

## The Failure of SVB and the Bank-Tech Nexus: What Does it Foreshadow for the ASEAN+3?<sup>1</sup>

March 21, 2023

### I. Introduction

1. **The failure of Silicon Valley Bank (SVB) and Signature Bank (SB) in the US highlights the increasingly fraught nexus between conventional and digital finance.** Prior to its collapse, SVB was the sixteenth largest commercial bank in the US, reportedly providing banking services to almost half of all US venture-backed technology and life science firms. On Thursday, March 9, 2023, SVB was subjected to a classic bank run when customers pulled their deposits after the lender announced that it had sold part of its securities portfolio at a loss to meet liquidity needs, and would need to raise USD 2.25 billion in new capital to plug the hole in its balance sheet. SVB's failure is the largest since Washington Mutual went under in 2008 during the global financial crisis (GFC). On Sunday, March 12, New York state regulators closed down Signature Bank (SB)—a major lender in the VA industry and a quarter of whose deposits reportedly came from the virtual asset (VA) sector ([Lang and Anand 2023](#))—citing a systemic risk exception.

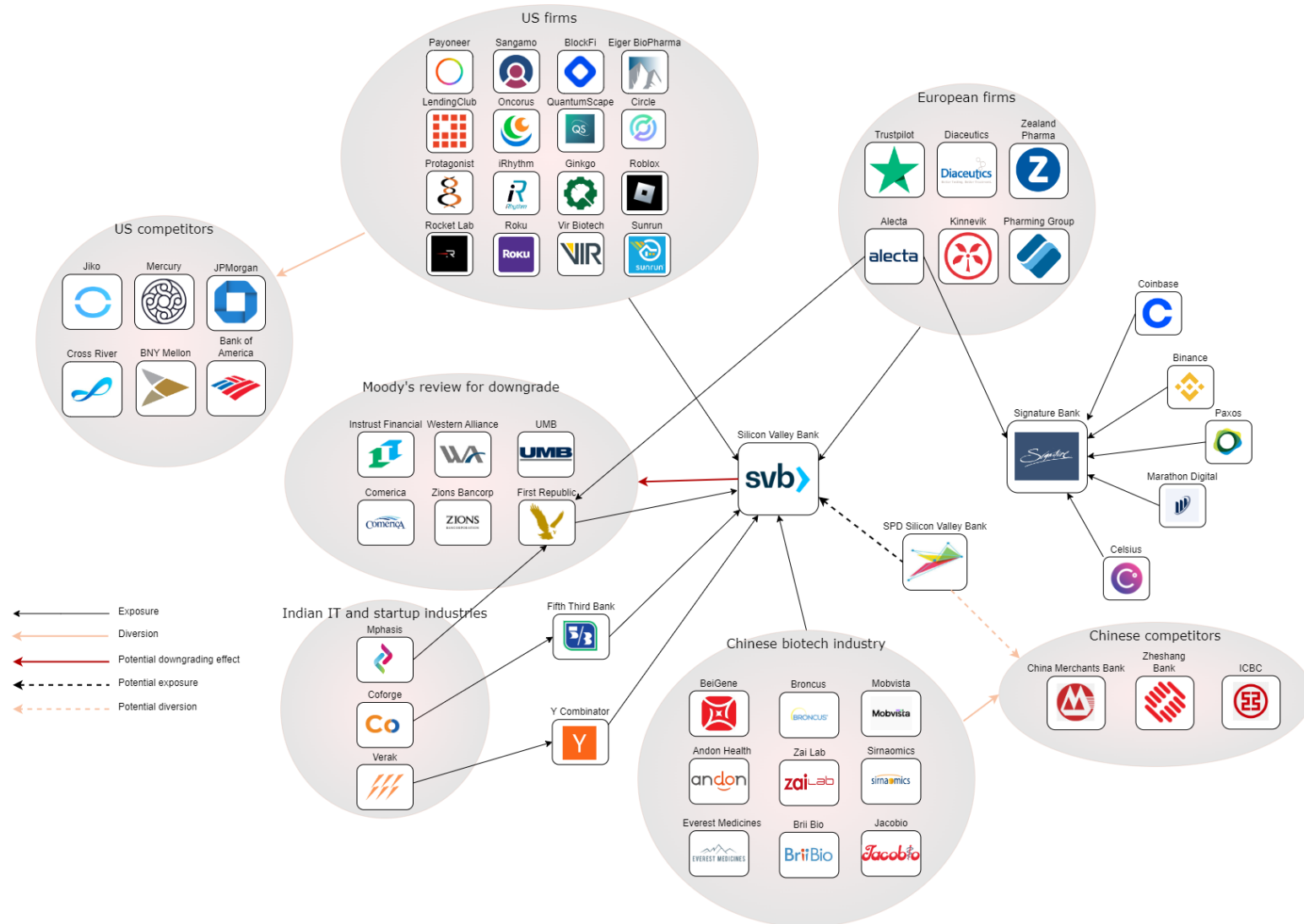
2. **With the rise in digital finance, further spurred by the COVID-19 pandemic, the concern has been that increasing bank involvement in VAs could magnify systemic risks to the financial sector.** The VA-related events in 2022 caused significant disruptions to financial markets but contagion from the crypto crises had not extended to the traditional banking sector. Correspondingly, spillovers from VA markets to traditional financial systems has also been limited, as the former has not yet become so large or interconnected with the latter that it has become systemic. However, there is little transparency on how deeply intertwined the digital and traditional finance sectors may have become (Figure 1), leading some policymakers to argue that like risks should be subject to like regulatory outcomes and like disclosure ([Brainard 2022](#)). For example, in addition to its US-based business, SVB had operations in eight other countries, including a joint-venture in China within the ASEAN+3 region, which also catered to tech firms.

