



SCHOOL OF  
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## The social fragility of financial development

A regional panel analysis of the financial development and inequality  
nexus on prior middle-income countries

by

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**Abstract:** This paper investigates the impact of financial development as a bi-dimensional concept on inequality in a regional comparison of Asian as well as Latin American countries. The policy has previously been explicitly proposed for middle-income economies to boost growth and overall prosperity. While allowing for nonlinearities, this paper exploits both static, fixed effects as well as dynamic GMM estimation techniques utilising a self-assembled dataset on income shares as well as a set of macroeconomic controls motivated by earlier literature. The estimates retrieved in this analysis consistently imply inequality rises either immediately or in the long run depending on the geographic region. Although matching some earlier empirical work, the findings partly necessitate a further theoretical substantiation of the financial development and growth nexus, possibly incorporating aspects of intensified elitist rent-seeking behaviour as financialisation advances.

**Keywords:** financial liberalisation, financial deepening, income inequality, dynamic panel data model, U-shaped relationship

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# 1 Introduction

The astounding and record-breaking economic emergence of the Asian region originating in the 1960s has been unique and unprecedented in its magnitude and its long-lasting sustainability. The Asian "Four Tigers" (World Bank, 1993, p.2) encompass Korea and Taiwan, which nurtured the later rise of the newly industrialised economies of Indonesia, Malaysia, Thailand, and the Philippines, depicting a flying geese pattern early devised by Akamatsu (1962). Both country groups outperformed Latin American countries between 3 to 5 times throughout 30 years upon taking off. The World Bank (1993) also concluded that the fastest-growing Asian economies featured the most equal income and wealth distributions globally that originated in previous egalitarian land reforms. Moreover, throughout the process of economic catching up, the Asian development record proved to stipulate and unify exceptional growth with ever declining inequality which renders the process unique in economic history (World Bank, 1993). Building on that, Sugihara (2003, p.110) more extensively claimed that these trends of income convergence had been ingrained in the Far Eastern development model, mainly because of its high reliance on human capital combined with comparatively high labour inputs.

## 1.1 Research Problem

Nevertheless, despite these strong narratives surrounding the unexpectedly successful and unconventional Asian pathway of development, growth has staggered in some parts of the region since the East Asian financial crisis, which erupted in 1997. Sectoral output growth rates in some countries failed to recover ever since (Suehiro, 2019, p.38) entirely. Malaysia proved to be a more hesitant country in its crisis response relative to regional competitors like Korea and Thailand when implementing policy programs liberalising the financial markets, which Yoon (2005) has laid out as a factor explaining a declining growth in productivity. Moreover, as a liberal reformer, Thailand has successfully outpaced Malaysia and started to catch up with the country, especially in terms of annual export growth despite being a regional latecomer

(Suehiro, 2019, p.38). Apart from the regionally atypical crisis reaction of tightened financial repression, the Malaysian stagnation has been attributed to lacking diversification of the country's export basket and missing innovative capacities prompting Suehiro (2019, p.38–40) to assume Malaysia to be stuck in the middle-income trap. Similar observations of productivity stagnation have been issued for major Latin American economies like Brazil or Chile during the 1990s, with identical recommendations to enhance a country's technological and innovative capability (Paus, 2014).

Ironically, however, Yiping, Qin, and Xun (2014) found severe growth-inhibiting impacts of repressive financial policies when using a sample consisting of middle-income countries. These effects were noteworthy as equivalent results were insignificant for low-income countries and even conducive for growth in an exclusive setting of high-income economies (Yiping, Qin & Xun, 2014). Hence, Yiping, Qin, and Xun (2014) suggested a policy of opening financial markets for a middle-income country like China to effectively avoid the middle-income trap as observed for Malaysia, Chile, or Mexico (Paus, 2014). Paus (2014) similarly suggested the need for an enhanced institutional capacity in Latin America to mobilise financial capital rapidly. External financing was identified here as an additional tool together with increased tax efficiency or infrastructural upgrades to collaboratively assist selected companies operating at the global technological frontier (Paus, 2014). Furthermore, the urgency of financial reforms has to be stressed because of the comparatively high exposure of these latecomers to free trade regimes (Paus, 2014). This intensification of global competition for labour-intensive manufacturing presses for the generation of innovative capabilities at earlier stages of development on the South American subcontinent as already exercised by China (Paus, 2014; Yiping, Qin & Xun, 2014).

Gosh (2005) critically examined channels through which countries can achieve a complete liberalisation of financial markets instead of retreating to financial repression. Possible policy packages aiming at internal liberalisation include the extension of sources and instruments for economic agents to access funds as well as the relaxation of participative barriers, including listing conditions (Gosh, 2005). Galor and Zeira (1993) firstly came up with a framework highlighting the role of income inequality and its association with individual financial market accessibility to smooth intertemporal budget decisions. The access of household is of particular interest due to the possibility of personal human capital accumulation, which arguably has been at the heart of the Asian catching up process (Sugihara, 2003, p.110–111). External



liberalisation, however, encompasses the opportunity of foreign residents to hold domestic assets and vice versa, as well as the flexibilisation of exchange rates on the currency markets (Gosh, 2005). Neoclassical economics postulates the allocational efficiency of financial markets here as economic agents can determine asset values, which would exclusively depend on the full utilisation of all available market information (Abiad, Oomes & Ueda, 2008; Gosh, 2005). In opposition to that, financial repression equally suppresses savings and investments, which consequently inspires Gosh (2005) to hypothesise a slowed growth below the steady-state (Abiad, Oomes & Ueda, 2008).

Nevertheless, external financial liberalisation historically proved to be a risky endeavour in the developing context as the possibility of capital flight is inherent to the ease of currency convertibility. Latin American and Asian emerging economies witnessed this disastrously, as discussed in chapter 5 (Gosh, 2005; Stallings, 2004).

## 1.2 Aim and Scope

Against this preliminary background, there is an evident area of conflict arising between financial liberalisation as a potential driver of economic participation as well as growth on the one hand and social exclusion materialising through inequality on the other. The specific contributions of financial development on the income distributions as a proxy for inclusive growth remain unknown within this regional cluster of middle-income as well as newly industrialised countries. Therefore, the long-run effects and the social sustainability of this conventional policy proposal derived earlier from Yiping, Qin, and Xun (2014) will be addressed empirically in this paper. It will apply a recent financial development dataset by the IMF (2020) on a range of control variables, primarily capturing macroeconomic fundamentals to finally identify common trends within the financial development and inequality nexus in these emerging regions. Hence, a principal aim for the analysis tries to unearth generalisable trends across the regions to empirically test for theoretical assumptions as proposed by Galor and Zeira (1993) corresponding with policy proposals or broader considerations by Yiping, Qin, and Xun (2014), Paus (2014), or Gosh (2005).

Matching the higher interregional convergence of economic fundamentals described by Kaminsky and Reinhart (1998), the paper adheres to the next question: To what extent has

financial development contributed to increased inequality in Latin American and Asian countries from 1996 until today? The related sub-question accounting for historically region-specific growth properties and characteristics asks: How do the relationships differ between Latin America and Asia?

### 1.3 Outline of the Thesis

The thesis is followingly going to revolve around the theoretical debate surrounding the stylised associations of financial development and inequality. Initially, the paper will provide an overview of theoretical channels addressing the nexus between financial development and inequality. Hence, Galor and Zeira's (1993) approach will be supplemented with similarly optimistic accounts by Banerjee and Newman (1993) and contrasted with the more sceptical work of Greenwood and Jovanovic (1990). After reviewing empirical evidence on the issue, the region-specific institutional traditions will be discussed together with their long-run ramifications in growth and inequality trends. The region-specific histories of financial liberalisation will followingly be addressed. Finally, after assessing the used methods and their robustness tests, the estimation results will be interpreted and put into context using previous research and the regionally different development properties as they will be presented earlier within the thesis.

## 2 Theory

The broad interplay between economic development policies and inequality has been addressed early in scientific thought, as Kuznets (1955, 1973) or Lewis (1954) exemplified. Both hypothesised a catalysing impact of skewed wealth distributions on growth carried by investments into the modernisation of production techniques. The following increased abundance of workers in Lewis' (1954) two-sector model economy would stimulate structural shifts of the workforce into the prosperous capitalised sector. Finally, Lewis (1954), as well as Kuznets (1955, 1973), predicted an eventual convergence of wage differentials as rising labour demand renders the production input a scarce resource.

Nevertheless, more contemporary accounts have objected to these deterministic concepts of inequality by Lewis (1954) and Kuznets (1955, 1973) partly due to weak empirical evidence (Perkins et al. 2013, p.174–180). The new proposals sketched a circular nexus between growth, poverty, and inequality in the developmental context (Bourguignon, 2004; Perkins et al. 2013, p.174–180). Bourguignon (2004) depicts poverty prevalence as a function of average income growth in a country. Further variables engulf country-specific income distributions and (redistributive) changes within these wealth disseminations. Preliminary cross-country evidence by Ostry, Berg, and Tsangarides (2014) already indicated a strong negative responsiveness of GDP per-capita growth on inequality.

This solid and decisive association between growth and inequality has also been acknowledged by global stakeholders like the World Bank (1993). It concluded that the historically unparalleled growth records of East Asian economies notably accelerated within the most equal societies. In this fashion, countries like Korea and Taiwan benefitted from egalitarian agricultural land reforms (World Bank, 1993). Moreover, this sector proved to be the cornerstone of the subsequently pioneered East Asian path of industrialisation to be elaborated further on in chapter 2.4 (World Bank, 1993; Sugihara, 2003, p.96).

As a ground-breaking attempt at contextualisation, Galor and Zeira (1993) arrived at a model which conditioned a nation's macroeconomic performance on the individual decision-making

processes regarding human capital investments. Thereby, it paved the way for a deeper analytical understanding of financial development. The keyword of financial development is often used interchangeably as a synonym for financial deepening or financial liberalisation, although Abiad, Oomes, and Ueda (2008) object to this notion equally to de Haan and Sturm (2017). They introduce the distinction of effects at the intensive and extensive margin (Abiad, Detragiache & Tressel, 2010; de Haan & Sturm, 2017). The differential channels are closer discussed in chapter 2.2. However, the enforcement of financial development always requires prior adjustments like the abolition of credit controls (Sahay et al. 2015).

Moreover, the phenomenon describes the retreat of administrative control over, i.e., interest rates and, therefore, implies a followingly increasing volume of capital stocks (Ahmed & Islam, 2010, p.84). Financial repression as an antonym outlines a tightening grip of the governing bodies on the financial markets and therefore implies diminishing welfare gains (Ahmed & Islam, 2010, p.74). The capability of financial markets to provide the most effective resource allocation is disrupted, which accounts for narrowed prospects of economic growth (Ni & Liu, 2019). Hence, traditional channels by which financial development presumably curbs inequality include the provision of inclusive pro-poor growth as well as distributive changes within the income spectrum of society (Atkinson & Morelli, 2011; Arestis & Caner, 2004; Beck, Demirgüç-Kunt & Levine, 2007).

Galor and Zeira (1993) extended this precursory elaboration by incorporating aspects of inequality which corresponds more with Bourguignon's (2004) work. Greater accessibility to credit is hypothesised to collectively improve a household's range of budget decisions, especially under conditions of overall growth in GDP per capita (Arestis & Caner, 2004; Brei, Ferri & Gambacorta, 2018). It also relativises the dependency on inherited wealth when exploring human capital investment activities since inheritances tend to be highly selective (Brei, Ferri & Gambacorta, 2018). Finally, as human capital effects are primarily yielded in long-run returns, budget constraints enforced by credit market imperfections unequivocally translate into dampened growth projections (Galor & Zeira, 1993).

