

Online Appendix

Online Appendix for
*Decoding the Evolution of Fintech Governance: Evidence from South Korean
Policy Documents*

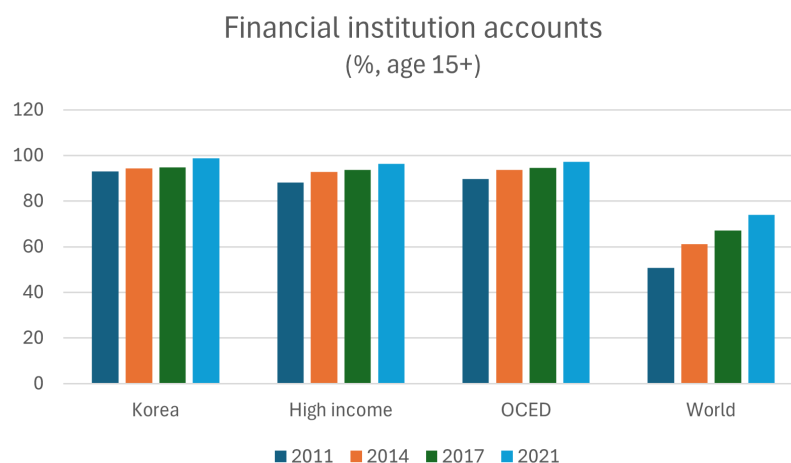
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This appendix reports additional empirical results and methodological details that supplement the analysis in the main manuscript.

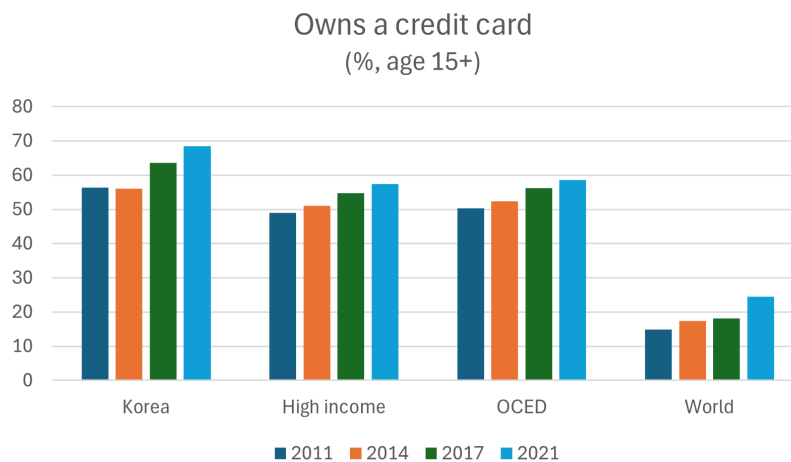
Appendix

FIGURE A.1 Access to financial services: account ownership



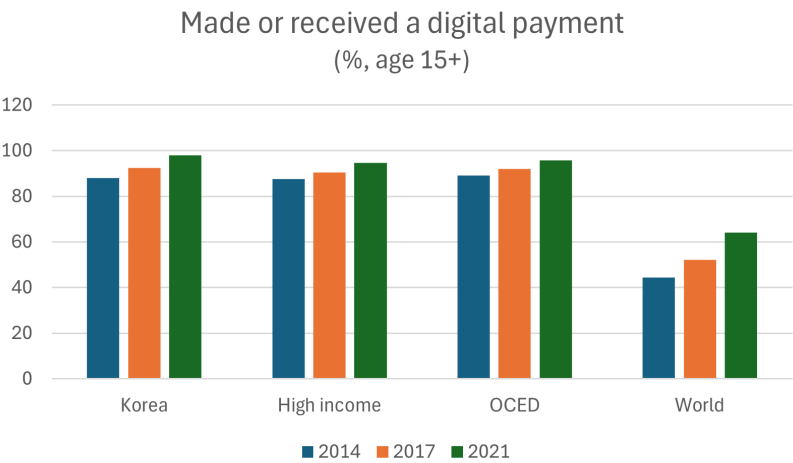
Sources: World Bank, Findex database.