3. **Ironically, the first major spillover event involving the digital and conventional finance sectors has actually occurred from the banking to the tech sector, contrary to existing fears.** The shuttering of SVB and SB, as a result of traditional poor balance sheet risk management, has roiled the tech sector. Tech firms also played a part in their own

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Figure 1. A Tangled Web: Sliver of Selected SVB and SB Interrelationships



Sources: Various media; and AMRO staff compilation and visualization.

difficulties following the two bank failures—especially that of SVB—in that many of them willingly assumed the concentration risks of putting many of their eggs in the one basket (Box 1). Even the more conservative among VA firms, Circle, which issues the second largest stablecoin, USDC, was caught out despite efforts to back its stablecoin with sufficient reserves and diversifying by placing 25 percent of those reserves in cash at six banks, and the balance in bespoke money market funds holding Treasuries ([Ledger Insights 2023](#)).

**4. Despite the US government stepping in to ensure that SVB and SB depositors are able to regain access to all their money, these closures could result in domino effects that could ultimately hurt the real economy.** Some analysts anticipate contagion among regional banks—with witch hunts for the next “victims”—and an increasing likelihood of a US recession resulting in rising risk aversion toward investment, hiring, and bank lending ([The Business Times 2023](#); [Barnert 2023](#)). Banks could increasingly differentiate across borrower profiles, intensifying liquidity stresses in parts of the corporate sector and weakening the investment and employment outlook ([Willis 2023](#)). Meanwhile, the integration of technology and tech firms in the fabric of day-to-day life, as well as the ripple effects from the banks’ failure to the rest of the ecosystem—the second- and third-order effects—could be more pernicious for economic activity ([Stokel-Walker 2023](#)).

#### **Box 1. Why was SVB So Attractive to Venture Capital-Backed Startups?**

The SVB positioned itself as the “financial partner of the innovation economy” and the “go-to bank for investors” for almost four decades and provided banking services to venture capitalists (VCs) and VC-backed tech startups (<https://www.svb.com/>). Both push and pull factors made SVB the preferred financial partner for tech startups:

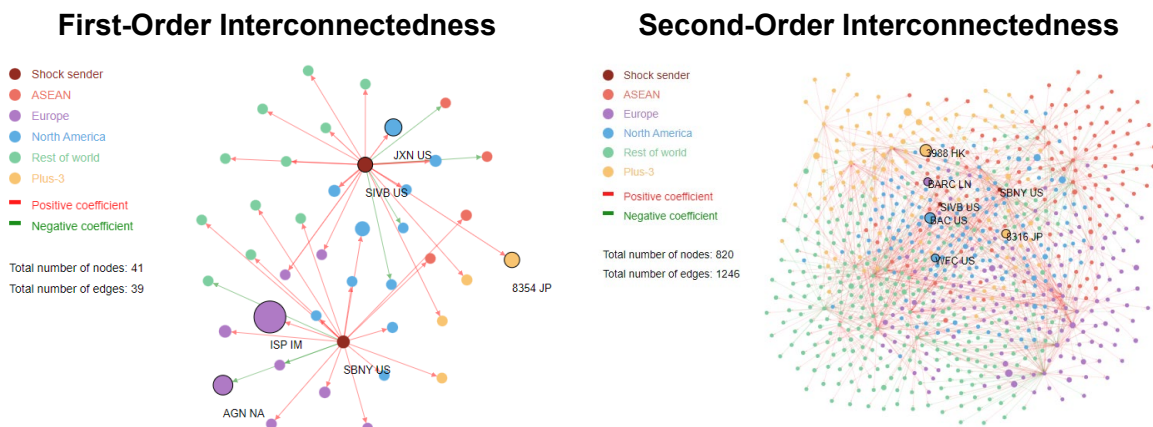
- The push factors from traditional banks included stringent onboarding requirements, which startups found difficult to satisfy because of their limited credit histories. Hence, SVB attracted not only US-based startups but also those that were based in foreign countries and were looking to either expand in the US or were targeting an IPO in New York ([DigFin 2023](#)). Traditional banks also did not focus on startups given that VC-funded startups would typically not have significant borrowing needs.
- The pull factor was the strong integration of SVB in the tech startup and VC ecosystem. It provided deposit and lending services to both the VCs and their portfolio companies, bridge financing to startups, personal banking services to entrepreneurs, financial advisory services, wealth management services and acted as a networker for its clients to build professional relationships (Tobin and Miller, 2023). Consequently, it served the unique needs of early-stage startups, which either found it difficult to borrow or bring in revenue for many years ([Hern 2023](#)). The personal banking services also provided significant synergies with SVB’s commercial banking operations. Its relationships with VCs and entrepreneurs helped SVB broker some of the biggest deals in the Silicon Valley ([Metinko 2023](#)).

The positioning of SVB as a tech-specialist was deliberate. It allowed the bank to be regulated as a regional bank ([Hern 2023](#)), and was spared from the stricter requirements faced by larger banks. However, SVB did expand its business overseas, making it easy for foreign startups to open bank accounts for dollar financing ([Coulter 2023](#)). It also provided foreign startups access to a network of US lawyers, investment bankers, and accountants to secure IPOs ([DigFin 2023](#)). SVB was reportedly the first choice for almost all Chinese companies that took US dollar fund investments and for most US dollar VC funds located in China. The demand of SVB’s services by Chinese startups led to the establishment of a Joint Venture between SVB and Shanghai Pudong Development Bank in 2012.

## II. Macro-Financial Implications for the ASEAN+3

5. **AMRO staff estimate that expected losses from any contagion to the Asian financial system from the SVB and SB events would be small.** Outputs generated from AMRO's Systemic Network of Worldwide Expected-losses of Institutions (SuNWEI) model suggest that any interconnectedness to the financial institutions in the ASEAN+3 region appear to be more peripheral (Figure 2), with **expected contagion losses** of up to around USD 570 million. However, information as to who the **direct creditors** of SVB and SB—with exposures of USD around 195 billion and USD 110 billion, respectively—may be, is opaque. These exposures could have caused even greater consternation if the US Treasury, the Federal Reserve ("Fed"), and the Federal Deposit Insurance Incorporation had not stepped in to state that all depositor funds would be covered, to instil confidence in the overall banking system.