With their restrained emphasis on long-run educational investments, Galor and Zeira (1993) slightly adjust earlier approaches by Banerjee and Newman (1993) as well as Greenwood and Jovanovic (1990), who assume immediate linear bidirectional inequality effects (Brei, Ferri & Gambacorta, 2018). Banerjee and Newman (1993) optimistically argue for better investment opportunities for the poor as a tool to tackle inequality depending on sufficiently large

entrepreneurial classes. In contrast, Greenwood and Jovanovic (1990) suspect the cementation and alleviation of inequality (de Haan & Sturm, 2017). Galor and Zeira (1993) invoke lagging equalisation effects that depart from institutional selectivity or the unequal provision of financial services. This intuition corresponds with initial inequality rises following Kuznets (1955, 1973) inverted-U shape, which eventually reverse as overall income growth and economic sophistication leads to a broader penetration of society with financial services.

Nevertheless, the optimistic narratives by Banerjee and Newman (1993) or Galor and Zeira (1993) stressing the potentially more egalitarian access to funds are questioned by Claessens & Perotti (2007), who present a framework that additionally captures the contingently rent-seeking nature of elites in the context of developing societies. They allow for wealthy rent-seeking individuals to impose asymmetrical conditions upon the institutional makeup of financial markets. Followingly, the affluent social segments could benefit from eased market transactions while socialising the potential costs arising from risky transactions (Claessens & Perotti, 2007). This asymmetrical power relation is moreover assumed to perpetuate itself and to be immune to institutional reforms (Bazillier & Hericourt, 2016; Claessens & Perotti, 2007). This early example for the nexus between financial development and inequality inspires the further elaboration conducted in chapter 2.2.

## 2.1 A conceptual grip on financial development

Ahmed and Islam (2010, p.6) provide a proper multi-dimensional grip on the phenomenology behind financial liberalisation, which unfolds within three individual conceptual domains. Domestic liberalisation forms the first step within this gradual developmental progression that initially includes the deregulation of deposit and lending rate controls. Further reforms within that domain induce reductions of reserve requirements or entry barriers intending price and interest rate stabilisations that are followingly assumed to operate at their equilibrium values (Ahmed & Islam, 2010, p.6). Capital account liberalisations enabling beneficial cross-border investments constitute the second level of financial liberalisation, which implicitly requires simultaneous adjustments of exchange rates as well as fiscal and monetary policy re-arrangements (Ahmed & Islam, 2010, p.6; Arestis & Caner, 2004).

*Table 1: Conceptual approach to financial liberalisation (Source: Author's work based on Ahmed & Islam, 2010, p.6)*

Domestic liberalisation	<ul style="list-style-type: none"> <li>➤ Deregulation/removal of deposit and lending rate controls</li> <li>➤ Reserve requirement reductions</li> <li>➤ Lifts on entry barriers to financial services</li> <li>➤ Price level stabilisation</li> </ul>
Trade liberalisation	<ul style="list-style-type: none"> <li>➤ Changes in the institutional framework of fiscal and monetary policies</li> </ul>
International/External financial liberalisation	<ul style="list-style-type: none"> <li>➤ Removal of restrictions on the purchase of foreign assets</li> <li>➤ Enhanced currency convertibility</li> </ul>

However, these reforms can inherently threaten the economic integrity of societies when implemented too rapidly due to the possible exposure of agents to disproportional risk-taking under conditions of a moral hazard (Ahmed & Islam, 2010, p.6; Aizenman, 2005). As already indicated, the convertibility of currencies also continues to bear the inevitable risk of capital flight (Gosh, 2005). Several periods of economic distress followed the quick economic opening witnessed across Latin America. Aizenman (2005) attributes these fiscal crises to early declines in the aggregate self-financing ratios under conditions of staggering trust into the respective currencies. Hence, the historic patterns behind the east Asian liberalisation proved to be initially slower but more consistent relative to Latin America, which didn't protect the region from a severe crisis in 1997 with similar triggers (Kaminsky & Reinhard, 1998).

## 2.2 Theoretical channels impacting inequality

Elaborating more on the actual mechanisms moderating the effects between financial development and inequality, Demirgüç-Kunt and Levine (2009) introduce a distinction between effects measurable either at the so-called intensive or extensive margins of financial development (de Haan & Sturm, 2017). The extensive margin refers to the sequential integration of populational segments previously prevented from active participation in the financial markets. Structural constraints like informational gaps or unbearably high transaction costs work as the excluding mechanisms here. Congruously, models by Galor and Moav (2004)

as well as Beck, Demirgüç-Kunt, and Levine (2007) that work under this definition expect declines in inequality as structural constraints on crediting decrease (de Haan & Sturm, 2017). However, scientific work is traditionally more ambiguous when devising theoretical channels between financial liberalisation and distributional changes (de Haan & Sturm, 2017). The motivated expectations are usually more conditioned on the policy context when specifying the association's hypothesised shape and direction (de Haan & Sturm, 2017).

Moving beyond that perspective, the projections on the intensive margin consult quality improvements and extensions of the financial products and services available within a country (Demirgüç-Kunt & Levine, 2009; de Haan & Sturm, 2017). As discussed, the theory by Greenwood and Jovanovic (1990) suggests detrimental effects on inequality here since early financial institutions and services disproportionately cater to wealthy subgroups of society (de Haan & Sturm, 2017; Jauch & Watzka, 2016). Abiad, Oomes, and Ueda (2008) provided a rare example of how to measure the qualitative dimension of financial development. They argued that financial liberalisation doesn't necessarily require the quantitative expansion of the financial sector as traditionally assumed when looking at the extensive margin usually subsumed under the term of financial deepening (Abiad, Oomes & Ueda, 2008). They present a strategy that exploits the dispersion of company-specific expected rates of return, assuming the allocative efficiency of financial markets to improve following liberal reform programs (Abiad, Oomes & Ueda, 2008). Accordingly, differentials in the rates of return are supposed to decrease as the credit allocation is increasingly determined by market mechanisms that trend towards a general equilibrium (Abiad, Oomes & Ueda, 2008). Although this relationship seems to be mostly agreed upon within research, the effects on the previously explored external margin remain controversial and will be addressed in the following chapter 2.3 (de Haan & Sturm, 2017).

## 2.3 Previous research on effects within the extensive margin

In an early review of the research frontier, Levine (2005, p.866) reports a consensus within academia that proclaims a strong impact of financial development on improved growth prospects while also ruling out the possibility of reverse causality. However, when revisiting

the recent research publications on the financial development and inequality complex, Ni and Liu (2019) discover ambiguous results on inequality depending on the specific reform policies. Noteworthy, the differences in empirical findings don't rely on the estimation methods used (de Haan & Sturm, 2017). Accordingly, Hamori and Hashiguchi (2012), as well as Jauch and Watzka (2016), report diverging results on the extensive margin despite using overlapping sample groups and observation periods as well as identical proxies for financial development (de Haan & Sturm, 2017). Dhrifi (2013) further contributes to this inconclusive evidence while examining the relationship between financial development and the variables included in a triangular nexus proposed by Bourguignon (2004). Assessing a heterogeneous set of almost 90 countries, Dhrifi (2013) documents substantial successes in combating poverty for the observational period between 1990 and 2011.

*Table 2: Selection of studies concerning the directional link between financial development and inequality (Source: Author's work based on Jauch & Watzka, 2016, p.295)*

Effect of FD on income inequality	Selection of studies	Sample properties D = Developed; E = Emerging
Linear-positive	Jauch & Watzka, 2016	D and E from 1960–2008
	de Haan & Sturm, 2017	D and E from 1975–2005
Linear-negative	Beck, Demirgüç-Kunt & Levine, 2007	E from 1960–2005
	Hamori & Hashiguchi, 2012	D and E from 1963–2002
Nonlinear-U-shape	Brei, Frei & Gambacorta, 2018	D and E from 1989–2012
	Tan & Law, 2012	E from 1980–2000
Nonlinear-inverted U-shape	Jauch & Watzka, 2016	D and E from 1960–2008
	Nikoloski, 2012	D and E from 1962–2006

Nevertheless, Dhrifi's (2013) inquiry also finds increasing wage differentials, indicating rising inequality levels that emerge independently from poverty reductions. Finally, Dhrifi's (2013), similarly to Claessens and Perotti (2007), highlights the crucial role of institutional quality in effectively encountering inequality which vaguely resembles significant discoveries by Ni and



Liu (2019) as well as de Haan and Sturm (2017). Accordingly, Ni and Liu (2019) discuss differential inequality effects detectable between developing and developed economies, whereas de Haan and Sturm (2017) similarly predict contrasting inequality results among OECD and non-OECD countries.

Corresponding to this focus on region-specific inquiries, Abiad, Oomes, and Ueda (2008) utilised a southeast Asian country group and ultimately unearthed distinct effects of financial liberalisation policies on inequality. Noteworthy, the results were not driven by quantitative increases in crediting or better accessibility. Improved allocative efficiencies following interest rate liberalisations instead accounted for inequality reductions (Abiad, Oomes & Ueda, 2008). Hence, their findings on the intensive margin contradict Ni and Liu's (2019) identification of better accessibility as a solid channel for eradicating inequality. More abstract cross-country evidence provided by Bumann and Lensink (2016) requires a comparatively sizeable financial system including a sophisticated infrastructure to ease inequality. They calculate a gross national saving ratio equivalent to 25% as a threshold, after which they expect inequality to decrease. This observation is analogous to Kuznets' (1955, 1973) as well as Galor and Zeira's (1993) work. Similar nonlinear threshold effects of income per-capita levels and other stock market development proxies like private credit, liquid liability, and bank asset volumes have been identified by Lin and Kim (2011). They find a disproportionately beneficial effect on the poor only when a country has passed similar critical values of financial development (Lin & Kim, 2011). This overall notion of threshold effects has nevertheless been questioned by Adeniyi et al. (2015) when looking at the Nigerian growth experience between 1960 and 2010.

Turning further towards sceptical accounts of the link between financial development and inequality, Furceri and Loungani (2015) don't find any indication of eventual socioeconomic convergence within their panel data capturing trends in 149 nations. In contrast, they discover inequality rises and argue in a similar vein like Claessens and Perotti (2007) by highlighting the pivotal importance of high-quality institutions and governance to prevent accelerating inequality. This overall negative impact echoes de Haan and Sturm's (2017) conclusions in their meta-analysis since they analogously reject the notion of any uniformly beneficial impact of financial development on broader economic participation. Their results are persistent irrespective of the type of reform policy and its mechanisms or channels, thereby also challenging Bumann and Lensink's (2016) elaboration on infrastructural thresholds (de Haan & Sturm, 2017). The adverse effects have also been confirmed by Misati and Nyamongo (2012),

who focussed on a Sub-Saharan African sample consisting of 34 countries. They note increased macroeconomic volatility in the region following financial liberalisation policies (Misati & Nyamongo, 2012). Higher economic fragility diminishes and ultimately overshadows favourable growth-enhancing properties of financialisation, as identified earlier (Misati & Nyamongo, 2012; Ni & Liu, 2019). Accordingly, the immediate impact of financial development on a country's susceptibility to economic crises has been recognised as a third channel by which the individual inequality levels might be influenced (de Haan & Sturm, 2017).

The devastating long-run impact of overall volatility on development has recently been reframed under the phenomenon of economic shrinking (Andersson, 2018). It, moreover, has mainly been pointed out in the case of Latin America relative to the economic records of southeast Asia (Kaminsky & Reihnhart, 1998). However, Li and Yu (2014) observed 18 east Asian countries and found strong indications that financial liberalisation enabled poorer households to adjust their consumption decisions and to invest in human capital increasingly. This scheme follows Galor and Zeira's (1993) propositions while increasing marginal productivities and wages as well (Li & Yu, 2014).

