mhigh and mlow are medium high and medium low respectively.

Table 6 reports the correlation between the measures for financialisation hypotheses H2 to H7 and the financialisation by sector. We will refer to the evidence for a hypothesis as supportive if we find two or more statistically significant correlations and as of limited support if we find one statistically significant correlation. For H2, the Marxist investment slowdown hypothesis, we find no statistically significant correlation. In other words, we cannot detect any effect of a secular investment slowdown onto financialisation. In contrast, we find that financial deregulation, H3, is positively and statistically significantly correlated with household debt (with a correlation coefficient of 0.423) and both measures of financial sector financialisation (with coefficients of 0.43 for financial sector value added and 0.669 for financial sector debt). The financialisation measures for NFC do not show significant correlations with the financial deregulation measures (with correlation coefficients of 0.266 for NFC gross financial income and 0.042 for NFC debt). Thus, we find support for H3.

Table 6. Spearman rank-order correlation coefficients for financialisation hypotheses and economic sectors (1997-2007)

	Household debt	NFC gross financial income	NFC debt	Financial sector value added	Financial sector debt
Investment slowdown	-0.358	0.282	0.081	-0.762	-0.521
Financial deregulation	0.423**	0.266	0.042	0.43**	0.669***

Market-based/ bank-based systems	-0.032	0.473**	0.356*	-0.476	-0.385
Debt-driven/ export-driven demand regimes	0.598***	-0.097	0.379*	0.531**	0.194
Foreign financial inflows	0.174	0.227	0.2	0.27	0.833***
House price inflation	0.371*	0.176	0.455*	0.27	0.436*

We find limited support that the market-based/bank-based indicator captures financialisation trends in the three sectors (H4). Only the correlation with NFC gross financial income (0.473) and NFC debt (0.356) are statistically significant. In other words, the shift from bank-based to market-based financial systems only seems to impact on NFCs, but not other sectors of the economy.

In contrast, the debt-driven/export-driven demand regime measure is positively correlated with financialisation measures across all economic sectors. For instance, household debt associates positively with this explanatory indicator (0.598). This is not surprising since the indicator is constructed using countries' relative levels of household indebtedness. More importantly, the measure also correlates with NFC debt (0.379), capturing the financialisation of the non-financial corporate sector, and financial sector value added (0.531), our measure of financial activity for financial corporations. Overall, we find support for H5 that demand regimes and the degree of financialisation are correlated. This means the demand regime exercises a general effect on the economy where countries characterised by debt-driven demand are likely to be financialised. This result is consistent with our findings under H1. While we could not confirm a uniform financialisation process that converges across sector, we found that especially household and financial sector financialisation are closely interlinked. This interaction is likely to be produced in a debt-driven demand regime where the growth of the financial sector goes hand in hand with rising household debt, in turn financing consumption.

Measures of foreign financial inflows do not appear to be correlated with increasing levels of financial activity or financial vulnerability across the three economic aggregates with the sole exception of financial sector debt. Most of the correlation coefficients are very small (around 0.1-0.2). However, the link between financial inflows and the vulnerability measure for the financial sector (i.e. financial sector debt) is strong, with a correlation of 0.833 (which is statistically significant at the 1% level). Overall, this means there is limited support for H6. This may be due to our focus on OECD economies whereas H6 has been formulated in the context of emerging and developing economies.

Finally, concerning H7, house price inflation is positively associated with vulnerability measures across all three sectors. This means house price inflation is correlated with household debt (yielding a correlation coefficient of 0.371), NFC debt (0.455) and financial sector debt (0.436). Thus, there is strong empirical support for H7 and we find a general effect of asset price inflation onto

financialisation. [12] Results for a longer time period (1997-2015) are broadly similar (see tables A.4 and A.5 in the appendix), confirming our findings.