**Figure 2. Financial Networks Surrounding SVB and SB, February 2023**



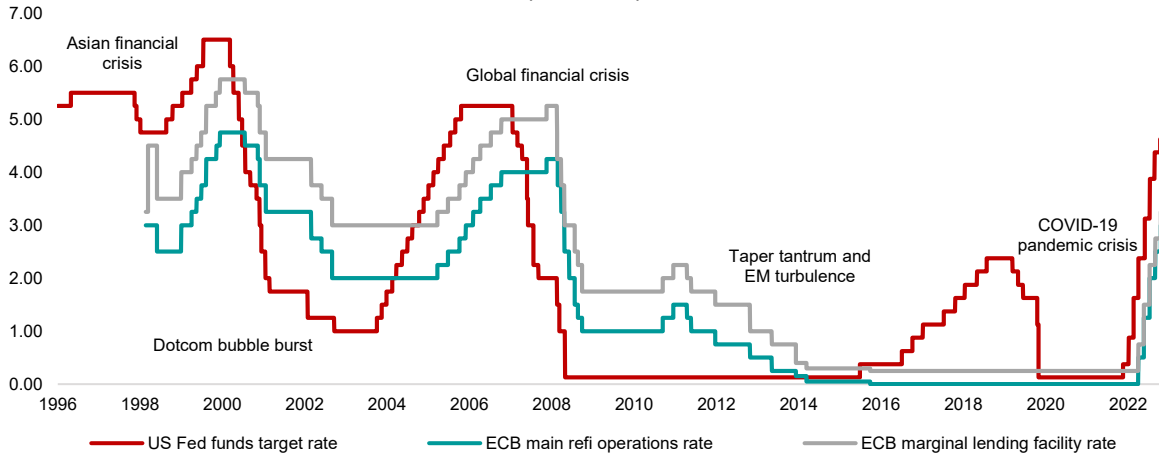
Sources: Credit Research Initiative of the National University of Singapore; SuNWEI (Sun 2020); and AMRO staff estimates.  
Note: In the networks, each node denotes a unique financial institution (FI). The size of the node represents the FI's total liability, and the color its country of domicile. Two nodes are connected by a directional arrow, whose thickness represents the extent to which the probability of default of the "risk sender" affects that of the "risk receiver."

6. **Nonetheless, the full impact of this event on the US real economy—and potential spillovers to the rest of the world—remains highly uncertain.** Concerns surrounding the financial soundness of Credit Suisse, a global systemically important bank, is evidence of the market's nervousness. While Credit Suisse's problems are well-documented and are not related to either the SVB or SB incidents, banks are now being put under a microscope. Indeed, some investors have raised the possibility of a "slow rolling crisis" in the US financial system, with more seizures and shutdowns expected following decades of easy monetary policy (Masters 2023). Conversely, a more optimistic scenario may be that the current squeeze on the tech sector is relatively short and sharp, similar to that of the dotcom bubble bursting in 2000.

7. **The AMRO Global Macro-Financial (dynamic stochastic general equilibrium) Model is used to estimate the potential range of impact on ASEAN+3 growth from two scenarios.** First, a dotcom bubble magnitude shock is applied to US tech industries, using the model described in Tang (2022); and second, a GFC magnitude shock is applied, on the assumption that the banking system is hit just as hard. Advanced economy interest rates were similarly high in the lead up to both those events, as they are now (Figure 3). The higher bound estimates for each scenario assume that the member economy can easily find domestic and foreign substitutes for intermediate products and services from the tech

industries in the US, while the lower bound estimates assume that neither domestic or foreign substitutes for intermediate products and services are readily available.

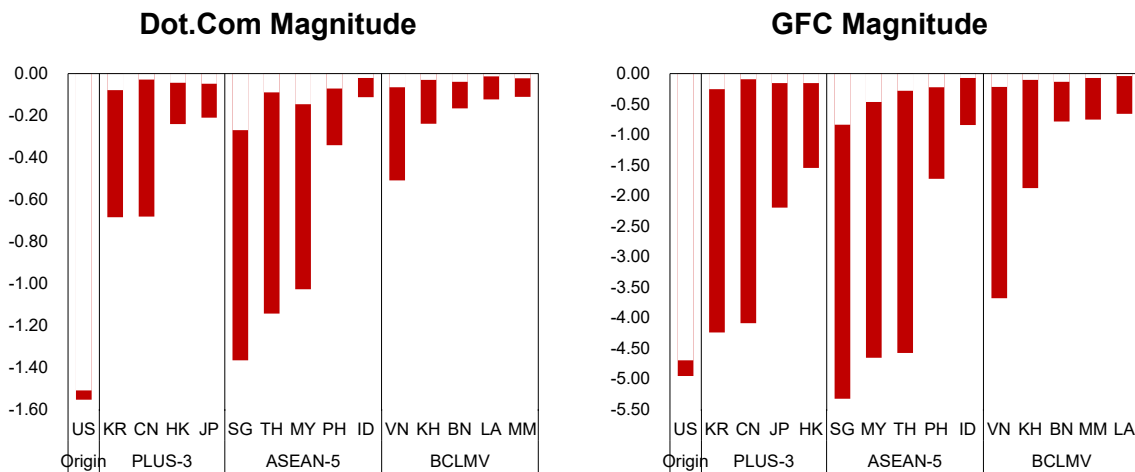
**Figure 3. US and Euro Area: Central Bank Rates and Financial Stress Events (Percent)**