## 2.4 The differential path-dependent institutional legacies of Latin America and Asia

A further contextualisation of the points of departure for both regions will followingly be conducted to arrive at testable hypotheses. The embedment intends to inform further the conclusions derived from previous research and infuse them with region-specific context as well as path-decencies that also stem from institutional underpinnings. Hence, the hypotheses stated at the end of this chapter are going to incorporate previous theoretical and empirical works on the financial development nexus. However, region-specific expectations concerning the direction of effects will be saturated based on different developmental accentuations across Latin American and Asian countries.

Engerman and Sokoloff (1994, 2005) discussed the long-lasting and detrimental impacts of early colonial institutional settings in Latin America on inequality and growth, including their post-independence aftermaths. While trying to explain the wealth dispersion between the United States and Canada relative to the other New World economies, Engerman and Sokoloff

(1994) claim a particular role of the agricultural cultivation of high-yielding crops in Latin America in affecting the continent's long-run wealth distributions. Together with very tiny elites of European descent relative to an overwhelmingly vast population share of enslaved people, these societies suffered from uniquely high concentrations of economic, political, and human capital resources (Engerman & Sokoloff, 1994). These imbalances, in return, led to a long-lasting social domination emanating from these tiny segments of society (Engerman & Sokoloff, 1994). The preliminary scientific account of Engerman and Sokoloff (1994) was extended by showing a robust path-dependent sensitivity of institutional development on the incidence of inequality (Engerman & Sokoloff, 2005). Additionally, high levels of subsequent post-independence patronage along ethnic lines also feed into a diminishing accessibility of public goods like schooling and other social infrastructure to the formally liberated population (Engerman & Sokoloff, 1994). Therefore, Engerman and Sokoloff (2005) repeatedly insisted on extreme inequality as being the primary driver behind the relation of initial institutional settings and poor contemporary economic performances in Latin America.

Nunn (2007) independently reviewed the hypotheses proposed by Engerman and Sokoloff (1994, 2005) and ultimately confirmed the general idea of a robust relationship between the slavery-based institutional evolution and poor growth. However, the validity of the second part of the hypotheses designating inequality as the key driving force has been questioned by Nunn (2007). Instead, Nunn and Wantchekon (2011) discussed collective interpersonal mistrust as a theoretical channel adversely affecting institutional quality and hence growth. Uttermark (2020) adjusted this perspective and capitalised on inter-regional mistrust levels resulting from the historic proportions of slaves in Brazil and the US to proxy for local social capital. Corresponding to Nunn's (2007) empirical rejection, Uttermark (2020) concludes that the social acceptance and depth of slavery shaped the intergenerational severity of political conflicts. This historical prevalence of upheavals in exchange governs the current levels of social capital accumulated within a society as well as the institutional quality (Uttermark, 2020).

Sugihara (2003, p.93–96) sketches a diametrically different picture when revisiting the contributions of institutions to Asian economic development. That is, far Eastern economies were typically exposed to tight resource constraints especially manifested in relative land scarcity forcing the respective societies to thrive under different conditions than the traditionally energy-intensive Western strategies of industrial upgrading (Sugihara, 2003, p.82). The European pathways heavily relied on repressive and inequality-generating resource

extraction in new World economies previously discussed based on Engerman and Sokoloff (1994, 2005; Sugihara, 2003, p.96–116). Arising from these relative input shortages, early Asian industrialisers depended on an antiquated rural-based and collectivistic social system where small family-sized farms successfully functioned as a "labour-absorbing institution" (Sugihara, 2003, p.83). Urbanisation rates were considerably lower relative to comparable Western figures at similar stages of development (Sugihara, 2003, p.96). Moreover, until the first world war, intra-Asian trade volumes increased at a much higher pace than the regional trade with the West or the overall world trade, which indicates a solid competitive capacity of early economic development in Asia as well as a consolidated regional division of labour (Sugihara, 1998).

In the post-world war two era, Japanese industrial policy aimed at enhancing rural-urban economic linkages and interdependencies as metropolitan industrial hubs started to grow disproportionately. The strategy intended to balance off the internal movement of people and to harmonise wage rises in both areas (Sugihara, 2003, p.109). The emphasis on domestic sectoral integration was imitated by succeeding countries like South Korea as a follower goose according to the framework of Akamatsu (1962; Rodrik, 1994). Here, the government closely assisted the long-run build-up of large conglomerates through a successive technological progression and the absorption or internalisation of accumulated human capital and knowledge spillovers (Rodrik, 1994). Second-tier economies such as Malaysia, in return, emulated policies stemming from the Korean experience based on the close coordination of investments as well as the integrated manufacturing build-up. (Haraguchi & Rezonja, 2010). Strikingly, Malaysian industrial output growth eventually outperformed equivalent Korean figures, according to Haraguchi and Rezonja (2010). Analogous to the balanced wealth increases during industrialisation already pointed out in Japan and Korea, the GINI coefficients for Malaysia and other regional second-tier economies decreased by up to 15% during economic take-off (Li & Yu, 2014; Sugihara, 2003, p.96–101, 109; World Bank, 1993). However, intersectoral linkages in Malaysia didn't mature until the Asian financial crises hit, rendering the economy highly vulnerable relative to a strongly interconnected Korea, attributable to a lasting Malaysian dependency on external demand (Haraguchi & Rezonja, 2010). However, reactions between the countries to the financial crisis also differed fundamentally, leading to medium run divergencies in the extent of financial market liberalisation more thoroughly discussed in chapter 5 (Haraguchi & Rezonja, 2010; Yoon, 2005).

Overall, the emphasis on directed investment policies to upgrade economic capabilities was also closely guarded by continuous improvements of public goods such as transportation or telecommunication infrastructure to accommodate rising demands and requirements resulting from growth and improving economic sophistication and complexity (Sugihara, 2003, p.107–114). After all, these encompassing policy packages together with a typically high resource scarcity inevitably forced Asian industries to engage in more labour-intensive technologies engendering a vital and existential role of human capital accumulation as well (Li & Yu, 2014; Sugihara, 2003, p.82, 97, 110–111). Arguably, the region never left this alternative and more labour-intensive path as energy intensity levels always remained below equivalent Western figures (Sugihara, 2003, p.111–113).

Moving on to the hypothesis to be examined, this thesis allows for nonlinear quadratic human capital effects as theorised by Galor and Zeira (1993) or Banerjee and Newman (1993) and empirically explored by Jauch and Watzka (2016), Nikoloski (2012), or Tan & Law (2012). However, predictions are going to diverge regionally due to the earlier discussions of the Engerman and Sokoloff (1994, 2005) hypothesis or Sugihara's (1998, 2003) influential work. Inspired by Greenwood and Jovanovic's (1990) scepticism concerning the potential selective inaccessibility of newly introduced financial services, financial development in Latin America is expected to deteriorate inequality further. Banerjee and Newman (1993) come to similar conclusions as deep economic frictions arguably undermined the existence of a broad and enterprising middle class. Analogous findings of such a positive linear relationship already have been reported by Jauch and Watzka (2016) or de Haan and Sturm (2017) using different country samples as well as disparate key variable measures.

Regarding the Asian subsample, aspects of human capital investments are expected to be much more pronounced in the individual-based budget decision-making process, which bears a resemblance with Galor and Zeira's (1993) expectations. That is, since human capital investments depend on financial intermediaries and their charged fees, obstacles arise for low-income households to actively engage in banking, analogous to Greenwood and Jovanovic (1990). However, as the economy grows, banking accessibility continuously penetrates wider society which conditions the hypothesis of an eventual decrease of inequality as aggregate human capital stocks rise (Galor & Zeira, 1993; Jauch & Watzka, 2016). This reversing process reinforces itself with respect to the growth-enhancing properties of human capital at the heart of Asian development in a Kuznetsian (1955, 1973) fashion (Galor & Zeira, 1993; Jauch &

Watzka, 2016). Li and Yu (2014) distinctively accounted for human capital in their empirical work on Asia with a related motivation, although they surprisingly don't check for nonlinearities.

## 2.5 Theoretical synthesis and methodological implications

The fact that theory and empirical evidence remain ambiguous towards the size and direction of the financial development and inequality nexus calls for increased caution when deriving own hypotheses as well as elaborating methodological considerations. Standard issues concerning endogeneity have been widely acknowledged within academia (de Haan & Sturm, 2017; Ni & Liu, 2019; Nikoloski, 2012). Li and Yu (2014), for instance, drew up the possibility that financial development might be driven by intensive lobbying efforts of wealthy individuals, which would effectively reverse the causality. Comparable dynamics were supposedly at play when subprime loans were introduced in the US to provide housing credit to low-income households with high risks of default (Bazillier & Hericourt, 2016). Other than that, Bazillier and Hericourt (2016) discuss the repercussions of transitory income shocks that don't alter long-run income expectations. The theory evolving around this issue claims an endogenous responsiveness of credit markets on temporary income volatilities hence manipulating and misleadingly inflating the empirical measures of quantitative financial deepening as well (Bazillier & Hericourt, 2016).

Bazillier and Hericourt (2016), as well as Atkinson and Morelli (2011), altogether raise the awareness of potentially confounding variables. According to this argument, an intervening variable might spuriously drive any significant relationship between financial development and inequality. Hence, they claim the results to be a product of political shifts towards the embrace of more conservative or right-wing politics affecting the financial environment as well as inequality simultaneously (Bazillier & Hericourt, 2016; Atkinson & Morelli, 2011). Hence, both, inequality and financial development are interpreted as co-appearances following specific political pathways (Atkinson & Morelli, 2011; Bazillier & Hericourt, 2016). Similar suggestions have been made for the role of monetary policy. Different stabilising interventions on the money market can impact income groups differently by diminishing macroeconomic

fluctuations (Bazillier & Hericourt, 2016). As precautionary savings decrease, the relative size of credits is assumed to decline synchronously as well (Bazillier & Henricourt, 2016). Since financial development is traditionally approximated using the quantitative private credit to GDP ratio, this measure is susceptible to changes in monetary policy (Nikoloski, 2012; Bazillier & Hericourt, 2016; Beck, Demirgüç-Kunt & Levine, 2007; Weychert, 2020).

Although concerns of confounding remain, an elaborated set of solutions with regards to endogeneity emerged. Beck, Demirgüç-Kunt, and Levine (2007), as well as Naceur and Zhang (2016), commonly used measures of ethnic, linguistic, and religious fragmentation or judicial origins to instrument for financial development in their respective two-stage least squares approaches (Weychert, 2020). However, since instruments require a strong correlation with the endogenous variable and a simultaneous uncorrelation with the error term, Gerry, Lee, and Mickiewicz (2008) questioned the method's feasibility within the framework of dynamic panel models also applied within this paper. Correspondingly, the use of the generalised method of moments (GMM) regression proposed by Arellano and Bond (1991) has been accepted and used within a wide array of studies as a sensitivity check (Abiad, Oomes & Ueda, 2008; Beck, Demirgüç-Kunt, and Levine, 2007; de Haan & Sturm, 2017; Levine, 2005, p.900–904; Nikoloski, 2012; Weychert, 2020). One major strength of this GMM lies in the ability to eliminate endogeneity by capitalising on time lags for any explanatory variable (Gerry, Lee & Mickiewicz, 2008). However, the intuition, as well as the properties of this estimation method, will be further elaborated on in chapter 4.