FIGURE A.2 Access to financial services: credit card adoption rate



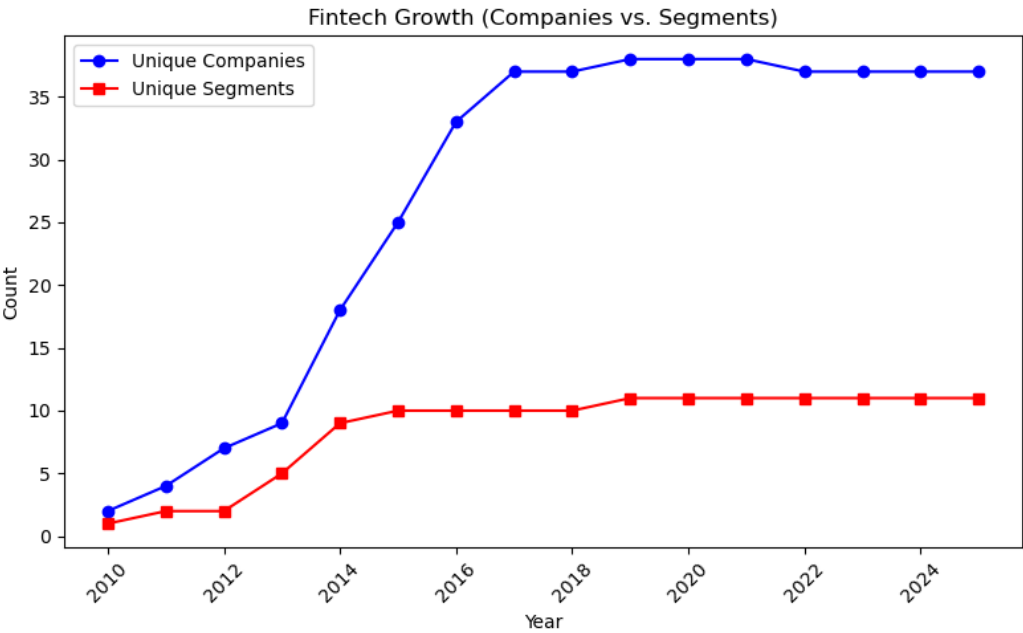
Sources: World Bank, Findex database.

FIGURE A.3 Access to fintech: digital payments adoption rate



Sources: World Bank, Findex database.

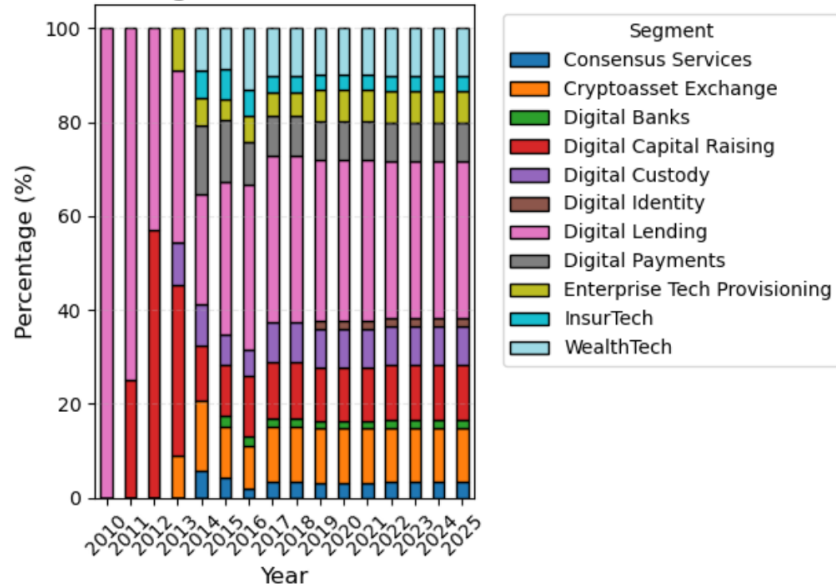
FIGURE A.4 Fintech market growth



Sources: Cambridge Center for Alternative Finance.

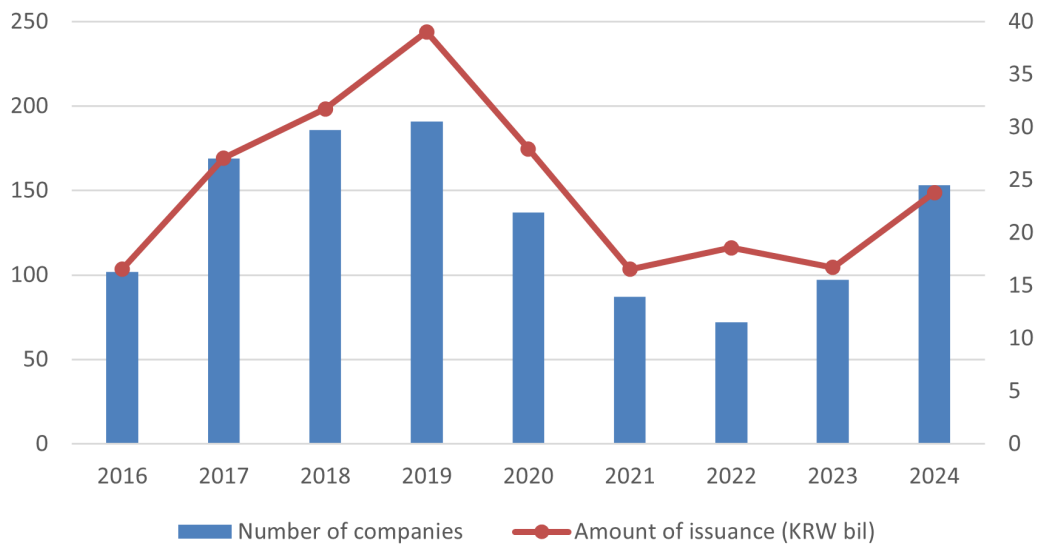
FIGURE A.5 Fintech market growth by segments