6. Summary and conclusion

Financialisation is an empirical phenomenon that has given rise to different explanations. The paper set out to investigate seven financialisation hypotheses and assess their explanatory power. We have undertaken a cross-country analysis for 17 OECD economies for the period 1997-2007, a decade of strong financialisation. To summarise our findings, we find only weak support for the strong financialisation view, i.e. the idea that financialisation converges across the three economic sectors, households, businesses and the financial sector. In particular, surprisingly, the financialisation of businesses and the financial sector do not seem to be correlated. We find no evidence for the Marxist hypothesis that financialisation is preceded by a secular slowdown in investment. This means the prominent Marxist argument that financialisation can be understood as the result of NFCs abandoning productive investment in favour of financial activities because of low profitability (and thus low growth) is not supported in our sample (Brenner, 2003). There is only limited evidence that financialisation can be understood as a shift from a bank-based to more a market-based financial structure as suggested by some financialisation proponents (Lapavitsas, 2009, 2012; Aglietta and Breton, 2010) and the VoC literature (Hall and Soskice, 2001). Hence, the distinction between bank-based and market-based economies (or CMEs and LMEs) as propagated by the VoC literature appears useful when discussing the financialisation of NFC, but not financialisation across the economy more broadly. Equally, there is limited evidence that financial globalisation in the form of foreign financial inflows drives financialisation but it appears to induce financial sector debt.

In contrast, we find that financial deregulation has contributed to financialisation of households and the financial sector and that demand regimes are correlated with financialisation. Hence, debt-driven economies have higher household debt levels and, crucially, also increased NFC indebtedness combined with heightened financial activity (measured in value added) of the financial sector. On the one hand, our results confirm the view that the changes in financial market that have been under way since the 1980s, particularly deregulation, have importantly contributed to financialisation as argued by Clark (2000) and Toporowski (2000) for pension funds. This also means that the phenomenon of shadow banking, most recently identified as an essential aspect of financial market deregulation, deserves more attention in financialisation research going forward. A debt-driven demand regime also favours financialisation across all three economic sectors. These findings give renewed importance to research efforts that identify varying demand regimes across countries (such as Hein, 2013 and Stockhammer, 2013).

Most importantly, we find strong correlations between asset price inflation and the financialisation of households, NFC and the financial sector. OECD countries whose housing markets were characterised by high prices in the run-up to the financial crisis also experienced high household indebtedness as well as high debt among non-financial corporations and financial companies. Thus, we find evidence that Minsky-type processes are at work when households, NFC and the financial

[12] While we focus on levels in the presented analysis of activity and vulnerability measures, we have considered growth rates in these measures and their correlation with financialisation variables. The results, which are broadly similar to those presented here, are available on request.

sector get caught up in the financialisation process. These findings highlight the relevance of models of financial instability and post-Keynesian models of credit cycles for financialisation research.

Our analysis is a cross-country study of advanced economies for the pre-crisis decade. Its findings may be specific to this sample. This points to three directions for future research. First, our analysis has focused on differences across countries and should be complemented by an analysis of changes within countries over time. Second, we have focused on a particular time period, the pre-crisis period. This was in part motivated by data availability. Where possible the analysis should be extended. We should note that real estate booms in many countries were a specificity of this period and it is fully consistent with our approach if earlier experiences of financialisation differ. Third, the country sample is constrained by data availability. In particular it would be interesting to extend the analysis to include emerging economies and to financial centre city states. For example we would expect a stronger role of capital inflows in emerging economies.

Our findings suggest that, at least for our sample, some theories of financialisation are more useful than others. In particular the hypotheses based on post-Keynesian (H5 and H7) have received more support than the ones underpinned by Marxist theory (H2) and by VoC theory (H3). We fail to find full support for what we have called the strong financialisation view. In contrast, we propose a variegated financialisation approach: financialisation is not a single process that occurs across all economic sectors simultaneously. Rather sectoral financialisation processes are distinct and relatively independent. They proceed for different reasons and, potentially, with different effects. The financialisation of households, businesses and the financial sector has distinct causes. Moreover, these sectoral financialisation processes can have effects on the economy as a whole that work in opposite directions. The financialisation of non-financial firms has been found to dampen investment expenditure (Stockhammer 2004; Orhangazi, 2008, Tori and Onaran 2016), whereas households' financialisation is likely to increase consumption financed by credit. While the former phenomenon has a negative effect on aggregate demand, the latter has a positive one. The overall macroeconomic result depends therefore on sectoral interactions. For instance, Stockhammer, Durand and List (2017) point out that real estate bubble-driven financialisation in the Anglo-Saxon countries differed from financialisation in southern Europe. Only in the former countries did it come with sharply rising inequality and strong welfare state retrenchment. Our approach suggests that we need theories that allow for variation in financialisation experiences and effects. If our sample is any guide, theories that explain asset price dynamics, the interaction of financialisation and demand regimes and theories that help to understand the complex impact of financial deregulation on the working of the financial sector are key in developing the research agenda on financialisation.