## 3 Data sources and observational period

The data at hand in this paper compiles different variables obtained from diverse sources, finally assembled as a cross-sectional time-series panel dataset. A close consideration of alternative sources moreover preceded the actual creation of the final dataset. It ultimately comprises a strongly balanced sample of 12 Latin American and Asian countries, capturing annual data stretching from 1996 until 2018. This specific post-Asian financial crisis timeframe correlates with Kaminsky's and Reinhard's (1998) observation of increasing macroeconomic convergence between both regions in terms of the inflation rate, the real GDP growth, and the occurrence of crises or economic shrinkage. Hence, it allows observing possibly differential inequality effects stemming from country-specific financial development paths within somewhat comparable economic environments. Finally, recent trends following the global financial crisis of 2008 are going to be captured. They have been relatively under-researched according to Saka et al. (2019), as the most prominent financial development dataset by Abiad, Detragiache, and Tressel (2010) has not been updated after 2005 (de Haan & Sturm, 2017; Ni & Liu, 2019).

### 3.1 Source material and variable construction

The state of financial development,  $FD_{i,t}$ , as the significant variable of interest was retrieved from the IMF's (2020) financial development index further presented by Svirydzenka (2016). Furthermore, the IMF's (2020) proposed annual measure can be further decomposed into two sub-indices augmenting a country's institutional and market functionality (IMF, 2020; Svirydzenka, 2016). Both of these sub-indices, in return, are sub-divided into the respective measures of depth, access, and efficiency while utilising proxies such as shares of private crediting relative to a nation's GDP or the size of the stock market capitalisation of major firms (IMF, 2020; Svirydzenka, 2016). See appendix A for a precise depiction of the index and its compositional features. The multivariate distinction of financial development is of analytical value since Lee and Shen (2006) announce particular beneficial growth stimuli arising from stock market developments and growth-hampering properties of quantitative expansions in the



banking sector. Other inquiries into inequality effects report similarly selective outcomes as inequality appears to be primarily driven by growth in the banking sector (Naceur & Zhang, 2016; de Haan & Sturm, 2017). As a final benefit apart from its previously mentioned recency, the measure is transparent in its treatment of missing values. The sub-index measuring financial access was only collected from 2004 onwards and followingly exploits a splicing technique to project the series further back in time (Brei, Ferri & Gambacorta, 2018; Svirydzenka, 2016). This strategy implies a retrospective and iterative computation of the missing data merging the earliest available observation with the underlying average growth rate of adjacent indicators such as the country- and time-specific depth of financial institutions (Svirydzenka, 2016).

Turning now towards aspects of variable construction, every single  $I_x$  series resembles a variable included in table 7 of appendix A. These series get integrated into the  $FD_{i,t}$  variable by initially normalising and winsorising the data using the 5<sup>th</sup> and 95<sup>th</sup> percentiles as cut-off points to prevent any possible skewness due to outlying observations (Svirydzenka, 2016). The preliminary sub-indices then result from an aggregation according to a weighted linear average of the respective series adhering to the equations below (Svirydzenka, 2016).  $FI_j$  and  $FM_j$  denominate the individual domains of depth, access, and efficiency of the financial institutions and financial markets sub-indices, respectively (Svirydzenka, 2016):

$$FI_j = \sum_{i=1}^n w_i I_i \quad (1)$$

$$FM_j = \sum_{i=1}^n w_i I_i \quad (2)$$

Aggregating these individual indices into the bivariate categories of overall financial institutional or market sophistication follows the identical scheme of a weighted linear average as shown below (Svirydzenka, 2016):

$$FI = \sum_{j=1}^n w_j FI_j \quad (3)$$

$$FM = \sum_{j=1}^n w_j FM_j \quad (4)$$

The weights were calculated from a principal component analysis capturing the relative proportion of the variation in each measure relative to the overall variation within the respective

aggregated higher-level index (Svirydzenka, 2016). Adding country- as well as time-specific results yields the final aggregate index of financial development (Svirydzenka, 2016):

$$FD = w_{FI}FI + w_{FM}FM \quad (5)$$

This procedure closely adheres to an OECD (2008) manual for creating aggregated indicators, thus further raising the quality of the source. Finally, Brei, Ferri, and Gambacorta (2018) adopted this new dataset for the first time in their study, which raises its credibility.

A competing and possibly more comprehensive or holistic variable was already discussed briefly and originally proposed by Abiad, Detragiache, and Tressel (2010). It's the most frequently used index on financial development within academia, as the examples of Naceur and Zhang (2016) or Yiping, Qin, and Xun (2014) show (Ni & Liu, 2019). Furthermore, the measure subsumes seven individual dimensions when assessing a country's state of financial reform (Abiad, Detragiache, and Tressel, 2010). The dataset is followingly more far-reaching, multidimensional, and inclusive than the IMF's (2020) financial development index. Nevertheless, the issue of the early end of the observational period remains, which contradicts the aim of this paper initially inspired and motivated by Kaminsky and Reinhard's (1998) work. Denk and Gomes (2017) offered an updated and slightly adjusted version of the dataset by Abiad, Detragiache, and Tressel (2010; Saka et al. 2019). However, the accessibility remained difficult. Leaving issues of practicability aside, major reservations additionally remain concerning the loss of information due to the dichotomisation of inherently continuous variables (Deyi, Kosinski & Snapinn, 1998). Since both, Abiad, Detragiache, and Tressel (2010) as well as Denk and Gomes (2017) entirely rely on dichotomous variables relative to the IMF's (2020) index, this paper prefers the IMF's (2020) dataset. It is going to be used throughout all inquiries performed in this paper.

The countries included in the sample were primarily selected based on overall data availability and followed earlier preliminary work on this subject (Stallings, 2004). Stallings (2004) tracks the historical evolution of financial market flexibilisations in Latin America and Asia which offers a baseline for future reference when discussing and embedding the results. Consequently, the Latin American countries included in the sample are Argentina, Brazil, Chile, Mexico, Peru, and Venezuela. The Asian nations considered in this paper encompass China, Indonesia, Korea, Malaysia, the Philippines, and Thailand. Initially, the GINI coefficient was preferred as the primary inequality measure. The World Bank (2013) database provided the respective dataset

compiled by Milanovic (2019). As formulated by Milanovic (2019), a significant strength of the index lies in the computation of the index values. That is, the realisations of the GINI variable exclusively made use of actual household questionnaires and were based on up to nine regional surveys usually further processed by the World Bank (Milanovic, 2019). Milanovic (2019) primarily resorted to compiling and harmonising the retrieved values. However, major caveats arise as the containing data only ranges from 1945 until 2012 (World Bank, 2013).

Furthermore, Ni and Liu (2019) suggested the use of income shares or quintiles to complement either or substitute the GINI, which tends to be rather irresponsive to changes at the higher and the lower ends of the income spectrum. As a reaction to this criticism, the World Inequality Database (2020) was used to obtain data on the country- and time-specific top 1% income shares. Other quintiles include the top 10% income share to examine the selective impacts on different wealth segments of society.

Conclusively, the standard variables controlling for the inflation rates, trade exposures, GDP per-capita levels, and government sizes are acquired from the World Bank (2020a, 2020b, 2020c, 2020e) in the form of the world development indicators. The inflation rate is measured as an annual percentual change. The traditional proxies of a nation's trade exposure and its government size are calculated as the shares of trade volumes and public sector expenditures relative to a nation's GDP (Naceur & Zhang, 2016; World Bank, 2020a, 2020c, 2020e). The GDP per capita levels are measured in constant 2010 US-Dollars (World Bank, 2020b). See appendix B for summary statistics of all variables. To prevent any criticism of oversimplification, de Haan and Sturm (2017) further consider the supplementation of their trade exposure measures by adding the net barter terms of trade index, which is again accessible via the World Bank (2020d). However, this additional strategy is not adopted within this paper because of possible availability constraints and multicollinearity concerns.

## 4 Considerations about the applied methods

Due to the properties of cross-sectional time-series panel data with its loosened restrictions, Baltagi (2011, p.305–306) suggests the use of fixed effects models if the cross-section specific components (here, the country-specific effects) are believed to be fixed. Beck, Demirgüç-Kunt, and Levine (2007), Weychert (2020) as well as Li and Yu (2014) either applied identical techniques in their respective analyses or recommended these empirical approaches in their literature reviews. It is, moreover, the most promising concept as the research aim of this paper inherently emphasises the within-country dynamics (de Haan & Sturm, 2017). However, Gerry, Lee, and Mickiewicz (2008) ultimately urge to back the decision statistically. Accordingly, the literature advises the consultation of the Hausman (1978) test for the presence of autocorrelation in the data (Baltagi, 2011, p.320–321; Gerry, Lee & Mickiewicz, 2008; Li & Yu, 2014; Weychert, 2020). Test results for this paper remained inconclusive depending on the model specification depicted in table 3 but tended to result in a fixed effects formulation. These findings imply the country-specific time-invariant effects to be fixed instead of random (Baltagi, 2011, p.306–309). Moreover, the use of fixed effects ensures the consistency of the model results when compared to hypothetical random effects models at the possible cost of a comparative inefficiency (Baltagi, 2011, p.320–321).

To improve the reliability of estimates to be found in the empiric framework, Gerry, Lee, and Mickiewicz (2008) introduced different GMM models to circumvent possible practicability issues of conventional two-stage least squares methods. Arellano and Bond (1991) argued for the use of lagged dependent variables to instrument for regressors suspected of endogeneity (Gerry, Lee, and Mickiewicz, 2008). However, this step is also theoretically motivated since it accounts for the fact that inequality evolves path-dependently and only changed slowly, historically speaking (Jauch & Watzka, 2016). Beck, Demirgüç-Kunt, and Levine (2007) early applied this concept to the literature on the financial development and inequality nexus whilst Gerry, Lee, and Mickiewicz (2008) provide the following equation for an intuitive illustration:

$$\ln(y_{i,t}) = \beta_0 + \beta_1 \ln(y_{i,t-1}) + \beta_2 X_{i,t} + c_i + u_{i,t} \quad (6)$$

Here, the  $y_{i,t}$  and  $X_{i,t}$  variables denote a logged individual outcome variable and a vector of control variables, respectively. To elaborate further on the equation above, Gerry, Lee, and Mickiewicz (2008) take the first differences as performed by the GMM estimation method of Arellano and Bond (1991), whose model results are displayed below:

$$\ln(y_{i,t}) - \ln(y_{i,t-1}) = \beta_1[\ln(y_{i,t-1}) - \ln(y_{i,t-2})] + \beta_2[X_{i,t} - X_{i,t-1}] + [u_{i,t} - u_{i,t-1}] \quad (7)$$

Gerry, Lee, and Mickiewicz (2008) argue here in a similar vein to Tan and Law (2012) by maintaining that GMM estimations still suffer from endogeneity in any of the explanatory control variables if  $X_{i,t} - X_{i,t-1}$  and  $u_{i,t} - u_{i,t-1}$  are correlated, which formally implies that  $E(X_{i,t} u_{i,t}) \neq 0$  as well as  $E(X_{i,t-1} u_{i,t-1}) \neq 0$ . Hence, the immediate first differences don't necessarily provide a basis for valid individual instruments, according to Gerry, Lee, and Mickiewicz (2008). However, using lagged first differences poses a strategy according to which the assumptions of  $E(X_{i,t-2} u_{i,t} - u_{i,t-1}) = 0$  and  $E(X_{i,t-2} X_{i,t} - X_{i,t-1}) \neq 0$  would ideally hold, effectively ruling out any endogeneity bias (Gerry, Lee, and Mickiewicz, 2008). Levine (2005, p.900–904) expunges these points of concern and favours to uniformly lag all explanatory variables while also testing for second-order serial correlation in the errors of the first-difference regressions. Beck, Demirgüç-Kunt, and Levine (2007) implemented this strategy by expecting all their dependent variables to suffer from endogeneity potentially. This latter strategy will consequently also be applied to equation 9 in chapter 4.1 to render all explanatory variables immune to this type of endogeneity.