Proportion of Market Segments in Korean Fintech (2010-2025)



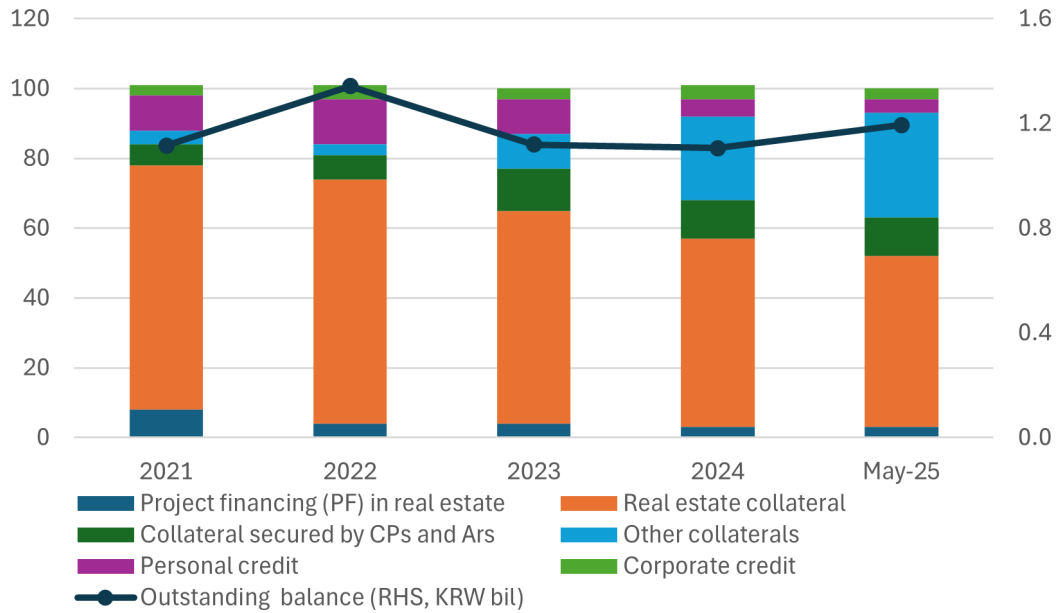
Sources: Cambridge Center for Alternative Finance.

FIGURE A.6 Crowdfunding issuance



Sources: Korea Securities Depository (KSD), https://www.crowdnet.or.kr/statistics/issued_outline.jsp

FIGURE A.7 P2P lending: outstanding loan balance by product type



Notes: Other collateral include ex-post collateral of securities and deposits in a brokerage account

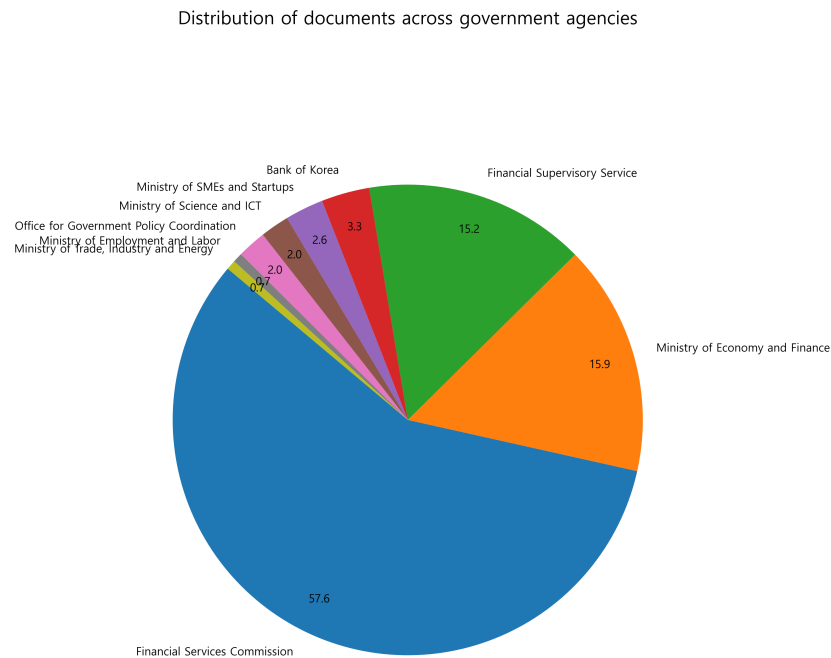
Source: KFTC (Korea Financial Telecommunications & Clearings Institute), <https://www.p2pcenter.or.kr/>