References

Abiad, A., Detragiache, E., and Tressel, T. 2008. A new database of financial reforms. International Monetary Fund.

Adrian, T., and Shin, H. S. 2009. The shadow banking system: Implications for financial regulation (Staff Report No. 382). New York, N.Y.: Federal Reserve Bank of New York.

Aglietta, M., and Breton, R. 2001. Financial systems, corporate control and capital accumulation. Economy and Society, 30(4), 433–466.

Akyüz, Y., and Boratav, K. 2005. The making of the Turkish financial crisis. In G. A. Epstein (Ed.), Financialization and the world economy. Cheltenham, UK ; Northampton, MA: Edward Elgar.

Arestis, P., and Glickman, M. 2002. Financial crisis in Southeast Asia: Dispelling illusion the Minskyan way. Cambridge Journal of Economics, 26(2).

Babb, S. 2005. The rise of the new money doctors in Mexico. In G. A. Epstein (Ed.), Financialization and the world economy. Cheltenham, UK ; Northampton, MA: Edward Elgar.

Barba, A., and Pivetti, M. 2008. Rising household debt: Its causes and macroeconomic implications--a long-period analysis. Cambridge Journal of Economics, 33(1), 113–137.

Barbosa-Filho, N. H. 2005. International liquidity amd growth fluctuations in Brazil. In G. A. Epstein (Ed.), Financialization and the world economy. Cheltenham, UK; Northampton, MA: Edward Elgar.

Beck, T., Demirgüç-Kunt, A., and Levine, R. 2009. Financial institutions and markets across countries and over time data and analysis (Policy Research Working Paper No. 4943). Washington, D. C.: The World Bank.

Becker, J. and Jäger, J. 2012. Integration in Crisis: A regulationist perspective on the interaction of European varieties of capitalist. Competition and Change, 16(3), pp. 169-87.

Becker, J., Jäger, J., Leubolt, B. and Weissenbacher, R. 2010. Peripheral financialization and vulnerability to crisis: A Regulationist perspective. Competition and Change, 14(3-4), 225-47.

Berglöf, E. 1988. Capital structure as a mechanism of control: A comparison of financial systems (Discussion Paper No. 48). Cambridge, Massachusetts: Harvard Law School.

Bernanke, B. S., Gertler, M., and Gilchrist, S. 1999. The financial accelerator in a quantitative business cycle framework. In J. B. Taylor and Woodford, M. (Eds.), Handbook of macroeconomics, volume 1. Elsevier.

Blecker, R.A. 2000. International capital mobility, macroeconomic imbalances and the risk of global contraction. CEPA Working Papers Series III, no. 5, New School for Social Research.

Boyer, R. 2000. Is a finance-led growth regime a viable alternative to Fordism? A preliminary analysis. Economy and Society, 29(1), 111–145.

Brenner, R. 2003. The boom and the bubble: The US in the world economy. London: Verso.

Carrington, J. C., and Edwards, G. T. 1979. Financing industrial investment. London: Macmillan.

Case, K., Shiller, R., and Quigley, J. 2001. Comparing wealth effects: The stock market versus the housing market (No. w8606). Cambridge, MA: National Bureau of Economic Research.

Charles, S. 2008. Teaching Minsky's financial instability hypothesis: a manageable suggestion. Journal of Post Keynesian Economics 31, 1: 125-38.

Clark, G. L. 2000. Pension fund capitalism. Oxford [England] New York: Oxford University Press.

Clark, G. L., and Wójcik, D. 2007. The geography of finance. Oxford University Press.

Corbett, J. 1987. International perspectives on finance: evidence from Japan. Oxford Review of Economic Policy, 3(4), 30–55.