Sources: ECB and Fed via Haver Analytics.

8. **Unsurprisingly, the economies in the ASEAN+3 region that would be hardest hit are the ones where the tech sectors play key roles in trade and services.** At the upper end of staff’s estimates, a dotcom-level shock to US tech industries could have spillover effects that result in regional economies losing between an estimated annual average 0.1 percent (Myanmar) up to 1.4 percent (Singapore) of real GDP over the next 4 quarters (Figure 4). Separately, a GFC-sized shock to US tech industries could see this region’s economies lose up to between an annual average 0.7 percent (Lao PDR) and 5.3 percent (Singapore) of real GDP, over the next 4 quarters.

**Figure 4. United States and ASEAN+3: Estimated Range of Losses in Real GDP from Shocks to US Tech Industries (Percent, annual average over the next 4 quarters)**

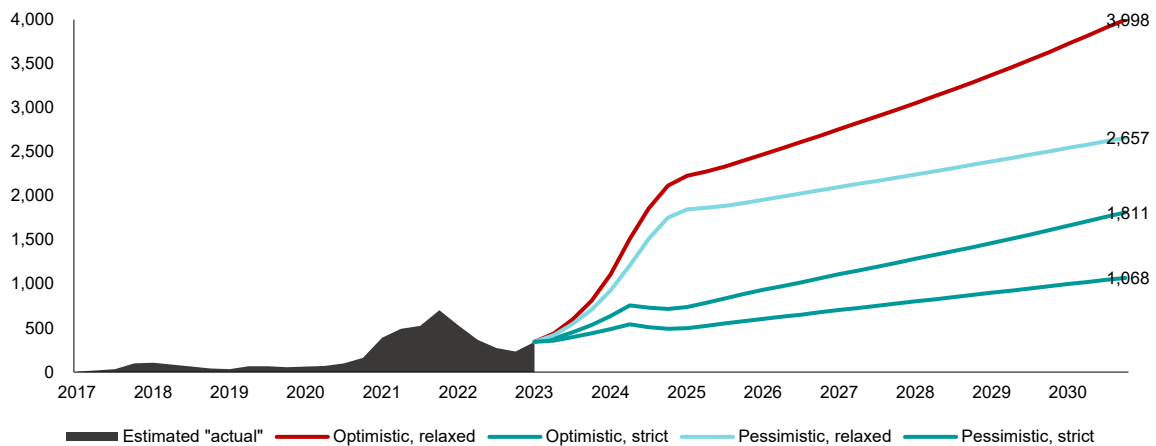


Sources: Fed; OECD; and AMRO staff estimates.

9. **The SVB case also foreshadows the feedback loops that could occur and be magnified between conventional and digital finance.** In a future where VA market capitalization continues to expand and banks become increasingly exposed—either directly

or indirectly—to this asset class, interactions between the two could become truly systemic. AMRO staff’s projections, using machine learning techniques, suggest that the estimated size of VA market capitalization in the ASEAN+3 region could potentially grow to between USD 1–4 trillion, by 2030 (Figure 5), depending on the economic trajectory and corresponding regulatory environment for VAs (Appendix I and AMRO forthcoming). Coupled with the continuing dominance of banks in financing economic activity in this region, any failure in one or the other sector could speedily and significantly impact the other.

**Figure 5. ASEAN+3: Possible Scenarios and Future Paths of Virtual Asset Market Capitalization**  
(Billions of US dollars)



Sources: BIS, IMF, and national authorities via Haver Analytics and CEIC; CoinGecko; and AMRO staff estimates.