## 4.1 The static and dynamic model equations

As a baseline for the empirical analysis, the adjusted fixed effects model equation originally derived from Naceur and Zhang (2016) is given by:

$$IncShare_{i,t} = \alpha + \beta_1 FD_{i,t} + \beta_2 FD_{i,t}^2 + \beta_3 FD_{i,t} \cdot Asia_i + \beta_4 FD_{i,t}^2 \cdot Asia_i + \gamma X_{i,t} + \varepsilon_{i,t} \quad (8)$$

The subscript  $i$  identifies the country of observation, whereas  $t$  denotes the respective time period. Both, the country- and time-specific top income percentiles or deciles,  $IncShare_{i,t}$ , are going to be the primary inequality measure as already exercised by Cabral, García-Díaz, and Mollick (2016). This contradicts Naceur and Zhang's (2016) suggestion for the GINI but

follows Ni & Liu's (2019) critique of a low sensitivity towards changes at both ends of the income continuum. Beyond that, an additional quadratic term of the IMF's (2020) index measure of financial development,  $FD_{i,t}$  has been included in opposition to Naceur and Zhang (2016). It is supposed to account for nonlinear relationships as theoretically reasoned by Galor and Zeira (1993) and applied by several studies (Brei, Ferri & Gambacorta, 2018; Lin and Kim, 2011; Jauch & Watzka, 2016; Tan & Law, 2012). The quadratic interaction of  $FD_{i,t} \cdot Asia_i$  and  $FD_{i,t}^2 \cdot Asia_i$  is motivated to detect the differential regional impact on the inequality dynamics. The Asian dummy interaction is inspired by Sugihara's (1998, 2003) theoretical work as well as Li and Yu's (2014) focus on human capital in their regional analysis. Finally, the  $X_{i,t}$  vector of macroeconomic control variables again follows Naceur and Zhang (2016) and captures the country- and time-specific logged GDP per-capita, inflation rate, trade exposure and public expenditure as stated in chapter 3.1 (Naceur & Zhang, 2016; Ni & Liu, 2019).

The second dynamic equation follows the suggestions of Gerry, Lee, and Mickiewicz (2008) with regards to the Arellano and Bond (1991) GMM estimation. The implementation with the additional lagged dependent variable is stated below:

$$IncShare_{i,t} = \alpha + \delta IncShare_{i,t-1} + \beta_1 FD_{i,t} + \beta_2 FD_{i,t}^2 + \beta_3 FD_{i,t} \cdot Asia_i + \beta_4 FD_{i,t}^2 \cdot Asia_i + \gamma X_{i,t} + \varepsilon_{i,t} \quad (9)$$

Firstly, the incorporation of the lagged dependent variable accounts for the historic and path-dependent evolution of inequality, further allowing the adjustment of the dependent variable to its long-run equilibria (Tan & Law, 2012). Gerry, Lee, and Mickiewicz's (2008) intuition based on equation 7 of chapter 4 also illustrated the urge for further robustness checks, such as the test for the second-order autocorrelation in the differenced errors. Accordingly, the subsequent GMM estimations will feature post estimation tests for lags of up to two periods moving beyond Tan and Law (2012) by treating all explanatory variables as potentially endogenous (Beck, Demirgüç-Kunt & Levine, 2007; Levine, 2005, p.900).

# 5 Empirical Analysis

As already discussed, the observed period starting from 1996 has witnessed rising economic convergence, as evidenced by Kaminsky and Reinhard (1998). Due to sweeping macroeconomic imbalances and eventual crises throughout Latin America, the continent's mean inflation rate from 1986 until 1995 amounted to a staggering 429%, whereas the East Asian country group averaged at 6% (Kaminsky & Reinhard, 1998). Beyond that, real GDP growth and FDI inflows of Latin America both averaged at roughly half of the equivalent East Asian figures (Kaminsky & Reinhard, 1998).

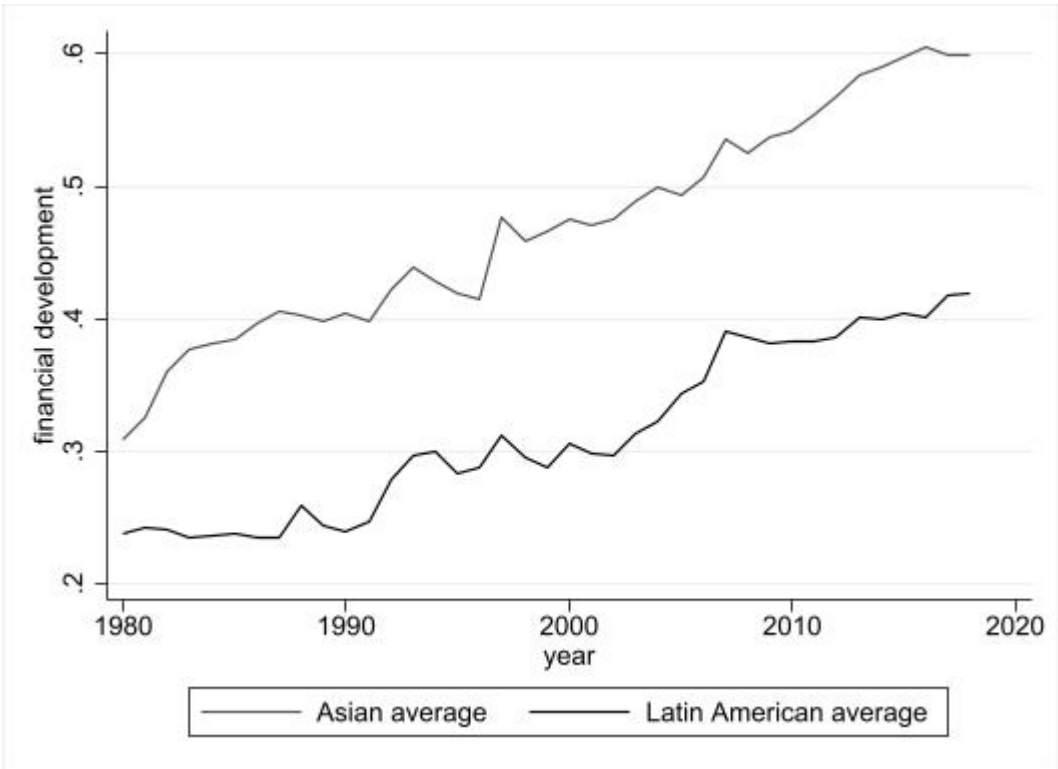


Figure 1: Annual average financial development indicators by region (Source: Author's work based on IMF (2020) data)

Stallings (2004) sketches the path-dependent trends of liberalisation of Latin American and East Asian countries between 1973 and 2002, finding a much more volatile long-run trend in the former region. Latin American financial liberalisation kicked off in Chile following the

coup d'état, which was furthermore associated with a fundamental paradigmatic shift in terms of economic policy (Stallings, 2004). Waves of rapid and subsidised bank privatisations followed in conjuncture with the abolition of significant financial sector controls and capital account openings (Stallings, 2004). In the face of high capital inflows and previous fiscal surpluses, the credit volume expanded exponentially and eventually led to a banking and a balance-of-payments crisis (Stallings, 2004). Brazil, Colombia, Argentina, and Peru embarked on comparable reform programs that caused financial liberalisation's respective indicators to surpass equivalent OECD levels temporarily in the late 1970s (Stallings, 2004). However, succeeding a vast political backlash and revisionist policies with regards to the economic disturbances, Latin American countries, in particular, reversed their positions during the 1980s, also apparent in the exceeding role of Asia in figure 1. The state of Latin American development remained somewhat stagnant ever since. That is, other crises similar to the Chilean experience erupted in Mexico in 1995 and Argentina from 2001 until the following year (Stallings, 2004). The associated temporary imposture of new controls is again visible in the IMF (2020) data above.

As already indicated, the Asian country sample of this paper followed a more hesitant but consistent path of financial liberalisation dominated by successive openings that were never similarly revoked in their fundamentals (Stallings, 2004). Early financial reforms only took place starting from the 1980s, although several countries remained closed to foreign economic agents (Stallings, 2004). This distinctively tight and comprehensive institutional protection of the economic sphere has also been highlighted by Rodrik (1994). Resulting from these more favourable macroeconomic environments, Asian liberalisation overwhelmingly lasted without many macroeconomic eruptions (Kaminsky & Reinhard, 1998). However, the Great Asian financial crisis proved to be historically unparalleled in its magnitude relative to Latin America (Stallings, 2004). The states' reactions to this specific crisis varied substantially. Korea traditionally put more emphasis on a matured domestic integration connected with the subsequently late termination of financial market controls (Haraguchi & Rezonja, 2010; Yoon, 2005). The country adhered to the liberal policy prescriptions of the IMF, and its exposure to the severe regional crisis of 1997 didn't prevent Korea to match its pre-crisis performance eventually. Malaysia, however, stagnated economically and never reached its pre-crisis sectoral growth, which Yoon (2005) ascribes to its reintroduction of capital controls and other repressive limitations on foreign investments (Suehiro, 2019, p.38–40). These political divergencies also account for the brief decline in financial development apparent in figure 1, although they didn't



prevail in a regional comparison. Thailand also adhered to IMF policy prescriptions, prioritising the restoration of foreign credibility (Yoon, 2005). On a par with Levine's (2005, p.866) strong evidence on the robust positive relationship between financial development and growth, Thailand's backward position relative to Malaysia changed radically following the crisis with shrinking regional competitive advantages (Suehiro, 2019, p.44). Both the sectoral manufacturing as well as export growth rates in Thailand exceeded Malaysian figures for the first time with the turn into the new millennium where Thai companies increasingly outperform their Malaysian competitors (Suehiro, 2019, p.38–43).

Corresponding to this long-run unidirectional drift of continuing financial development between East Asia and Latin America, Hermes and Nhung (2010) look at regional bank efficiency trends. They use a country group that broadly matches the sample used in this paper and underly a period from 1991 until 2000 for their inquiry, which parallels Stallings (2004) claim of full financial liberalisation in East Asia and Latin America (Hermes & Nhung, 2010). Merging multifaceted country-level liberalisation measures with individual bank-specific benchmarks, Hermes and Nhung (2010) conclude converging financial sector efficiency trends, arguably strengthening the baseline for the following comparative analysis in chapter 5.1.

## 5.1 Results

Turning now towards the empirical analysis, this section is going to present static and dynamic results for the region-specific financial development and inequality nexus. Dependent inequality measures will be the country- and time-specific top income percentile and decile, respectively. As already indicated, a fixed effects estimation was preferred relative to a random-effects model since the Hausman (1978) tests remained inconclusive depending on the model specification. Consequently, this procedure is expected to yield less efficient estimates than obtained with random effects (Baltagi, 2011, p.320–321). However, this decision benefits the models' consistency and follows the academic standard when controlling for unobserved within-country variables (Baltagi, 2011, p. 320–321; Park & Shin, 2017). Accordingly, all static estimates can be interpreted as conservative lower-bound coefficients relative to a hypothetical or counterfactual scenario of random effects.