Corbett, J., and Jenkinson, T. 1996. The financing of industry, 1970–1989: an international comparison. Journal of the Japanese and International Economies, 10(1), 71–96.

Corbett, J., and Jenkinson, T. 1997. How is Investment Financed? A Study of Germany, Japan, the United Kingdom and the United States. The Manchester School, 65(S), 69–93.

Corder, G. W. and Foreman, D. I. 2014. Nonparametric statistics: a step-by-step approach (Second edition). Hoboken, New Jersey: Wiley.

Cynamon, B. Z., and Fazzari, S. M. 2008. Household debt in the consumer age: Source of growth--Risk of collapse. Capitalism and Society, 3(2).

Davies, L. E. 2016. Identifying the "financialization" of the nonfinancial corporation in the U.S. economy: A decomposition of firm-level balance sheets, Journal of Post Keyensian Economics, 39(1), 115-41.

de Goede, M. 2004. Repoliticising financial risk, Economy and Society, 32(2): 197– 217.

Demir, F. 2007. The rise of rentier capitalism and the financialization of real sectors in developing countries. Review of Radical Political Economics, 39(3), 351–359.

Denning, S. 2014, June 3. Why financialization has run amok. Forbes.

Dixon, A, 2012. Function before form: macro-institutional comparison and the geography of finance. Journal of Economic Geography 12 (3): 579-600.

Dore, R. 2008. Financialization of the global economy. Industrial and Corporate Change, 17(6), 1097–112.

Dymski, G. A. 1999. Asset bubbles and Minsky crises in East Asia: A spatialized Minsky approach (Research Paper Series). Department of Economics, University of California-Riverside.

Epstein, G. A. (Ed.). 2005. Financialization and the world economy. Cheltenham, UK ; Northampton, MA: Edward Elgar.

Evans, T. 2009. Money and finance today. In J. Grahl (Ed.), Global finance and social Europe. Cheltenham, UK : Northampton, MA: Edward Elgar.

Fazzari, S., Ferri, P. and Greenberg, E. 2008. Cash flow, investment, and Keynes–Minsky cycles. Journal of Economic Behavior and Organization 65, 555–572.

Froud, J., Haslam, C., Johal, S., and Williams, K. 2000. Shareholder value and Financialization: consultancy promises, management moves. Economy and Society, 29(1), 80–110.

Gerschenkron, A. 1962. Economic backwardness in historical perspective: a book of essays. Cambridge, Mass.: Belknap Pr.

Girouard, N., Kennedy, M., André, C., and van den Noord, P. 2006. Recent house price developments (OECD Economics Department Working Papers No. 475).

Hall, P. A., and Soskice, D. W. (Eds.). 2001. Varieties of capitalism: the institutional foundations of comparative advantage. Oxford [England] ; New York: Oxford University Press.

Hein, E. 2011. 'Financialisation, distribution, and growth. In E. Hein and E. Stockhammer (Eds.), A New Guide to Keynesian Economics and Economic Policies. Edward Elgar.

Hellman, T., Murdock, K., and Stiglitz, J. E. 1997. Financial restraint: Toward a new paradigm. In M. Aoki, H.-K. Kim, and M. Okuno-Fujiwara (Eds.), The role of government in East Asian economic development: Comparative institutional analysis (pp. 163–207). New York, N.Y.: Oxford University Press.

Hudson, M. 2010. The Transition from Industrial Capitalism to a Financialized Bubble Economy. SSRN Electronic Journal.

IMF. 2006. Global financial stability report (No. April). Washington, D. C.: International Monetary Fund.

Jensen, M. C. 1986. Agency costs of free cash flow, corporate finance, and takeovers. The American Economic Review, 76(2), 323–9.

Kessler, O., and Wilhelm, B. 2013. Financialization and the three utopias of shadow banking. Competition and Change, 17(3), 248–264.

Köhler, K., Guschanski, A. and Stockhammer, E., 2017. "How does financialisation affect functional income distribution? A theoretical clarification and empirical assessment," Socio-Economic Review, forthcoming.