TABLE A.1 Search keywords

English	Korean	No. of added documents
Cryptocurrency	가상통화	1
Crypto asset	가상자산	6
MyData	마이데이터	3
Digital bank	인터넷전문은행	6
P2P lending	온라인투자연계금융업	1
Crowdfunding	크라우드펀딩	4

Notes: Search keywords associated with specific fintech areas, including cryptocurrency, crypto assets, MyData, digital banks, P2P lending, and crowdfunding.

FIGURE A.8 Share of policy documents produced by government agencies



Note: Single-agency issuances account for 81.4% of the total.

FIGURE A.9 Co-authorship network

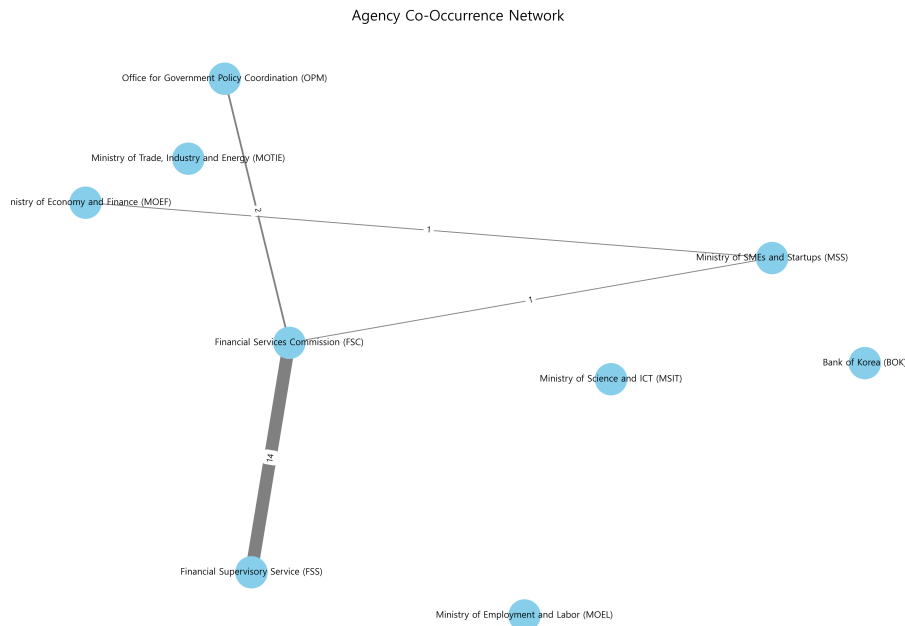


FIGURE A.10 CV coherence score and Silhouette score: NMF

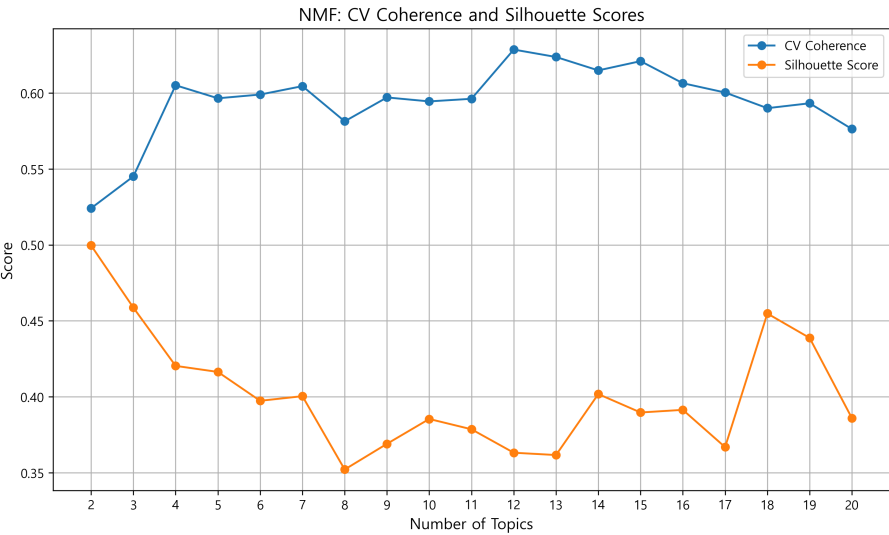


FIGURE A.11 Topic diversity and topic exclusivity: NMF

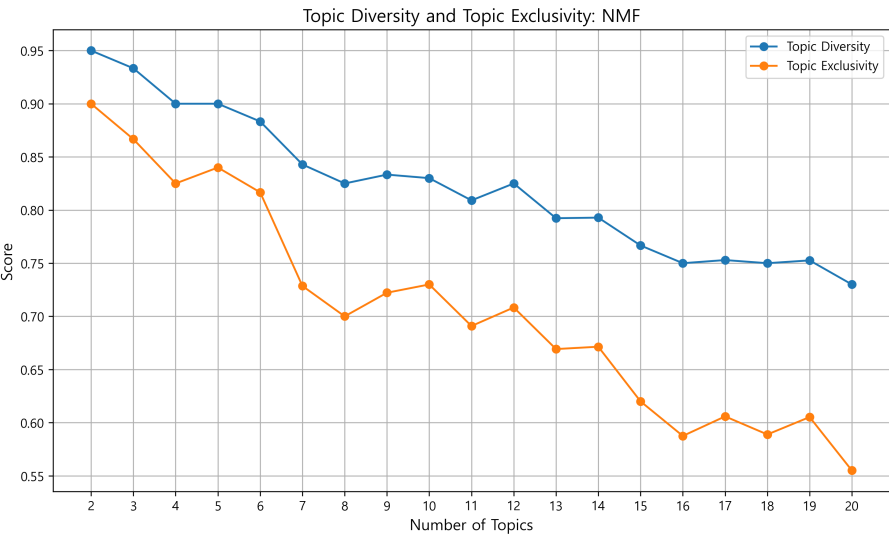


FIGURE A.12 CV coherence score and Silhouette score: LDA

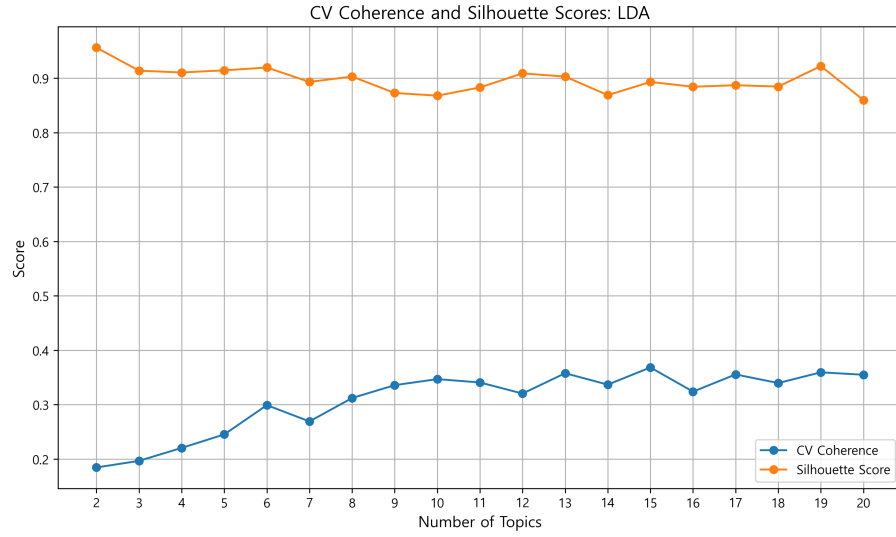


FIGURE A.13 Topic diversity and topic exclusivity: LDA

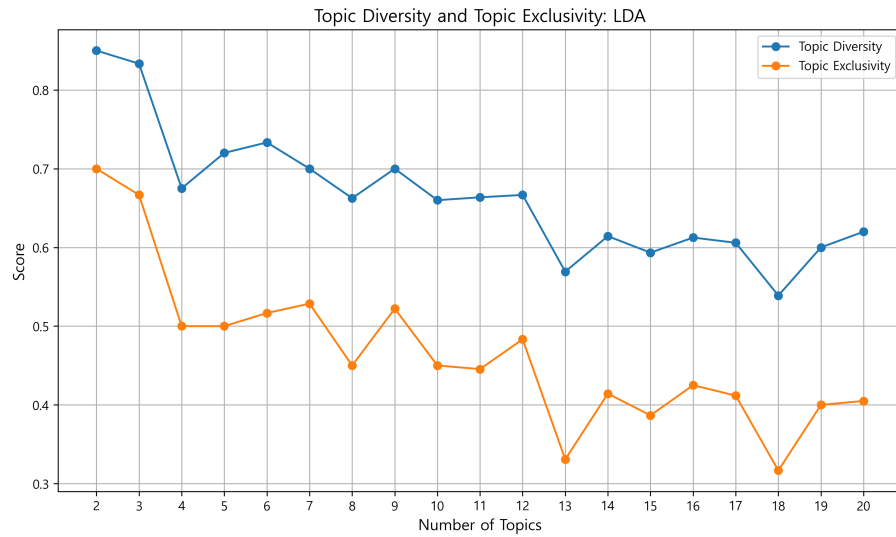
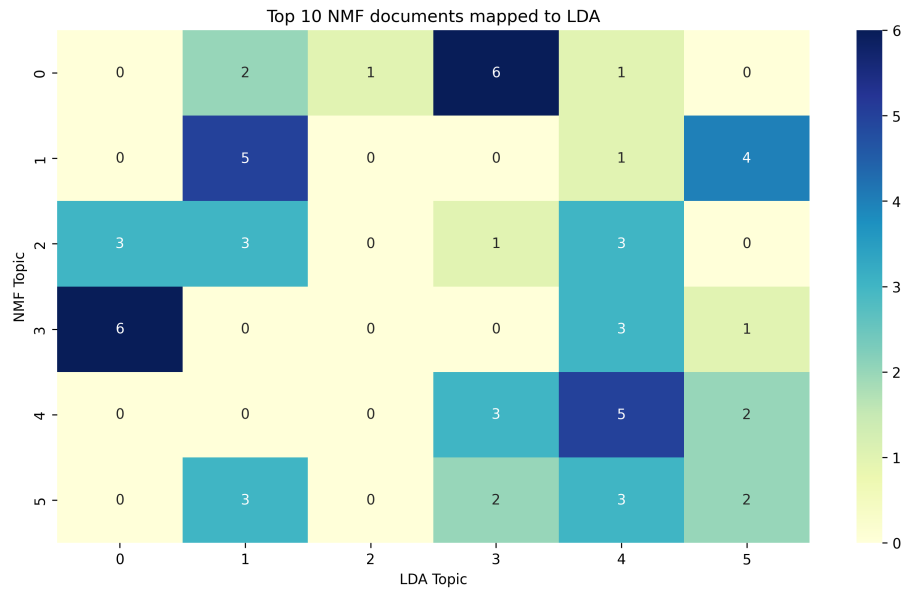