The first battery of regressions below uses the top income decile as a dependent inequality proxy motivated by Ni and Liu (2019). The first two columns start with the linear composite measure of financial development by the IMF (2020) and its interaction with the dummy indicating an Asian country. However, both effects don't enter the regression significantly. Inequality is more affected by inflation rates and a country's exposure to the world market, where both variables feature the expected signs. Inflation is found to affect inequality negatively, according to a vast body of literature dealing with the costs of inflation (Bulír, 2001). Narob (2015) supplements Bulír's (2001) work on price stability effects by pointing out the nonlinear fashion in which inflation ultimately reduced overall inequality in an African country sample. Moreover, Wood (1997) early pointed out a widening income gap especially pronounced in Latin America following trade liberalisations, thereby challenging the conventional wisdom derived from the Heckscher-Ohlin model.

Table 3: Static fixed effects model capturing financial development effects on top income deciles

Variables	(1) Top 10% income share	(2) Top 10% income share	(3) Top 10% income share	(4) Top 10% income share
$FD_{i,t}$	-0.0386 (0.0943)	-0.00632 (0.170)	-0.286 (0.273)	-0.887** (0.299)
$FD_{i,t}^2$			0.221 (0.233)	1.221*** (0.326)
$FD_{i,t} \cdot Asia_i$		-0.0373 (0.207)		0.231 (0.471)
$FD_{i,t}^2 \cdot Asia_i$				-0.718 (0.432)
$GovExp_{i,t}$	0.00267* (0.00139)	0.00265 (0.00145)	0.00238 (0.00141)	0.00187 (0.00109)
$\ln(y_{i,t})$	-0.00777 (0.0255)	-0.00928 (0.0261)	-0.00285 (0.0226)	-0.00246 (0.0179)
$Infl_{i,t}$	-0.00118*** (0.000317)	-0.00115** (0.000372)	-0.00129*** (0.000351)	-0.00121*** (0.000357)
$Trade_{i,t}$	0.000569*** (0.000168)	0.000553** (0.000206)	0.000613*** (0.000166)	0.000565*** (0.000143)
Observations	177	177	177	177
$R^2$	0.352	0.354	0.383	0.481
Number of country	9	9	9	9

Note: Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Data Sources: IMF (2020), World Bank (2020a, 2020b, 2020c, 2020e), and World Inequality Database (2020).

The further incorporation of the generalised quadratic effect in column 3 fails to change the dynamics within the first two columns qualitatively. Moreover, inflation rates and a nation's exposure to trade persist even in the final formulation of the model in column 4. Here, the high significance of the quadratic financial development effect is striking as both terms feature the opposing signs when comparing it with the inverted-U hypothesis originally inspired by Kuznets (1955, 1973) and later adapted by Galor and Zeira (1993). This preliminary insight is identical to Tan and Law (2012), who disputed this theoretical notion by finding a U-shaped relationship based on their GMM method. Brei, Ferri, and Gambacorta (2018) or Park and Shin (2017) arrive at the same robust conclusion independently from Tan and Law (2012). Figure 2 depicts this stylised pattern for Latin America relative to Asia based on a subindex that substantially drives these financial development trends (see appendix C for the notably robust coefficients). The unconventional pattern has additionally been indicated for a group of African countries by Tita and Aziakpono (2016), who analogously to Tan and Law (2012) attribute that reversal to reoccurring inefficiencies and imperfections.

Table 4: Static fixed effects model capturing financial development effects on top income percentiles

Variables	(1) Top 1% income share	(2) Top 1% income share	(3) Top 1% income share	(4) Top 1% income share
$FD_{i,t}$	-0.0292 (0.0747)	0.0228 (0.0967)	-0.0884 (0.199)	-0.238 (0.303)
$FD_{i,t}^2$			0.0529 (0.173)	0.373 (0.340)
$FD_{i,t} \cdot Asia_i$		-0.0600 (0.120)		-0.129 (0.397)
$FD_{i,t}^2 \cdot Asia_i$				-0.0967 (0.412)
$GovExp_{i,t}$	0.00206 (0.00115)	0.00202 (0.00113)	0.00199 (0.00118)	0.00157 (0.00105)
$\ln(y_{i,t})$	-0.0134 (0.0146)	-0.0158 (0.0163)	-0.0122 (0.0157)	-0.0145 (0.0131)
$Infl_{i,t}$	-0.000935** (0.000374)	-0.000891** (0.000362)	-0.000962** (0.000393)	-0.000927* (0.000404)
$Trade_{i,t}$	0.000423*** (0.000113)	0.000397** (0.000135)	0.000433*** (0.000121)	0.000396*** (0.000102)
Observations	177	177	177	177
$R^2$	0.330	0.338	0.332	0.375
Number of country	9	9	9	9

Note: Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Data Sources: IMF (2020), World Bank (2020a, 2020b, 2020c, 2020e), and World Inequality Database (2020).

The first three columns of table 4 above, using top income percentiles instead of deciles, report identical results relative to table 3. Both inflation and trade exposure variables follow the earlier works (Bulíř, 2001; Narob, 2015; Wood, 1997). Interestingly, however, the top income percentile is utterly irresponsible to the financial development status based on the fixed effects model above. The literature on similar observations of nonresponse using emerging or newly industrialised countries remains scarce. However, some work has been done on the distributional dynamic within the highest income shares in OECD economies. Dorn and Schinke (2018) explore the impact of ideological shifts and globalised trade exposure on distributional changes in top incomes. They successively introduce additional controls like technological improvements and financial development proxied by the private credit ratio to GDP (Dorn & Schinke, 2018). Although roughly resembling the institutional subindex of the IMF's (2020) variable, the measure doesn't enter their analysis significantly, which renders the top income percentile identically isolated from financial liberalisation policies (Dorn & Schinke, 2018). This combined evidence might also indicate non-economic drivers of top incomes, with suggestive evidence being further discussed in chapter 5.2.1.

Moving beyond a static fixed effects perspective, table 5 finally provides insights into the dynamic process inherent to the financial development and inequality nexus while providing some robustness checks for the previously discussed endogeneity and reverse causality concerns. Identical to Jauch and Watzka (2016), the very inclusion of the lagged dependent variable acknowledges the fact that inequality is a highly path-dependent and a slowly evolving phenomenon. Hence, the overwhelming magnitude of earlier income shares on contemporary inequality feeds into a vast body of literature which established a consensus on that issue (Beck, Demirgüç-Kunt & Levine, 2007; Brei, Ferri & Gambacorta, 2018; Jauch & Watzka, 2016; Nikoloski, 2012; Tan & Law, 2012).

The further inclusion of all explanatory variables as lags was exercised by Beck, Demirgüç-Kunt, and Levine (2007) to further check the robustness of their results. Hence, table 5 reports estimates presumably free of any “simultaneity bias” (Jauch & Watzka, 2016, p.310) as discussed in chapter 4 referencing Levine (2005, p.900–904) together with Gerry, Lee, and Mickiewicz (2008) or Tan & Law (2012). Post estimation tests for lags of more than one period advanced by Levine (2005, p.900–904) are provided for all model specifications and can't be rejected. Moreover, Sargan tests for overidentifying restrictions also can't be dismissed for any model formulation. The inability to negate any of these post estimation tests proposed by

Arellano and Bond (1991) raises confidence in the assumption of no second-order serial correlation in the first-difference regression errors (Gerry, Lee, and Mickiewicz, 2008; Levine, 2005, p.902–904). Furthermore, it arguably boosts the credibility of the second lags of the instruments to be valid (Baum, 2013).

Table 5: Arellano-Bond (1991) dynamic panel-data estimation capturing financial development effects on top income declines

Variables	(1) Top 10% income share	(2) Top 10% income share	(3) Top 10% income share	(4) Top 10% income share
$IncShare_{i,t-1}$	0.666*** (0.0624)	0.633*** (0.0598)	0.582*** (0.0527)	0.577*** (0.0632)
$FD_{i,t-1}$	0.000110 (0.0323)	-0.0900 (0.0549)	-0.245*** (0.0457)	-0.319** (0.138)
$FD_{i,t-1}^2$			0.216*** (0.0496)	0.319 (0.216)
$FD_{i,t-1} \cdot Asia_i$		0.105** (0.0526)		0.0725 (0.187)
$FD_{i,t-1}^2 \cdot Asia_i$				-0.104 (0.241)
$GovExp_{i,t-1}$	0.00125** (0.000520)	0.00105** (0.000479)	0.000729* (0.000441)	0.000747* (0.000417)
$\ln(y_{i,t-1})$	-0.0168* (0.0102)	-0.0113 (0.00801)	-0.0107 (0.00656)	-0.00996 (0.00642)
$Infl_{i,t-1}$	-0.000479** (0.000207)	-0.000537*** (0.000204)	-0.000616*** (0.000218)	-0.000637*** (0.000219)
$Trade_{i,t-1}$	0.000120 (8.48e-05)	0.000183** (8.26e-05)	0.000211** (8.54e-05)	0.000216** (9.46e-05)
Observations	156	156	156	156
AR(2) test	0.2293	0.2282	0.2264	0.2271
Sargan test	0.4803	0.5210	0.4960	0.5411
Number of country	9	9	9	9

Note: Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Data Sources: IMF (2020), World Bank (2020a, 2020b, 2020c, 2020e), and World Inequality Database (2020).

A significant change relative to the respective fixed effects model of table 3 is the persistently substantial effect of government expenditures on inequality. Meta analytical work by Anderson et al. (2017) has pointed out an exceptionally high distributional responsiveness of income percentile measures on changes in the public budget. Moreover, Wong (2017) identified region-specific dynamics emanating between government spending and inequality when comparing Asia and Latin America. Furthermore, Li and Yu (2014) also highlight a distinct association

between government expenditures and rising income inequality observable when exclusively focusing on an Asian country group. Their interpretation follows the intuition earlier subsumed in chapter 2 under the inclusive margin of financial development defined by Demirgüç-Kunt and Levine (2009; Li & Yu, 2014). Accordingly, public expenditures could implicitly lower transaction costs while financial facilities remain selectively inaccessible (Lin & Yu, 2014). Other than that, the effects of the control variables are qualitatively unchanged compared to the two fixed effect models of table 3 and 4, respectively. The 2<sup>nd</sup> and 3<sup>rd</sup> columns demonstrate the analytical value of the use of the interaction terms of equation 9 in chapter 4.1 as inequality linearly increases in the Asian country sample relative to the nonlinear Latin American dynamics reported in column 3. The result of Asian inequality rises partly matches evidence by Li & Yu (2014), who overall found ambiguous results depending on the specific financial development measure. However, as Lin and Yu (2014) find private credit expansions to be adversely linked with inequality, column 2 above correlates with their result. According to appendix A, similar credit-to-GDP ratios account for substantial proportions of the financial institutions' subindex.

In conjuncture with the 4<sup>th</sup> column of the fixed effects model in table 3, the final model included in table 5 can only verify the first part of the U-shaped relationship first established by Tan and Law (2012). This narrowing linear relationship has already been documented by Beck, Demirgüç-Kunt, and Levine (2007), as well as Hamori and Hashiguchi (2012), for emerging economies.

The results below provide the last output table within the main body of the thesis. Interestingly, the regressions yield and mirror region-specific trends already identified earlier. Correspondingly, the overall country sample features a narrowing income share of the top income percentile in column 2. The Asian subsample, contrastingly, exhibited patterns of intensified inequality. Interestingly, column 3 again strengthens the concept of a U-shaped relationship at play in the overall country sample. In contrast, the positive inequality effect of the squared Asian interaction term remains uniquely significant in the 4<sup>th</sup> column.