### III. Lessons Learned

10. **Policymakers in the ASEAN+3 region can adopt several measures to mitigate against potential spillovers emanating from current developments in the US, as well as prevent similar occurrences domestically.** For now, authorities should take steps to deal with the manifestation of any immediate risks, and in the medium-term, put in place strategies to protect the domestic financial system against potential shocks from the interlinkages between conventional and digital finance:

- Monetary policy toolkits.** SVB was brought down by a liquidity crisis—simply put, it did not have sufficient cash inflows (funding liquidity risk) to sustain the cash outflows, and had to sell its assets at a mark-to-market loss on hold-to-maturity securities in an effort to cover withdrawals. In addition to the (traditional lender-of-last-resort facility) discount window, the Fed created the Bank Term Funding Program to support eligible depository institutions by enabling them to borrow against their high-quality security holdings at face value, for up to a year ([Fed 2023](#)). Here in the ASEAN+3 region, central banks had successfully deployed policy tools during the COVID-19 pandemic to ensure adequate liquidity and smooth credit access, including through the reduction of reserve requirements and purchase of government bonds ([Singh and Jena 2021](#)); they should stand ready to innovate and/or redeploy their toolkits again if necessary.
- Stress testing.** The Fed’s 2022 stress test scenarios for Dodd-Frank banks incorporated an interest rate scenario ([Fed 2022](#)), but it was highly inconsistent with the inflation outlook at the time, and clearly missed the tech-liquidity link to which



banks like SVB were exposed. In the ASEAN+3 region, supervisors should ensure that both solvency and liquidity stress tests are routinely undertaken by financial institutions. Given that the vulnerabilities of banks with different business models may vary significantly, stress scenarios and shock parameters should be designed to be forward-looking and adequately capture the risk profiles of those balance sheets.

- Systemic importance.** SVB’s collapse has been blamed on the watering down of US regulatory and supervisory policy.<sup>2</sup> Although no longer classified as “too big to fail,” SVB was still “too connected to fail” (Blinder 2023)—particularly for the all-important US tech sector—and hence systemically important.<sup>3</sup> ASEAN+3 financial supervisors need to be able to constantly identify systemically important financial institutions as the macro-financial environment evolves. In this regard, it would be useful to require banks to disclose the extent of their financial linkages with other institutions and firms. Such institution-level data could help regulators track the possible reverberation of any credit event or liquidity squeeze throughout a network of linkages, and identify potential systemic risks and take appropriate measures before a crisis occurs ([Solé and others 2009](#)). Regulators could also consider implementing stricter capital and liquidity requirements for banks that are found to be highly interconnected.
- Funding ecosystem.** SVB became a prominent bank for technology and life science start-ups—firms that were innovative and fast-growing—because these firms were considered “unbankable” by many incumbent, more conventional banks. And it is typically challenging for such firms to subsequently diversify their banking partners once they have established working relationships ([Macknight 2023](#)). Going forward, ASEAN+3 policymakers should provide incentives for developing diversified and robust financial ecosystems for start-up firms that are operating in growth areas, as well as provide them with targeted financial education. It would enable such firms to reduce their reliance on any one institution, thereby enhancing their financial resilience as well as that of the financial system as a whole.
- Regional Financing Arrangement.** Historically, experience has shown that the ASEAN+3 region tends to be vulnerable to volatile capital flows during global stress events. The rapid adoption of financial technology and financial digitalization, and the speed and potential size at which spillovers and contagion can occur, have drastically changed the international financial landscape and increased risks to the region. Hence, it is crucial that the regional financial safety net for the ASEAN+3 be further strengthened to meet these new challenges and safeguard financial stability.

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<sup>2</sup> The introduction of the Economic Growth, Regulatory Relief and Consumer Protection Act in May 2018 reclassified mid-sized banks with assets between USD 5—250 billion as systemically unimportant, and therefore exempt from the scrutiny required under the July 2010 Dodd-Frank Wall Street Reform and Consumer Protection Act.

<sup>3</sup> According to [IMF/BIS/FSB \(2009\)](#), three key criteria in identifying the systemic importance of institutions are: size (the volume of financial services provided by the individual component of the financial system), substitutability (the extent to which other components of the system can provide the same services in the event of a failure) and interconnectedness (linkages with other components of the system).