Kregel, J. 1998. Yes, "it" did happen again—A Minsky crisis happened in Asia (Working paper No. 234). Annandale-on-Hudson, NY: Levy Economics Institute of Bard College.

Krippner, G. R. 2005. The financialization of the American economy. Socio-Economic Review, 3(2), 173–208.

Kus, B. 2012. Financialisation and income inequality in OECD nations: 1995-2007. The Economic and Social Review, 43(4), 477–95.

Lane, P. and Milesi-Ferretti, G.M. 2011. External Adjustment and the Global Crisis (No. w17352). Cambridge, MA: National Bureau of Economic Research.

Lapavitsas, C. 2009. Financialisation embroils developing countries (Research on Money and Finance No. 14). London: SOAS.

Lapavitsas, C. 2013. Profiting without producing: how finance exploits us all. London ; New York: Verso.

Lapavitsas, C., and Powell, J. 2013. Financialisation varied: A comparative analysis of advanced economies. Cambridge Journal of Regions, Economy and Society, 6(3), 359-79.

Lazonick, W. 2010. Innovative business models and varieties of capitalism: Financialization of the U.S. corporation. Business History Review, 84(04), 675–702.

Lazonick, W., and O'Sullivan, M. 2000. Maximizing shareholder value: a new ideology for corporate governance. Economy and Society, 29(1), 13–35.

Levine, R. 2005. Finance and growth: theory and evidence. In P. Aghion and S. Durlauf (Eds.), Handbook of economic growth (Vol. 1, pp. 865–934). Elsevier.

Levine, R., and King, R. G. 1993. Finance, entrepreneurship, and growth: Theory and evidence. Journal of Monetary Economics, 32, 513–542.

Ludvigson, S., and Steindel, C. 1999. How important is the stock market effect on consumption? FRBNY Economic Policy Review, 1(5 Jul), 29–51.

Matsuyama, K. 2007. Credit traps and credit cycles. American Economic Review, 97(1), 503–516.

Mayer, C. 1987. The assessment: financial systems and corporate investment. Oxford Review of Economic Policy, 3(4).

Mayer, C. 1990. Financial Systems, corporate finance, and economic development. In R. G. Hubbard (Ed.), Asymmetric information, corporate finance, and investment. Chicago: University of Chicago Press.

Minsky, H. P. 1975. John Maynard Keynes. New York, N.Y.: Columbia University Press.

Orhangazi, Ö. 2008. Financialisation and capital accumulation in the non-financial corporate sector: A theoretical and empirical investigation on the US economy: 1973-2003. Cambridge Journal of Economics, 32(6), 863-86.

Pozsar, Z. 2008. The rise and fall of shadow banking. Regional Financial Review, 13–5.

Pozsar, Z., Adrian, T., Ashcraft, A., and Boesky, H. 2010. Shadow banking (Staff Report No. 458). New York, N.Y.: Federal Reserve Bank of New York.

Rybczynski, T. M. 1984. Industrial finance system in Europe, U.S. and Japan. Journal of Economic Behavior and Organization, 5(3-4), 275–286.

Schaberg, M. 1999. Globalization and the erosion of national financial systems: is declining autonomy inevitable? Cheltenham, UK ; Northampton, MA, USA: E. Elgar.

Shleifer, A., and Vishny, R. W. (1997). A survey of corporate governance. The Journal of Finance, 52(2), 737–783.

Stockhammer, E. 2004. Financialisation and the slowdown of accumulation. Cambridge Journal of Economics, 28(5), 719–741.

Stockhammer, E. 2013. Financialization, income distribution and the crisis. In S. Fadda and P. Tridico (Eds.), Financial crisis, labour markets, and institutions. New York: Routledge.

Stockhammer, E. 2016. Determinants of the wage share. A panel analysis of advanced and developing economies. British Journal of Industrial Relations, forthcoming.

Stockhammer, E., Durand, C., and List, L. 2017. European growth models and working class restructuring before the crisis. An International post-Keynesian Political Economy Approach, Environment and Planning A, forthcoming.

Stockhammer, E., and Wildauer, R. 2015. Debt-driven growth? Wealth, distribution and demand in OECD countries. Cambridge Journal of Economics.