Table 6: Arellano-Bond (1991) dynamic panel-data estimation capturing financial development effects on top income percentiles

Variables	(1) Top 1% income share	(2) Top 1% income share	(3) Top 1% income share	(4) Top 1% income share
$IncShare_{i,t-1}$	0.491*** (0.149)	0.443*** (0.146)	0.438*** (0.145)	0.441*** (0.142)
$FD_{i,t-1}$	-0.0245 (0.0292)	-0.139*** (0.0295)	-0.206*** (0.0494)	0.0492 (0.102)
$FD_{i,t-1}^2$			0.159** (0.0633)	-0.243 (0.156)
$FD_{i,t-1} \cdot Asia_i$		0.134*** (0.0517)		-0.187 (0.146)
$FD_{i,t-1}^2 \cdot Asia_i$				0.362** (0.169)
$GovExp_{i,t-1}$	0.00113** (0.000451)	0.000841* (0.000440)	0.000685** (0.000348)	0.000586 (0.000396)
$\ln(y_{i,t-1})$	-0.00976 (0.0102)	-0.00260 (0.00716)	-0.00504 (0.00656)	-0.00595 (0.00731)
$Infl_{i,t-1}$	-0.000437* (0.000264)	-0.000493* (0.000288)	-0.000517* (0.000302)	-0.000539* (0.000301)
$Trade_{i,t-1}$	0.000129*** (3.85e-05)	0.000207*** (6.92e-05)	0.000182*** (5.66e-05)	0.000200*** (6.76e-05)
Observations	156	156	156	156
AR(2) test	0.2293	0.2282	0.2264	0.2271
Sargan test	0.4803	0.5210	0.4960	0.5411
Number of country	9	9	9	9

Note: Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Data Sources: IMF (2020), World Bank (2020a, 2020b, 2020c, 2020e), and World Inequality Database (2020).

As already indicated in chapter 2, Abiad, Oomes, and Ueda (2008) provide a baseline for interpreting this distinctively resilient Asian dynamic when combined with the work of Demirgüç-Kunt and Levine (2009) as well as de Haan & Sturm (2017). Abiad, Oomes, and Ueda (2008) observe a sharp long-run decline in the variation of expected returns to investment which implies the retreat of a government-led credit allocation. This measured rise of aggregate allocative efficiency rates in Asia between 1980 and 1994 refers to the qualitative dimension or intensive margin of financial development that is not necessarily equivalent to a quantitative extension or deepening of credit volumes (Abiad, Oomes & Ueda, 2008; de Haan & Sturm, 2017). Abiad, Oomes, and Ueda (2008) mention Latin America as a somewhat asymmetrical contrast to Asian financial development with the country group's emphasis on financial deepening. The disparity might be able to explain some elements of the corresponding and

persistently clear Asian lead depicted in figure 1 of chapter 5 as well. When recapitulating chapter 2, Greenwood and Jovanovic’s (1990) suggestion of positive inequality effects at the intensive margin seemingly fit the amassed evidence on Asia. Accordingly, the disproportionate catering of qualitatively enhanced financial services to the wealthy at any stage of development provides a possible theoretical link (de Haan & Sturm, 2017; Jauch & Watzka, 2016). However, as equivalent Latin American evidence is ultimately missing, the empirical extension of Abiad, Oomes, and Ueda’s (2008) work on other developing regions poses an interesting gap for future research.

## 5.2 Discussion and retrospective interpretation of results

Summarizing the estimation results, region-specific coefficients always featured consistent directions if significant. Accordingly, all Asian interaction coefficients yielded a positive sign. This rule holds irrespective of the model specification or estimation method and exclusively depends on whether any Asian-specific coefficient enters the estimation significantly. For Latin America, the association is more complex.

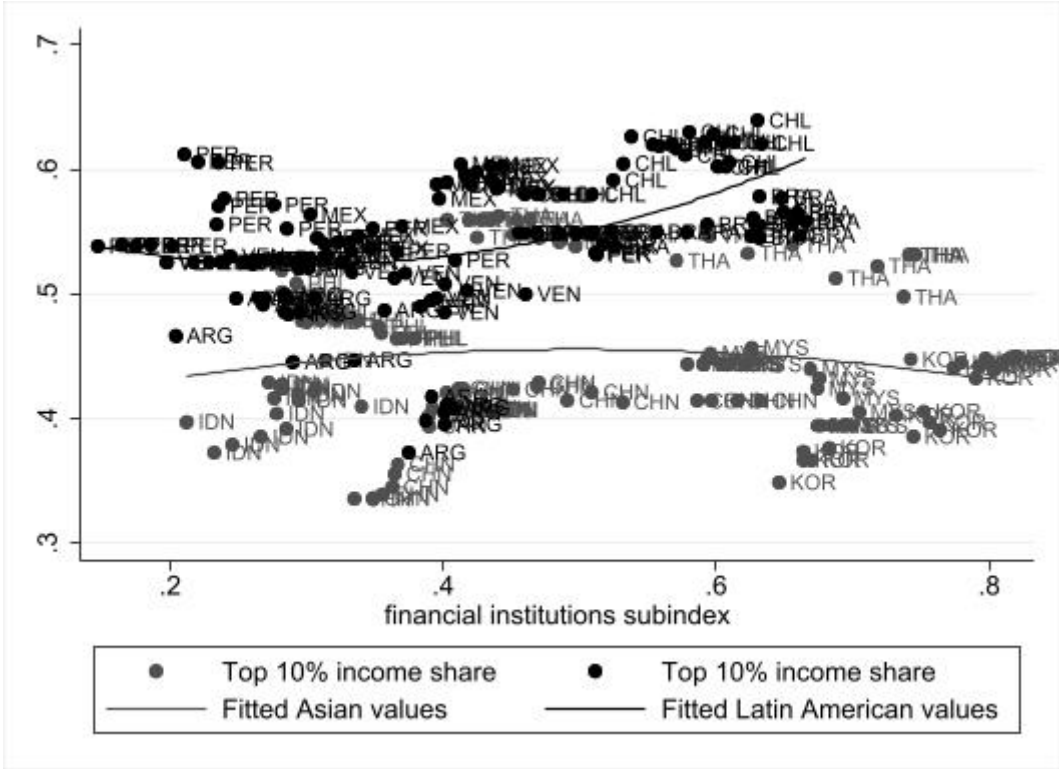


Figure 2: The U-shaped relationship between financial development and inequality in Latin America relative to Asia (Source: Author’s work based on assembled dataset)



Again, initially relying on statistical significance, the respective linear financial development correlates all revealed negative relationships for Latin America. Moreover, quadratic terms turned out to be positive hence indicating a U-shaped relationship for any statistically significant scenario. Figure 2 above depicts this association based on the financial institutions' subindex. This sub-measure is robust and found to powerfully drive the relationship at the top income decile, which is also apparent in the dynamic Arellano-Bond (1991) specification of table 10 in appendix C. However, as this model fails to reach overall statistical significance, the variable won't be further decomposed as the identification of critical drivers would remain empirically weak. As Park and Shin (2017) argue in their paper, the new provision of financial resources to more vulnerable population segments in comparatively less-developed countries as a theoretical channel initially yielded compelling results in combating inequality, echoing Banerjee and Newman (1993). However, the origin or reasoning behind the long-run "anti-equity effect" (Park & Shin, 2017, p.2801) remains unclear and requires further elaboration.

The huge dispersion of Asian countries across the plot and the constant progression of the fitted values visibly explains the continuing insignificance of the Asian interactions in tables 3 and 5, respectively. It moreover indicates the need further to distinguish the Asian country group in future inquiries to eliminate some of the noise stemming from country-specific heterogeneity. This conclusion holds despite the World Bank's (2018) homogenous categorization of China, Indonesia, Malaysia, the Philippines, and Thailand as contemporary higher-income economies.

Overall, the continuing significance of exogenous coefficients despite the inclusion of the lagged dependent variable can raise the confidence in the model. Achen (2000) extends the thread on endogeneity and other methodological considerations of chapter 4. The alternative scenario to the resilient statistical significance in the dynamic panel estimations would lie in the collapse and statistical insignificance of the exogenous variables, which typically indicates the existence of high serial correlation or strong trending within the exogenous variables (Achen, 2000). Nevertheless, despite these arguments against endogeneity-related distortions in the model estimates, the retrieved results indeed can't be interpreted in causal terms.

Although initially intending to explain the prevalence of economic disruptions, Krugman (2010) pointed out the possible common causation of both, the re-emergence of high inequality as well as the occurrence of financial crises. This notion has been widely acknowledged by Bazillier and Hericourt (2016), Atkinson and Morelli (2011, 2015), and Gu et al. (2019). While updating the data Krugman (2010) draws on, Duca and Saving (2016) plot the close association

between levels of political polarization and inequality in the US. The era of relative socioeconomic convergence under the New Deal regime witnessed an abrupt end following the Reagan administration, whose rise to power was also echoed in dramatic inequality increases as well as financial liberalization policies (Duca & Saving, 2016; Krugman, 2010). The reasons behind such paradigm changes are heavily debated and range from an increased societal fragmentation to technological changes (Duca & Saving, 2016). In any case, a diminishing common ground on a range of political issues could trigger income inequality rises as redistributive or subsidizing policies of social empowerment lose support (Duca & Savings, 2016). Although a closer discussion of other possible channels leads beyond the scope of this thesis, it's essential to acknowledge the absence of any variable capturing the degree of political polarization as suggested by Krugman (2010) or Duca and Saving (2016).

Projecting these thoughts on the post-1997 experience in Asia as an exogenous macroeconomic shock, the diverging crises responses have already been noted based on Yoon's (2005) and Suehiro's (2019, p.38) work. Accordingly, both authors assigned the Korean recovery to pre-crisis performance relative to the long-run Malaysian stagnation to these policy differences (Suehiro, 2019, p.38; Yoon, 2005). Moreover, further ramifications of these nation-specific and path-dependent strategies on inequality have been addressed within academia. Although initially belonging to the most equal Asian economies, Korea suffered from historically unique inequality rises since the Asian crisis (Atkinson & Morelli, 2011; World Bank, 1993). The country eventually never successfully reversed this trend, whereas Mauritius and Indonesia set examples for either unchanged or decreasing post-crisis inequality (Atkinson & Morelli, 2011). Similar to that account, Suryahadi, Hadiwidjaja, and Sumarto (2012) report unchanged sectoral growth elasticities of poverty for Indonesia.

Consequently, the possibility of intervening effects stemming from shifts in the country- or region-specific political spheres can't be entirely ruled out, which followingly denies any strictly causal interpretation. Park and Shin (2017) link their retrieved U-shaped relationship with stylized inequality rises recently observed in the developed economies. They assume this eventual rise to be a generalizable theoretical pattern yet to be established (Park & Shin, 2017). Apart from the calculated U-shaped plot, this framework would moreover potentially explain the persistently positive Asian coefficients as results of the comparatively higher financial development apparent in figure 1 of chapter 5 (Park & Shin, 2017).

### 5.2.1 Rising challenges for the East Asian Miracle economies

The finding of persistently linear positive effects on inequality contradicts the stereotypical World Bank's (1993) portrayal of a highly egalitarian economic rise. Furthermore, the narrative is reassured by Sugihara's (2003, p.110–111) or Li and Yu's (2014) impressions claiming a comprehensive and equitable dispersion of the aggregate human capital across societies. Visibly, the utilized inequality measures don't tangent the overall equality of the income distribution hence leaving the general account of Asian development unaffected. However, the findings talk to a recent genesis of oligarchic wealth structures increasingly threatening the core properties of the Asian growth model (World Bank, 2018). Most countries in the region witnessed rises in the top income shares. That is, the accumulated wealth of billionaires increased at 30 per cent annually for more than a decade between 2002 and 2014, making it the fastest pace in inequality rises globally (World Bank, 2018).