## Appendix I. Estimating Capitalization Growth in Virtual Assets (VAs) in the ASEAN+3

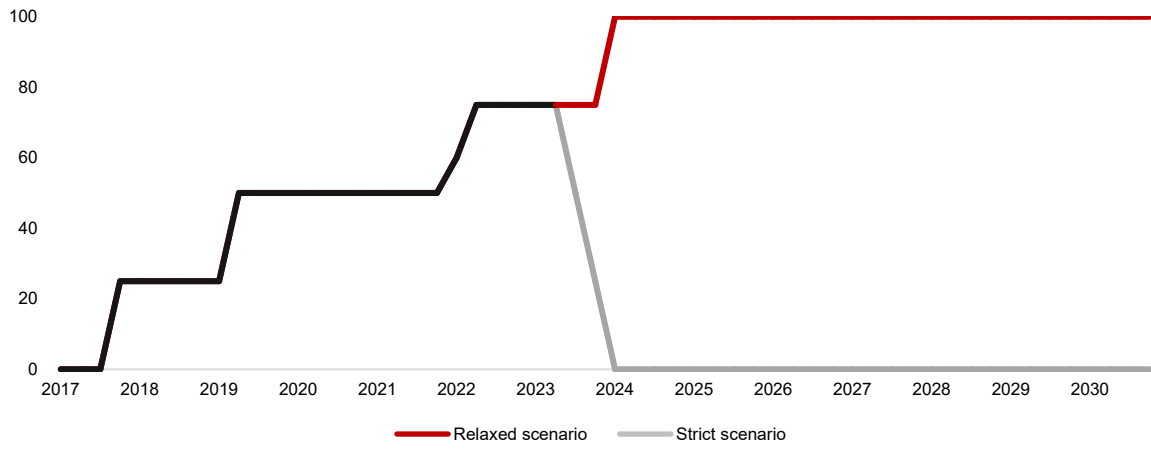
A specialized machine-learning technique is applied to time series forecasting of VA market capitalization in ASEAN+3 region, out to 2030. Specifically, the Nonlinear Autoregressive Neural Network with Exogenous Inputs technique (Leontaritis and Billings 1985a, 1985b) enables an examination of the impact of various influencing factors on the future paths of VA volumes. Combinations of different future paths taken by the four main indicators used in our modeling result in four separate scenarios, to reflect the range of possible economic scenarios:

- The optimistic scenarios directly adopt the growth rates in IMF forecasts for the first two indicators: (1) nominal GDP; and (2) purchasing power parity GDP for ASEAN+3 economies, while the pessimistic scenarios assume only half those growth rates for each indicator.
- The third indicator, M2 money supply in US dollars, is assumed to grow at the same rate as nominal GDP.
- The fourth indicator is estimated to represent the stringency of the regulatory environment for VAs in the ASEAN+3 region. Specific values are assigned to this indicator, through AMRO staff's assessment of VA legality. An index is estimated, ranging from zero (very loose regulations or "relaxed" scenario") to 100 (very restrictive regulations or "strict" scenario) (Appendix Figure 1):
  - The regulatory environment, both globally and for the ASEAN+3 region, is assigned a score of 25 in Q4 2017, following the bans on virtual asset service providers (VASPs) in the major economies:
  - In the wake of further regulatory developments vis-à-vis VAs in major economies, such as preventing Initial Coin Offerings, regulating VASPs, and strengthening AML/CFT measures, the score is raised to 50 in Q2 2019 and 75 points in Q2 2022.
  - In the two extreme scenarios, governments are assumed to adopt very loose regulations from Q1 2024 onward, with the score returning to zero ("relaxed" scenario), or all major economies clamp down on VA transactions and the score goes up to 100 ("strict" scenario).

Another data series necessary for the projection of future VA market capitalization in the ASEAN+3 is the corresponding historical VA information. Global VA market capitalization reported by CoinGecko is used as the basis for this estimation by assuming similar proportionality with that of the region's share of aggregate global equity and bond market capitalization.



**Appendix Figure 1. Index on Strictness of VA Regulation**



Source: AMRO staff estimates.

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