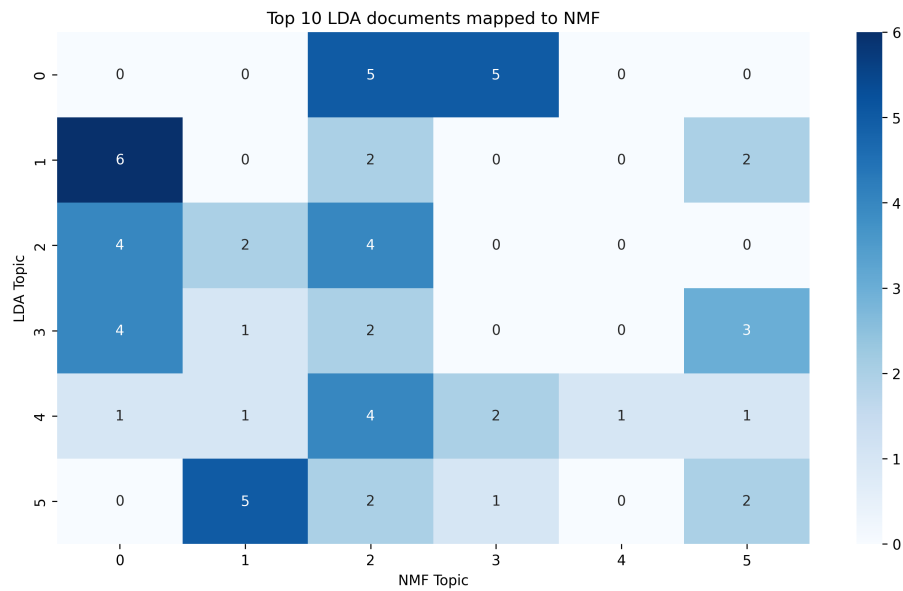


FIGURE A.14 Top 10 NMF documents mapped to LDA topics



Notes: NMF topics are: LDA topics are: Topic 0 (Preventing financial fraud), Topic 1 (Investing in fintech innovation), Topic 2 (Promoting digital finance, data governance, and financial literacy), Topic 3 (Supporting innovation-led entrepreneurship through fintech), Topic 4 (Enhancing transparency and consumer protection), Topic 5 (Advancing IT governance and consumer protection).