Arguably, this trend has also been mirrored by the consistently positive Asian-specific coefficients as reported in this paper. The World Bank (2018) noted that 25 per cent of wealth disparities are ascribable to differential rates of educational attainment, which altogether matches with the fundamental role of human capital in Galor and Zeira's (1993) framework.

Consulting more country-specific evidence, Bunkanwanicha and Wiwattanakantang (2009) find a statistically significant and robust positive association between the personal wealth of business owners' holding public concession contracts and their propensity to run for political offices. Moreover, they find vital signs of systematic arbitrage or rent-extracting behaviour after assuming offices. Companies generally accomplished higher market capitalisation rates after their owners took their respective positions in government (Bunkanwanicha & Wiwattanakantang, 2009).

Moreover, when investigating the post-crisis Korean economy, Crotty and Lee (2005) elaborate on the IMF's reform requirements and link the earlier discussed works by Suehiro (2019) and Yoon (2005) with long-run by-products of the paradigmatic shifts in Korean economic policy. The IMF imposed a stance of ““extreme structural conditionality”” (IMF, 2003, cited in Crotty & Lee, 2005, p.415) to break up and dismantle the inherited structure of state-guided company conglomerates, as well as the funding assistance, initially pointed out by Rodrik (1994). Crotty and Lee (2005) most noteworthy demonstrate how foreign ownership of banking institutes and companies increased. It was moreover paralleled by a shift of loan activities away from the

corporate to the private sector. In the years before the crisis, the volume of foreign short-term credit schemes roughly quintuples within three years until 1996, provoking an exceedingly indebted household sector and an increasing social stratification (Crotty & Lee, 2005). Hence, bustling financial market reforms, irrespective of the context-specificity of the Korean development experience, turned dysfunctional and amounted to a Korean liquidity crisis in 1997 that escalated into an overall regional crash (Crotty & Lee, 2005). By far, these phenomena are not restricted to the discussed cases but observable across the region. The World Bank (2018) assumes that 42 per cent of billionaire wealth in East Asian and Pacific countries has been generated by rent-seeking behaviour, which matches the arbitrary dynamics described by Bunkanwanicha and Wiwattanakantang (2009). Although almost an exceptional half of these entrepreneurs re-invest in the economies by engaging in the formation of enterprises, elite capture poses an increasingly urgent issue (World Bank, 2018). It might furthermore be part of the explanation for the long-run Latin American U-shaped relationship as well. The associations could arguably pinpoint the re-occurring financial market inefficiencies as contemplated earlier by Tan & Law (2012). But again, this interpretation requires more theoretical elaboration and empirical research, ideally with more differentiated or multidimensional data on financial development.

## 6 Conclusion

Taking everything into consideration, this inquiry unearthed some statistically significant and distinctively different characteristics regarding the financial development and inequality nexus at play in Asia relative to Latin America. Irrespective of the inequality measure or the estimation procedure, the overall country sample featured a U-shaped relationship already proposed by Tan and Law (2012). In contrast, the Asian country group exhibited a monotonically increasing slope indicating a positive association between both variables as earlier found by Jauch and Watzka (2016) or de Haan and Sturm (2017). The different dynamic panel data estimations moreover raise the reliability of the findings. They give a reason for some confidence, notwithstanding the inability to interpret the results as unequivocally causal.

Arising from that, the results strongly suggest a close relatability for both regions with earlier generalized works on the multidimensional expansion of the financial sector. The structural deviations among the continental areas are striking and vigorously feed into the research aims initially discussed in the introduction of this thesis. However, the individual dynamics identified for both regions are noticeably counterintuitive as they partly run against familiar narratives surrounding both regions. This disparity is also manifested in the rejection of some hypotheses developed in chapter 2. The surprisingly consistent positive relationship of financial development for Asia has already been discussed and adjusts the World Bank's (1993) notion of persistently equal Asian economies.

Moreover, the early linear poverty reductions for Latin America must be further noted since the region has been known for its comparatively high amount of inequality. Engerman and Sokoloff (1994, 2005) provided an early framework linking historically charged and slave-related inequality levels with eventually hampered development prospects for Latin America. Moreover, although the U-shaped relationship yields long-run inequality rises as expected for Latin America, its theoretical channels remain weak and underdeveloped. This empirical dissonance, also reported by Tan and Law (2012) or Brei, Ferri, and Gambacorta (2018), requires further theoretical region- or country-specific exploration. Tan and Law (2012) only deliver a very brief and vague theoretical explanation for their observations. Linear inequality

deteriorations, as reported for Asia, are explained through a biased sectoral alignment with social segments already better off (de Haan & Sturm, 2017; Jauch & Watzka, 2016). As witnessed in Latin America, short-run inequality improvements possibly materialize through greater accessibility to a household's credit, smoothing intertemporal budget decisions (Arestis & Caner, 2004; Brei, Ferri & Gambacorta, 2018). A retarded diffusion of finance tools across society in a similar inverted-U relationship by Kuznets (1955, 1973) is also straightforward since accessibility might lag, preventing lower class segments from reaping early financial market benefits stemming from, i.e., human capital investments (Galor & Zeira, 1993). Yet, Tan and Law (2012) only resort to a vaguely formulated increase in “financial market inefficiency” (p.562) when attempting to explain the reoccurrence of inequality setbacks following successful periods of financial integration. The dawn of a super-rich elite in Asia as a traditionally more egalitarian regional social order could preliminarily highlight a transmission mechanism despite requiring more theoretical consideration and an emancipation from its closely tied regional context.

Unfortunately, disentangling the individual impacts of the decomposed subindices or individual sub-measures remains challenging. Models that included the separate efforts failed to reach overall statistical significance rendering the close interpretation of appendix C difficult. This is a significant obstacle to move further with the analysis thoroughly. It also aggravates the process of understanding or contextualizing the findings as performed by Brei, Ferri, and Gambacorta (2018). Nevertheless, this lack of empirical precision doesn't prevent the well-informed and substantiated motivation of new questions and topics to be answered by future research.

Finally, this inquiry urged the need for a further improved theoretical clarification and empirical distinction of qualitative as well as quantitative financial development. As discussed, Abiad, Oomes, and Ueda (2008) firstly came up with a measure of qualitative financial development using allocative efficiency measures. This analytical method equating the decreased dispersion of expected returns with qualitative efficiency gains is a promising econometrical grip on the phenomenon (Abiad, Oomes & Ueda, 2008).

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# Appendix A

Table 7: Composition of the IMF's (2020) financial development index (Source: Author's work based on Svirydzenka, 2016, p.8)

<b>Category</b>	<b>Indicator</b>
<b>Financial Institutions</b>	
<b>Depth</b>	Private-sector credit to GDP
	Pension fund assets to GDP
	Mutual fund assets to GDP
	Insurance premiums, life, and non-life to GDP
<b>Access</b>	Bank branches per 100,000 adults
	ATMs per 100,000 adults
<b>Efficiency</b>	Net interest margin
	Lending-deposits spread
	Non-interest income to total income
	Overhead costs to total assets
	Return on equity
<b>Financial Markets</b>	
<b>Depth</b>	Stock market capitalization to GDP
	Stocks traded to GDP
	International debt securities of government to GDP
	Total debt securities of financial corporations to GDP
	Total debt securities of nonfinancial corporations to GDP
<b>Access</b>	Percent of market capitalization outside of top 10 largest companies
	Total number of issuers of debt (domestic and external, nonfinancial, and financial corporations)
<b>Efficiency</b>	Stock market turnover ratio (stocks traded to capitalization)

# Appendix B

*Table 8: Descriptive statistics for country sample from 1996 until 2018*

Variable	Obs	Mean	Std. Dev.	Min	Max
Top income percentile	276	.197	.059	.079	.328
Top income decile	276	.495	.073	.336	.639
Financial development index	276	.44	.171	.151	.853
Financial institutions subindex	276	.457	.168	.147	.82
Financial markets subindex	276	.405	.192	.04	.873
Expense (% of GDP)	191	18.46	4.557	10.363	36.923
Ln(GDP per capita (constant 2010 US\$))	272	8.806	.709	7.195	10.246
Inflation (annual %)	238	6.866	19.258	-1.401	254.949
Trade (% of GDP)	272	68.812	42.685	15.636	220.407

Data Sources: IMF (2020), World Bank (2020a, 2020b, 2020c, 2020e), and World Inequality Database (2020).

# Appendix C

Table 9: Static fixed effects model capturing effects of the financial institutions subindex on top income deciles

Variables	(1) Top 10% income share	(2) Top 10% income share	(3) Top 10% income share	(4) Top 10% income share
$FI_{i,t}$	-0.114* (0.0583)	-0.0947 (0.0859)	-0.233 (0.197)	-0.454*** (0.112)
$FI_{i,t}^2$			0.128 (0.201)	0.484*** (0.0844)
$FI_{i,t} \cdot Asia_i$		-0.0400 (0.106)		-0.00723 (0.341)
$FI_{i,t}^2 \cdot Asia_i$				-0.191 (0.301)
$GovExp_{i,t}$	0.00285* (0.00140)	0.00283* (0.00146)	0.00246 (0.00150)	0.00187 (0.00139)
$\ln(y_{i,t})$	0.0163 (0.0301)	0.0177 (0.0302)	0.0155 (0.0276)	0.0192 (0.0271)
$Infl_{i,t}$	-0.00138*** (0.000253)	-0.00138*** (0.000261)	-0.00159*** (0.000394)	-0.00188** (0.000606)
$Trade_{i,t}$	0.000595** (0.000190)	0.000577** (0.000212)	0.000624** (0.000216)	0.000594** (0.000193)
Observations	177	177	177	177
$R^2$	0.388	0.393	0.401	0.447
Number of country	9	9	9	9

Note: Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Data Sources: IMF (2020), World Bank (2020a, 2020b, 2020c, 2020e), and World Inequality Database (2020).



Table 10: Arellano-Bond (1991) dynamic panel-data estimation capturing effects of the financial institutions subindex on top income deciles

Variables	(1) Top 10% income share	(2) Top 10% income share	(3) Top 10% income share	(4) Top 10% income share
$IncShare_{i,t-1}$	0.645*** (0.0636)	0.630*** (0.0543)	0.583*** (0.0472)	0.588*** (0.0626)
$FI_{i,t-1}$	-0.0314** (0.0146)	-0.0694*** (0.0241)	-0.186*** (0.0594)	-0.297*** (0.112)
$FI_{i,t-1}^2$			0.148*** (0.0565)	0.290** (0.136)
$FI_{i,t-1} \cdot Asia_i$		0.0571*** (0.0221)		0.144 (0.145)
$FI_{i,t-1}^2 \cdot Asia_i$				-0.175 (0.159)
$GovExp_{i,t-1}$	0.00134** (0.000563)	0.00124** (0.000510)	0.000811* (0.000436)	0.000958* (0.000579)
$\ln(y_{i,t-1})$	-0.00784 (0.00930)	-0.00579 (0.00905)	-0.00446 (0.00931)	-0.00291 (0.00914)
$Infl_{i,t-1}$	-0.000524** (0.000209)	-0.000543*** (0.000201)	-0.000705*** (0.000199)	-0.000705*** (0.000260)
$Trade_{i,t-1}$	0.000130 (8.86e-05)	0.000176** (8.96e-05)	0.000207** (9.79e-05)	0.000217** (8.57e-05)
Observations	156	156	156	156
AR(2) test	0.2306	0.2289	0.2211	
Sargan test	0.4433	0.4948	0.4946	0.5612
Number of country	9	9	9	9

Note: Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Data Sources: IMF (2020), World Bank (2020a, 2020b, 2020c, 2020e), and World Inequality Database (2020).