Tomaskovic-Devey, D., and Lin, K.-H. 2011. Income dynamics, economic rents, and the financialization of the U.S. economy. American Sociological Review, 76(4), 538–559.

Toporowski, J. 2000. The end of finance: the theory of capital market inflation, financial derivatives, and pension fund capitalism. London ; New York: Routledge.

Tori D., and O. Onaran. 2016. The effect of financialization and financial development on investment. Evidence from firm-level data for Europe. Greenwich Papers In Political Economy, University of Greenwich.

van der Zwan, N. 2014. Making sense of financialisation. Socio-Economic Review, 12, 99-129.

van Treeck, T. 2009. The political economy debate on 'financialization' - a macroeconomic perspective. Review of International Political Economy, 16(5), 907-44.

Vitols, S. 2014. New Investment Funds and labour impacts: Implications for theories of corporate financialization and comparative capitalism. H. Gospel, A. Pendleton, and S. Vitols: Financialization, New Investment Funds, and Labour. An International Comparison. Oxford: Oxford University Press.

Wade, R., and Veneroso, F. 1998. The Asian crisis: The high debt model versus the Wall Street-Treasury-IMF complex. New Left Review, 228(1), 3–23.

Wójcik, D., Sidaway, J. D., and Beaverstock, J. V. 2007. European Financial Geographies. Growth and Change, 38(2), 167–173.

Zhang, L., and Bezemer, D. 2014. How the Credit Cycle Affects Growth: The Role of Bank Balance Sheets. University of Groningen Working Paper 14025-GEM.

Zysman, J. 1983. Governments, markets, and growth: financial systems and the politics of industrial change. Ithaca [N.Y.]: Cornell University Press.

Appendix

Table A.1. Data sources and indicator coverage

Indicators	Coverage	Data source	Notes
Household debt	1997-2007	BIS	Data for Ireland only available from 2002 onward.
Non-financial companies' debt	1997-2007	OECD	Data for Ireland only available from 2001 onward.
Non-financial companies' gross financial transactions	1997-2007	OECD	Data for Australia are not available, data for the US start in 1998, for Ireland and Spain in 1999, for Greece in 2006.
Financial sector value added	1997-2007	OECD	
Financial sector leverage	1997-2007	Eurostat	Data for Australia, Japan and the US are not available. Data for Germany and Ireland are only available from 1999 and 2001, respectively.
Financial deregulation	1997-2005	Abiad et al., 2008, IMF	
Bank-based versus market-based index	1997-2007	World Bank: Financial Development and Structure Dataset (update June 2016)	Data for Austria, Belgium, France and the Netherlands are missing for 1998 and 1999.
Financial globalisation	1997-2007	Lane and Milesi-Ferretti database	Data for Greece are only available from 1998 onward.
Debt-driven vs. export-driven growth regime	1997-2007	Household debt: BIS, Net exports: World Bank	Composite indicator constructed using household debt and net export data. Net export data were obtained from the World Bank.
Real house prices	1997-2007	Nominal house prices: BIS, Consumer price deflatior: OECD	Data for Austria, Greece and Portugal are not available.

Table A.2. Country rankings for financialisation hypotheses, (average 1997-2007)