FIGURE A.15 Top 10 LDA documents mapped to NMF topics



Notes: NMF topics are: LDA topics are: Topic 0 (Preventing financial fraud), Topic 1 (Investing in fintech innovation), Topic 2 (Promoting digital finance, data governance, and financial literacy), Topic 3 (Supporting innovation-led entrepreneurship through fintech), Topic 4 (Enhancing transparency and consumer protection), Topic 5 (Advancing IT governance and consumer protection).

Appendix A. Key Amendments to Fintech-Related Legislation in South Korea

These laws collectively reflect South Korea's evolving approach to regulate and promote fintech innovation while safeguarding consumers, ensuring data privacy, and maintaining financial stability. Key changes include: (a) adoption of regulatory sandboxes enabling fintech market entry (b) expansion and clarification of data privacy and credit information rights (c) enhanced governance and risk management for financial institutions (d) introduction of virtual asset regulations addressing emerging digital finance risks (e) facilitation of digital banking and online investment services with protections (f) strengthened anti-money laundering and financial crime controls in digital finance contexts.

A.1. Electronic Financial Transactions Act (전자금융거래법, 2007–2024)

- (a) Introduction of Electronic Financial Transactions Framework and Security Measures: Established comprehensive rules for electronic financial transactions including rights and obligations of parties. Imposed obligations on financial institutions and fintech firms for information security and safe transaction processing. Introduced regulations against misuse of access devices such as borrowed-name accounts and strengthened penalties. Mandated designation of information security officers in large financial firms and restrict dual roles for independent security.
- (b) Establishment and Enhancement of Electronic Signature Systems: Repealed monopoly of public certification, allowing diverse electronic signature methods. Introduced evaluation and accreditation system for electronic signature service providers to bolster trust and competitiveness.
- (c) Introduction of Prepaid Charge Management and Small Postpaid Payment Services: Required prepaid charges to be managed securely via trust or deposit. Introduced small postpaid payment services where prepaid service providers compensate merchants on credit if prepaid funds are insufficient.

- (d) Strengthening of Financial Consumer Protections and Anti-Fraud Measures: Required electronic financial firms to monitor and report abnormal transactions. Imposed bans on misleading advertisements and unauthorized sharing or sale of access devices. Enhanced legal grounds for user identity verification on device recovery.

A.2. Credit Information Use and Protection Act (신용정보법, 1995–2024)

- (a) Expansion and Modernization of Credit Information Concepts and Services: Defined credit information comprehensively, including big data and pseudonymized data use. Introduced new business types such as personal credit information management and specialized credit evaluation. Allowed data combination via designated data agencies without subject consent under certain conditions.
- (b) Strengthening Privacy and Consumer Rights: Enhanced rights for individuals to control their credit information and contest automated decisions. Set limits on credit data retention and mandated notification of credit inquiries. Established internal controls, responsibility for credit information management, and penalties for violations.
- (c) Regulatory Improvements for Credit Information Companies: Imposed capital requirements based on business nature. Strengthened governance and supervisory mechanisms for credit information companies and their executives. Allowed limited business combinations and clarified permissible dual business operations.

A.3. Personal Information Protection Act (개인정보보호법, 2011–2025)

- (a) Establishment of Comprehensive Personal Data Protection Framework: Defined protection scope to include both electronic and manual data. Established the Personal Information Protection Commission with strengthened control and oversight. Introduced impact assessment and data breach notification obligations. Expanded rights for data subjects including data transfer requests and contesting automated decisions.

- (b) Adaptations to Technological Advances: Introduced operational standards for mobile video processing devices like drones and autonomous vehicles. Expanded permissible data processing for scientific research and public interest. - Strengthened penalties for personal data misuse and unauthorized disclosure.
- (c) Strengthening International Data Transfer Regulations: Expanded conditions under which personal data may be transferred abroad aligning with international standards. Empowered regulators to order suspension of unlawful overseas data transfers.

A.4. Special Act on Support for Financial Innovation (금융혁신지원에 관한 특별법, 2018–2024)

- (a) Introduction of Regulatory Sandbox for Fintech Innovation: Defined innovative financial services and established designation and management procedures. Allowed fintech firms to test innovative services exempt from certain financial regulations. Established advisory committees for policy and institutional support. Provided mechanisms for regulatory relief extension if innovation proves safe.
- (b) Support for Personal Financial Debt Management: Regulated the management, notice, and adjustment of personal financial debt. Imposed obligations and penalties related to debt collection and mediation.

A.5. Act on Reporting and Using Specified Financial Transaction Information (특정금융거래정보법, 2001–2024)

- (a) Strengthening Anti-Money Laundering and Terrorism Financing Measures: Established Financial Intelligence Unit and mandatory suspicious transaction reporting. Expanded scope to include casinos and public threat financing. Enhanced data sharing with investigative agencies and foreign counterparts. Set rules for client identification and real ownership verification. Introduced provisions for data retention periods and data privacy protections. Strengthened penalties and compliance obligations.

- (b) Adaptation to Virtual Asset Risks: Regulated virtual asset service providers 「including registration, asset protection, and transaction monitoring. Defined unfair trading practices and penalties including fines and imprisonment Established oversight powers for financial authorities and data submission obligations to the central bank.

A.6. Banking Act (은행법, 1950–2023)

- (a) Enhancements to Bank Governance and Consumer Protection: Strengthened roles and composition of board of directors focusing on external directors. Introduced internal control and compliance obligations related to conflicts of interest. Enhanced transparency with mandatory disclosure obligations. Prohibited unfair sales practices such as forced deposits. Mandated clear interest rate advertising and customer information.
- (b) Capital and Credit Regulation Adaptation: Introduced rules on bank capital, including issuance of contingent convertible bonds. Regulated credit exposure limits to single borrowers and major shareholders. Established early corrective measures for underperforming banks. Allowed for diversified investment and business combinations with safeguards.
- (c) Facilitation of Fintech and Digital Banking: Introduced provisions for internet-only banks including capital requirements and ownership restrictions. Allowed limited credit provisions related to liquidity management. Provided frameworks for fintech companies to operate under regulatory sandboxes. Implemented electronic registration and governance standards.

A.7. Act on Registration of Credit Business and Protection of Financial Users (대부업법, 2000–2024)

- (a) Regulation of Credit Business and Debt Collection: Set licensing and operational requirements for credit businesses. Strengthened consumer protection through limits on debt collection practices. Established oversight and penalties for illegal debt collection. Harmonized regulations with credit information protection laws.

A.8. Insurance Business Act and Related Laws (보험업법, 1962–2025)

- (a) Modernization and Consumer Protection in Insurance: Introduced rules on insurance fraud prevention and penalties. Strengthened governance including board composition and actuarial independence. Enhanced consumer access to comparative insurance information. Allowed new insurance business models such as small amount short-term specialized insurance. Enabled cross-ownership and business combinations with regulatory oversight.
- (b) Support for Fintech in Insurance: Allowed data sharing for risk pricing, including traffic violation and license information. Promoted digital and mobile insurance services with consumer safeguards. Enhanced data security and privacy provisions.

A.9. Act on Special Cases Concerning Establishment and Operation of Internet-Only Banks (인터넷전문은행 설립 및 운영에 관한 특별법, 2019–2023)

- (a) Framework for Internet-Only Banks: Defined internet-only banks as those operating primarily via electronic financial transactions. Set capital requirements and ownership limits for internet-only banks. Allowed certain credit activities related to liquidity management. Imposed prohibitions on credit provision to major shareholders. Restricted certain voting powers to prevent undue influence. Provided for exceptions to enable operational flexibility for consumer protection.

A.10. Act on Online Investment-Linked Financial Business and Protection of Users (온라인 투자연계금융업 및 이용자 보호에 관한 법률, 2020–2023)

- (a) Regulation of Online Investment Financial Services: Established registration and supervision rules for online investment-linked finance operators. Imposed disclosure requirements on business operations and financial status. Set limits on fees, interest rates, and prohibited misleading advertisements. Linked Mandated transparent investor information provision and risk disclosure. Required segregation and secure management of investor funds. Estab-

lished rules for bankruptcy and insolvency protection of investor assets. Set penalties for non-compliance and user protection measures.

A.11. Act on the Protection of Virtual Asset Users (가상자산 이용자 보호 등에 관한 법률, 2024)

- (a) Comprehensive Regulation of Virtual Asset Market and Users: Defined virtual assets and excluded central bank digital currencies. Extended law's reach to foreign acts affecting domestic market. Established advisory and supervisory committees under financial authorities. Prescribed asset protection measures, including escrow and insurance. Defined and penalized unfair trading practices, such as insider trading and price manipulation. Prohibited arbitrary blocking of user deposits or withdrawals. Required continuous monitoring of abnormal transactions by virtual asset providers. Empowered financial authorities for inspection and punitive measures. Allowed data submissions to central bank for financial stability. Imposed fines and imprisonment coupled with disqualifications for violations. Set administrative penalties for non-compliance.