Rank	Investment slowdown	Market-based vs. bank-based financial system	Demand regime-driven financialisation	Driven by foreign financial inflows	Asset price inflation-driven financialisation
	Average annual investment growth rate (1997-2007)	Market-based vs. bank-based indicator (ratio: stock market value traded (% GDP)/bank credit (% GDP))	Debt-driven vs. export-driven demand regime (household debt & net exports, % GDP)	Financial globalisation (inflow of portfolio and other investment*, % of GDP)	House price indicator (base year 1997=100)
1	Sweden (1.31%)	Finland (1.74)	Australia (161%, -1.4%)	Ireland (431%)	UK (172)
2	Finland (1.42%)	Sweden (1.13)	UK (143%, -2.0%)	UK (252%)	Ireland (161)
3	Greece (1.63%)	Spain (1.10)	Portugal (114%, -8.8%)	Belgium (213%)	Spain (154)
4	Italy (1.91%)	US (1.05)	US (117%, -3.8%)	Netherlands (191%)	Sweden (151)
5	France (2.09%)	Netherlands (0.94)	Denmark (254%, 5.3%)	Austria (144%)	Netherlands (147)
6	Denmark (2.28%)	France (0.82)	Japan (138%, 1.4%)	Portugal (142%)	France (146)
7	Germany (2.85%)	Greece (0.77)	Spain (110%, -3.0%)	Denmark (120%)	Australia (145)
8	US (3.5%)	Australia (0.76)	Greece (76%, -9.7%)	France (108%)	US (140)
9	Austria (3.55%)	Italy (0.75)	Netherlands (214%, 6.9%)	Sweden (107%)	Denmark (134)
10	Japan (3.61%)	UK (0.64)	France (81%, 0.1%)	Germany (104%)	Belgium (129)
11	Netherlands (3.63%)	Germany (0.51)	Ireland (174%, 12.7%)	Greece (94%)	Finland (127)
12	Belgium (4.27%)	Denmark (0.46)	Germany (110%, 3.2%)	Spain (91%)	Italy (113)
13	Australia (4.37%)	Japan (0.32)	Sweden (125%, 6.8%)	Finland (88%)	Germany (97)
14	Spain (4.57%)	Belgium (0.31))	Austria (80%, 2.1%)	Italy (87%)	Japan (83)
15	UK (4.79%)	Portugal (0.24)	Italy (61%, 1.0%)	Australia (63%)	
16	Ireland (6.82%)	Ireland (0.18)	Belgium (73%, 4.0%)	US (58%)	
17	Portugal (6.83%)	Austria (0.11)	Finland (82%, 7.0%)	Japan (32%)	

Table A.3. Spearman rank-order correlation matrix (1997-2007)

	Household debt	NFC gross financial income	NFC debt	Financial sector value added	Financial sector debt	Investment slowdown	Financial deregulation	Market-based/ ank-based systems	Debt-driven/ port-driven demand regimes	Foreign financial inflows	House price inflation
Household debt	1										
NFC gross financial operations	0.088	1									
NFC debt	0.486**	0.499**	1								
Financial sector value added	0.544**	-0.171	0.051	1							
Financial sector leverage	0.578**	0.213	0.125	0.728***	1						
Investment slowdown	-0.358	0.282	0.081	-0.762	-0.521	1					
Financial deregulation	0.423**	0.266	0.042	0.43**	0.669**	-0.376	1				
Market-based/bank-based systems	-0.032	0.473**	0.356*	-0.476	-0.385	0.51**	0.07	1			
Debt-driven/export-driven demand regimes	0.598***	-0.097	0.379*	0.531**	0.194	-0.495	0.38*	0.133	1		
Foreign financial inflows	0.174	0.227	0.2	0.27	0.833***	-0.41	0.249	-0.025	-0.144	1	
House price inflation	0.371*	0.176	0.455*	0.27	0.436*	-0.49	0.767***	0.187	0.349	0.582**	1

Table A.4 Spearman rank-order correlation coefficients for economic sectors (1997-2015)

	Household debt	NFC gross financial income	NFC debt	Financial sector value added	Financial sector debt
Household debt	1				
NFC gross financial income	0.015	1			
NFC debt	0.462*	0.714***	1		
Financial sector value added	0.721***	-0.141	0.198	1	
Financial sector debt	0.675***	0.279	0.56**	0.662***	1

***, ** and * denote statistical significance at the 1%, 5% and 10% level, respectively, for one-tailed tests

Table A.5 Spearman rank-order correlation coefficients for financialisation hypotheses and economic sectors (1997-2015)

	Household debt	NFC gross financial income	NFC debt	Financial sector value added	Financial sector debt
Investment slowdown	-0.549	0.235	0.028	-0.733	-0.543
Financial deregulation	0.44**	0.198	0.451*	0.474**	0.669***
Market-based/ bank-based systems	-0.066	0.285	0.39*	-0.292	-0.257
Debt-driven/ export-driven demand regimes	0.647***	-0.219	0.202	0.573***	0.216
Foreign financial inflows	0.201	0.282	0.456*	0.257	0.815***
House price inflation	0.1	0.357*	0.601**	0.127	0.456*